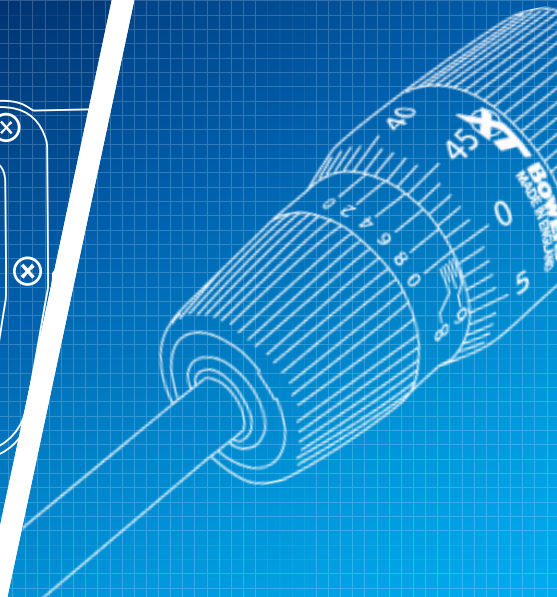
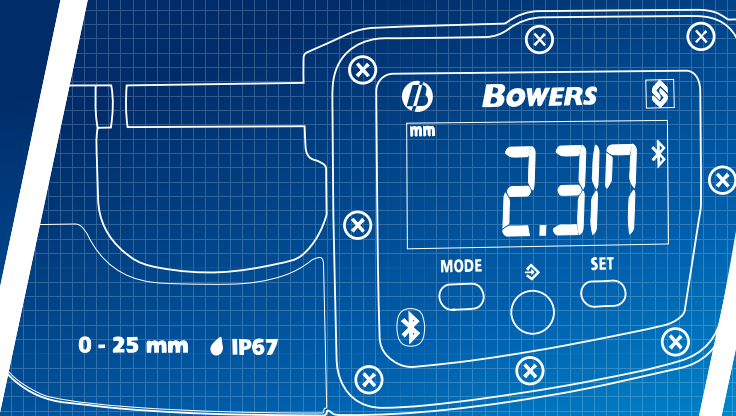




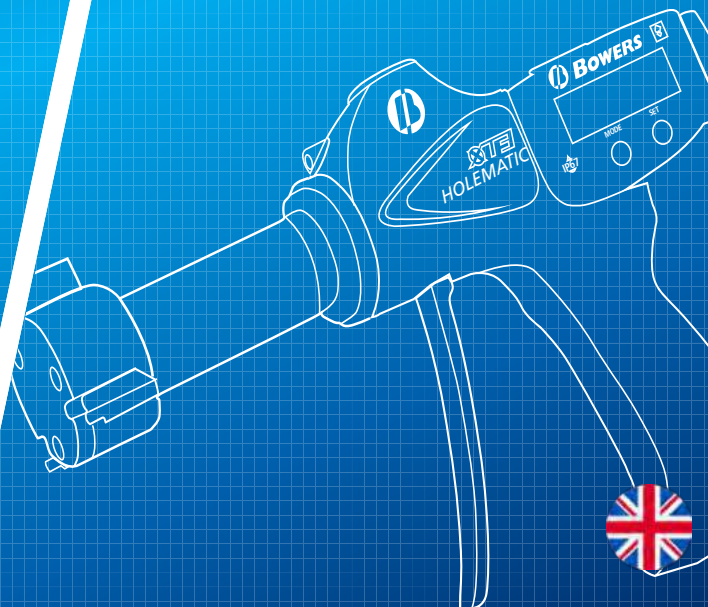
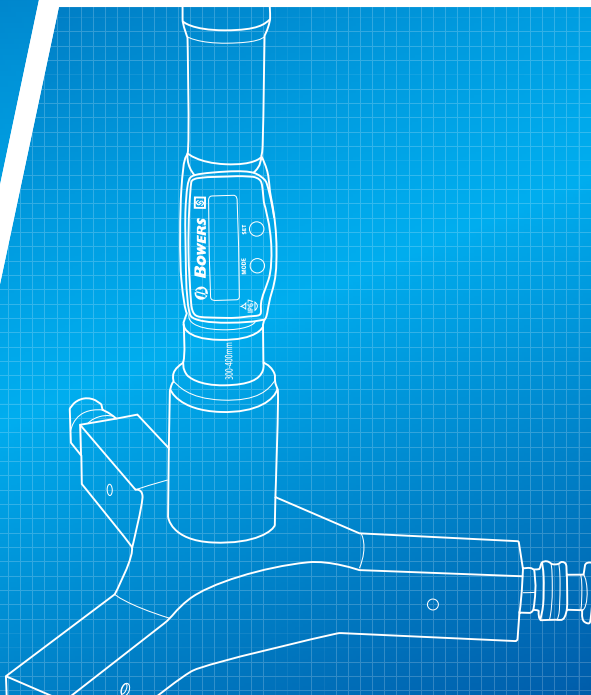
BOWERS GROUP

PARTNERS IN PRECISION



METROLOGY ESSENTIALS

PRODUCT CATALOGUE





Connected Metrology Solutions

Boost manufacturing productivity with effective data transfer

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DigiMic Digital External Micrometer

At a Glance



Accuracy - Max permissible error = 2 μ m, max error range = 2 μ m



Non Bluetooth is available upon request



Features

- Compatible with Sylcom software and free mobile app
- IP67 protection rating
- Resolution 0.001mm
- Large LCD display
- mm / inch conversion
- Solid Carbide contact faces
- Rotary Encoder & Spindle
- Spindle \varnothing 6.5 mm
- CR2032 lithium battery
- UKAS to BS 870 certification
- Exceeds DIN863/1 & ISO3611

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 μ m max permissible error and 2 μ m 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



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DigiMic Digital External Micrometer

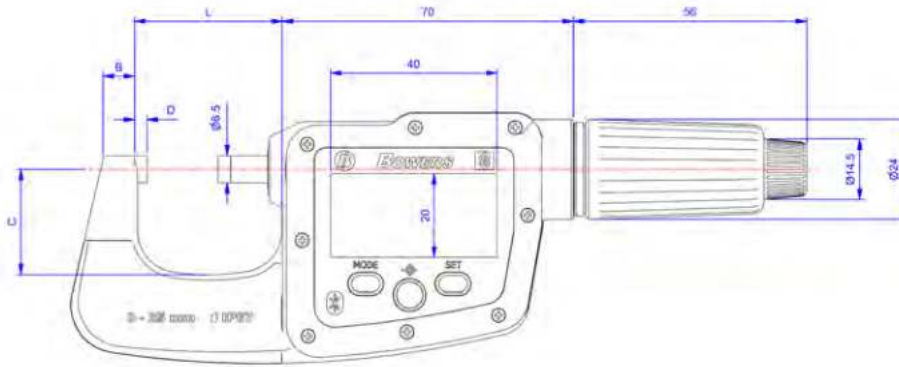
Interconnected

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				

Watch our video!

Scan the QR code to learn more about the features and capabilities of the DigiMic:



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")
- 7 • 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 a 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

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BOWERS GROUP

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

Analogue Bore Gauges

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

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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



Analogue Bore Gauges

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	12.50	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

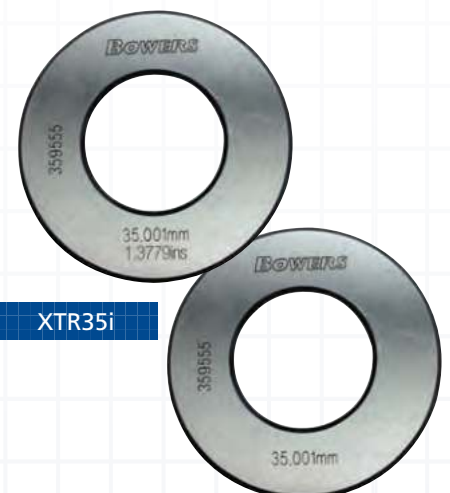
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EGX0200

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")



Non Bluetooth is available upon request



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")
- 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



Resolution
0.001mm
(0.00005")

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BOWERS GROUP

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

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SXTD5M-BT



SXTD5U-BT



Digital Bore Gauges

Sets: Supplied with one digital display unit, heads, rings and UKAS						Depth Stop		
Code No (with BT)	Range (mm)	Measuring Heads	Setting Rings	Code No (with BT)	Range (inch)	Code No	Range (mm)	Range (inch)
SXTD1M-BT	2-6	5	3	SXTD1i-BT	0.080-0.250	DSTOP01	2-6	0.080-0.25
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			



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

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

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")



Non Bluetooth is available upon request



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



BOWERS GROUP

Digital Pistol Grip Bore Gauge

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

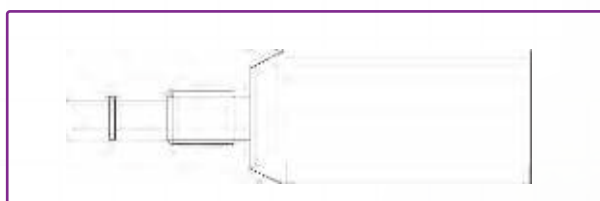
Sets: Supplied with digital pistol grip, heads, rings and UKAS

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

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



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

Digital Pistol Grip Bore Gauge

Extensions

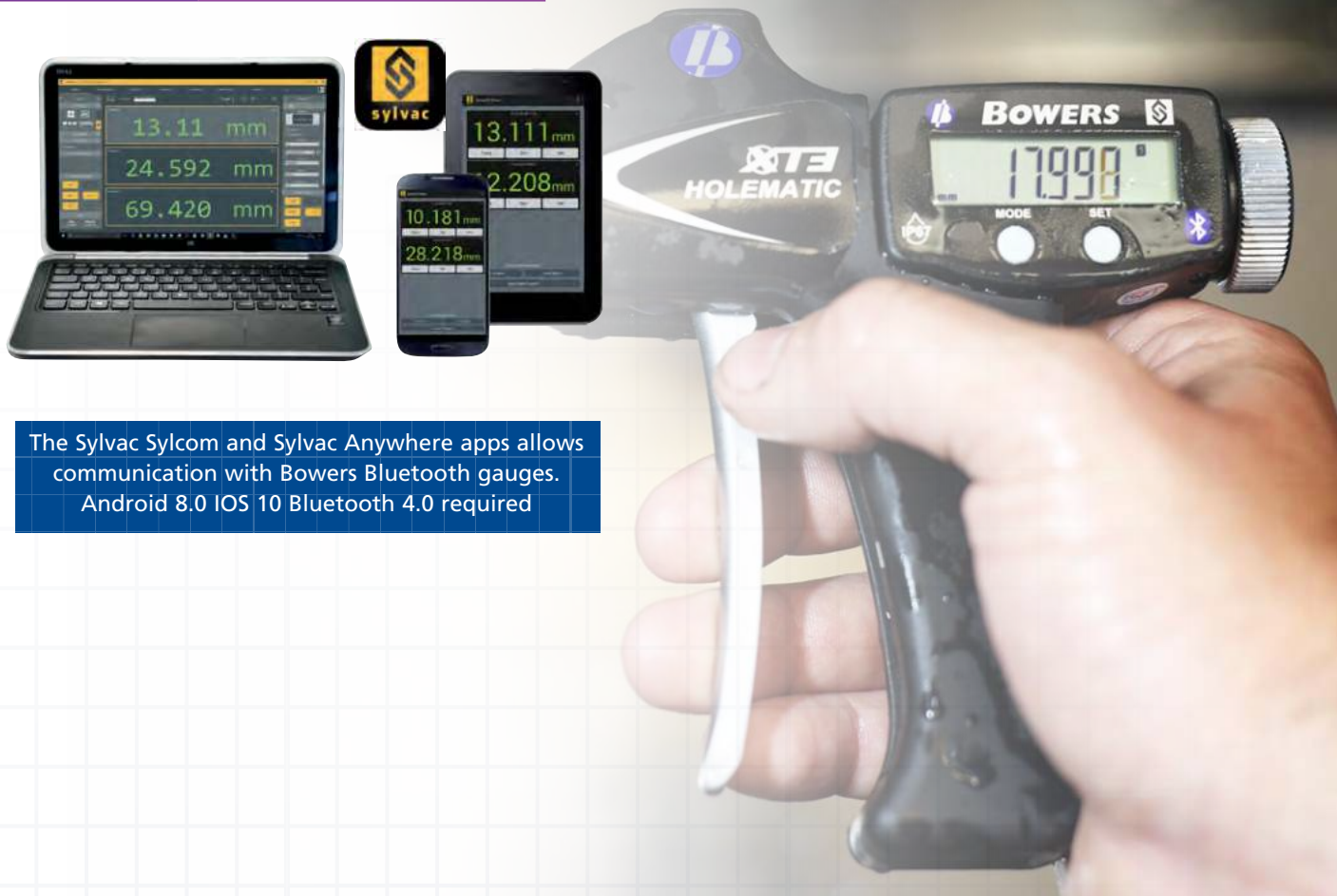
Code No	Length (mm)	Length (inch)	To Fit Heads (mm)	To Fit Heads (inch)
EGX0200	63	2.5	6-10	1/4-3/8
EGX0400	76	3.0	10-12.5	3/8-1/2
EGX0500	100	4.0	12.5-20	1/2-3/4
EGX0001	150	6.0	20-50	3/4-2
EGX0004	150	6.0	50-300	2-12

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

MicroGauge 2-Point Bore Gauge

At a Glance



Range: 1-10mm



IP65 Electronics



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

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

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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



Floating
Table Stand
available
as an option

FTS001
Floating Table

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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

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

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

Stands

Code No	Description
EST0001	MicroGauge Bench Stand
FTS001	Floating Table Stand
MGSA	MicroGauge Adapter

Data Transmission

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



SMG004M

Digital Lever Bore Gauge

At a Glance



Range: 6-100mm



Non Bluetooth is available upon request



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.

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.



XTL16M-BT

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BOWERS GROUP

Digital Lever Bore Gauge

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

XTHSY Pistol Grip Bore Gauge with Indicator

At a Glance



Range: From 6-100mm



Non Bluetooth is available upon request



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

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.

Blind bore measurement on all instruments above 12.5mm



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

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BOWERS GROUP

Mollart Streamlines Manufacture of Hydraulic Manifolds with the Bowers XTL Digital Lever Bore Gauge

The Mollart Engineering group of companies is a precision mechanical engineering business with an international reputation...

With headquarters in Surrey and a production facility in South Wales, the group also has a high level of expertise as a subcontract machinist and fabricator. They carry out multi-axis machining on complex, often high value components, along with part fabrication and component assembly. Mollart works across a wide sector of industries including aerospace and defence, automotive, oil and gas, subsea, mould and die, nuclear, medical, semiconductor and telecommunications.



High Precision Measurement for Hydraulic Manifolds

Mollart Engineering has recently purchased a **Bowers XTL digital lever bore gauge** in order to measure Inconel 718 hydraulic manifolds used at extremely high pressures of 20,000psi in the oil and gas industry. The piston bores of the Inconel manifolds have a strict size tolerance and 16 micro-inch surface finish requiring high precision measurement to adhere to strict industry tolerances. Because the manifolds are working under extreme conditions, the surface finish and exact size of the piston bores are critical for the function and service life of the components manufactured.

Before Mollart purchased the Bowers XTL digital lever bore gauge, they were using a bore comparator to measure the size of the bores. Unfortunately the device was leaving scratches in the bore that contravened the surface requirement finish. This meant that a subsequent manufacturing operation was required after inspection to achieve the desired surface finish.

Robust Lever Range for Vertical Bore Measurement

Bowers Group supplied Mollart Engineering with a Bowers XTL digital lever bore gauge with a 3-point spherical head. The robust lever range is perfect for the vertical bore measurement required. Paul Rowland, Project Manager at Mollart Engineering Ltd said:

“The Bowers XTL digital lever bore gauge has enabled us to streamline our process of manufacturing Inconel hydraulic manifolds. Previous problems with the old bore comparator leaving scratches on the component has now been solved, allowing us to remove the additional job of eliminating the scratches from our process. We are now able to produce accurate bore size measurements to meet strict tolerances with regard to size and surface finish.”

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XTL Digital Lever Bore Gauge from Bowers Group

The XTL Digital Lever Bore Gauge 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 also be provided with IP65 rated digital indicators, which render the device resistant to coolant, water and airborne particles. A 'wireless' gauge module is also available, which enables cable free communication with remote data collectors. With a measuring range of 6 – 100mm and simple 2-button operation, the XTL Digital Lever Bore Gauge is excellent for vertical bore measurement and provides fast, accurate measurement.

Electronic Bore Gauge - Ultima

At a Glance



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



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.

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



ULH25 70-80mm head



ULH19 28-32mm head

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BOWERS GROUP

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

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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



Electronic Bore Gauge - Ultima



USET7D 6-20mm Set

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

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+

XT500 Large Diameter 3-point Bore Gauge

At a Glance



Range: 300-500mm



Non Bluetooth is available upon request



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.

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

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XT500 Large Diameter 3-point Bore Gauge

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

Data Transmission

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

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

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.

Application Gauging Bore Measurement Grooves

At a Glance



Non Bluetooth is available upon request



Features

- Interchangeable with standard heads
- Suits Bowers XTD, XTH and Ultima
- Special forms, radius, ball contacts
- Depth stops available for quick location
- Annular grooves possible

Sizes from 6-300mm diameter



Groove Head with Depth Stop



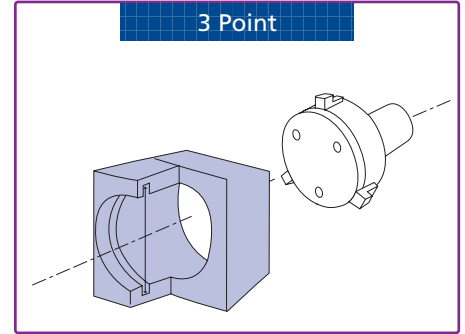
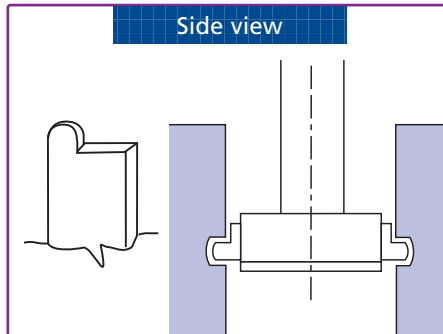
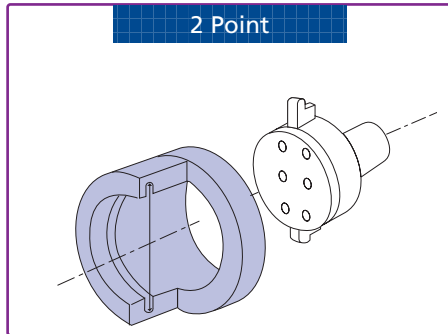
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Application Gauging Bore Measurement Grooves



Brake Caliper Measurement

Ball Race Measurement



Caliper Groove Measurement

Measuring Component



Application Gauging Bore Measurement Groove 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 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

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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.

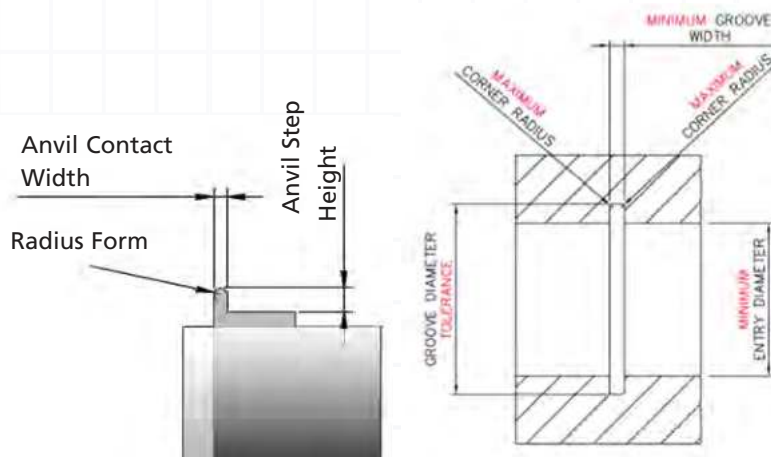
The XT Groove sets are based on the standard self-aligning 3-point XT head design but with a stepped anvil to allow entry into grooves for fast and repeatable groove diameter measurement. The gauge is set using the calibrated setting rings provided and each ring size is stored in the gauge memory enabling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



Standard Groove Anvil Detail



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Application Gauging Bore Measurement Groove Sets

XT Hometric 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	1.25mm	1.5mm	18mm	8mm
		8-10mm	1.25mm	1.5mm	20mm	
		10-12.5mm	1.5mm	1.5mm	22mm	12.5mm
		12.5-16mm	2.0mm	1.5mm	26mm	
SP-SXTH10I-BT-GRO	1/4" - 3/4"	16-20mm	2.5mm	1.5mm	33mm	20mm
		1/4" - 5/16"	0.049"	0.059"	0.709"	5/16"
		5/16" - 3/8"	0.049"	0.059"	0.787"	
		3/8" - 1/2"	0.059"	0.059"	0.866"	1/2"
SP-SXTH5M-BT-GRO	20-50mm	1/2" - 5/8"	0.079"	0.059"	1.024"	
		5/8" - 3/4"	0.098"	0.059"	1.299"	3/4"
		20-25mm	3.175mm	2mm	39mm	20mm
SP-SXTH5I-BT-GRO	3/4" - 2"	25-35mm	5.5mm	2mm	45mm	35mm
		35-50mm	4mm	2mm	60mm	
		3/4" - 1"	0.108"	0.079"	1.535"	3/4"
SP-SXTH6M-BT-GRO	50-100mm	1" - 1 3/8"	0.217"	0.079"	1.772"	1 3/8"
		1 3/8" - 2"	0.157"	0.079"	2.362"	
		50-65mm	8mm	3mm	80mm	65mm
SP-SXTH6I-BT-GRO	2" - 4"	65-80mm	8mm	3mm	95mm	80mm
		80-100mm	10.5mm	3mm	115mm	
		2" - 2 5/8"	0.315"	0.118"	3.150"	2 5/8"
SP-SXTH6I-BT-GRO	2" - 4"	2 5/8" - 3 1/4"	0.315"	0.118"	3.740"	3 1/4"
		3 1/4" - 4"	0.413"	0.118"	4.528"	

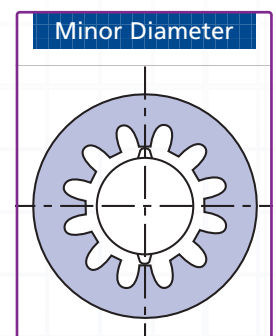
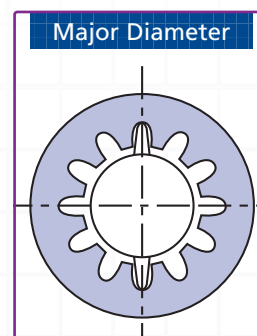
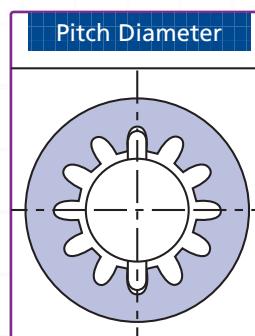
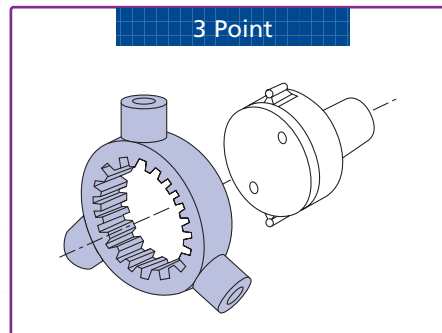
Individual Heads			
Code No (with BT)	Range (mm)	Code No (with BT)	Range (inch)
XTHD6M-GRO	6-8mm	XTHD6I-GRO	1/4 - 5/16"
XTHD8M-GRO	8-10mm	XTHD8I-GRO	5/16 - 3/8"
XTHD10M-GRO	10-12.5mm	XTHD10I-GRO	3/8 - 1/2"
XTHD12M-GRO	12.5-16mm	XTHD12I-GRO	1/2 - 5/8"
XTHD16M-GRO	16-20mm	XTHD16I-GRO	5/8 - 3/4"
XTHD20M-GRO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

Application Gauging Bore Measurement Internal Spline

Features

- 2 and 3 point heads available
- Anvils manufactured from tool steel
- Between pin, major and minor diameter heads available

Diameters
from
8-300mm
(5/16"-12")



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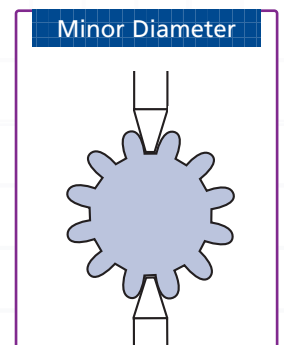
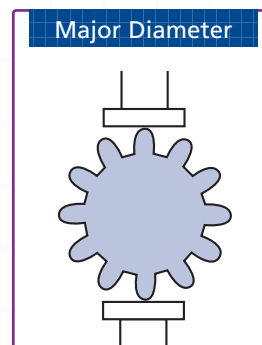
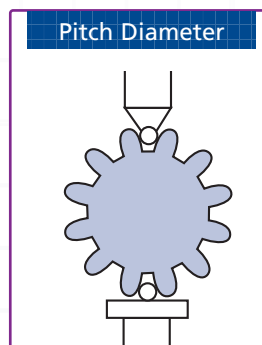
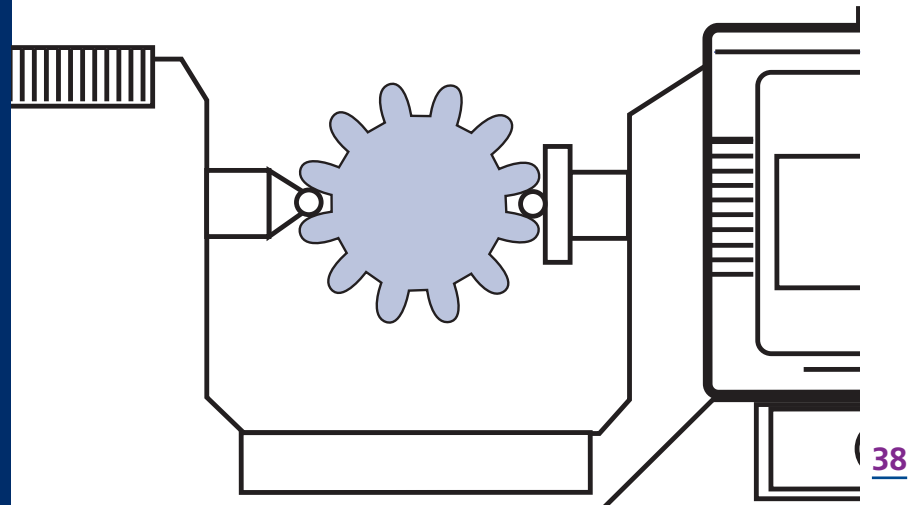


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Application Gauging Bore Measurement External Spline

Features

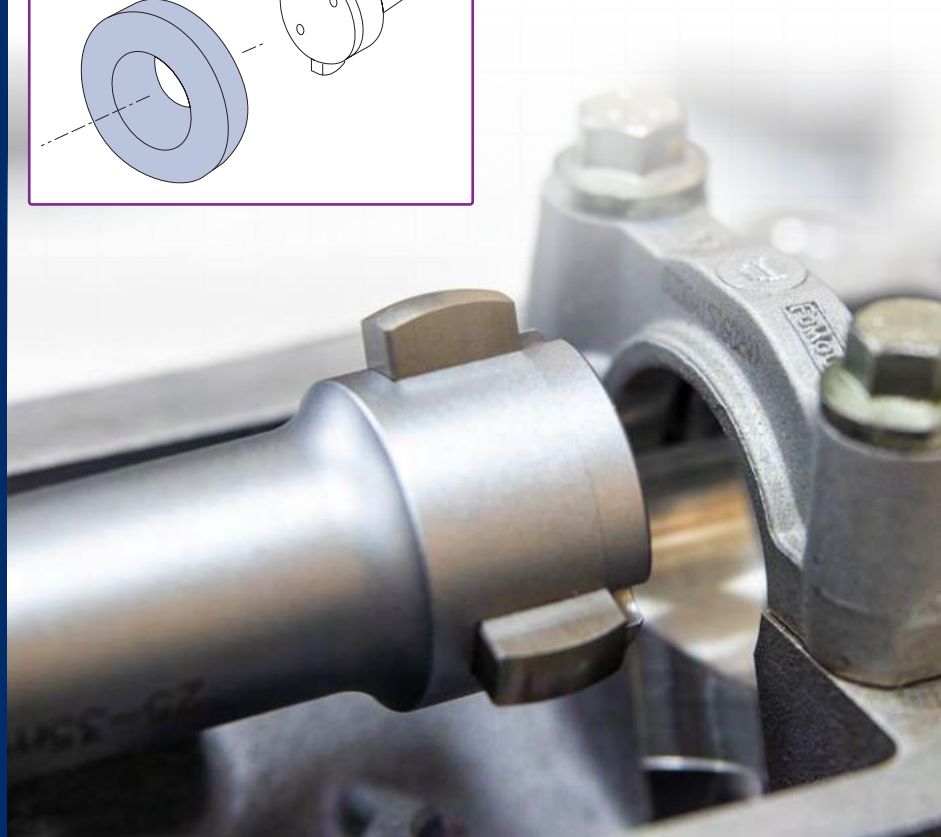
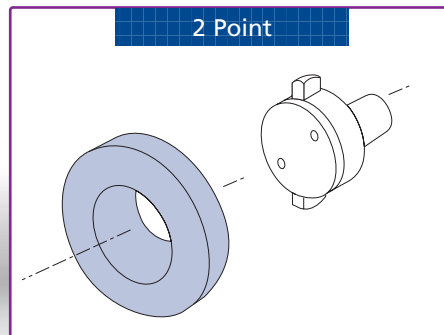
- Frames fitted with 1 x ball and 1 x pin



Application Gauging Bore Measurement Spherical

2 Point Spherical

- Measurement of ovality in bore
- Measurement of bores with irregularities



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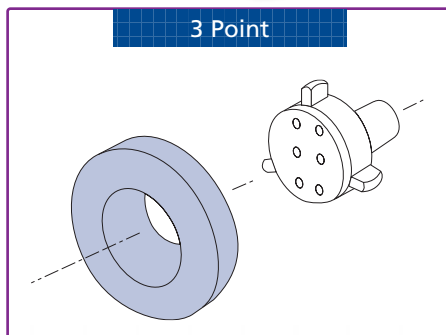
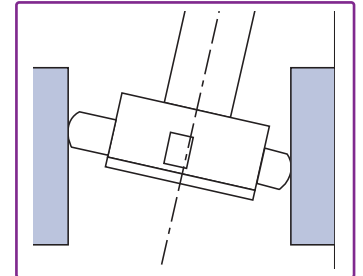


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Application Gauging Bore Measurement Spherical

3 Point Spherical

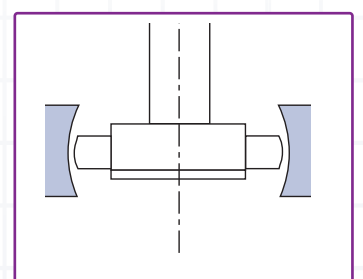
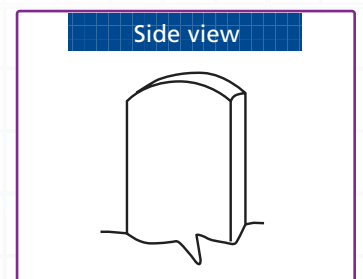
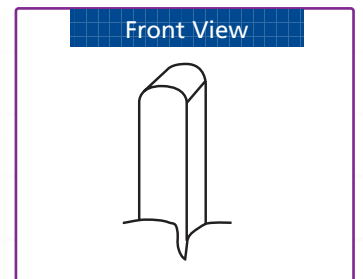
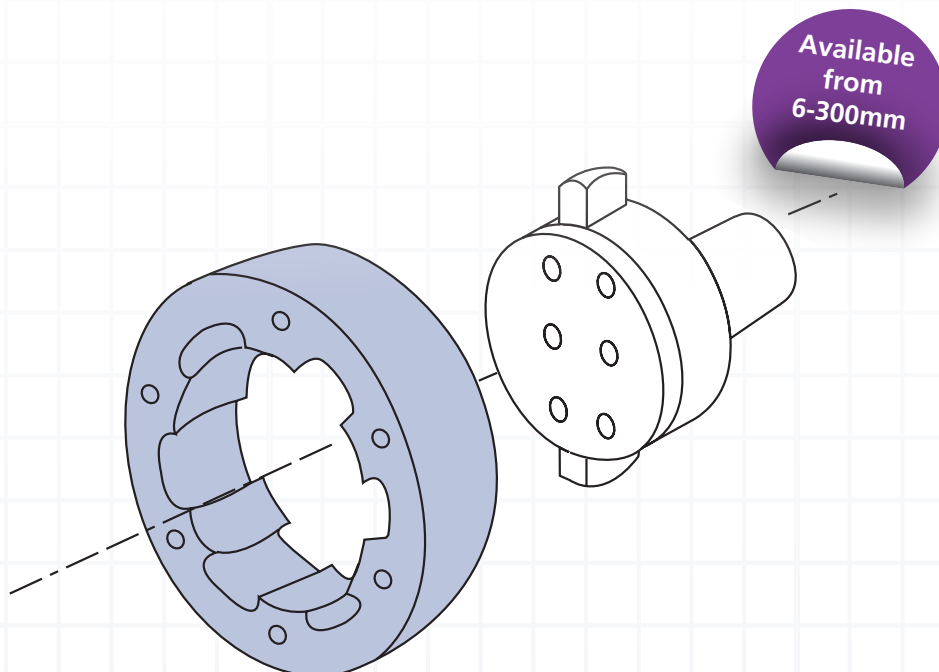
- Gives good repeatability even when out of line with bore centre



Available from 6-300mm diameter on digital systems

Spherical Radius

- Can be supplied as a 2 point (for ovality) or 3 point contact



Application Gauging Bore Measurement Threads

At a Glance



Non Bluetooth is available upon request



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.

Screw Threads

- To measure effective (functional) diameter, pitch diameter, major diameter, between M4 - 300mm. / No. 8 UN - 12" diameter



2 Point



3 Point

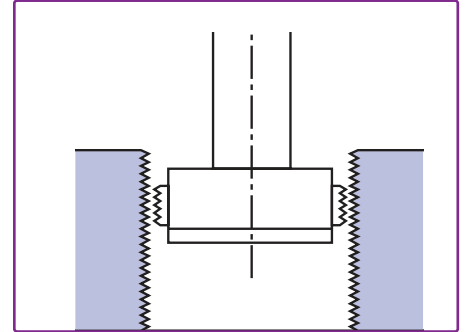
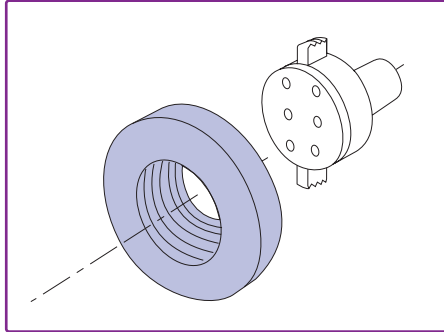
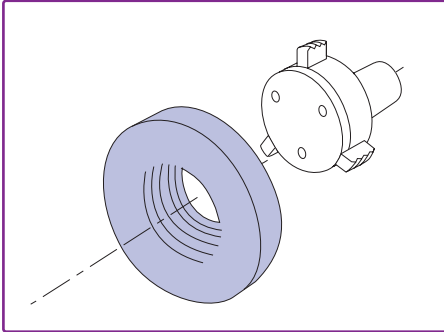
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Application Gauging Bore Measurement Threads



Ball Screw Threads

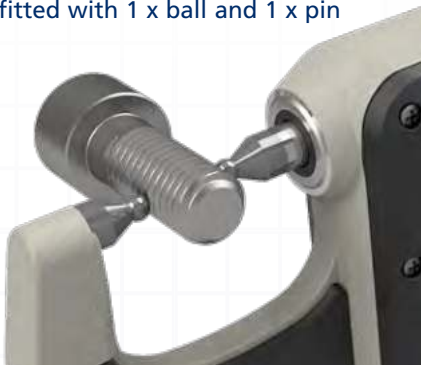
- From Ø M10



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

External Threads

- Frames fitted with 1 x ball and 1 x pin



Custom Bore Measurement

Please contact Bowers for more details



Custom Bore Measurement Deep Hole Pneumatic

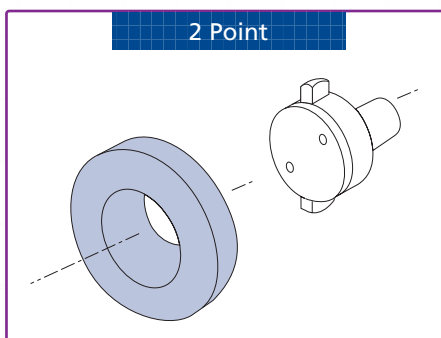
Features

- Measures diameters from 50-310mm, up to 15m deep
- Spherical, Tungsten Carbide anvils
- 2 point and 3 point heads available
- Accuracy $\pm 0.005\text{mm}$ (subject to bore condition)
- Quick set-up time
- Easy to use
- Not adversely effected by temperature fluctuation
- Robust design
- Various readouts available

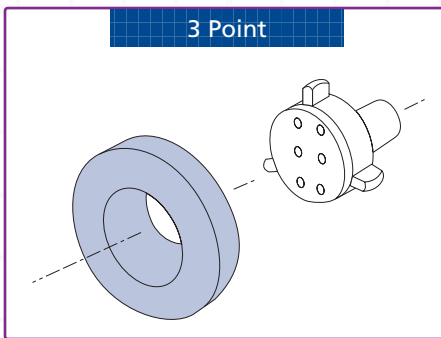
Operated by a **pneumatic** actuator powered by a 3 bar compressed air supply - either from a compressor or a workshop air-line. The measurement data is collected by a capacitive probe fitted just behind, and in constant contact with the measuring head. This direct contact ensures high-quality transducer-type 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



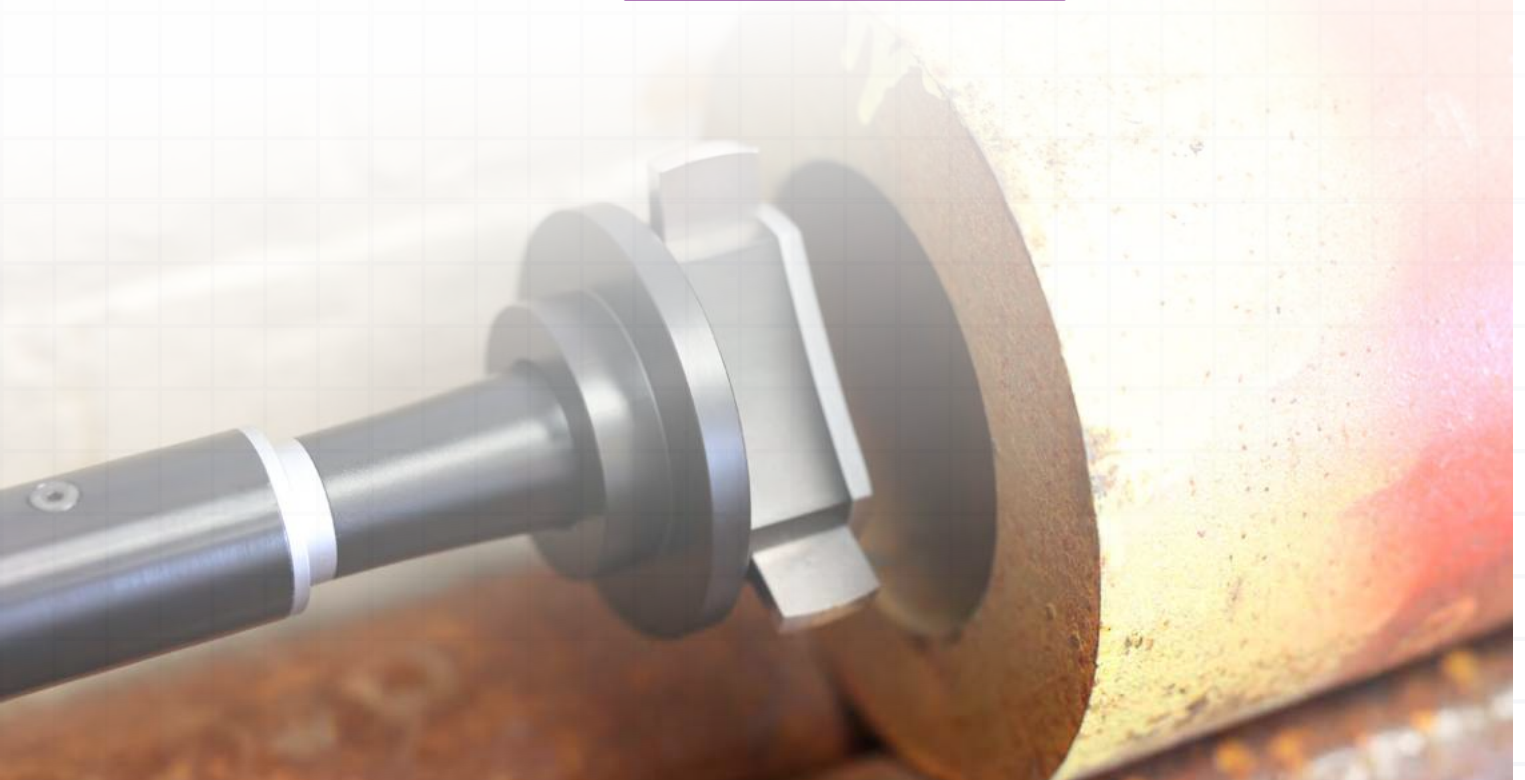
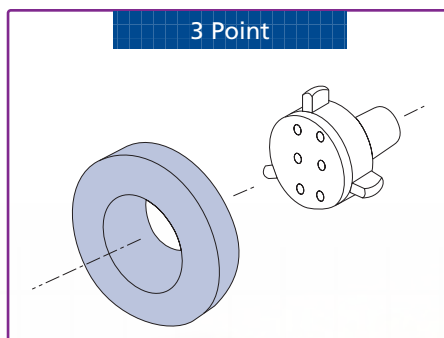
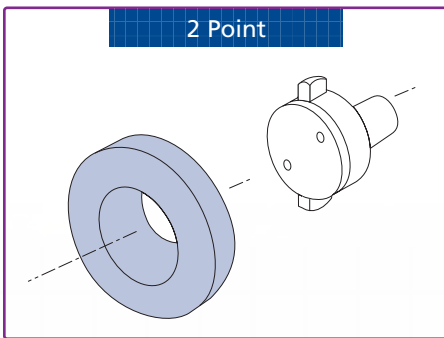
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BOWERS GROUP

Deep Hole XT - Under 2 Metres



Custom Bore Measurement Miscellaneous

Gun Barrel Head

- For the measurement of smooth bore and rifled bore gun barrels
- Major and minor diameters measured deep into bores



Measures
6-500mm
diameter



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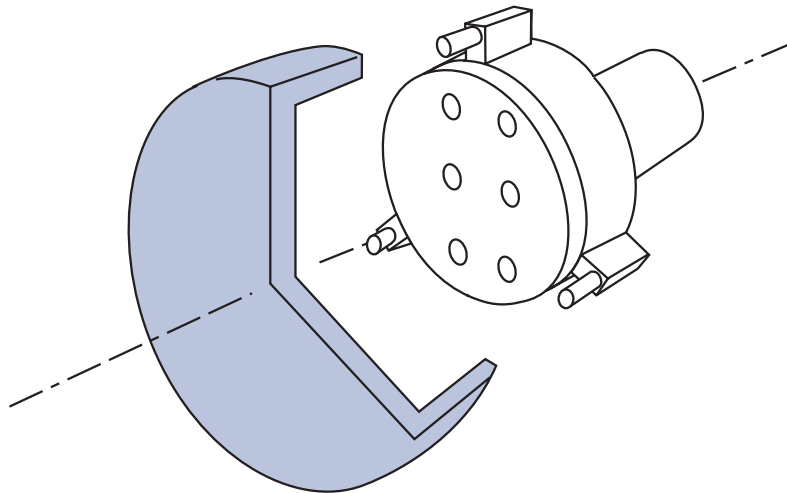


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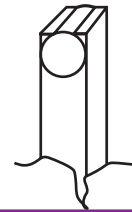
Custom Bore Measurement Miscellaneous

Blind Bore

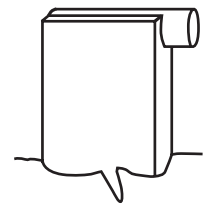
- Standard between 2-6mm and 12.5-300mm
- Between 6-12.5mm on request



Front view

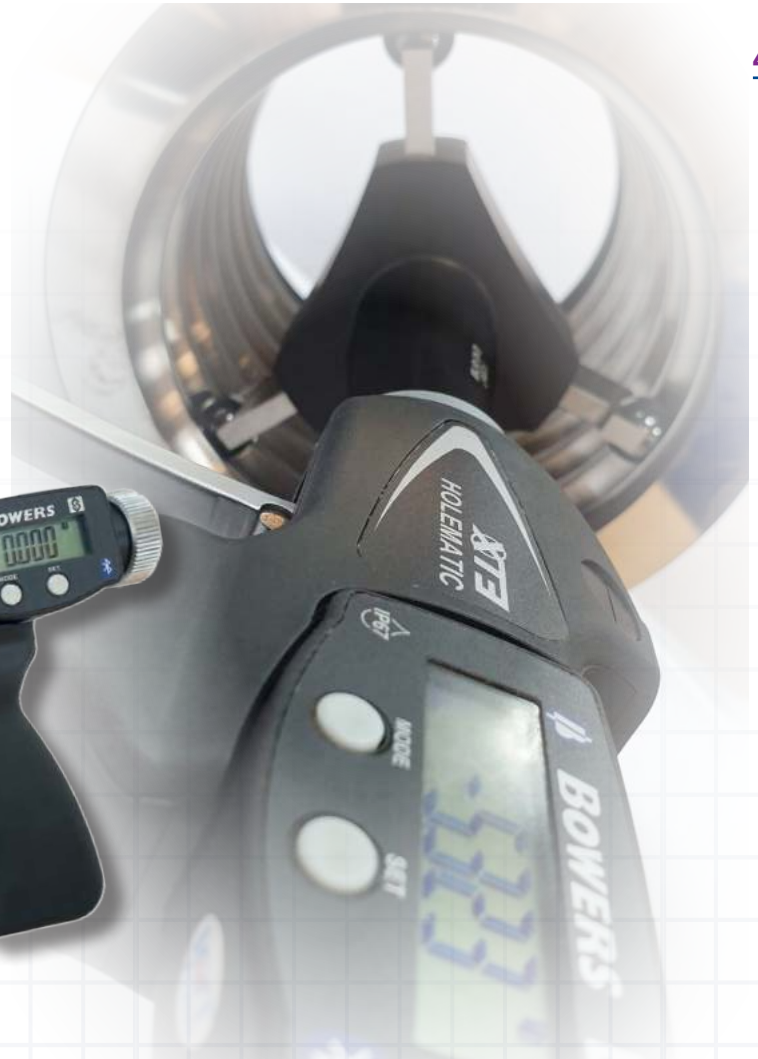


Side view



Ball Screws

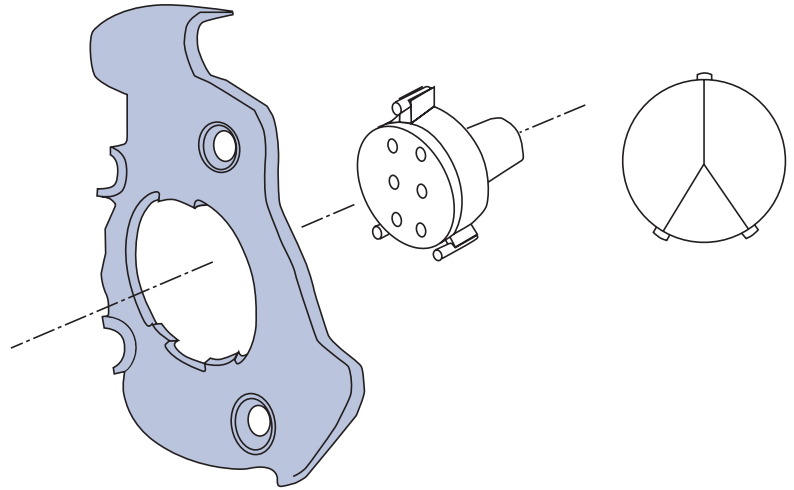
- Internal measurement of ball-screws for the defence, aerospace, automotive and machine tool industry
- Optimised anvil form featuring customised contacts for high accuracy
- 3 Point head solution based on the popular Bowers XT system
- Automated systems possible



Custom Bore Measurement Miscellaneous

Irregular Spacing

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



Right Angled Adaptor

Right angled adaptor for hard-to-reach bores.



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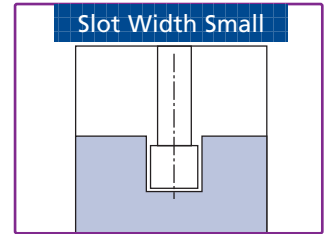
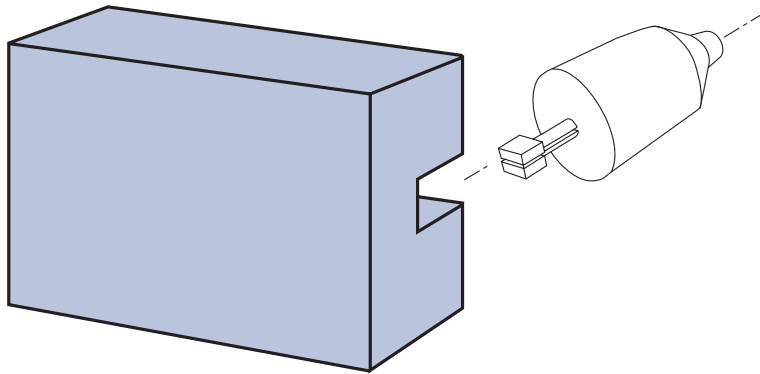


BOWERS GROUP

Custom Bore Measurement Miscellaneous

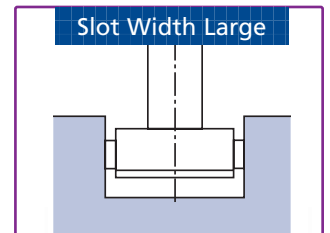
Slot Width Small

- Widths from 2-6mm



Slot Width Large

- Width from 6-100mm



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

At a Glance



49

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

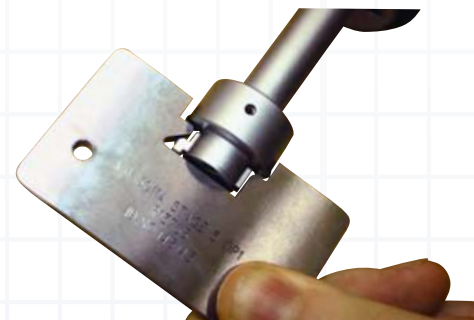
Bowers' Special Applications Team developed a special 2 Point head solution based on the popular Bowers XT system. The system incorporates tungsten carbide ball contacts for high accuracy. The Bowers XT digital readout offers the capability to send data for SPC and part traceability.

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



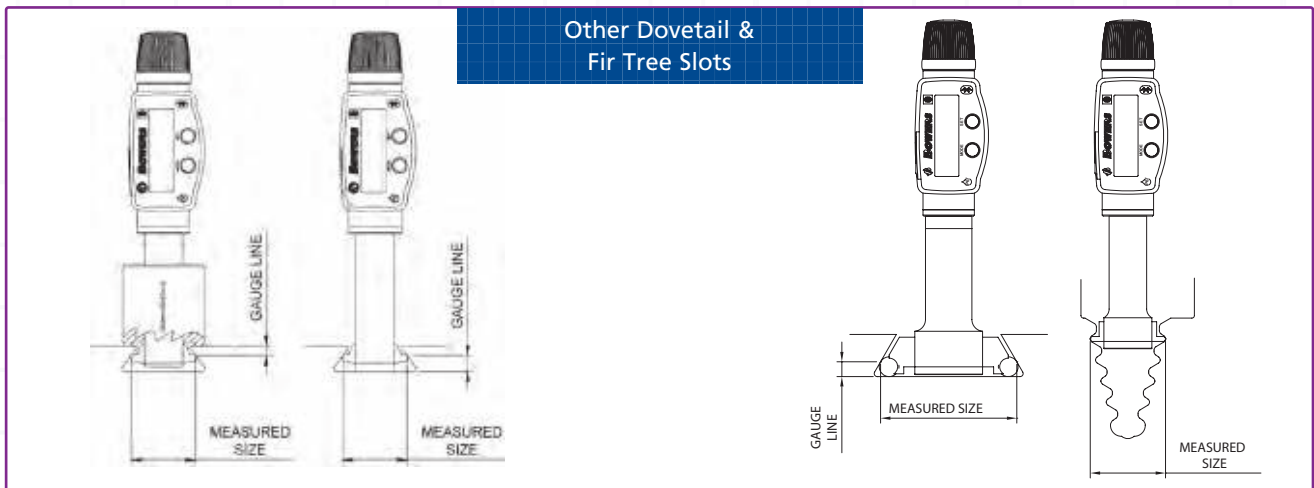
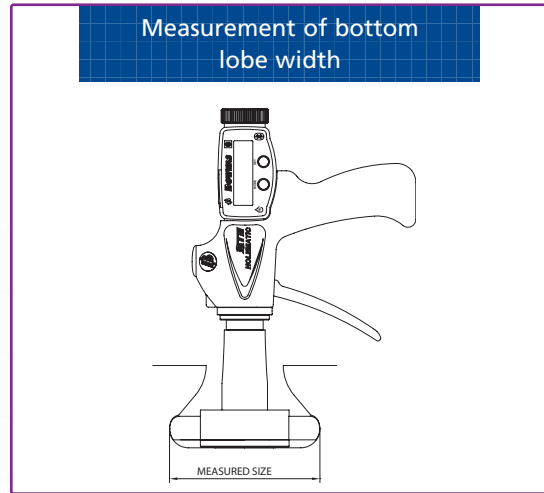
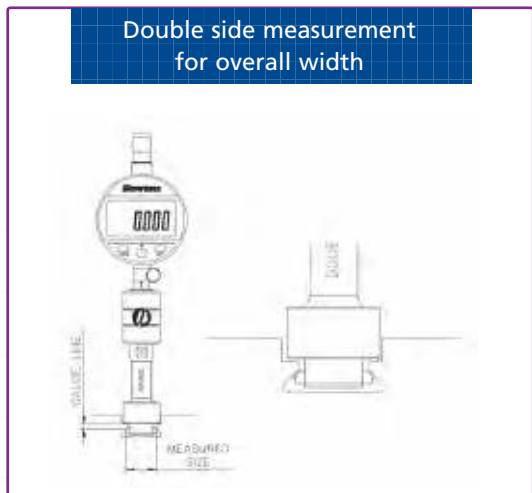
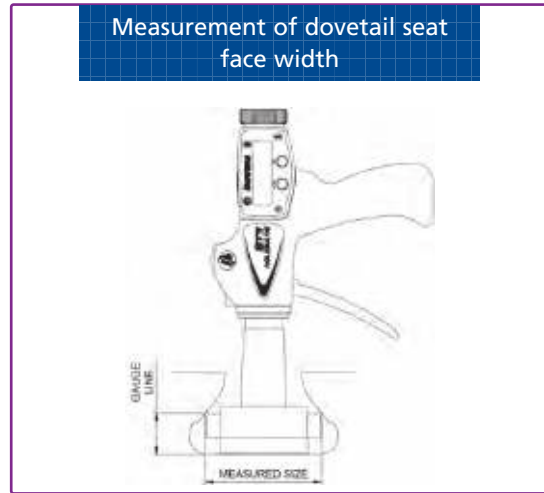
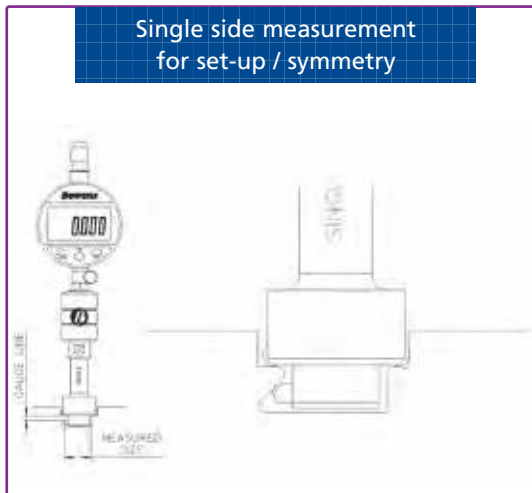
Visit our Website

For more information please go to our website using the QR code.



BOWERS GROUP

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



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

At a Glance



51

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

Typical Part



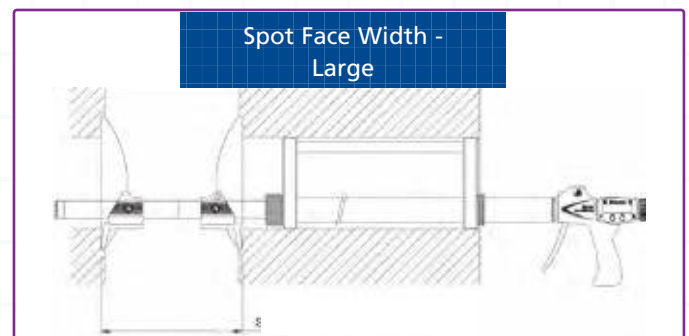
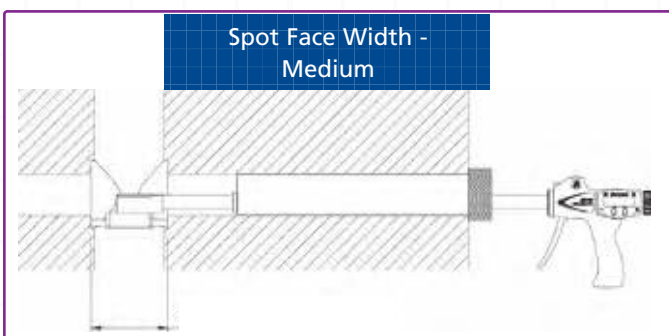
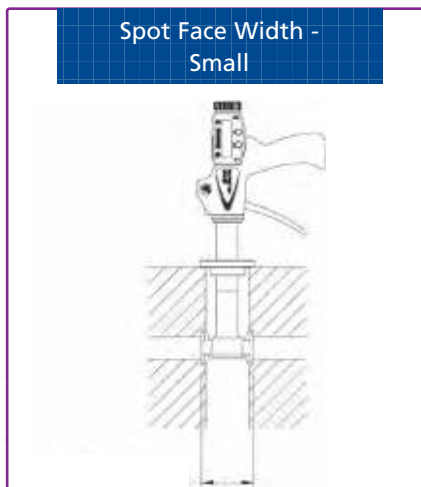
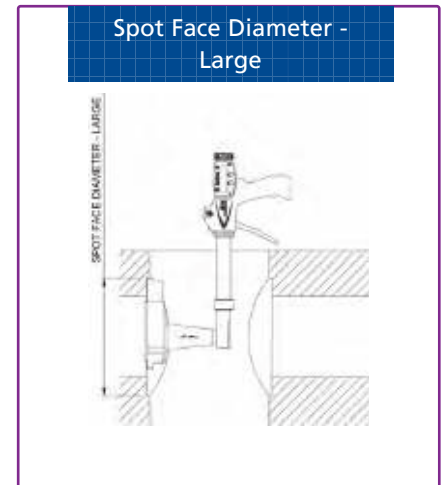
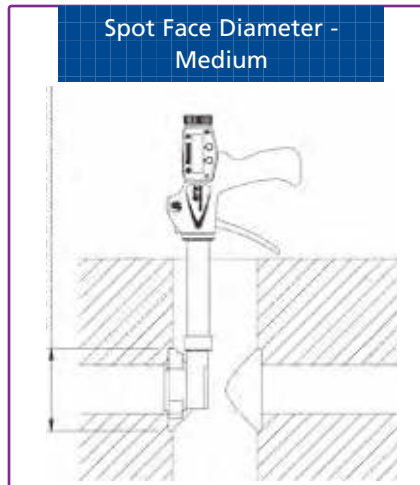
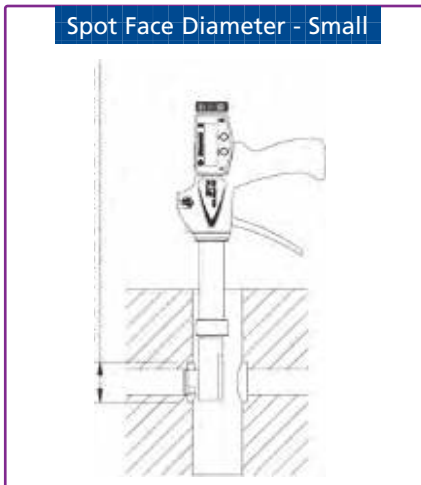
Visit our Website

For more information please go to our website using the QR code.



BOWERS GROUP

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



SmartPlugs

At a Glance



Range: 6-280mm



Non Bluetooth is available upon request



Features

- Tough, robust construction
- Easy-to-use
- Long life
- Flexible, modular
- Hand-held measurement
- Can be incorporated into automated measuring systems (in-series)
- Cost-effective
- Short delivery times
- High visibility display
- Protective indicator shroud (with some indicators)
- All setting rings supplied as standard with UKAS calibration certificates
- Coverplates as standard on all SmartPlugs
- Repeatability $\leq 1\mu\text{m}$
- Setting by means of a setting ring
- Quick and reliable measurement
- 2-point measurement as standard
- Blind bore available on request
- Depth-stops available
- Extensions available for deeper bores
- Guide chamfer for easy entry into bore
- High durability, long-life plugs and contacts
- Easy to clean
- Plug body coatings: Hard-chrome (standard), T.i.N., Plain steel
- Measuring contacts: Tungsten carbide, (standard), hard-chrome, ruby, ceramic

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.



Visit our Website

For more information please go to our website using the QR code.



SmartPlugs Indicators

Type A

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



Type B

- 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



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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



SmartPlugs



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



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SmartPlug with depth stop



SmartPlug with extension measurement



SmartPlug with transducer holder and standalone display

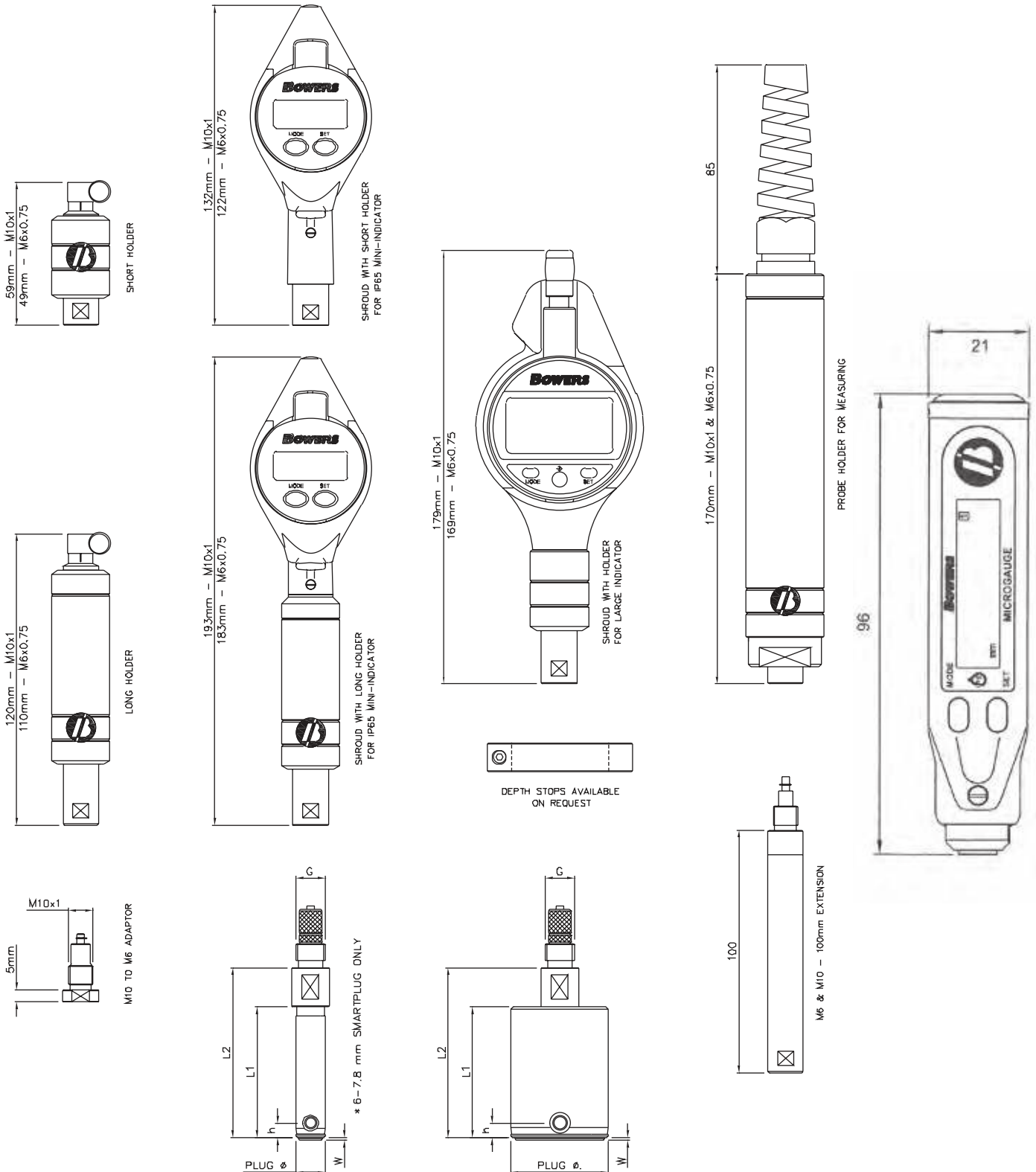


SmartPlug for large diameters (up to 280mm)



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)

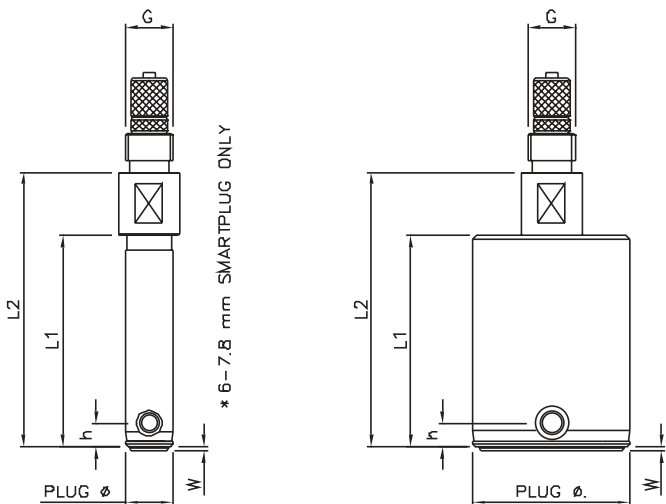
Smartplugs

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

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Nitron MC coated body



Ceramic contacts



Ruby contacts



At a Glance



Non Bluetooth is available upon request



SmartPlug Accessories

Code No	Description
SMA001M	M6 Holder short 8mm stem
SMA002M	M6 Holder long 8mm stem
SMA003	M6 100mm extension
SMA004	M6 Probe holder 8mm stem
SMA009M-BT	*Type A Bluetooth Mini indicator with shroud & M6 short holder 8mm stem
SMA011M-BT	*Type A Bluetooth Mini indicator with shroud & M6 long holder 8mm stem
SMA013	Type C Indicator with shroud & M6 holder 8mm stem
SMA013-BT	Type C Bluetooth Indicator with shroud & M6 holder 8mm stem
SMA028	M6-M10 Adapter (to use M10 holders with M6 plugs)

Code No	Description
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 Bluetooth Mini Indicator with shroud & M10 short holder 8mm stem
SMA017M-BT	*Type A Bluetooth Mini indicator with shroud & M10 long holder 8mm stem

*Type A Mini Indicators preset values up to 130mm only.

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



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go to our website using the
QR code.



BOWERS GROUP

SmartPlug Setting Rings

Complete with UKAS Calibration Certificates

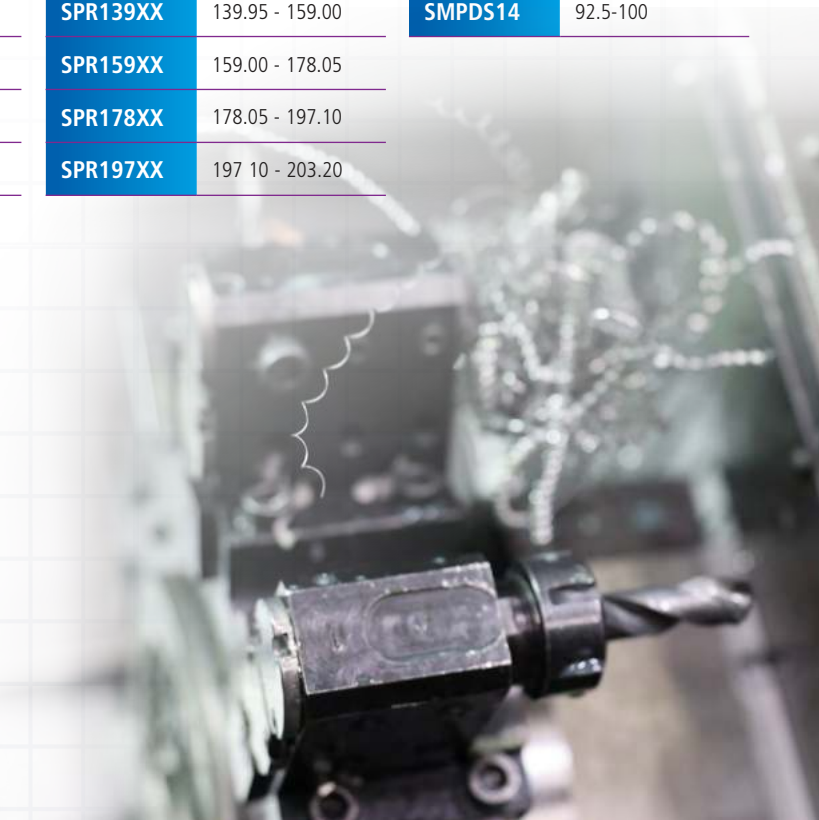
Setting Ring (mm) Grade Nominal		Setting Ring (mm) Grade "X"		Setting Ring (mm) Grade "XX"		Depth Stops	
Code No	Setting Ring (mm)	Code No	Setting Ring (mm)	Code No	Setting Ring (mm)	Code No	Range (mm)
SPR1N	1.50 - 3.00	SPR1X	1.50 - 3.00	SPR1XX	1.50 - 3.00	SMPDS00	below 6
SPR3N	3.00 - 6.10	SPR3X	3.00 - 6.10	SPR3XX	3.00 - 6.10	SMPDS01	6-8.5
SPR6N	6.10 - 9.27	SPR6X	6.10 - 9.27	SPR6XX	6.10 - 9.27	SMPDS02	8.5-13
SPR9N	9.27 - 12.95	SPR9X	9.27 - 12.95	SPR9XX	9.27 - 12.95	SMPDS03	13-17.5
SPR12N	12.95 - 20.96	SPR12X	12.95 - 20.96	SPR12XX	12.95 - 20.96	SMPDS04	17.5-25
SPR20N	20.96 - 28.83	SPR20X	20.96 - 28.83	SPR20XX	20.96 - 28.83	SMPDS05	25-32.5
SPR28N	28.83 - 38.35	SPR28X	28.83 - 38.35	SPR28XX	28.83 - 38.35	SMPDS06	32.5-40
SPR38N	38.35 - 51.05	SPR38X	38.35 - 51.05	SPR38XX	38.55 - 51.05	SMPDS07	40-47.5
SPR51N	51.05 - 63.75	SPR51X	51.05 - 68.75	SPR51XX	51.05 - 63.75	SMPDS08	47.5-55
SPR63N	63.75 - 76.45	SPR63X	68.75 - 76.45	SPR63XX	63.75 - 76.45	SMPDS09	55-62.5
SPR76N	76.45 - 89.15	SPR76X	76.45 - 89.15	SPR76XX	76.45 - 89.15	SMPDS10	62.5-70
SPR89N	89.15 - 101.85	SPR89X	89.15 - 101.85	SPR89XX	89.15 - 101.85	SMPDS11	70-77.5
SPR101N	101.85 - 120.90	SPR101X	101.85 - 120.90	SPR101XX	101.85 - 120.90	SMPDS12	77.5-85
SPR120N	120.90 - 139.95	SPR120X	120.90 - 139.95	SPR120XX	120.90 - 139.95	SMPDS13	85-92.5
SPR139N	139.95 - 159.00	SPR139X	139.95 - 159.00	SPR139XX	139.95 - 159.00	SMPDS14	92.5-100
SPR159N	159.00 - 178.05	SPR159X	159.00 - 178.05	SPR159XX	159.00 - 178.05		
SPR178N	178.05 - 197.10	SPR178X	178.05 - 197.10	SPR178XX	178.05 - 197.10		
SPR197N	197.10 - 203.20	SPR197X	197.10 - 203.20	SPR197XX	197.10 - 203.20		

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

Larger setting rings are available upon request



Depth Stop



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

* Based on firmware 1.2 or later

Visit our Website

For more information please go to our website using the QR code.

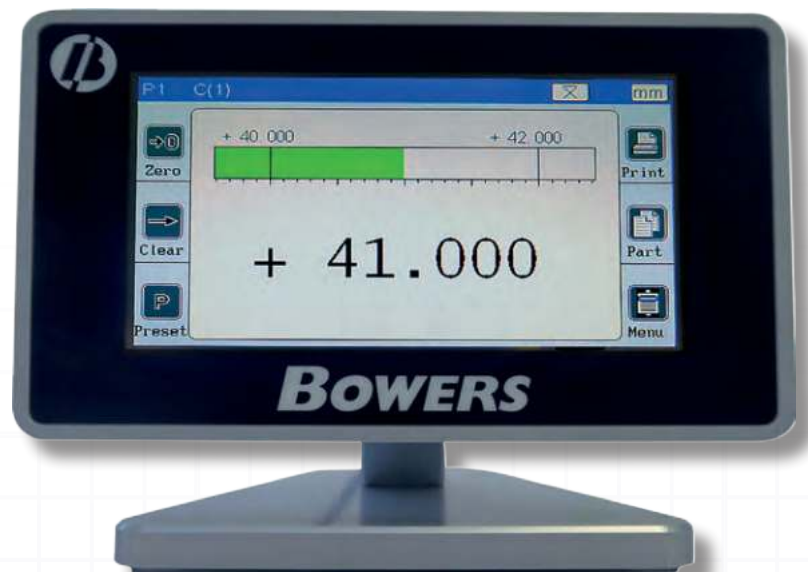


Air Gauging is a fast, user friendly method of providing high precision results in even the most challenging of shop-floor environments. Using air flow volumes and pressures to measure parts, Air Gauging is a reliable, repeatable technology well suited for applications that demand sub-micron precision tolerancing. Air Gauging technology is flexible; enabling measurement of not only dimensions, but geometric and relational characteristics, such as squareness, parallelism, ovality, taper and straightness.

The working range of our standard air gauge tooling is 0.08mm. Working range can be extended by the addition of a third master. For optimum accuracy, Bowers produce the Setting Masters at the Upper and Lower product limits.

Please contact your local Bowers representative to discuss your application in greater detail or arrange a product demonstration.

Different organisations may prefer differing methods of air gauging, Bowers Group offers air gauging with a multi-function touchscreen Air Gauge Display, the Bowers Air1/2, As well as the multi function multi channel Air3. The Air3 is expandable, handling up to 99 connected devices.



BOWERS GROUP

Air Gauging

A New Approach

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

Bowers Air3 Multifunctional/ Multichannel

Features

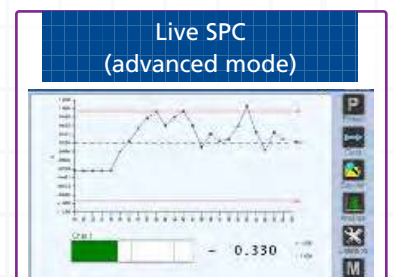
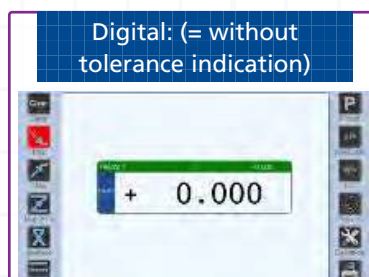
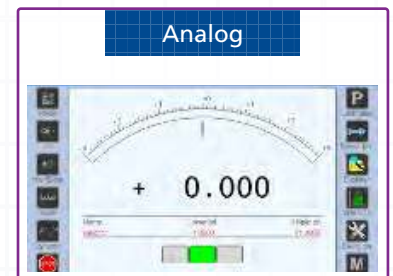
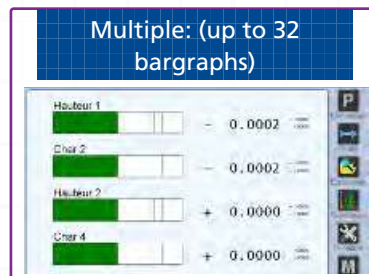
- 7" touchscreen display and customizable display interface
- Bench stand or panel mount
- Aluminium body
- 12VDC/30VDC Power supply
- RJ-45 Ethernet TCP4 for Network Interface
- USB host (for usb key) and USB device (virtual keyboard)
- Up to 99 device connection
- Footswitch
- M-BUS Module Connection
- RS232
- Static and dynamic (Mini, Maxi, Maxi-mini, Average, Median)
- Trigonometrical measurements
- Analogical and digital display
- 65 • 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 30,000 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:



Visit our Website

For more information please go to our website using the QR code.



BOWERS GROUP

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

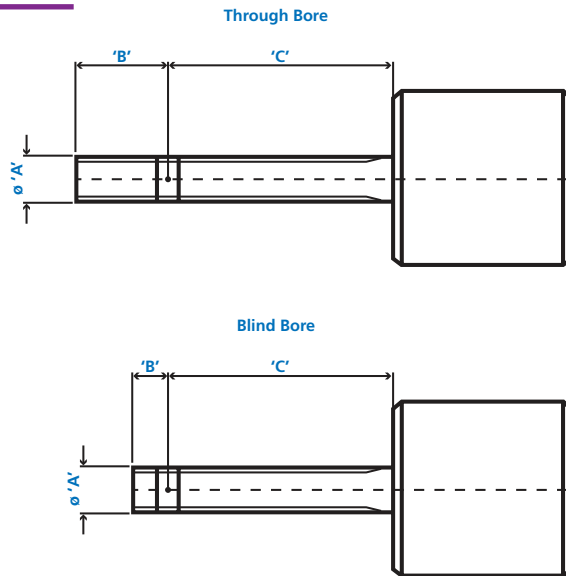
Specification	Sylcom Standard	Sylcom Advanced
Max Number of Instruments	16 (max 8 Bluetooth)	254
Software Requirements	Windows 7 / 8.1 / 10 (64-bit)	Windows 7 / 8.1 / 10 (64-bit)
Minimum Hardware Requirements	Intel i5, 4GB RAM (8GB recommended)	Intel i5, 4GB RAM (8GB recommended)
Compatible M-BUS	No	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

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

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

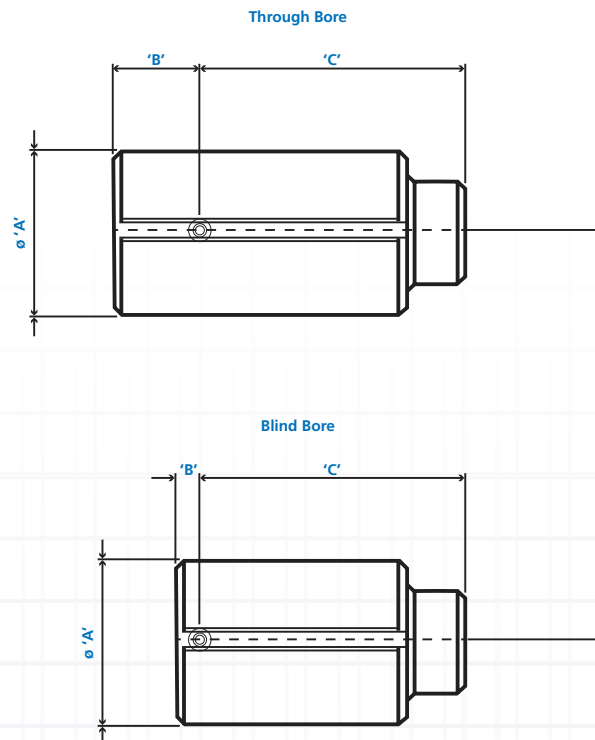
Bayonet Adapter (included)

Standard: 14.10 - 76.45mm

67

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

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)

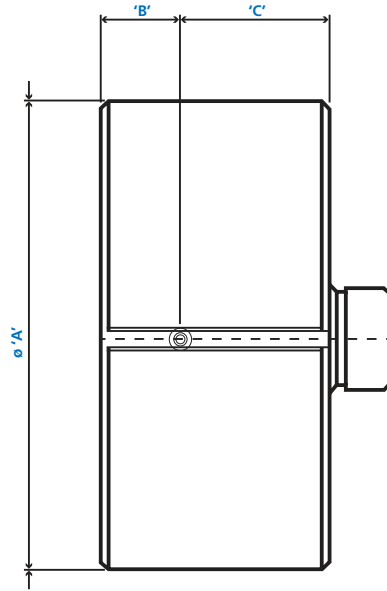
3/8" - 32 NS Internal Thread

Bayonet Adapter (included)

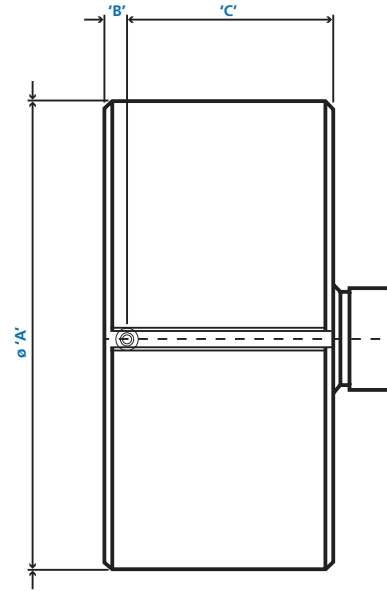
Note: For more information about connections please contact our sales team.

Standard Air Gauge Tooling

Standard:
76.45 - 203.20mm



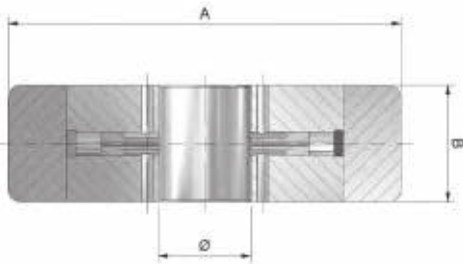
ø'A' Range	'B'	'C'
ø76.45 - 203.2	19.05	31.75



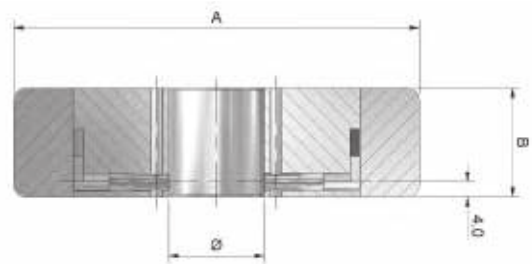
ø'A' Range	'B'	'C'
ø76.45 - 203.2	3.97	46.60

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 (inch)	Dim A (mm)	Dim A (inch)	Dim B (mm)	Dim B (inch)
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.

Bowers Air3 Multifunctional/ Multichannel Display

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.

Application example:

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



4 dimensions measured, 16 Values displayed



Visit our Website

For more information please go to our website using the QR code.



BOWERS GROUP

Bowers 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

$$\text{Taper: } \tan \alpha = \frac{D_1 - D_2}{2L}$$

D= larger diameter of taper in mm
 d= smaller diameter of tapered in mm
 L= length of tapered part in mm
 2α= full taper angle
 α=angle of taper or half taper angle



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

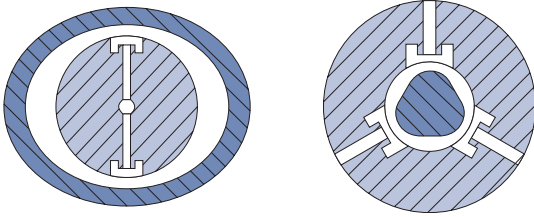
Statistics menu

Air Gauge

Tooling Applications

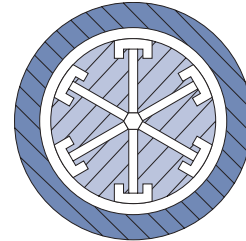
The following are some examples of how Air Gauge tooling can be configured.

Out-of-Roundness



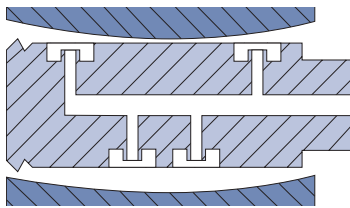
Air tools can gauge a part for roundness. For two-point out-of-round conditions, a standard two-nozzle air tool can be used. If lobing exists in the part, an odd number of nozzles must be used, depending on the number of lobes.

Averaging



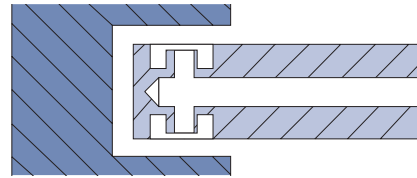
Multiple nozzles are equally located about the circumference of the air tool to allow for average size measurement. Commonly used for thin-walled or out-of-round parts — four, six, or more nozzles are utilised, depending on the tool size.

Straightness



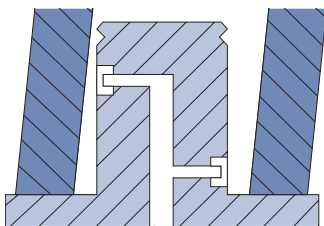
A common application of Air Gauging is to dynamically measure the straightness or “bow” of an inside or outside diameter. In this case, a custom designed air plug makes verifying a part’s straightness simple and fast. (A straightness air plug cannot be used to measure diameter).

Groove Width



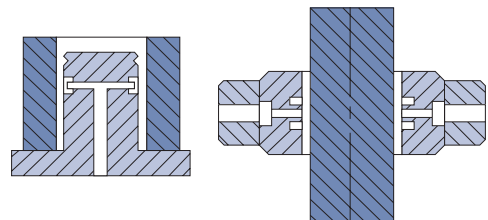
The measurement of grooves is conveniently achieved with flat, blade-type air tools. Air Gauging not only determines groove size, but with exploration around the workpiece, parallelism of the groove faces can also be determined.

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

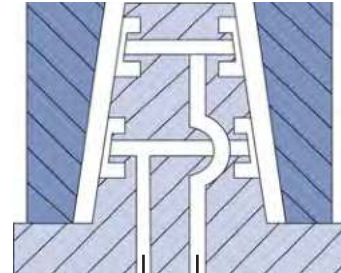


Air Gauges are most commonly used for measuring the size and form of inside diameters and outside diameters. Two-nozzle air plugs, with nozzles diametrically opposed, are used for internal measuring, and two-nozzle air rings are used for external dimensions.

Air Gauge

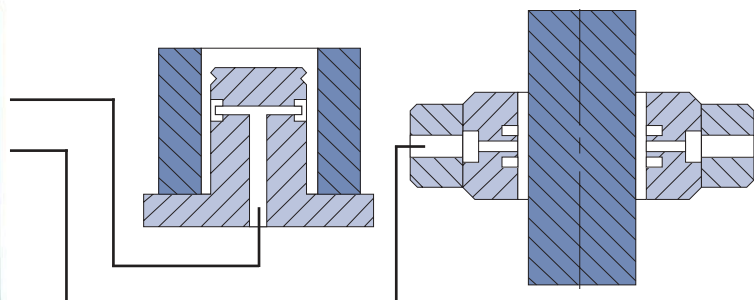
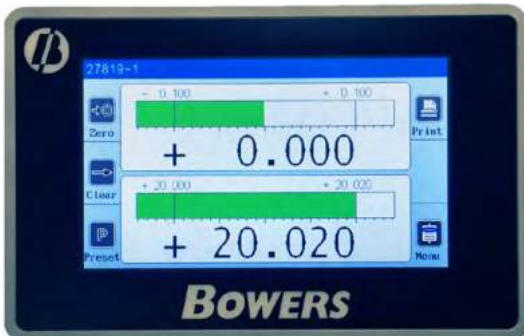
Tooling Applications

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 built 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

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 Air3.

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.**



Visit our Website

For more information please go to our website using the QR code.



Addmore Engineering

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

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.



Universal Gauge Sets

At a Glance



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



Non Bluetooth is available upon request



These gauges are used for measuring internal and external dimensions, such as grooves, shoulders, recesses, threads, tapers, gears, splines, hole centres, a wide range of measuring contacts are available to enable measurement of various features.



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
- 75 • Large range of accessories for standard measurement of threads, grooves, splines, diameters, lengths, shallow spigots and recess diameters etc
- Special anvil designs available P.O.A



TGUSET1



TGUSET2

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BOWERS GROUP

Universal Gauge Sets

Universal Gauge Sets

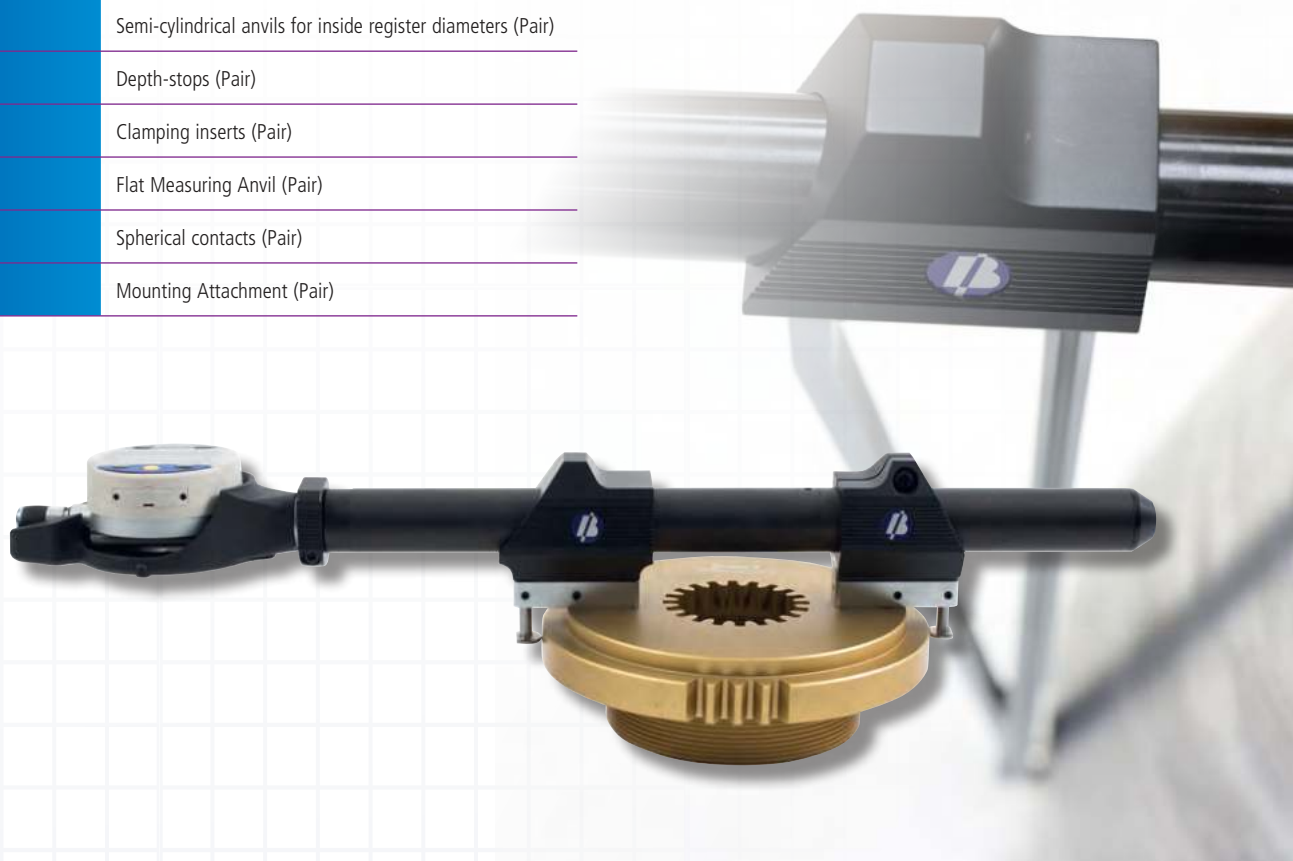
Code No	Description
TGASET1	Large Set with Box

Set Contents - TGASET1

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 - TGASET2

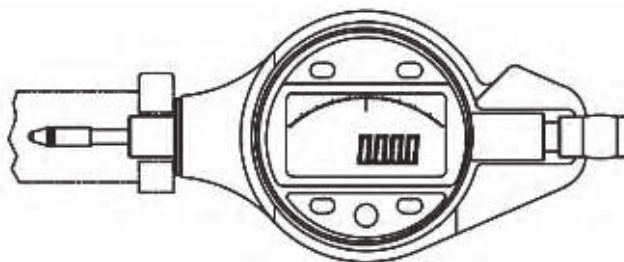
Code No	Description
TGU1000-XT	Universal with Box but without Indicator or Accessories
TGUA001-AN	Digital / Analogue Indicator 25mm / 0.001mm c/w COWL
TGUA003	Clamping inserts (Pair)
TGUA005	Spherical contacts (Pair)
TGUA006	Measuring arms 50mm (Pair)
TGUA010	Depth-stops (Pair)



Universal Gauge & Accessories

Digital Indicator and Protective Shroud

Code No TGUA001-AN



Note: AN denotes Analogue

Code No

TGUA001

TGUA001-BT



Note: BT denotes Bluetooth

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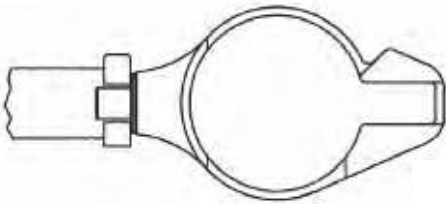


BOWERS GROUP

Universal Gauge & Accessories

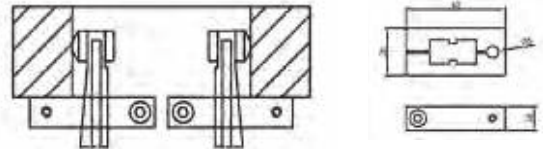
Protective Shroud for
Dial/Digital Indicator

Code No TGUA002



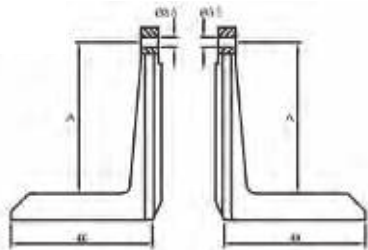
Adjustable Depth Stops for
Measuring Arms (Pair)

Code No TGUA010



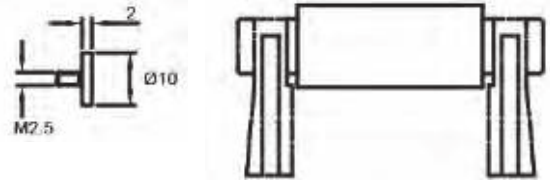
Measuring Arms (Pair)

Code No Dimm A
TGUA006 50
TGUA007 75
TGUA008 100



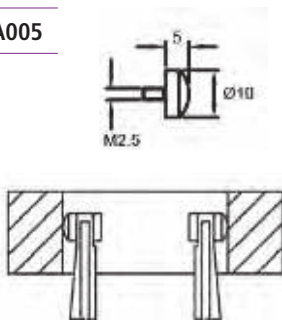
Flat Tips (Single)

Code No TGUA004



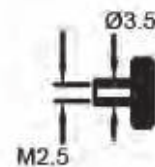
Spherical Tips (Single)

Code No TGUA005



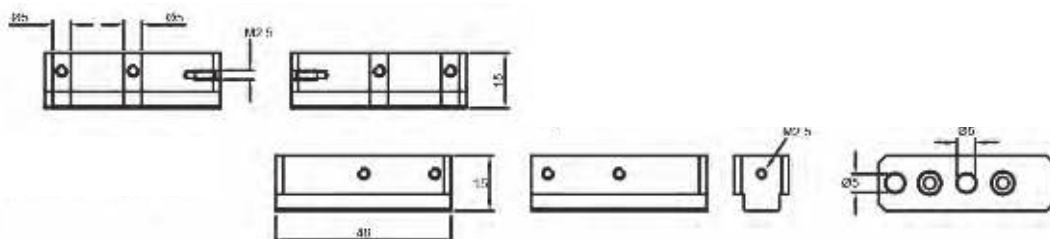
Clamping Insert (Single)

Code No TGUA003



Mounting Attachments for use
with the following Anvils (Pair)

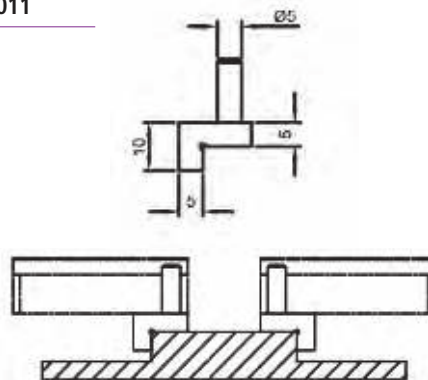
Code No TGUA009



Universal Gauge & Accessories

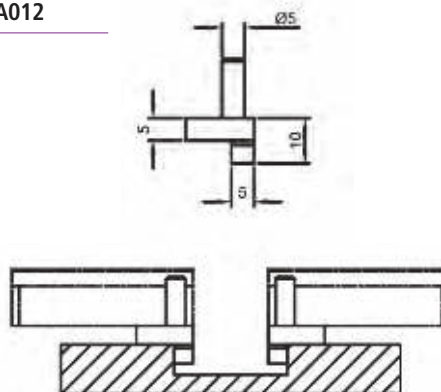
Shoulder Anvils Flat Outside Spigot Diameter (Pair)

Code No TGUA011



Semi-Cylindrical Anvils for Inside Register Diameters (Pair)

Code No TGUA012



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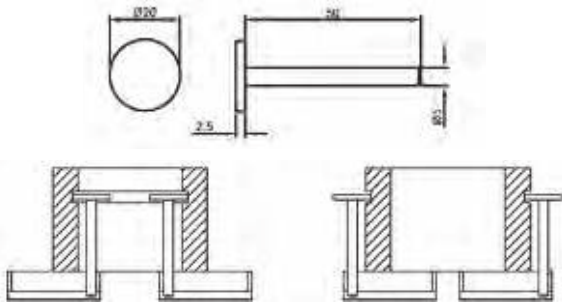


BOWERS GROUP

Universal Gauge & Accessories

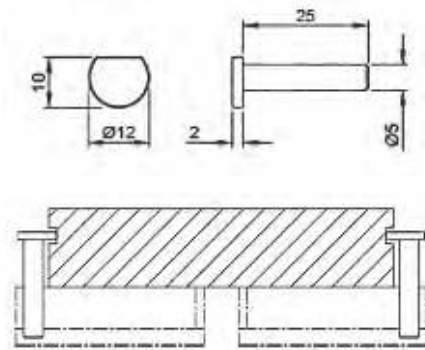
DISC Anvils for measuring Groove Diameter (Pair)

Code No TGUA013



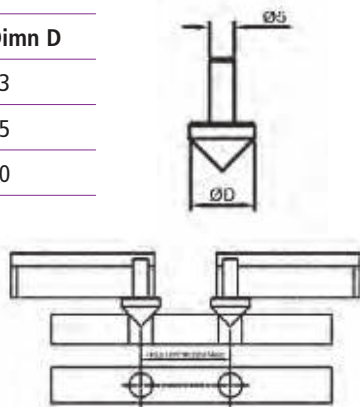
DISC Anvils for measuring Groove Diameter (Pair)

Code No TGUA014



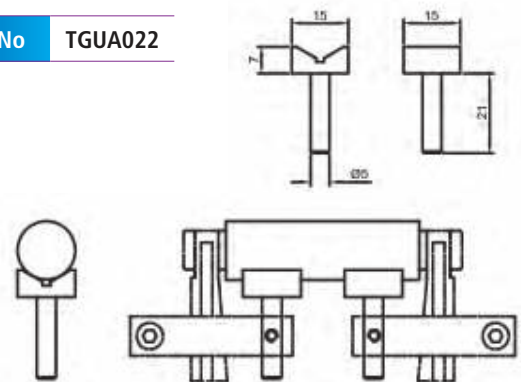
Cone Anvils for Measuring Hole Centre Distance (Pair)

Code No	Dimn D
TGUA019	13
TGUA020	25
TGUA021	50



V Support for Length Measurement (Single)

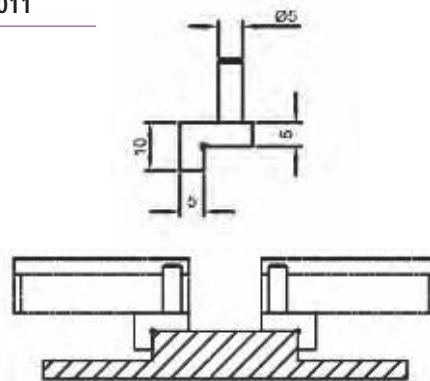
Code No TGUA022



Universal Gauge & Accessories

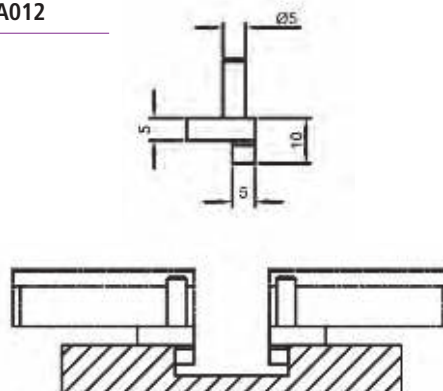
Shoulder Anvils Flat Outside Spigot Diameter (Pair)

Code No TGUA011



Semi-Cylindrical Anvils for Inside Register Diameters (Pair)

Code No TGUA012



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For more information please go to our website using the QR code.

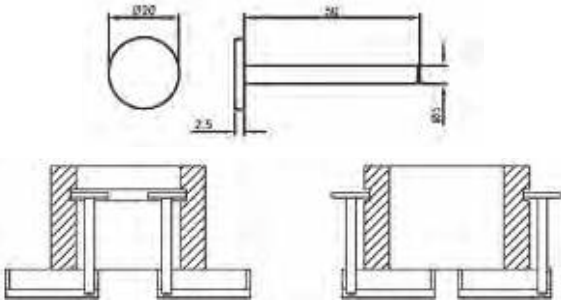


BOWERS GROUP

Universal Gauge & Accessories

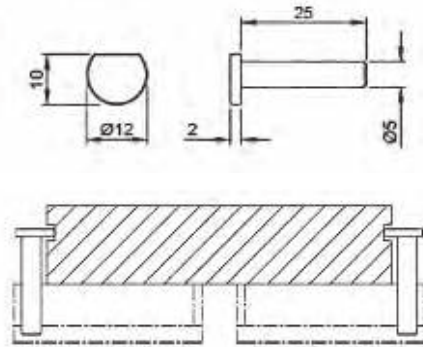
DISC Anvils for measuring
Groove Diameter (Pair)

Code No TGUA013



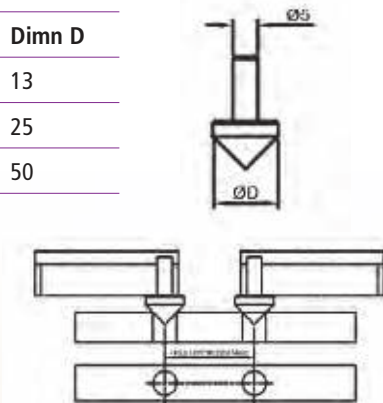
DISC Anvils for measuring
Groove Diameter (Pair)

Code No TGUA014



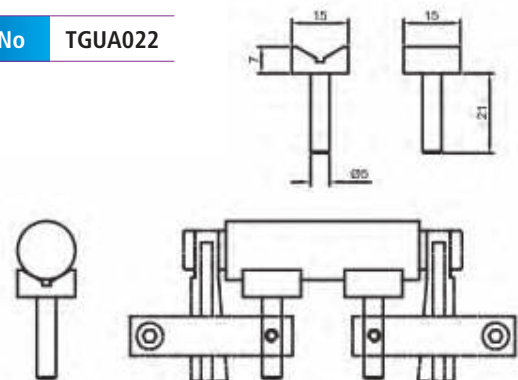
Cone Anvils for Measuring
Hole Centre Distance (Pair)

Code No	Dimn D
TGUA019	13
TGUA020	25
TGUA021	50



V Support for Length
Measurement (Single)

Code No TGUA022



Universal Gauge Extensions



TGUA035



TGUA036



TGUA037

Universal Gauging Extensions		
Code No	Description	Length (mm)
TGUA035	Extension Steel	150
TGUA036	Extension Carbon Fibre	500
TGUA037	Extension Carbon Fibre	1000

Universal Setting Gauge up to 1550 Internal and 1650 External



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Bowers Universal 'Rings' the Changes for Silcoms

Serving the global aero engine and gas turbine industries, Silcoms Ltd is a leading UK supplier of machined rings...

Silcoms supplies its global customer base with a diverse portfolio of rings for all sections of aero-engines, from the fan, through the compressor and combustor to the turbine and exhaust. Projects supported embrace most of today's civil and military programmes including the Trent 900 and GP7000 for the Airbus A380, the Trent 1000, PW1000G, Eurofighter's EJ200 and JSF lift and thrust engines.

Significant capital investment over the last few years has included the acquisition of 5-axis, twin pallet machining centres; large 'ram type' CNC vertical borers with auto tool change; an advanced CMM with scanning capability; and CAD/CAM solid modeling capability to complement DNC programming. A computer controlled balancing machine has also been installed within the company's Fan Seals cell to balance rotating seals.

The company is accredited to BS-EN ISO9001:2008 / AS9100 quality assurance standard and holds NADCAP approval. In addition, Silcoms maintain a number of company specific approvals. The nature of the aero-engine components manufactured by Silcoms means that the highest quality standards are applied across all aspects of the company's activities.

Andrew Morris, Silcoms Engineering Manager explained;

“In addition to our many official accreditations and company approvals, we are also internationally accredited for activities such as balancing and non-destructive testing. Besides in-depth final inspection, we undertake thorough in-process inspection routines on all of our products.

As we are able to both turn, and 5-axis mill aero-engine rings and casings of up to 2 metres in diameter, on the latest CNC machines, the sheer size of our components and their demanding accuracy specifications can result in in-process measuring difficulties.

Although we were able to achieve the required standards of precision with our previously used beam gauges, measuring 2 meter diameter components situated within machine tools proved both awkward and time consuming.

In accordance with our aim of continually improving our operational efficiency, we recently searched for a solution to this measuring problem. Having explored the available modular gauging options, we purchased a Universal Gauge from Bowers Metrology.

Now in constant use, our Universal Gauge's modular construction means that we can assemble it in ways that enables it to accurately carry out all of our more difficult large diameter measurements.

When measuring internal and external diameters, the Universal Gauge's ability to 'freeze' its display on the achieved reading provides great accuracy and repeatability. The gauge's speed and ease of use, and its clear digital display make it ideal for inspecting large parts that are positioned within machine tools.

Our 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.”

Bowers Universal Gauge's ingenious modular format means that it can be quickly configured to suit almost any measuring challenge. Whether measuring internally or externally, the gauge's ingenious constant pressure device ensures that all users achieve both accuracy and consistency of reading, whilst the gauge's findings are displayed on an easy to read digital readout.

The unique modular construction of the Bowers Universal Gauge allows the fitting of a large variety of measuring contacts and adaptors, enabling countless measuring tasks to be completed with ease. Depending on the extensions used, the Universal is able to perform internal and external measurements from 0 – 3000 mm, 0 - 118".

Accessories for the precise measurement of threads, grooves, splines, gears, hole centres, and many other applications are available as standard, whilst Bowers is able to manufacture special adaptations for more unusual applications.



Checkmaster Comparator

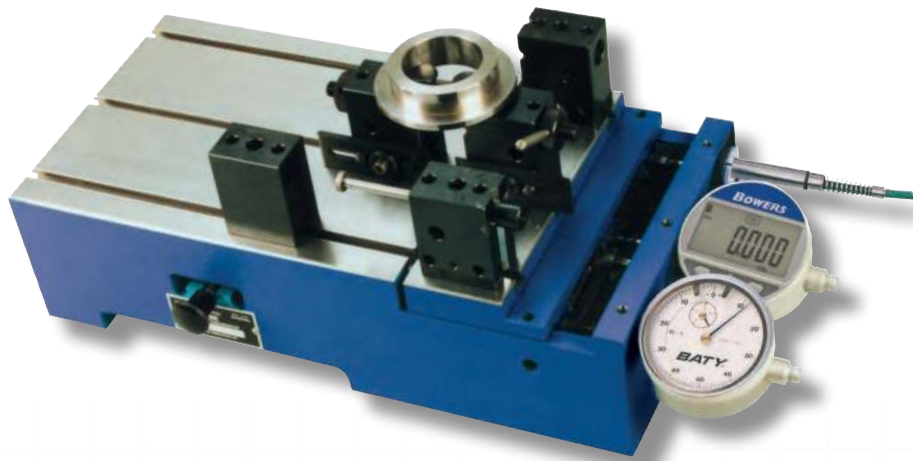
At a Glance

Unique 3 gauge station and readout capability

Features

- Remarkable versatility and repeatability
- Accepts most dial indicators, digital indicators (12.7mm travel) and Gauging Probes
- 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

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.



Checkmaster 1060

Visit our Website

For more information please go to our website using the QR code.



Checkmaster Comparator

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.

Checkmaster Comparator

Code
No

Description

1060-UTS

Universal Tooling Set for 1060 Checkmaster



Checkmaster Tooling Applications and Dimensions

At a Glance

Diameters, internal and external

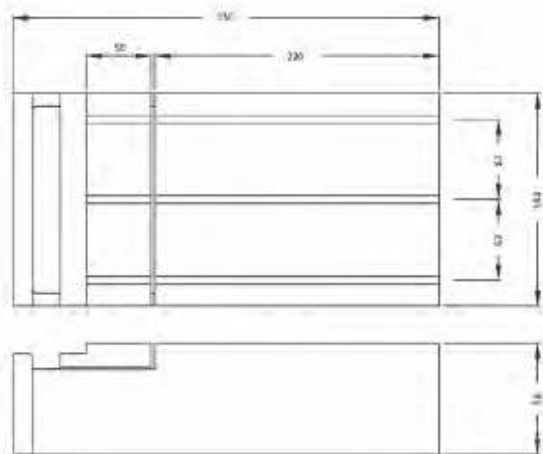
Features

- Undercuts, O 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

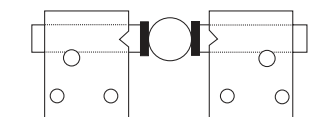
87

Checkmaster 1060

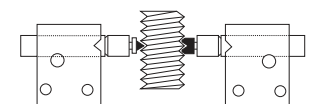
Code No 1060



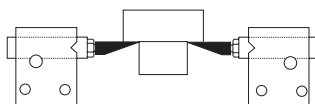
Outside Diameter



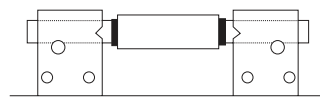
Thread Features



Undercut Depth



Length



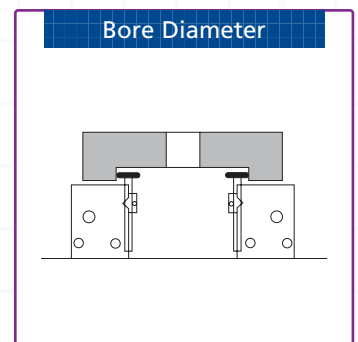
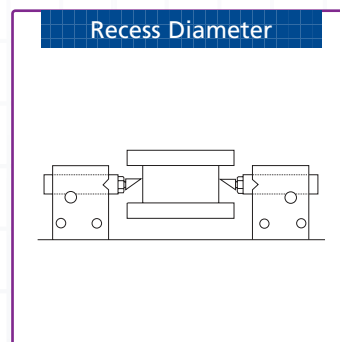
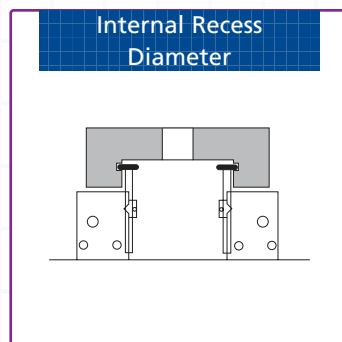
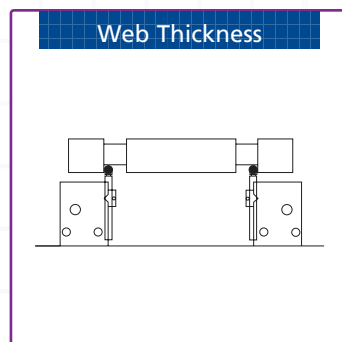
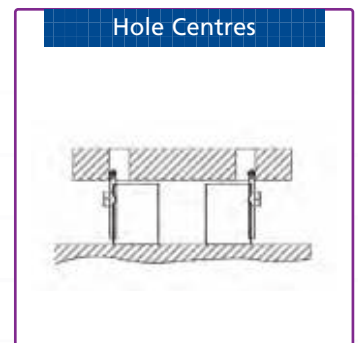
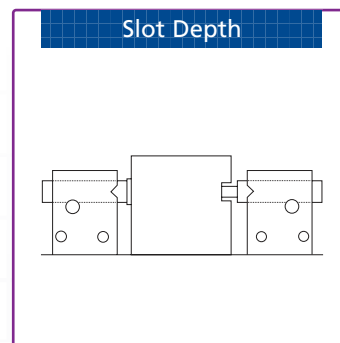
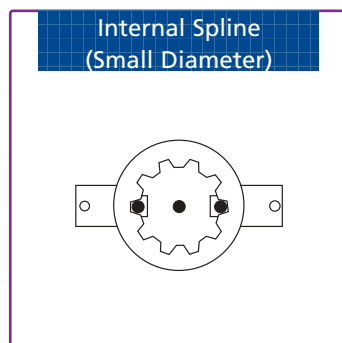
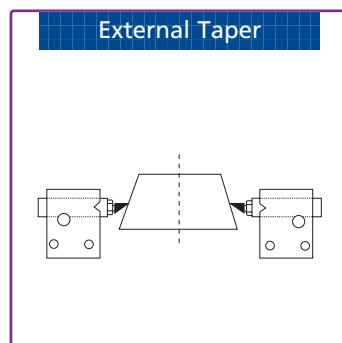
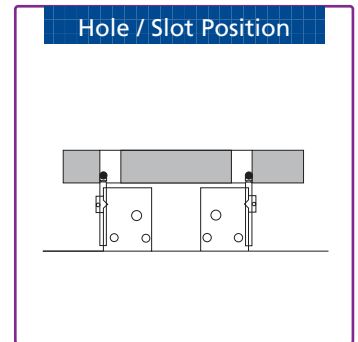
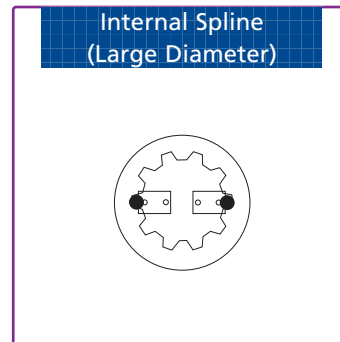
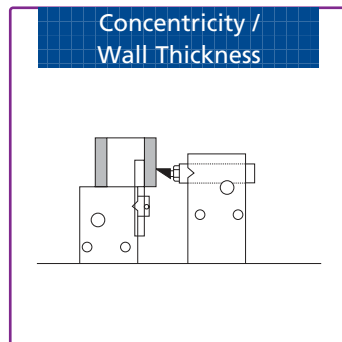
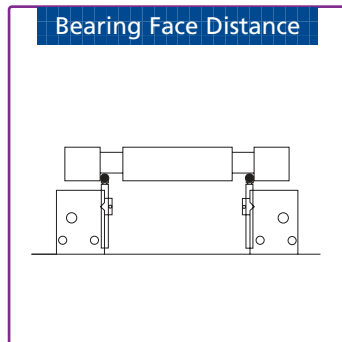
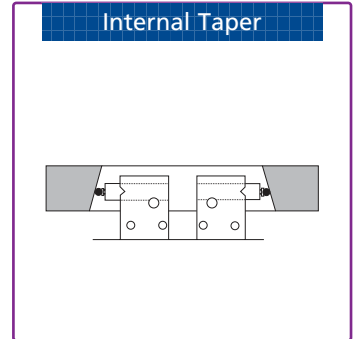
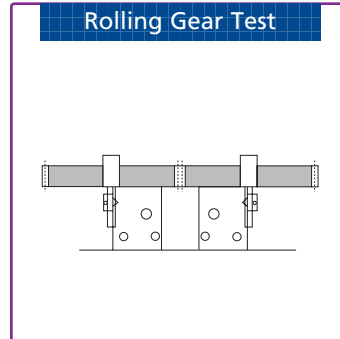
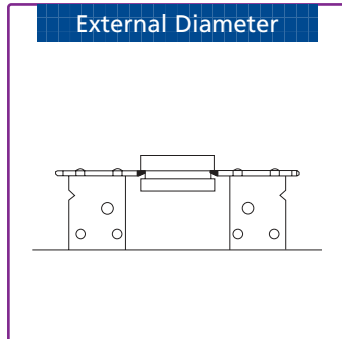
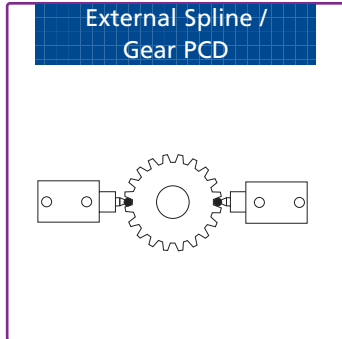
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Applications and Dimensions



INTEX Comparator Beam Gauge

At a Glance



Measuring Ranges: 200-400mm,
400-600mm, 600-800mm,
800-1000mm



Non Bluetooth is available
upon request

WiFi



RS232



Features

- Lightweight and rigid
- 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



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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.



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INTEX Comparator Beam Gauge

Intex Beam Gauge - Without Indicator

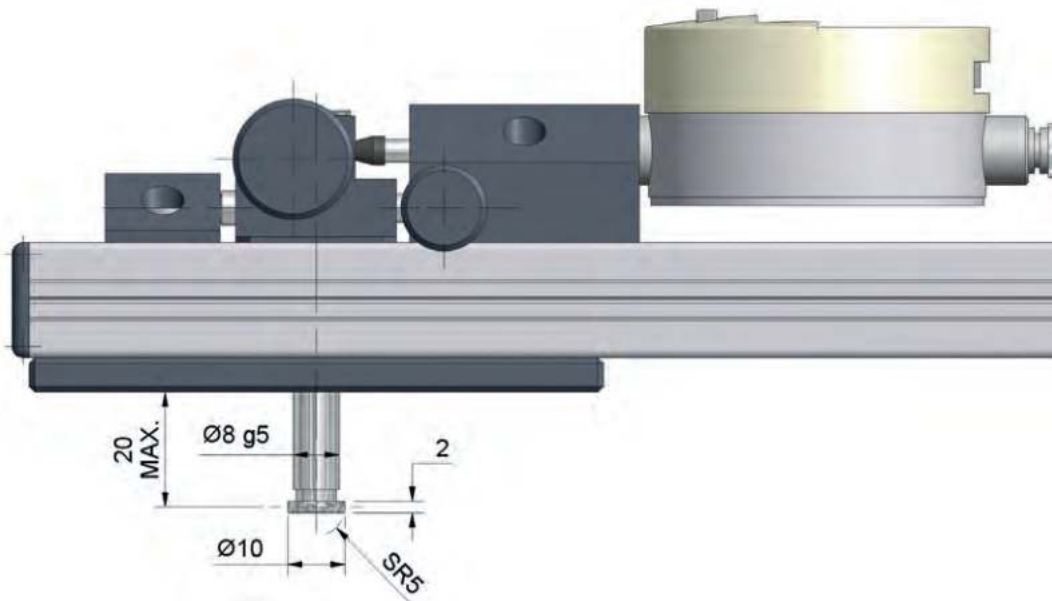
Code No	Range (mm)
INTEX01	200-400
INTEX02	400-600
INTEX03	600-800
INTEX04	800-1000

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

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



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 infinite 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
- Bluetooth option available

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

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

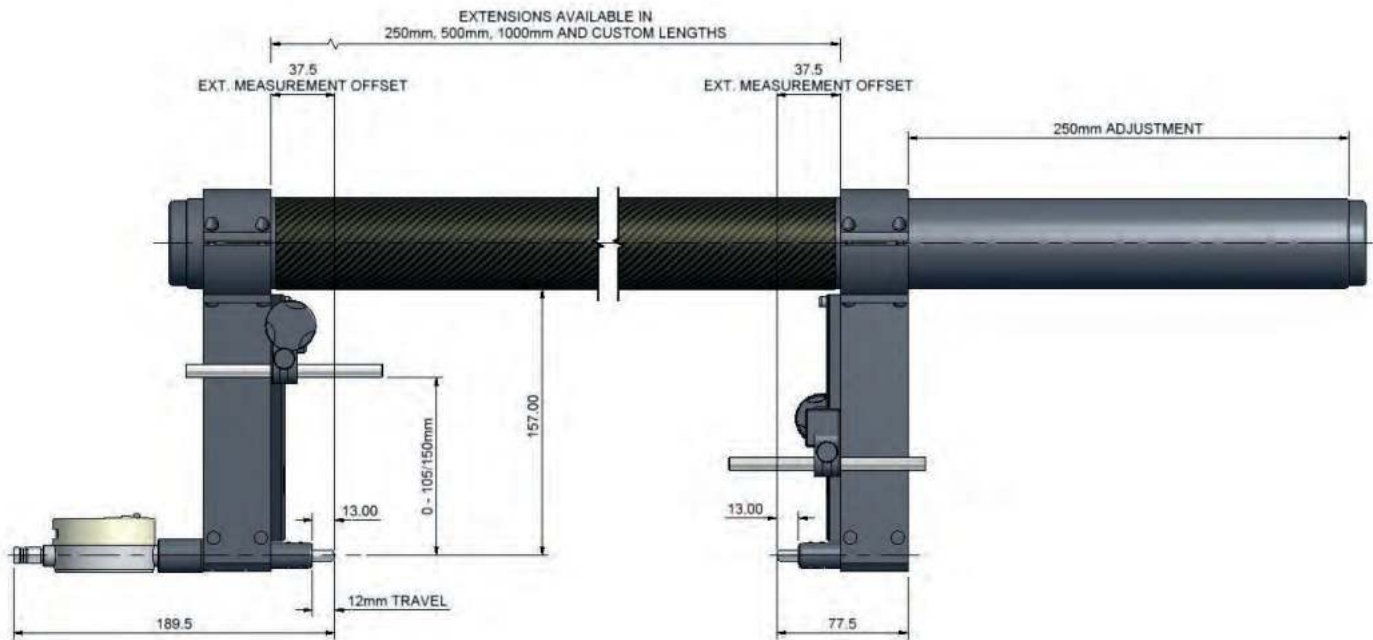
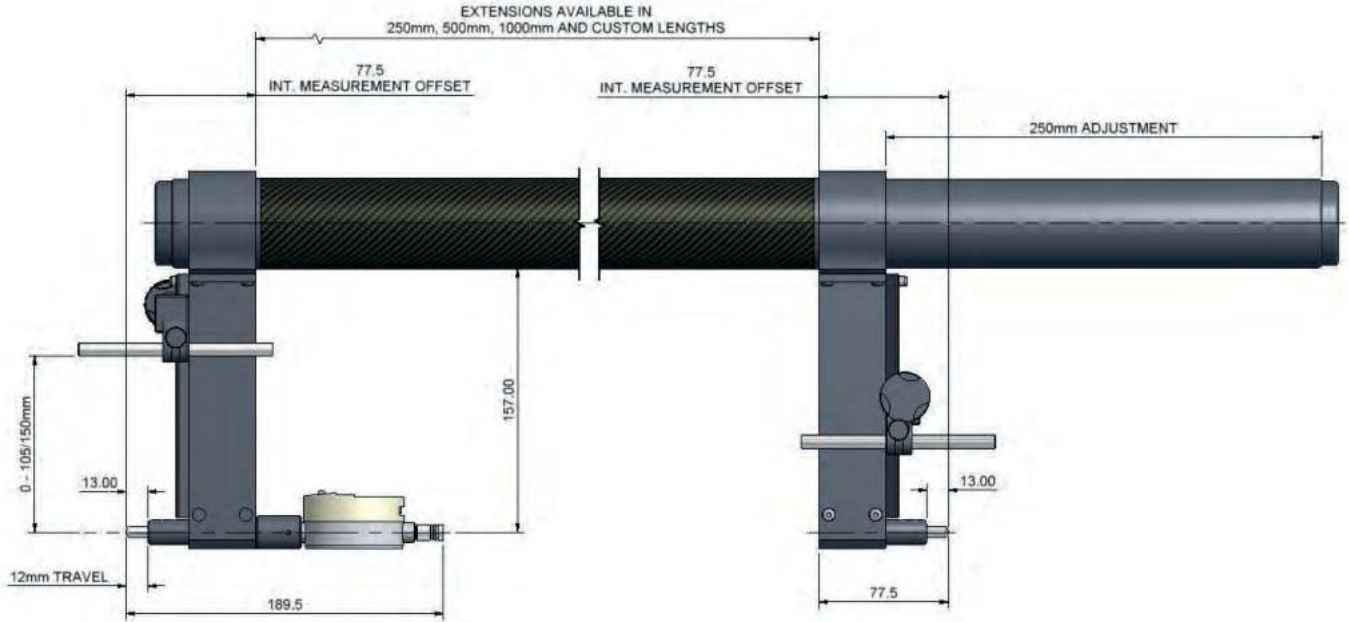
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Carbon Fibre Comparator Beam Gauge



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

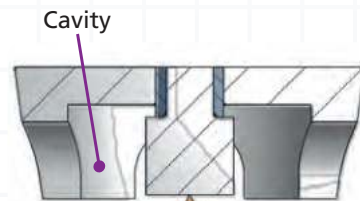
- Other rivet diameters available on request
 - Digital display with mm / inch conversion and preset function
 - Repeatability +/- 0.003µm
 - Scalloped base to facilitate visual location over the rivet
 - Very easy to use
- 93**
- Small portable format
 - Robust construction

Different diameter and contact point options are available on request.

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.



Viewing Ports



Cavity

Contact Face with Rivet

Various Ø

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Digital Countersink Gauge

At a Glance



Standard Range Diameter:
6-16mm / 1/4-5/8"



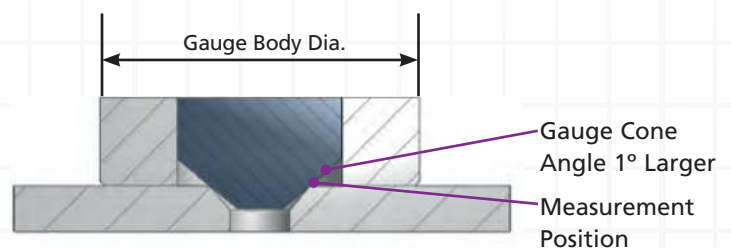
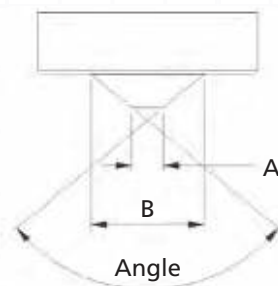
Non Bluetooth is available
upon request



Features

- Digital switchable resolution - inch/metric true conversion
- Preset facility
- Tolerance mode
- Robust construction, hardened plunger, induction hardened body
- Standard plungers available to measure 90°, 100° and 110°
- Other angles available on request
- Setting master supplied as standard

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.



UNICAL 2 Universal Digital Caliper

At a Glance



Maximum speed of displacement: 2 m/sec



IP67 protection



Non Bluetooth is available upon request



Features

- Integrated Bluetooth Smart Low Energy data transmission
- Internal and external measurement
- 95 • System ensures smooth carriage movement and protects the beam against shocks
- Displays upper and lower tolerances
- Extremely light instrument
- 2 references
- Min/Max function
- Tolerance limit indicators
- Supplied complete with adapters for 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.



UNICAL2-400 with accessories

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BOWERS GROUP

UNICAL 2 Universal 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

TGM Analogue Major Calipers

The major versions of **TGM calipers** include hard wearing carbide contact points as standard. As with other TGM products, non-standard applications can be quoted against a component drawing.



TGIC



TGEC

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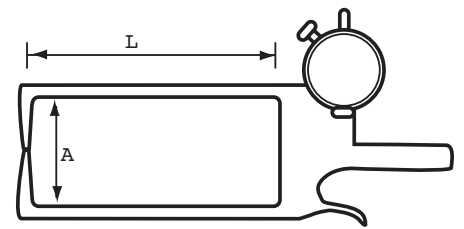


TGM Analogue Major Calipers

Model TGIC

External caliper allowing clearance over such obstructions as flanges, pipes etc.

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

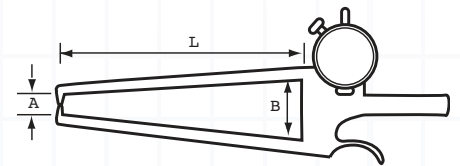


Linear Accuracy +/- 3 Divisions over stated range
Repeatability +/- 1 Division

Model TGEC

External caliper for use where access is limited.

External Calipers - Imperial					
Code No	Dimn - A (inch)	Dimn - B (inch)	Length (inch)	Resolution (inch)	Range (inch)
TGIC061	2 1/8	-	6	0.001	0-2
TGEC061	1	2 1/8	6	0.001	0-2
TGIC062	2 1/8	-	6	0.01	0-2
TGEC062	1	2 1/8	6	0.01	0-2
TGIC101	2 1/8	-	10	0.001	0-2
TGEC101	1	2 1/8	10	0.001	0-2
TGIC102	2 1/8	-	10	0.01	0-2
TGEC102	1	2 1/8	10	0.01	0-2





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