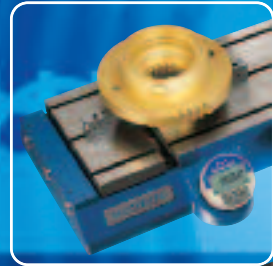




BOWERS METROLOGY

EXPORT CATALOGUE 09/10



Partners in Precision





Introduction

Long recognised as the world’s leading bore gauging manufacturer, Bowers Metrology continues to lead the field within the area of internal measurement.

In response to customer demand and as a result of the company’s continued investment in cutting-edge technology, we now produce an increasingly comprehensive range of affordable, quality instruments intended for other applications, such as external diameters, lengths and depths.

Our first-class reputation has been built on the continuing ethos of striving for excellence in both the comprehensive range of products we manufacture and the quality services that we provide to our customers everywhere.

For further information on any of the products contained in this catalogue please contact the Bowers agent for your area or country or, alternatively, contact us directly at the address below and we will establish contact with your Bowers representative on your behalf.

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XTA Analogue Bore Gauges

Bowers XT Analogue Bore Gauges are an economical solution to accurate shop-floor bore measurement. 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.



Features:

- Range 2 – 300 mm (0.080" – 12")
- 2 – 6mm 2 point/ 6 – 300mm 3 point measurement
- Graduation 2-6mm: 0.001mm, 6-300mm: 0.005mm
- Tungsten carbide measuring faces on all 3-point heads from 12.5mm
- Blind bore measurement from 2mm – 6mm and above 12.5 mm (0.500")
- Extensions available above ø 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 micrometers
- Serial number on all gauges
- Bore gauges manufactured according to DIN 863, part 4

XTA Analogue Bore Gauges

Technical specifications: Individual instruments supplied with setting ring

Code No (mm)	Range (mm)	Code No (inch)	Range (inch)	Accuracy (mm) (inch)	Depth (mm) (inch)	Setting Ring (mm) (inch)
XTA1M	2-2.5	XTA1i	.080-.100	0.004 0.00015	9 0.35	2.50 0.1000
XTA2M	2.5-3	XTA2i	.100-.120	0.004 0.00015	9 0.35	2.50 0.1000
XTA3M	3-4	XTA3i	.120-.160	0.004 0.00015	12 0.47	4.00 0.1600
XTA4M	4-5	XTA4i	.160-.200	0.004 0.00015	18 0.70	4.00 0.1600
XTA5M	5-6	XTA5i	.200-.250	0.004 0.00015	18 0.70	5.00 0.2000
XTA6M	6-8	XTA6i	1/4 - 5/16	0.004 0.00015	58 2.28	8.00 .312
XTA8M	8-10	XTA8i	5/16 - 3/8	0.004 0.00015	58 2.28	8.00 .312
XTA10M	10-12.5	XTA10i	3/8 - 1/2	0.004 0.00012	58 2.28	12.50 .500
XTA12M	12.5-16	XTA12i	1/2 - 5/8	0.004 0.00015	62 2.44	12.50 .500
XTA16M	16-20	XTA16i	5/8 - 3/4	0.004 0.00015	62 2.44	20.00 .750
XTA20M	20-25	XTA20i	3/4 - 1	0.004 0.00015	66 2.62	20.00 .750
XTA25M	25-35	XTA25i	1 - 1 3/8	0.004 0.00015	66 2.62	35.00 1.375
XTA35M	35-50	XTA35i	1 3/8 - 2	0.004 0.00015	80 3.15	35.00 1.375
XTA50M	50-65	XTA50i	2 - 2 5/8	0.005 0.00020	80 3.15	65.00 2.625
XTA65M	65-80	XTA65i	2 5/8 - 3 1/4	0.005 0.00020	80 3.15	65.00 2.625
XTA80M	80-100	XTA80i	3 1/4 - 4	0.005 0.00020	100 3.94	80.00 3.250
XTA100M	100-125	XTA100i	4 - 5	0.006 0.00025	115 4.53	125.00 5.000
XTA125M	125-150	XTA125i	5 - 6	0.006 0.00025	115 4.53	125.00 5.000
XTA150M	150-175	XTA150i	6 - 7	0.007 0.00030	115 4.53	175.00 7.000
XTA175M	175-200	XTA175i	7 - 8	0.007 0.00030	115 4.53	175.00 7.000
XTA200M	200-225	XTA200i	8 - 9	0.008 0.00030	118 4.65	225.00 9.000
XTA225M	225-250	XTA200i	9 - 10	0.008 0.00030	118 4.65	225.00 9.000
XTA250M	250-275	XTA250i	10 - 11	0.009 0.00035	118 4.65	275.00 11.000
XTA275M	275-300	XTA275i	11 - 12	0.009 0.00035	118 4.65	275.00 11.000

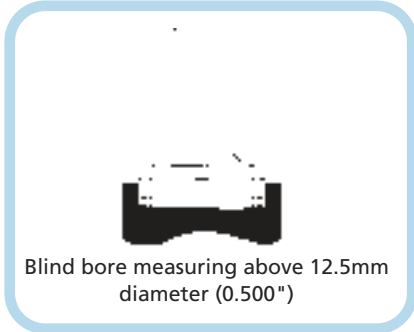
SETS

Range (mm)	Code No.	Range (inch)	Code No.
2 - 3mm	SXTA1M	0.080-0.120	SXTA1i
3 - 6mm	SXTA2M	0.120-0.25	SXTA2i
6 - 10mm	SXTA3M	1/4 - 3/8	SXTA3i
10-20mm	SXTA4M	3/8 - 3/4	SXTA4i
20-50mm	SXTA5M	3/4 - 2	SXTA5i
50-100mm	SXTA6M	2 - 4	SXTA6i
100-150mm	SXTA7M	4 - 6	SXTA7i
150-200mm	SXTA8M	6 - 8	SXTA8i



EXTENSIONS

Code No.	Length mm	inch	To fit heads mm	inch
EGX 0200	63	2.5	6 - 10	1/4 - 3/8
EGX 0400	76	3.0	10 - 12.5	3/8 - 1/2
EGX 0500	100	4.0	12.5 - 20	1/2 - 3/4
EGX 0001	150	6.0	20 - 50	3/4 - 2
EGX 0004	150	6.0	50 - 300	2 - 12



XTD Digital Bore Gauges

Bowers XTD digital internal micrometers give the operator the advantage of traditional quality ratchet gauges allied to advanced IP65 electronics. 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 XT range of internal micrometers can be supplied as individual instruments or in complete sets. All XT instruments give the user the advantage of extended measuring travel with fixed anvils and UKAS certification of both measuring head and setting ring as standard.



Features

- IP65 electronics
- Simple 2-button operation
- Large easy-to-read display
- 3 preset memories
- RS-232C output
- Range 2 – 300 mm (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 12.5 mm (0.500")
- Extensions available above 6mm for deep hole measurement
- Ratchet stop to ensure consistent measurement
- Setting rings included with individual instruments and sets
- UKAS certificates supplied as standard with all setting rings
- UKAS certificates supplied as standard with all 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

XTD Digital Bore Gauges

TECHNICAL SPECIFICATIONS: Individual instruments supplied with digital display unit, head and ring

Code No (mm)	Range (mm)	Code No (inch)	Range (inch)	Accuracy (mm) (inch)	Depth (mm) (inch)	Display Unit	Setting Ring (mm) (inch)
XTD1M	2-2.5	XTD1i	.080-.100	0.004 0.00015	9 0.35	XTDU2	2.50 0.1000
XTD2M	2.5-3	XTD2i	.100-.120	0.004 0.00015	9 0.35	"	2.50 0.1000
XTD3M	3-4	XTD3i	.120-.160	0.004 0.00015	12 0.47	"	4.00 0.1600
XTD4M	4-5	XTD4i	.160-.200	0.004 0.00015	18 0.70	"	4.00 0.1600
XTD5M	5-6	XTD5i	.200-.250	0.004 0.00015	18 0.70	"	5.00 0.2000
XTD6M	6-8	XTD6i	1/4 - 5/16	0.004 0.00015	58 2.28	XTDU6	8.00 .312
XTD8M	8-10	XTD8i	5/16 - 3/8	0.004 0.00015	58 2.28	"	8.00 .312
XTD10M	10-12.5	XTD10i	3/8 - 1/2	0.004 0.00015	58 2.28	XTDU10	12.50 .500
XTD12M	12.5-16	XTD12i	1/2 - 5/8	0.004 0.00015	62 2.44	"	12.50 .500
XTD16M	16-20	XTD16i	5/8 - 3/4	0.004 0.00015	62 2.44	"	20.00 .750
XTD20M	20-25	XTD20i	3/4 - 1	0.004 0.00015	66 2.62	XTDU20	20.00 .750
XTD25M	25-35	XTD25i	1 - 1 3/8	0.004 0.00015	66 2.62	"	35.00 1.375
XTD35M	35-50	XTD35i	1 3/8 - 2	0.004 0.00015	80 3.15	"	35.00 1.375
XTD50M	50-65	XTD50i	2 - 2 5/8	0.005 0.00020	80 3.15	XTDU50	65.00 2.625
XTD65M	65-80	XTD65i	2 5/8 - 3 1/4	0.005 0.00020	80 3.15	"	65.00 2.625
XTD80M	80-100	XTD80i	3 1/4 - 4	0.005 0.00020	100 3.94	"	80.00 3.250
XTD100M	100-125	XTD100i	4 - 5	0.006 0.00025	115 4.53	XTDU100	125.00 5.000
XTD125M	125-150	XTD125i	5 - 6	0.006 0.00025	115 4.53	"	125.00 5.000
XTD150M	150-175	XTD150i	6 - 7	0.007 0.00030	115 4.53	"	175.00 7.000
XTD175M	175-200	XTD175i	7 - 8	0.007 0.00030	115 4.53	"	175.00 7.000
XTD200M	200-225	XTD200i	8 - 9	0.008 0.00030	118 4.65	XTDU200	225.00 9.000
XTD225M	225-250	XTD200i	9 - 10	0.008 0.00030	118 4.65	"	225.00 9.000
XTD250M	250-275	XTD250i	10 - 11	0.009 0.00035	118 4.65	"	275.00 11.000
XTD275M	275-300	XTD275i	11 - 12	0.009 0.00035	118 4.65	"	275.00 11.000

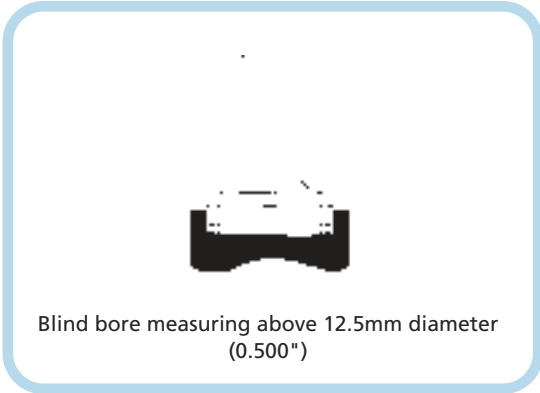


SETS Supplied with digital display unit, heads and rings

Range mm	Code No	Range (inch)	Code No
2 - 6mm	SXTD1M	0.080-0.25"	SXTD1i
6 - 10mm	SXTD3M	1/4 - 3/8"	SXTD3i
10-20mm	SXTD4M	3/8 - 3/4"	SXTD4i
20-50mm	SXTD5M	3/4 - 2"	SXTD5i
50-100mm	SXTD6M	2 - 4"	SXTD6i
100-150mm	SXTD7M	4 - 6"	SXTD7i
150-200mm	SXTD8M	6 - 8"	SXTD8i
100-200mm	SXTD9M	4 - 8"	SXTD9i

EXTENSIONS

Code No	Length mm	inch	To Fit Heads mm	inch
EGX 0200	63	2.5	6 - 10	1/4 – 3/8
EGX 0400	76	3.0	10 - 12.5	3/8 – 1/2
EGX 0500	100	4.0	12.5 - 20	1/2 – 3/4
EGX 0001	150	6.0	20 - 50	3/4 – 2
EGX 0004	150	6.0	50 - 300	2 – 12



Blind bore measuring above 12.5mm diameter (0.500")

XT Holematic Digital Pistol-grip Bore Gauges

The Bowers XT Holematic bore gauge incorporates an ergonomic pistol grip handle with an advanced trigger action, giving the user the advantages of both speed of operation and a constant measuring pressure. The clear digital display, superior IP65 electronics and application range of 2 to 300mm ensures ease of use and assured accuracy.

The XT Holematic pistol grip range of bore gauges can be supplied as individual instruments or in complete sets. All XT instruments give the user the advantage of extended measuring travel with fixed anvils and UKAS certification of both measuring head and setting ring as standard.



Features:

- IP65 Electronics
- Simple 2-button operation
- Large easy-to-read swivel display
- 3 preset memories
- RS-232C output
- Self-centering heads
- Constant measuring pressure
- 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 12.5 mm (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 as standard with all pistol-grip 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 DIN 863, part 4

XT Holematic Digital Pistol-grip Bore Gauges

TECHNICAL SPECIFICATIONS: Individual instruments supplied with digital pistol grip, head and ring

Code No (mm)	Range (mm)	Code No (inch)	Range (inch)	Accuracy (mm) (inch)	Depth (mm) (inch)	Pistol Grip	Setting ring (mm) (inch)
XTH1M	2-2.5	XTH1i	.080-.100	0.004 0.00015	9 0.35	XTPG01	2.50 0.1000
XTH2M	2.5-3	XTH2i	.100-.120	0.004 0.00015	9 0.35	"	2.50 0.1000
XTH3M	3-4	XTH3i	.120-.160	0.004 0.00015	12 0.47	"	4.00 0.1600
XTH4M	4-5	XTH4i	.160-.200	0.004 0.00015	18 0.70	"	4.00 0.1600
XTH5M	5-6	XTH5i	.200-.250	0.004 0.00015	18 0.70	"	5.00 0.2000
XTH6M	6-8	XTH6i	1/4 - 5/16	0.004 0.00015	58 2.28	XTPG02	8.00 .312
XTH8M	8-10	XTH8i	5/16 - 3/8	0.004 0.00015	58 2.28	"	8.00 .312
XTH10M	10-12.5	XTH10i	3/8 - 1/2	0.004 0.00015	58 2.28	"	12.50 .500
XTH12M	12.5-16	XTH12i	1/2 - 5/8	0.004 0.00015	62 2.44	"	12.50 .500
XTH16M	16-20	XTH16i	5/8 - 3/4	0.004 0.00015	62 2.44	"	20.00 .750
XTH20M	20-25	XTH20i	3/4 - 1	0.004 0.00015	66 2.62	XTPG03	20.00 .750
XTH25M	25-35	XTH25i	1 - 1 3/8	0.004 0.00015	66 2.62	"	35.00 1.375
XTH35M	35-50	XTH35i	1 3/8 - 2	0.004 0.00015	80 3.15	"	35.00 1.375
XTH50M	50-65	XTH50i	2 - 2 5/8	0.005 0.00020	80 3.15	"	65.00 2.625
XTH65M	65-80	XTH65i	2 5/8 - 3 1/4	0.005 0.00020	80 3.15	"	65.00 2.625
XTH80M	80-100	XTH80i	3 1/4 - 4	0.005 0.00020	85 3.35	"	80.00 3.250
XTH100M	100-125	XTH100i	4 - 5	0.006 0.00025	100 3.94	XTPG04	125.00 5.000
XTH125M	125-150	XTH125i	5 - 6	0.006 0.00025	100 3.94	"	125.00 5.000
XTH150M	150-175	XTH150i	6 - 7	0.007 0.00030	100 3.94	"	175.00 7.000
XTH175M	175-200	XTH175i	7 - 8	0.007 0.00030	100 3.94	"	175.00 7.000
XTH200M	200-225	XTH200i	8 - 9	0.008 0.00030	100 3.94	"	225.00 9.000
XTH225M	225-250	XTH200i	9 - 10	0.008 0.00030	103 4.05	"	225.00 9.000
XTH250M	250-275	XTH250i	10 - 11	0.009 0.00035	103 4.05	"	275.00 11.000
XTH275M	275-300	XTH275i	11 - 12	0.009 0.00035	103 4.05	"	275.00 11.000

SETS: Supplied with digital pistol grip, heads and rings

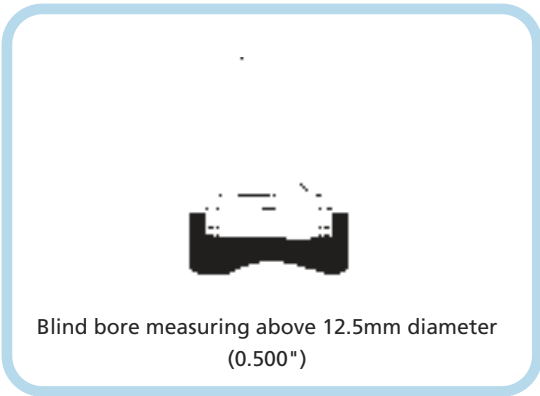
Range (mm)	Code No	Range (inch)	Code No
2 - 6mm	SXTH1M	0.080-0.25"	SXTH1i
6 - 10mm	SXTH3M	1/4 - 3/8"	SXTH3i
10-20mm	SXTH4M	3/8 - 3/4"	SXTH4i
20-50mm	SXTH5M	3/4 - 2"	SXTH5i
50-100mm	SXTH6M	2 - 4"	SXTH6i
100-150mm	SXTH7M	4 - 6"	SXTH7i
150-200mm	SXTH8M	6 - 8"	SXTH8i
100-200mm	SXTH9M	4 - 8"	SXTH9i

LARGE SETS: Supplied with digital pistol grip, heads and rings

Range (mm)	Code No	Range (inch)	Code No
6 - 20 mm	SXTH10M	1/4 - 3/4"	SXTH10i
20 - 100mm	SXTH11M	3/4 - 4"	SXTH11i

EXTENSIONS

Code No	Length mm	inch	To Fit Heads mm	inch
EGX 0200	63	2.5	6 - 10	1/4 – 3/8
EGX 0400	76	3.0	10 - 12.5	3/8 – 1/2
EGX 0500	100	4.0	12.5 - 20	1/2 – 3/4
EGX 0001	150	6.0	20 - 50	3/4 – 2
EGX 0004	150	6.0	50 - 300	2 – 12



Pistol-grip Bore Gauge with Indicator



Features

- Uses XT measuring heads
- Measurement range from 6 - 100mm / 1/4 - 4"
- Ergonomically designed pistol grip body
- LCD display unit with rotating display for easy reading at any angle
- Functions include 2 pre-set memories, tolerance indicator lights and mm / inch conversion
- RS232 data output facility
- Self centering measuring heads with tungsten carbide contact points
- Setting rings provided with each instrument complete with UKAS certification
- Blind bore measurement on all instruments above 12.5mm / 1/2"
- Available as individual instruments or boxed sets
- Diameter above 100mm available on request
- Prices include setting rings

BOXED SETS			
Range (mm)	Depth (mm)	Accuracy (mm)	Cat No
6 - 10	58	0.004	SXTHSY3M
10 - 20	62	0.004	SXTHSY4M
20 - 50	66	0.004	SXTHSY5M
50 - 100	82	0.005	SXTHSY6M
6 - 20	58 - 62	0.004	SXTHSY10M
20 - 100	66 - 82	0.005	SXTHSY11M

Ultima – Electronic Bore Gauge

The **Bowers Ultima** electronic bore gauging system offers a choice of resolutions up to 0.0001mm. Featuring FASTFIT twin-start threads for quick fitting of measuring heads and extended ranges (above 14mm) the Ultima system's simple lever operation and constant measuring force provide outstanding repeatability and ease of use.



Features

- Measuring range 2 – 310mm (0.080" – 12.000")
- Resolution: 0.0001mm (0.00001")
- Constant spring pressure for top repeatability
- Good positive feel as heads self-centre in the bore
- Bowers Fastfit measuring heads for rapid changeover
- UKAS certificates standard for all measuring heads
- UKAS certificates standard for all setting rings
- Multi-probe option: If you already have your own measuring probes and readouts in most cases these can be matched to the Ultima system, representing a saving for you
- Ceramic anvils on heads above 12mm
- Blind-bore measurement standard above 12mm
- Possible to connect several 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)

Ultima

TECHNICAL SPECIFICATIONS:

Head Code No	Range		Accuracy		Repeat		Measuring Depth		Code No	Setting Ring		Holder Type
	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	
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	PH2
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	PH2
ULH8	3.0-4.0	0.118 - 0.157	0.0010	0.00004	≤ 0.0010	≤ 0.00004	12	0.47	ULR4	4	0.157	PH2
ULH9	4.0-5.0	0.157 - 0.197	0.0010	0.00004	≤ 0.0010	≤ 0.00004	18	0.71	ULR5	5	0.197	PH2
ULH10	5.0-6.0	0.197 - 0.236	0.0010	0.00004	≤ 0.0010	≤ 0.00004	18	0.71	ULR5	5	0.197	PH2
ULH11	6-8	0.236 - 0.315	0.0010	0.00004	≤ 0.0010	≤ 0.00004	60	2.36	ULR8	8	0.315	PH3
ULH12	8-10	0.315 - 0.393	0.0010	0.00004	≤ 0.0010	≤ 0.00004	60	2.36	ULR8	8	0.315	PH3
ULH13	10-12	0.393 - 0.472	0.0010	0.00004	≤ 0.0010	≤ 0.00004	61	2.40	ULR12	12	0.472	PH3
ULH14	12-14	0.472 - 0.550	0.0010	0.00004	≤ 0.0010	≤ 0.00004	61	2.40	ULR12	12	0.472	PH3
ULH15	14-17	0.550 - 0.670	0.0010	0.00004	≤ 0.0010	≤ 0.00004	61	2.40	ULR17	17	0.670	PH3
ULH16	17-20	0.670 - 0.787	0.0010	0.00004	≤ 0.0010	≤ 0.00004	61	2.40	ULR17	17	0.670	PH3
ULH17	20-24	0.787 - 0.945	0.0010	0.00004	≤ 0.0010	≤ 0.00004	69	2.72	ULR24	24	0.945	PH4
ULH18	24-28	0.945 - 1.100	0.0010	0.00004	≤ 0.0010	≤ 0.00004	69	2.72	ULR24	24	0.945	PH4
ULH19	28-32	1.100 - 1.260	0.0010	0.00004	≤ 0.0010	≤ 0.00004	69	2.72	ULR32	32	1.260	PH4
ULH20	32-38	1.260 - 1.500	0.0010	0.00004	≤ 0.0010	≤ 0.00004	72	2.83	ULR32	32	1.260	PH4
ULH21	38-44	1.500 - 1.730	0.0010	0.00004	≤ 0.0010	≤ 0.00004	72	2.83	ULR44	44	1.730	PH4
ULH22	44-50	1.730 - 1.970	0.0010	0.00004	≤ 0.0010	≤ 0.00004	72	2.83	ULR44	44	1.730	PH4
ULH23	50-60	1.970 - 2.360	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR60	60	2.360	PH4
ULH24	60-70	2.360 - 2.756	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR60	60	2.360	PH4
ULH25	70-80	2.756 - 3.150	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR80	80	3.150	PH4
ULH26	80-90	3.150 - 3.543	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR80	80	3.150	PH4
ULH27	90-100	3.543 - 3.940	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR100	100	3.940	PH4
ULH28	100-110	3.940 - 4.330	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR100	100	3.940	PH5
ULH29	110-120	4.330 - 4.725	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR120	120	4.725	PH5
ULH30	120-130	4.725 - 5.120	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR120	120	4.725	PH5
ULH31	130-140	5.120 - 5.510	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR140	140	5.510	PH5
ULH32	140-150	5.510 - 5.900	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR140	140	5.510	PH5
ULH33	150-160	5.900 - 6.300	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR160	160	6.300	PH5
ULH34	160-170	6.300 - 6.690	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR160	160	6.300	PH5
ULH35	170-180	6.690 - 7.090	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR180	180	7.090	PH5
ULH36	180-190	7.090 - 7.480	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR180	180	7.090	PH5
ULH37	190-200	7.480 - 7.875	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR200	200	7.875	PH5
ULH38	200-210	7.875 - 8.270	0.0015	0.00006	≤ 0.0010	≤ 0.00004	80	3.15	ULR200	200	7.875	PH5
ULH39	210-220	8.270 - 8.661	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR220	220	8.661	PH5
ULH40	220-230	8.661 - 9.055	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR220	220	8.661	PH5
ULH41	230-240	9.055 - 9.449	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR240	240	9.449	PH5
ULH42	240-250	9.449 - 9.842	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR240	240	9.449	PH5
ULH43	250-260	9.842 - 10.236	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR260	260	10.236	PH5
ULH44	260-270	10.236 - 10.630	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR260	260	10.236	PH5
ULH45	270-280	10.630 - 11.024	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR280	280	11.024	PH5
ULH46	280-290	11.024 - 11.417	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR280	280	11.024	PH5
ULH47	290-300	11.417 - 11.811	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR300	300	11.811	PH5
ULH48	300-310	11.811 - 12.200	0.0020	0.00008	≤ 0.0020	≤ 0.00008	80	3.15	ULR300	300	11.811	PH5

Ultima

SETS

USET2	2-6
USET3	6-10
USET4	10-20
USET7	6-20
USET8	20-50
USET9	50-100
USET10	20-100

Sets including Sylvac probe holder with probe, digital readout, measuring heads, setting rings and full UKAS-certification.

Ultima probe holders are also available for customers who already have digital readouts made by other manufacturers.

PROBE HOLDERS INCLUDING SYLVAC TRANSDUCER PROBE

PH2	2-6
PH3	6-20
PH4	20-100
PH5	100-310

ULTIMA STANDARD EXTENSIONS

UEXT0200	63mm for heads 6-10mm
UEXT0300	75mm for heads 10-12mm
UEXT0001	100mm for heads 12-20mm
UEXT0002	150mm for heads 20-50mm
UEXT0004	150mm for heads 50 + mm

Extensions can be screwed together for deeper bores.

ULTIMA SHORT EXTENSIONS 50MM

UXSH4	50mm for heads 20-50mm
UXSH5	50mm for heads 50 + mm

Extensions can be screwed together for deeper bores.

DIGITAL READOUTS

30-804-1050	D50S Digital Readout Unit
30-804-1080	D80S Digital Readout Unit
30-904-1101	D102 2-Channel Unit
30-904-1108	D108 8-Channel Unit
30-904-4101	Foot Pedal for D80S



DEPTH STOPS AVAILABLE FOR ALL HEADS



Special Bore Measurement

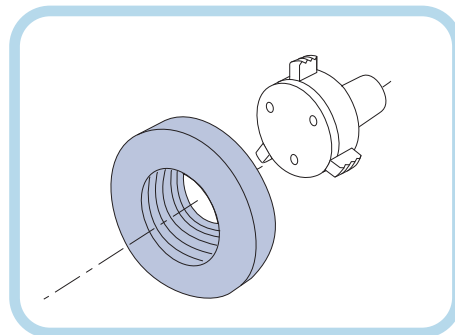
Although Bowers produce the most comprehensive series of bore gauges and internal measuring equipment available, not all applications can be covered by our standard instrument range. In line with our customer care ethos, Bowers have earned a reputation for manufacturing special heads for measuring non-standard applications. The following information illustrates some of the many difficult measuring problems easily solved by these special heads.

WiFi

RS232

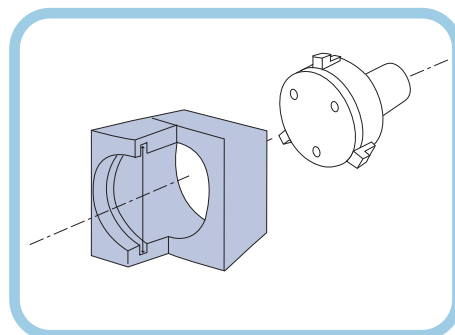
Screw Threads

To measure effective (functional) diameter between M4-300mm./No. 8 UN-12". Also available for pitch diameter measurement and major diameter measurement.



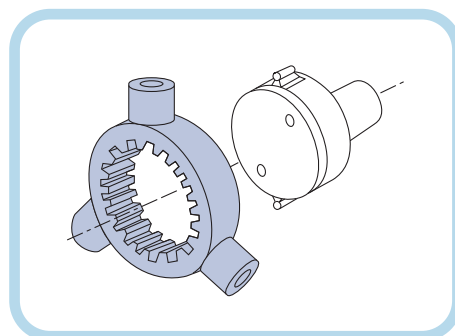
Grooves

For sizes from 2mm-300mm diameter.



Internal Splines

2 and 3 point heads available. Anvils manufactured from tool steel. Diameters from 12-300mm (1/2"-12").



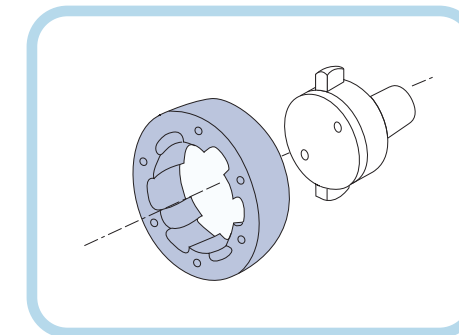
Special Bore Measurement

WiFi

RS232

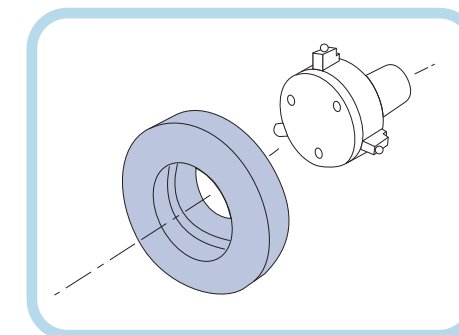
Spherical Radius

2 point available from 3-150mm.
3 point from 6-300mm.



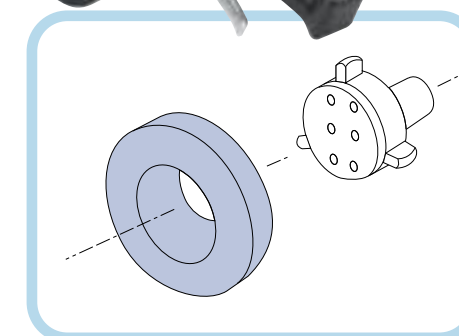
Ball Screw Threads

From Ø M10



Deep Hole

Up to 2 metres deep with standard extensions. Pneumatic system available from 50mm diameter for depths of up to 15 metres.

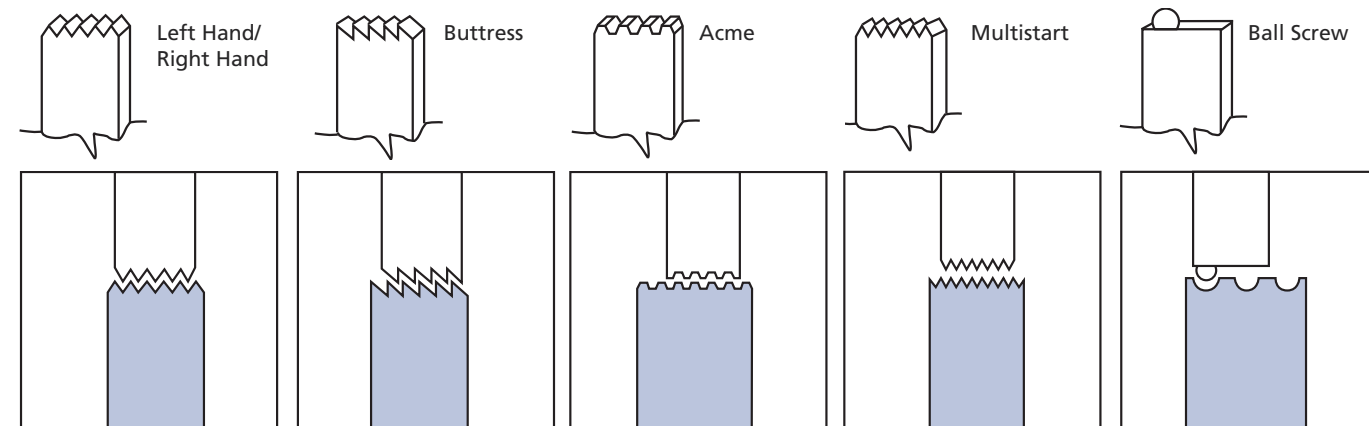
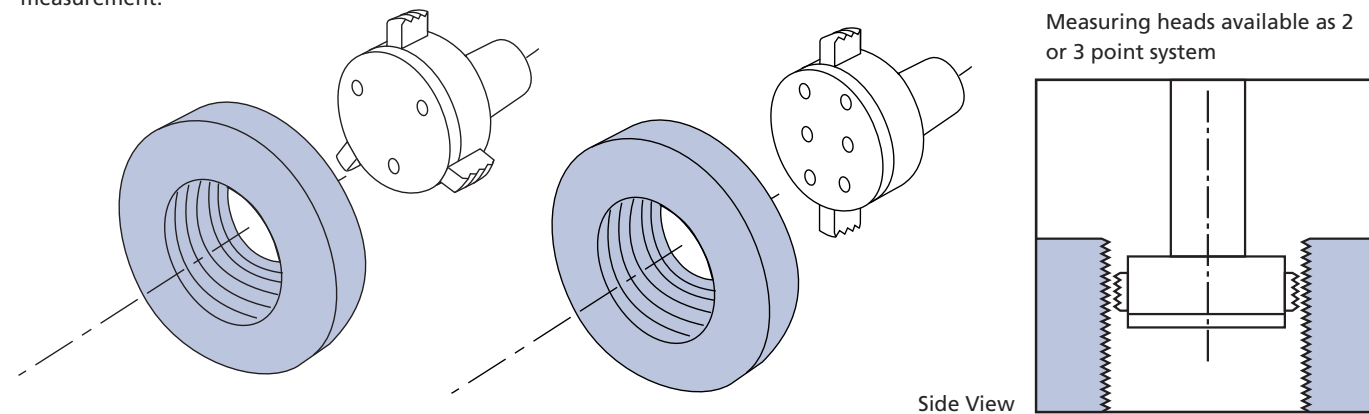


Special Bore Measurement

SCREW THREADS

Internal Threads

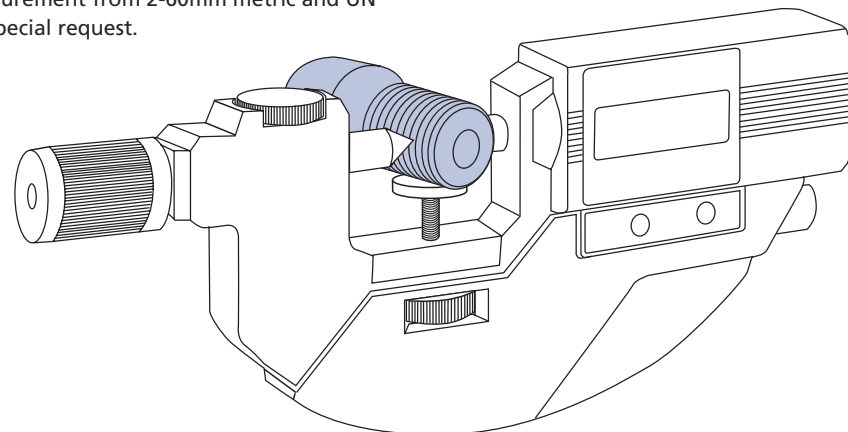
To measure effective (functional) diameter between M4-300mm. (No.8 UN-12").
Also available for pitch diameter measurement and major diameter measurement.



Available for the following types of thread form: UN (UNF, UNC, UNJ, UNS) Metric, Acme, Whitworth, Buttress, BSP, BA, BSF, PG, Standard Pitches, LH.

External Threads

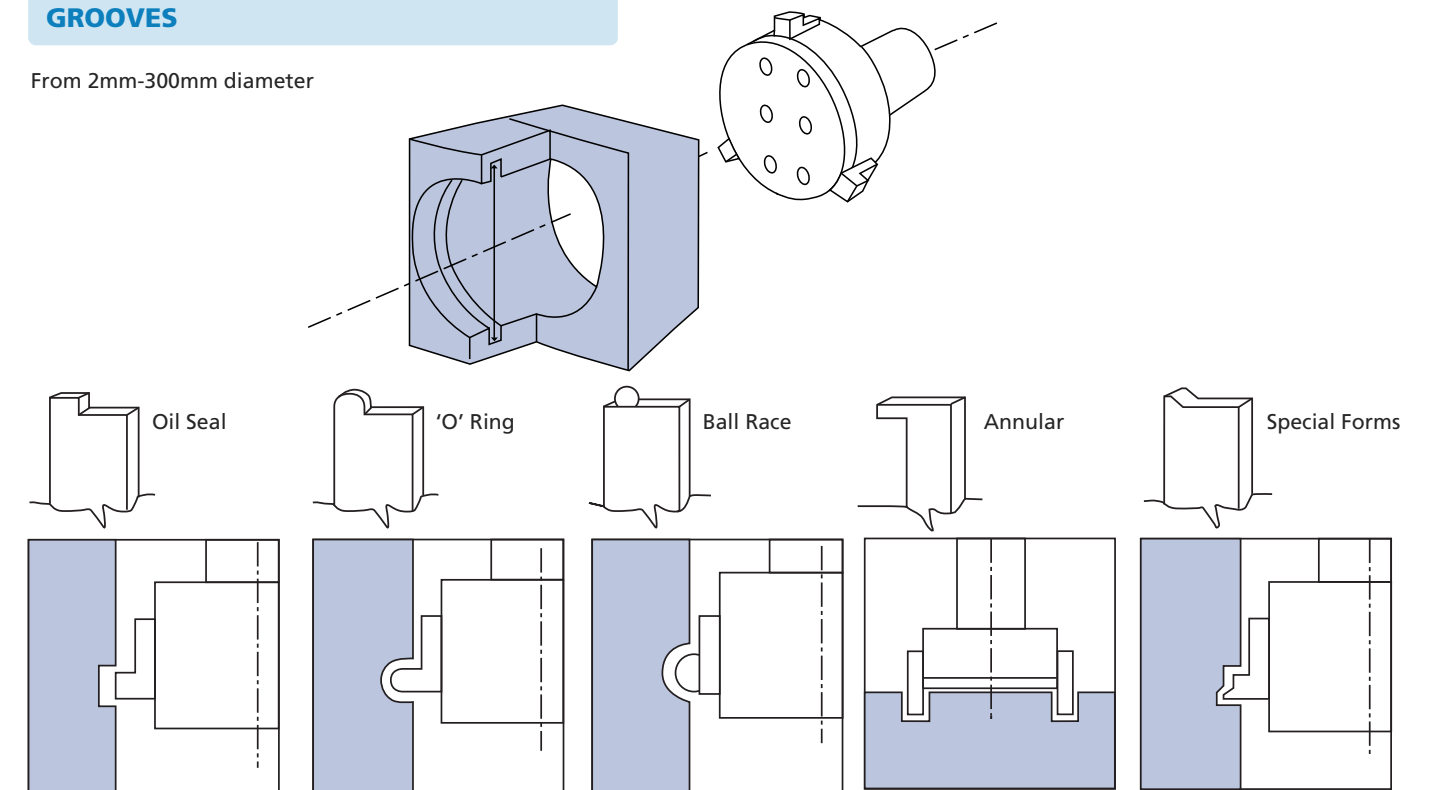
For pitch diameter measurement from 2-60mm metric and UN forms. Other forms by special request.



Special Bore Measurement

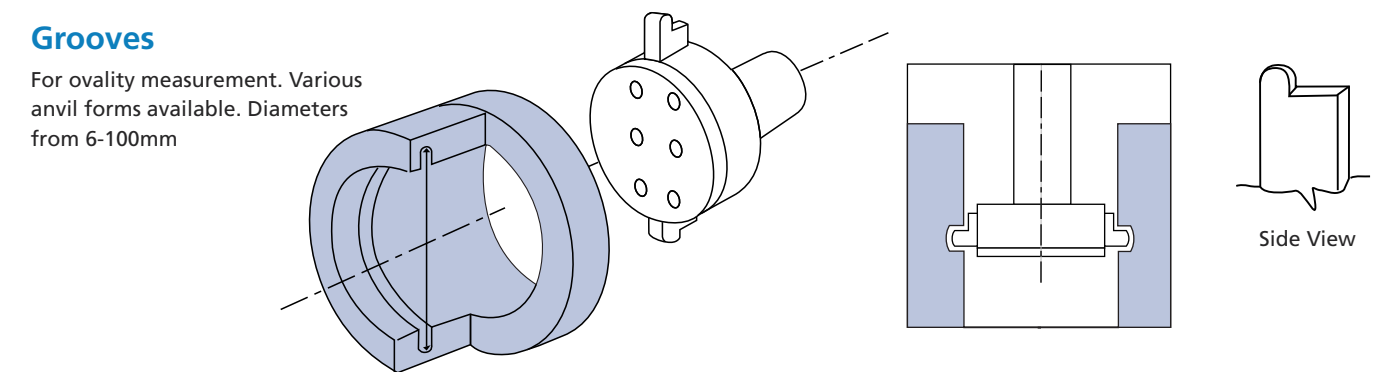
GROOVES

From 2mm-300mm diameter



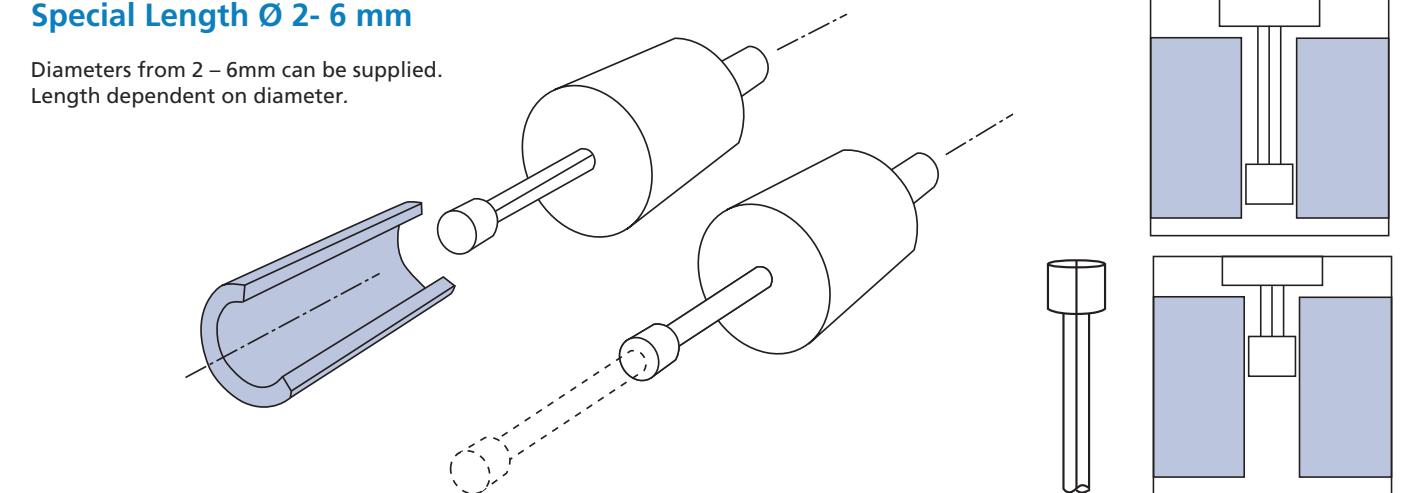
Grooves

For ovality measurement. Various anvil forms available. Diameters from 6-100mm



Special Length Ø 2- 6 mm

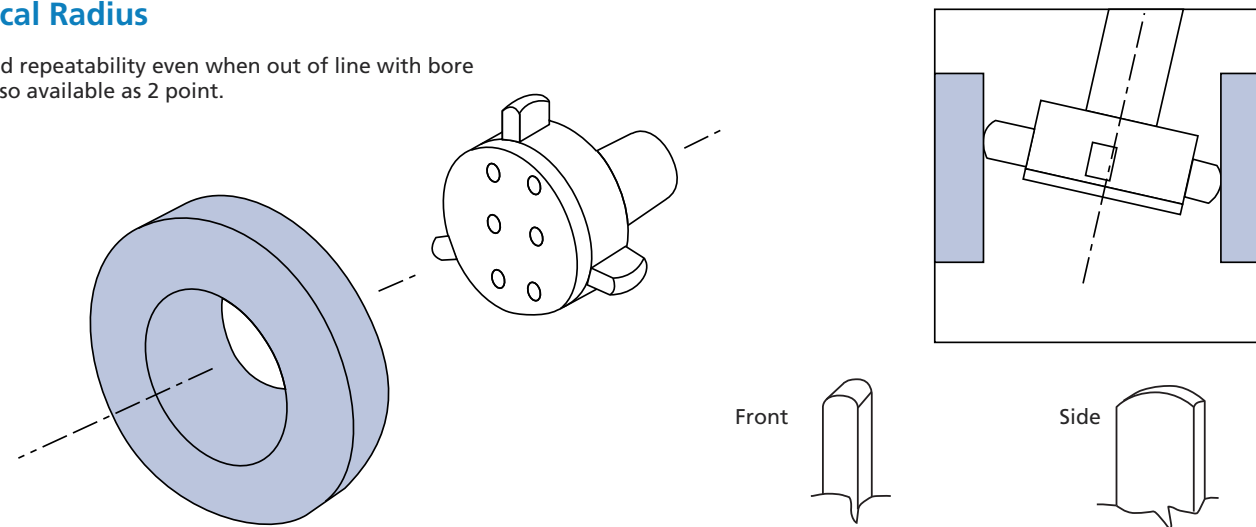
Diameters from 2 – 6mm can be supplied.
Length dependent on diameter.



Special Bore Measurement

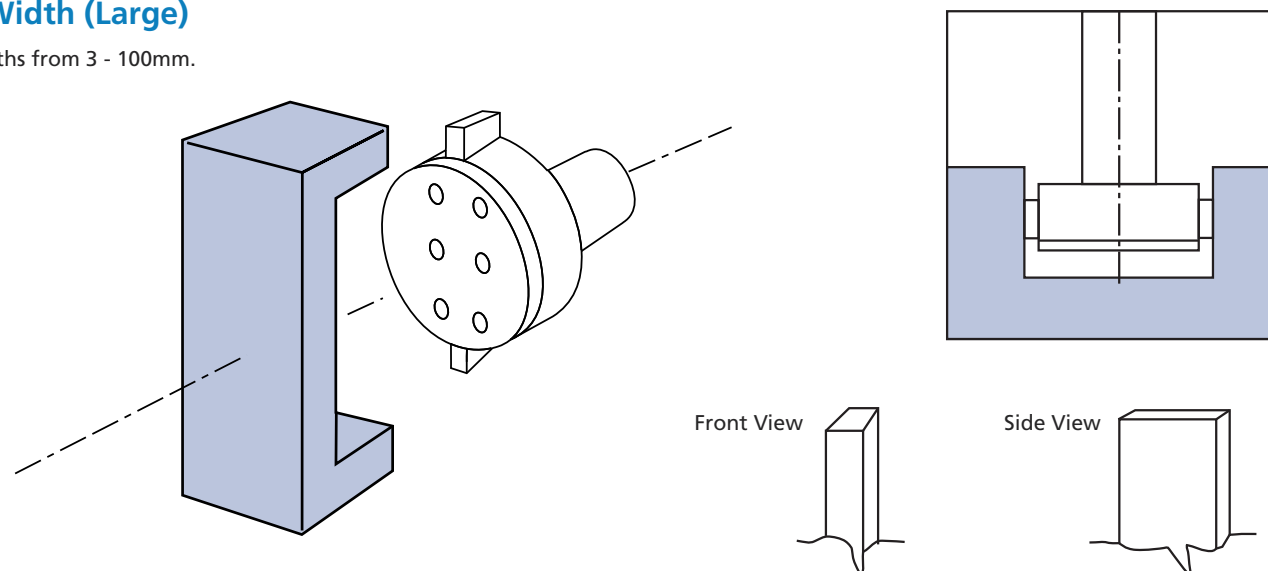
Spherical Radius

Gives good repeatability even when out of line with bore centre. Also available as 2 point.

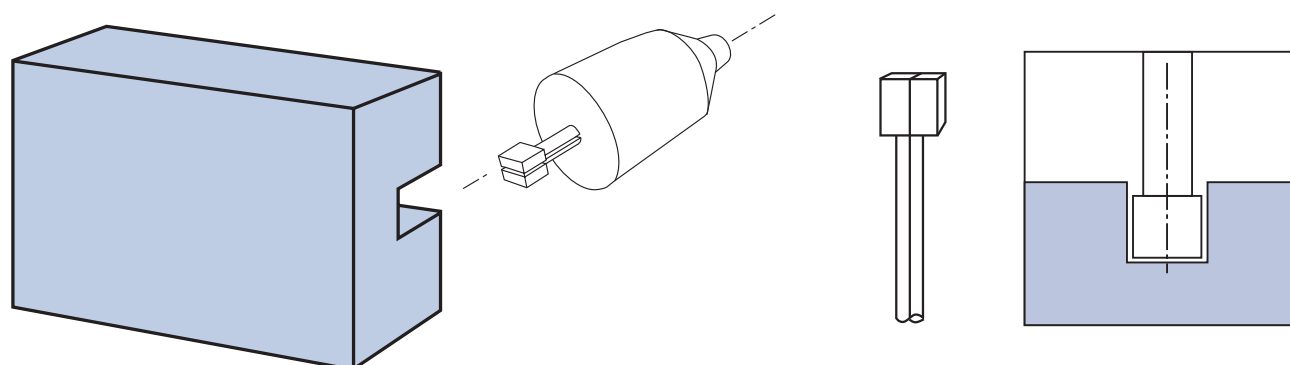


Slot Width (Large)

Slot widths from 3 - 100mm.



Slot Width (Small)

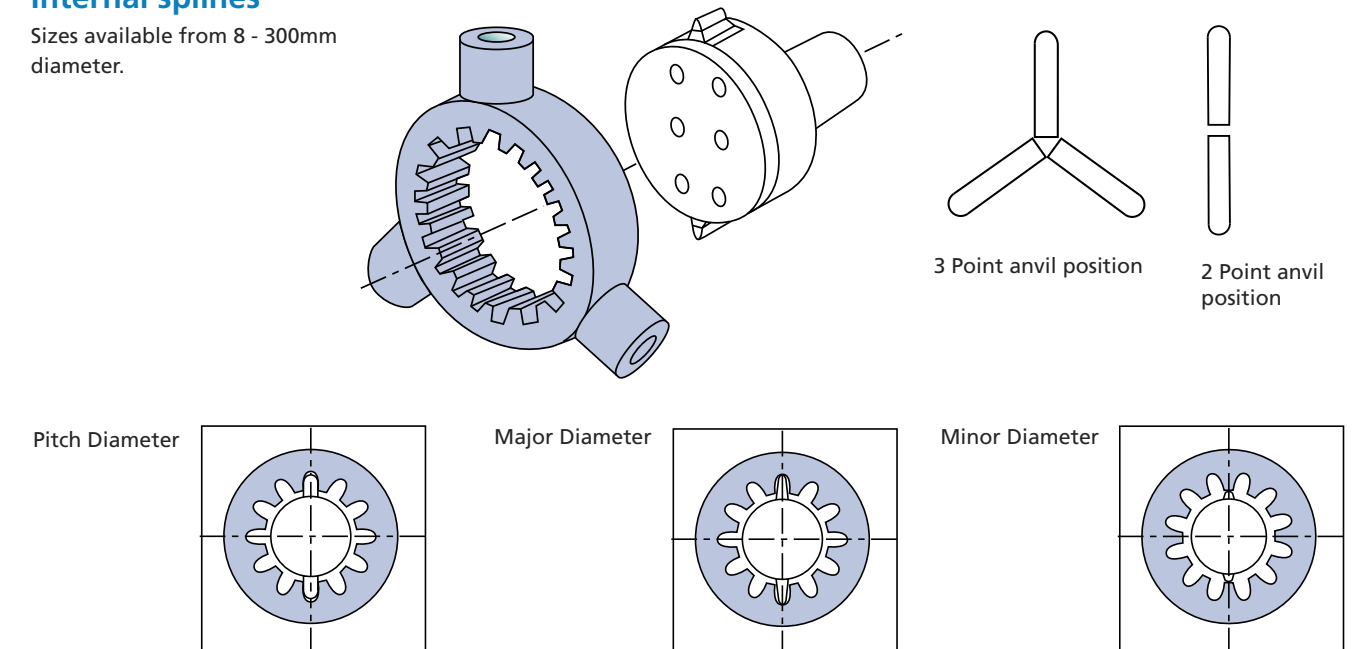


Special Bore Measurement

SPLINES

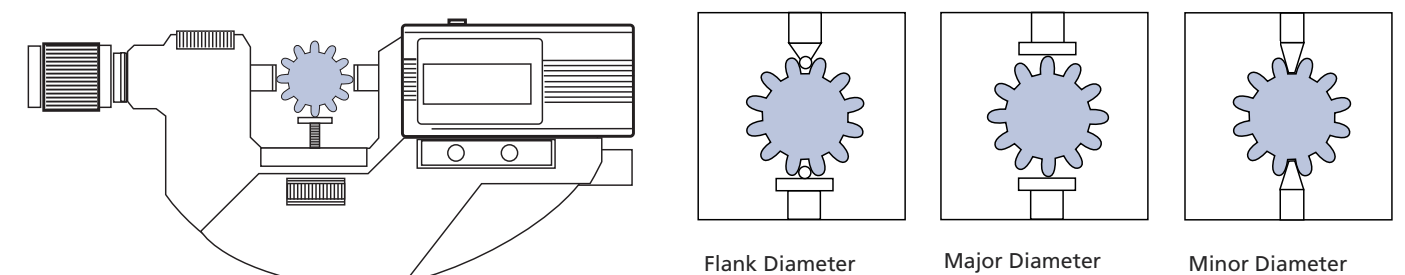
Internal splines

Sizes available from 8 - 300mm diameter.

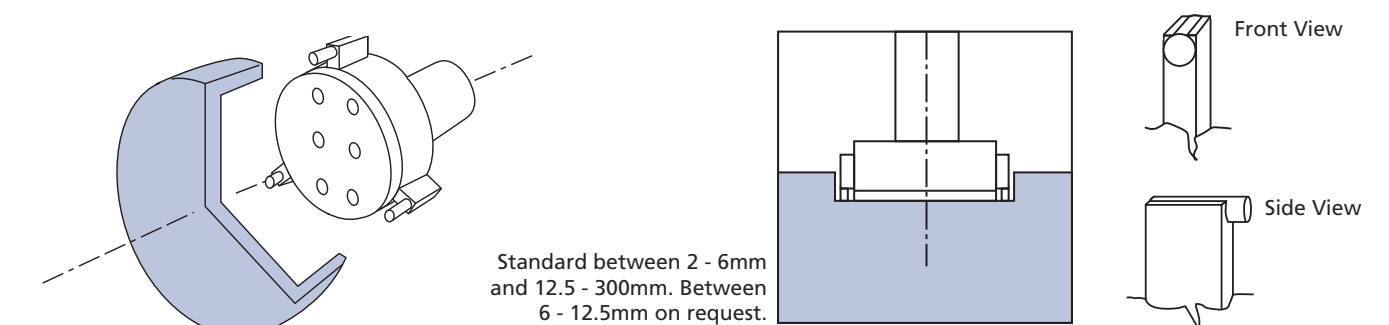


External splines

Frames fitted with 1 x ball and 1 x pin.



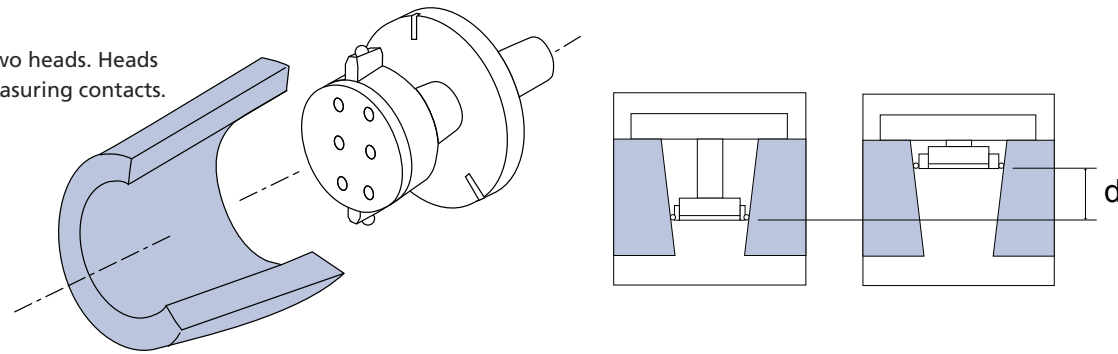
Blind Bore



Special Bore Measurement

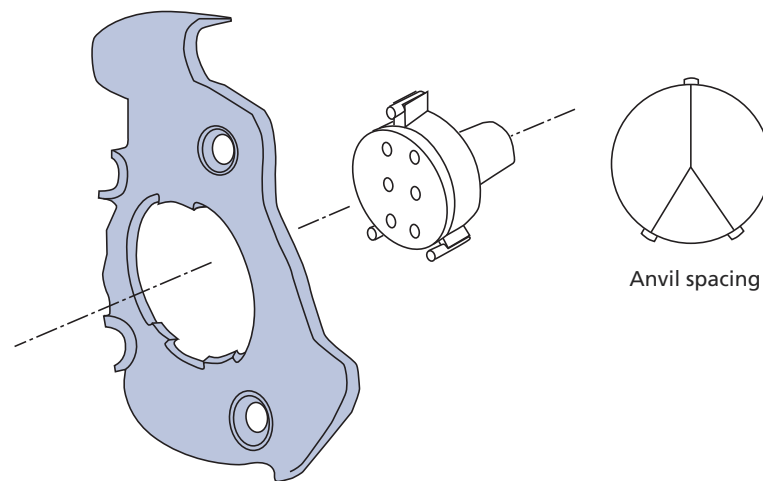
Taper

Set distance 'd' between two heads. Heads fitted with carbide ball measuring contacts. 3 point also available.



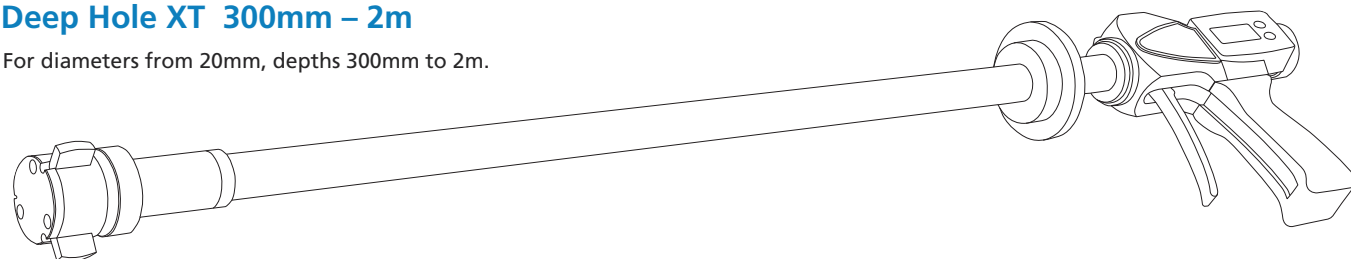
Irregular Spacing

Available between 16 – 300mm diameter. Anvil spacing according to workpiece.



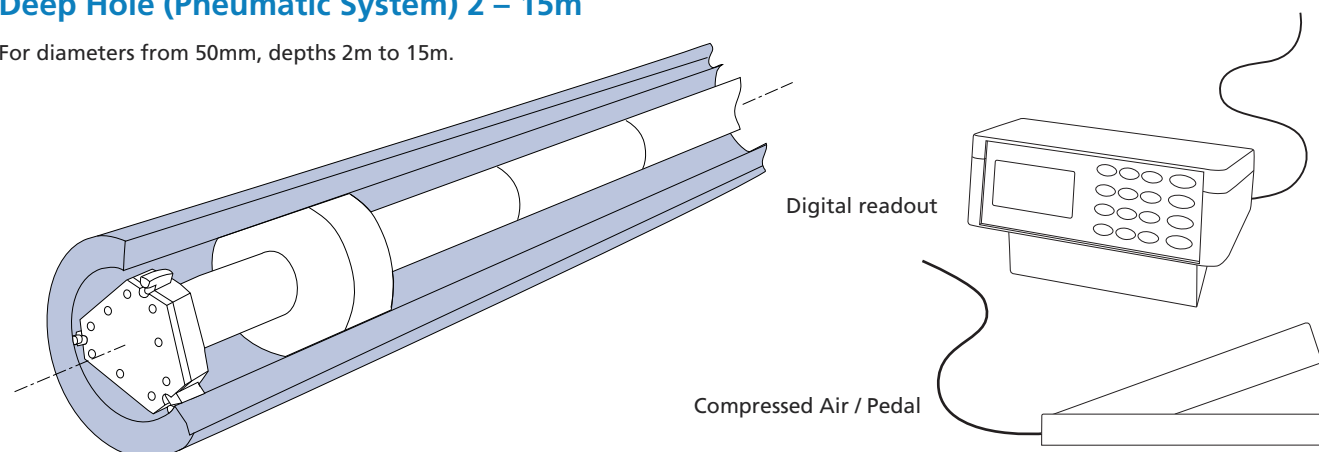
Deep Hole XT 300mm – 2m

For diameters from 20mm, depths 300mm to 2m.



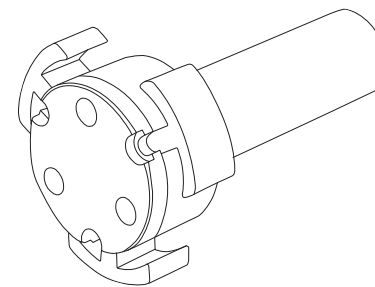
Deep Hole (Pneumatic System) 2 – 15m

For diameters from 50mm, depths 2m to 15m.

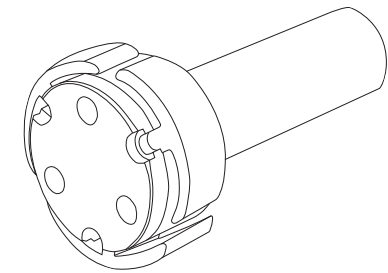


Special Measurement – various

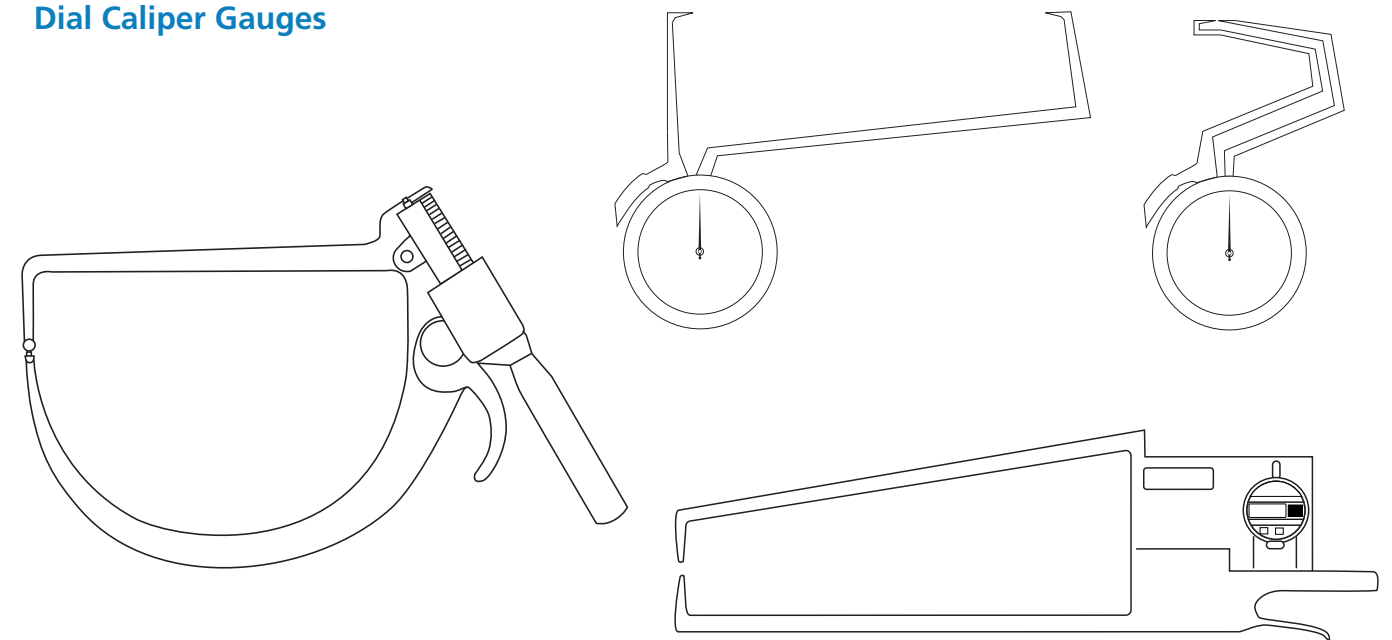
Gun Barrel Head



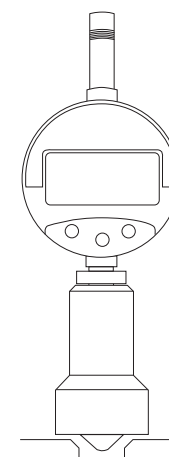
Automotive Hose Head



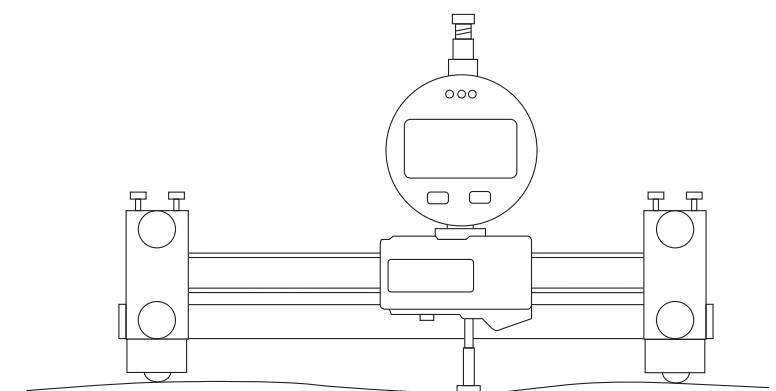
Dial Caliper Gauges



Countersink Gauge



Ripple Gauge



SmartPlugs

Dedicated plug gauges

WiFi

RS232



Features:

- Range 6 – 280 mm
- Tough, robust construction
- Easy-to-use
- Long life
- High accuracy dedicated plug-gauges
- 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
- Specials (e.g. blind bore) on request
- Repeatability 1µm
- 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, hard-chrome, ruby, ceramic

SmartPlugs

SMARTPLUG INDICATORS

Type A
Waterproof mini indicator with shroud

Type B
Mechanical dial gauge

Type C
Standard digital indicator. Also available with shroud

Type D
Measuring Probe

SMARTPLUG HOLDERS

SMA001M
M6 Holder

SMA002M
M6 Holder

SMA003
M6 – 100 Extension

SMA028
M6 - M10 Adapter

SMA004
M6 Probe Holder

SMA006M
M10 Holder

SMA007
M10 – 100 Extension

SMA008
M10 Probe Holder

SMA005M
M10 Holder

Depth Stop

SMARTPLUGS

M6 THREAD RANGE 6 – 20
Please state size to be measured



M10 THREAD RANGE 15 – 280
Please state size to be measured



Contact Options: Tungsten carbide (standard), hard chrome, ruby, ceramic
Plug-Body options: Hard chrome plated (standard), titanium nitride, plain steel

SmartPlugs

SMARTPLUG APPLICATIONS AND OPTIONS



SmartPlug with TiN coated body



SmartPlug with ruby contacts



SmartPlug with ceramic contacts



SmartPlug for blind bore measurement



SmartPlug with depth stop



SmartPlug with extension



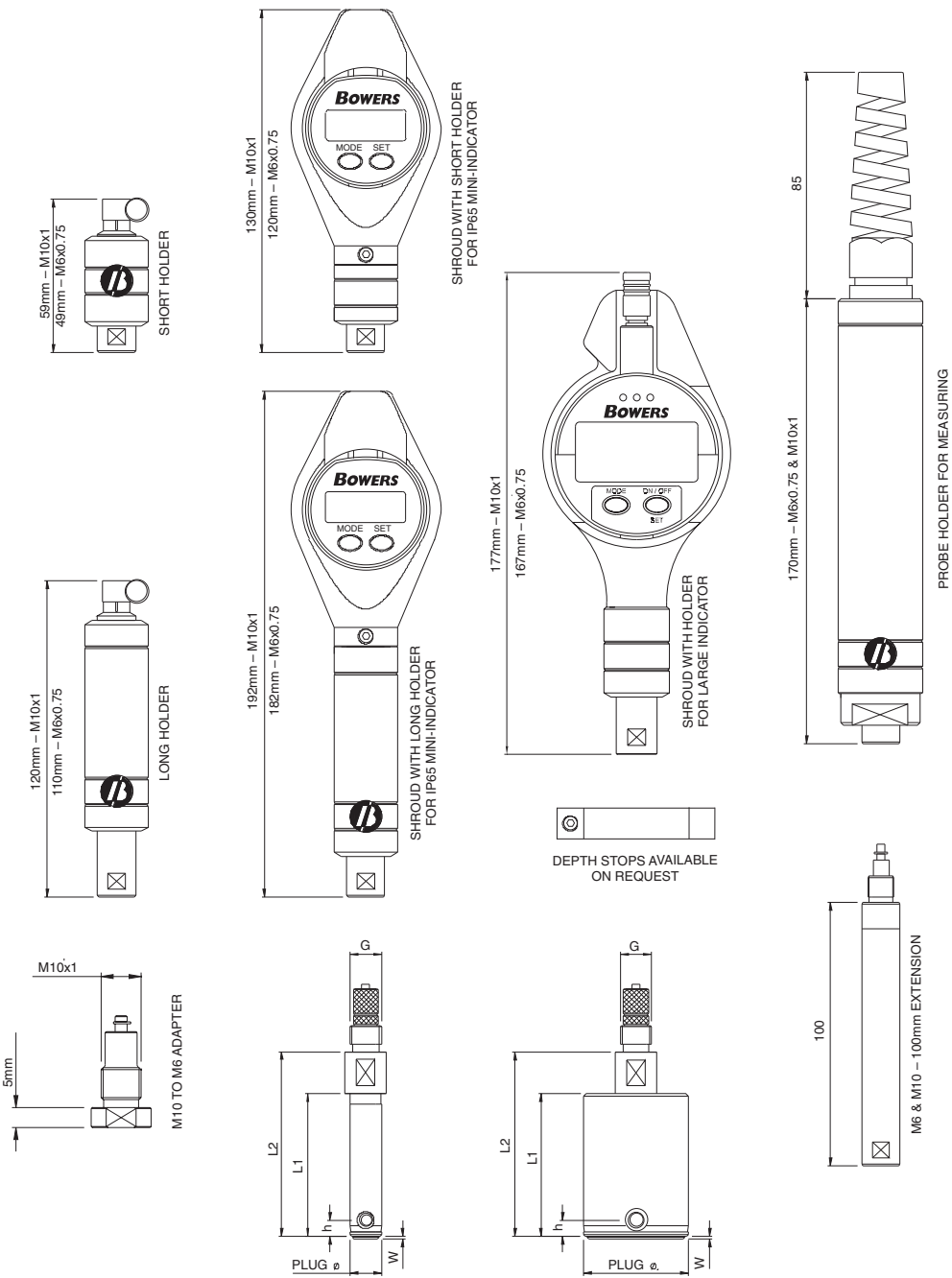
SmartPlug with transducer holder and D50S digital readout



SmartPlug for large diameters (up to 280mm)

SmartPlugs

SMARTPLUG TECHNICAL DETAIL



SMARTPLUG	Range	h	L1	L2	W	G
6-7.8 mm*	0.15	3	27	35	0.5	M6x0.75
7.9-20 mm						
15-45 mm	0.2	3.5	28	43.5	1	M10x1
45.1-70 mm	0.2	4	28	44	1.5	
70.1-280 mm	0.2	4	35	44		

* max measuring depth 27mm between 6 and 7.8mm

SmartPlugs

SmartPlug Standard	Bore Diameter	Connecting Thread
SMP010	>6 - 20 mm / 0.236" - 0.787"	M6x0.75
SMP012	>15 - 25 mm / 0.590" - 0.984"	M10x1
SMP014	>25 - 35 mm / 0.984" - 1.378"	M10x1
SMP016	>35 - 45 mm / 1.378" - 1.772"	M10x1
SMP018	>45 - 60 mm / 1.772" - 2.362"	M10x1
SMP020	>60 - 80 mm / 2.362" - 3.150"	M10x1
SMP022	>80 - 100 mm / 3.150" - 3.937"	M10x1
SMP024	>100 - 125 mm / 3.937" - 4.921"	M10x1
SMP026	>125 - 150 mm / 4.921" - 5.906"	M10x1
SMP028	>150 - 175 mm / 5.906" - 6.890"	M10x1
SMP030	>175 - 200 mm / 6.890" - 7.874"	M10x1
SMP032	>200 - 225 mm / 7.874" - 8.858"	M10x1
SMP034	>225 - 250 mm / 8.858" - 9.843"	M10x1
SMP036	>250 - 280 mm / 9.843" - 11.025"	M10x1

SmartPlug Blind Bore	Bore Diameter	Connecting Thread
SMP010BB	>6 - 20 mm / 0.236" - 0.787"	M6x0.75
SMP012BB	>15 - 25 mm / 0.590" - 0.984"	M10x1
SMP014BB	>25 - 35 mm / 0.984" - 1.378"	M10x1
SMP016BB	>35 - 45 mm / 1.378" - 1.772"	M10x1
SMP018BB	>45 - 60 mm / 1.772" - 2.362"	M10x1
SMP020BB	>60 - 80 mm / 2.362" - 3.150"	M10x1
SMP022BB	>80 - 100 mm / 3.150" - 3.937"	M10x1
SMP024BB	>100 - 125 mm / 3.937" - 4.921"	M10x1
SMP026BB	>125 - 150 mm / 4.921" - 5.906"	M10x1

Sizes above 150mm on request

Accessories – M6 Thread

SMA001M	M6 Holder short 8mm stem
SMA001i	M6 Holder short 3/8" stem
SMA002M	M6 Holder long 8mm stem
SMA002i	M6 Holder long 3/8" stem
SMA003	M6 100mm extension
SMA004	M6 Probe holder 8mm stem
SMA009M	Type A Mini indicator with shroud & M6 short holder 8mm stem
SMA011M	Type A Mini indicator with shroud & M6 long holder 8mm stem
SMA022	Type B Mechanical dial gauge 0.001mm graduation
SMA013	Type C Indicator with shroud & M6 holder 8mm stem
SMA014	Shroud & M6 holder 8mm / 3/8" stem
SMA028	M6-M10 Adapter (to use M10 holders with M6 plugs)

Accessories – M10 Thread

SMA005M	M10 Holder short 8mm
SMA005i	M10 Holder short 3/8" stem
SMA006M	M10 Holder long 8mm stem
SMA006i	M10 Holder long 3/8" stem
SMA007	M10 100mm extension
SMA008	M10 Probe holder 8mm stem
SMA015M	Type A Mini indicator with shroud & M10 short holder 8mm stem
SMA017M	Type A Mini indicator with shroud & M10 long holder 8mm stem
SMA019	Type 'C' digital indicator with shroud M10 thread
SMA020	Shroud only for type 'C' indicator M10 thread
SMA021	Type 'A' digital mini-indicator. Res. 0.001mm
SMA022	Type 'B' mechanical dial-gauge. 0.001 mm graduation
SMA023	Type 'C' digital indicator. Res 0.001 mm
SMA024	Transducer probe
30-804-1080	D80S Digital Readout
30-804-1050	D50S Digital Readout
SMA026	SmartPlug Demo Case

SmartPlug bodies available in hard chrome plated (standard), titanium nitride, plain steel

Contacts available in tungsten carbide, ruby and ceramic.



SmartPlugs

SmartPlug Setting Rings
grade: Nominal
(+/- 10 µm of marked size)

SPR002N	1.5 - 2 mm
SPR003N	2 - 3 mm
SPR004N	3 - 4 mm
SPR005N	4 - 5 mm
SPR006N	5 - 6 mm
SPR010N	6 - 10 mm
SPR020N	10 - 20 mm
SPR025N	20 - 25 mm
SPR030N	25 - 30 mm
SPR040N	30 - 40 mm
SPR050N	40 - 50 mm
SPR060N	50 - 60 mm
SPR070N	60 - 70 mm
SPR080N	70 - 80 mm
SPR090N	80 - 90 mm
SPR100N	90 - 100 mm
SPR115N	100 - 115 mm
SPR130N	115 - 130 mm
SPR145N	130 - 145 mm
SPR160N	145 - 160 mm
SPR170N	160 - 170 mm
SPR180N	170 - 180 mm
SPR190N	180 - 190 mm
SPR200N	190 - 200 mm
SPR210N	200 - 210 mm
SPR220N	210 - 220 mm
SPR230N	220 - 230 mm
SPR240N	230 - 240 mm
SPR250N	240 - 250 mm
SPR260N	250 - 260 mm
SPR270N	260 - 270 mm
SPR280N	270 - 280 mm
SPR290N	280 - 290 mm
SPR300N	290 - 300 mm

SmartPlug Setting Rings
Grade "X"

SPR002X	1.5 - 2 mm
SPR003X	2 - 3 mm
SPR004X	3 - 4 mm
SPR005X	4 - 5 mm
SPR006X	5 - 6 mm
SPR010X	6 - 10 mm
SPR020X	10 - 20 mm
SPR025X	20 - 25 mm
SPR030X	25 - 30 mm
SPR040X	30 - 40 mm
SPR050X	40 - 50 mm
SPR060X	50 - 60 mm
SPR070X	60 - 70 mm
SPR080X	70 - 80 mm
SPR090X	80 - 90 mm
SPR100X	90 - 100 mm
SPR115X	100 - 115 mm
SPR130X	115 - 130 mm
SPR145X	130 - 145 mm
SPR160X	145 - 160 mm
SPR170X	160 - 170 mm
SPR180X	170 - 180 mm
SPR190X	180 - 190 mm
SPR200X	190 - 200 mm
SPR210X	200 - 210 mm
SPR220X	210 - 220 mm
SPR230X	220 - 230 mm
SPR240X	230 - 240 mm
SPR250X	240 - 250 mm
SPR260X	250 - 260 mm
SPR270X	260 - 270 mm
SPR280X	270 - 280 mm
SPR290X	280 - 290 mm
SPR300X	290 - 300 mm

SmartPlug Setting Rings
Grade "XX"

SPR002XX	1.5 - 2 mm
SPR003XX	2 - 3 mm
SPR004XX	3 - 4 mm
SPR005XX	4 - 5 mm
SPR006XX	5 - 6 mm
SPR010XX	6 - 10 mm
SPR020XX	10 - 20 mm
SPR025XX	20 - 25 mm
SPR030XX	25 - 30 mm
SPR040XX	30 - 40 mm
SPR050XX	40 - 50 mm
SPR060XX	50 - 60 mm
SPR070XX	60 - 70 mm
SPR080XX	70 - 80 mm
SPR090XX	80 - 90 mm
SPR100XX	90 - 100 mm
SPR115XX	100 - 115 mm
SPR130XX	115 - 130 mm
SPR145XX	130 - 145 mm
SPR160XX	145 - 160 mm
SPR170XX	160 - 170 mm
SPR180XX	170 - 180 mm
SPR190XX	180 - 190 mm
SPR200XX	190 - 200 mm
SPR210XX	200 - 210 mm
SPR220XX	210 - 220 mm
SPR230XX	220 - 230 mm
SPR240XX	230 - 240 mm
SPR250XX	240 - 250 mm
SPR260XX	250 - 260 mm
SPR270XX	260 - 270 mm
SPR280XX	270 - 280 mm
SPR290XX	280 - 290 mm
SPR300XX	290 - 300 mm

Depth Stops	Diameter range
SMPDS00	under 6 mm
SMPDS01	6 - 8.5 mm
SMPDS02	8.5 - 13 mm
SMPDS03	13 - 17.5 mm
SMPDS04	17.5 - 25 mm
SMPDS05	25 - 32.5 mm
SMPDS06	32.5 - 40 mm
SMPDS07	40 - 47.5 mm
SMPDS08	47.5 - 55 mm
SMPDS09	55 - 62.5 mm
SMPDS10	62.5 - 70 mm
SMPDS11	70 - 77.5 mm
SMPDS12	77.5 - 85 mm
SMPDS13	85 - 92.5 mm
SMPDS14	92.5 - 100 mm



Digital Cylinder Bore Gauge



Bowers Cylinder Bore Gauges now include an easy-to-use digital variant, bringing the benefits of a clear digital display and data output to this dependable gauge. Speed and accuracy is further increased by the ability of the instrument's advanced electronics to 'freeze' and display the diameter of the bore after 'sweeping'.

WiFi

RS232



Features :

- Measuring range 12.5 mm – 600 mm (1/2" - 24")
- Fast simple checking for bore size, ovality, taper, etc
- 0.002mm/ 0.0005", 0.01mm/ 0.0001" Dial gauge options (on mechanical system)
- 0.001mm/ 0.00005", 0.01mm/ 0.0005" switchable (on digital system)
- Tungsten carbide contact points
- Lightweight glass reinforced nylon gauge shroud for extra strength and protection
- Thermally insulated for extra stability
- RS232 output (on digital system)
- Inch/metric conversion (on digital system)
- Displays actual bore diameter or comparative results (on digital system)
- Bore gauges available up to 3m (10 feet) long for deep hole measurement

Series	Model	Capacity	Resolution (Switchable)	Measuring Depth	Other measuring depths available as standard
600D 12.5-22mm (1/2" - 7/8")	CBGD010	12.5-22mm or 1/2-7/8"	0.001/0.01mm or 0.00005"/0.0005"	150mm or 6"	75, 300mm or 3", 12"
700 D 22-50mm (7/8 - 2")	CBGD020	22-50mm or 7/8-2"	0.001/0.01mm or 0.00005"/0.0005"	150mm or 6"	75, 300, 450, 600, 760, 910mm or 3", 12", 18", 24", 30", 36"
750D 50-150mm (2-6")	CBGD035	50-150mm or 2-6"	0.001/0.01mm or 0.00005"/0.0005"	250mm or 10"	75, 450, 600, 760, 910mm or 3", 18", 24", 30", 36"
800D 150-300mm (6 - 12")	CBGD040	150-300mm or 6-12"	0.001/0.01mm or 0.00005"/0.0005"	380mm or 15"	600, 760, 910mm or 24", 30", 36"
820D 150-600mm (6- 24")	CBGD050	150-600mm or 6-24"	0.001/0.01mm or 0.00005"/0.0005"	380mm or 15"	600, 760, 910mm or 24", 30", 36"

Mechanical Cylinder Bore Gauge

Bowers Mechanical Cylinder Bore Gauges have been further improved giving even greater ease of use and reliability. The introduction of tungsten carbide contact points ensures superior wear resistance. Suitable for use in most environments, these gauges are particularly useful for detecting ovality, or taking measurements relatively deep inside bores.



Series	Model	Capacity	Resolution	Graduation	Measuring Depth	Other measuring depths available as standard
600 12.5-22mm (1/2" - 7/8")	TGB652M	12.5-22mm	0.01mm	0 - 50 - 0	150mm	75, 300mm
	TGB655M	12.5-22mm	0.002mm	0 - 10 - 0	150mm	75, 300mm
	TGB654i	1/2-7/8"	0.0005"	0 - 25 - 0	6"	3", 12"
	TGB653i	1/2-7/8"	0.0001"	0 - 50 - 0	6"	3", 12"
700 22-50mm (7/8 - 2")	TGB702M	22-50mm	0.01mm	0 - 50 - 0	150mm	75, 300, 450, 600, 760, 910mm
	TGB717M	22-50mm	0.002mm	0 - 10 - 0	150mm	75, 300, 450, 600, 760, 910mm
	TGB701i	7/8-2"	0.0005"	0 - 25 - 0	6"	3", 12", 18", 24", 30", 36"
	TGB703i	7/8-2"	0.0001"	0 - 50 - 0	6"	3", 12", 18", 24", 30", 36"
700 50-150mm (2-6")	TGB752M	50-150mm	0.01mm	0 - 50 - 0	250mm	75, 450, 600, 760, 910mm
	TGB765M	50-150mm	0.002mm	0 - 10 - 0	250mm	75, 450, 600, 760, 910mm
	TGB751i	2-6"	0.0005"	0 - 25 - 0	10"	3", 18", 24", 30", 36"
	TGB753i	2-6"	0.0001"	0 - 50 - 0	10"	3", 18", 24", 30", 36"
800 150-600mm (6 - 24")	TGB802M	150-300mm	0.01mm	0 - 50 - 0	380mm	600, 760, 910mm
	TGB812M	150-300mm	0.002mm	0 - 10 - 0	380mm	600, 760, 910mm
	TGB801i	6-12"	0.0005"	0 - 25 - 0	15"	24", 30", 36"
	TGB803i	6-12"	0.0001"	0 - 50 - 0	15"	24", 30", 36"
	TGB821M	150-600mm	0.01mm	0 - 50 - 0	380mm	600, 760, 910mm
	TGB851M	150-600mm	0.002mm	0 - 10 - 0	380mm	600, 760, 910mm
	TGB820i	6-24"	0.0005"	0 - 25 - 0	15"	24", 30", 36"
	TGB822i	6-24"	0.0001"	0 - 50 - 0	15"	24", 30", 36"
900 12.5-150mm (1/2 - 6")	TGB901M	12.5-50mm	0.01mm	0 - 50 - 0	150mm	
	TGB920M	12.5-50mm	0.002mm	0 - 10 - 0	150mm	
	TGB901i	1/2-2"	0.0005"	0 - 25 - 0	6"	
	TGB920i	1/2-2"	0.0001"	0 - 50 - 0	6"	
	TGB930M	22-150mm	0.01mm	0 - 50 - 0	150-250mm	
	TGB940M	22-150mm	0.002mm	0 - 10 - 0	150-250mm	
	TGB930i	7/8-6"	0.0005"	0 - 25 - 0	6-10"	
	TGB940i	7/8-6"	0.0001"	0 - 50 - 0	6-10"	
	TGB950M	12.5-150mm	0.01mm	0 - 50 - 0	150-250mm	
	TGB960M	12.5-150mm	0.002mm	0 - 10 - 0	150-250mm	
	TGB950i	1/2-6"	0.0005"	0 - 25 - 0	6-10"	
	TGB960i	1/2-6"	0.0001"	0 - 50 - 0	6-10"	

Universal Gauge

The **Bowers Universal Gauge's** ingenious modular format enables it to be quickly configured to suit almost any measuring challenge, both internal and external. The Universal's clever constant measuring pressure device ensures accuracy and consistency of reading.

A large variety of measuring contacts and adaptors are available for the Universal Gauge enabling countless measuring tasks to be completed with ease. Accessories for the measurement of threads, grooves, splines, gears, hole centres, and many others are available as standard and special adaptations for more unusual applications can be quoted on request.

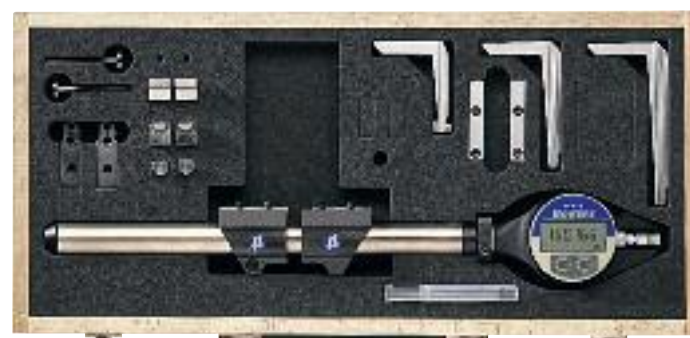
WiFi

RS232



Features

- Internal and external measurement
- Large measuring range possible 0-3000mm (0-118")
- Constant measuring force
- Digital or mechanical readout display
- 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



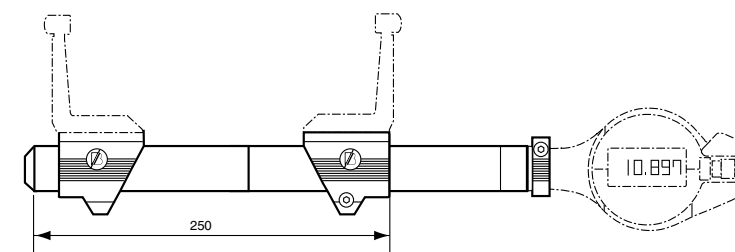
Universal Gauge

Standard Gauge

Model No: **TGU1000**

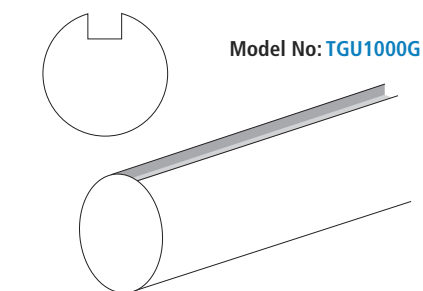
Measuring Range Internal 30-250mm (1.20-10.030")

Measuring Range External 0-215mm (0-8.50")



Guideway Version

also available on request



Note: Extensions not possible with guideway version

Extensions

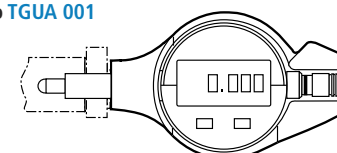
A	Model No.	Range Internal	Range External
150	TGUA033	30-400mm (1.2-15.00")	0-365mm (0-14")
500	TGUA032	30-750mm (1.2-29.00")	0-715mm (0-28.0")

Intermediate and additional lengths can be made up by using 150 or 500mm extensions



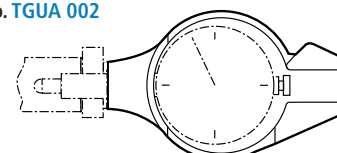
Digital Indicator and Protective Shroud

Model No **TGUA 001**



Protective Shroud for Dial/Digital Indicator

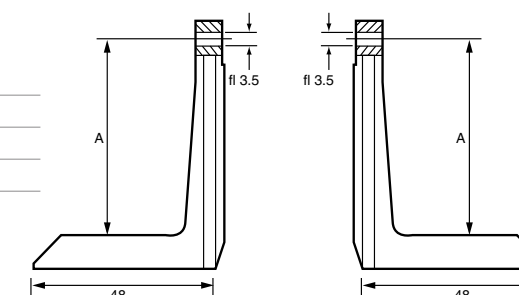
Model No. **TGUA 002**



Measuring Arms

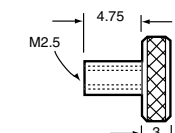
(Reversible for inside/outside diameters)

A	Model No.
50	TGUA 006
75	TGUA 007
100	TGUA 008

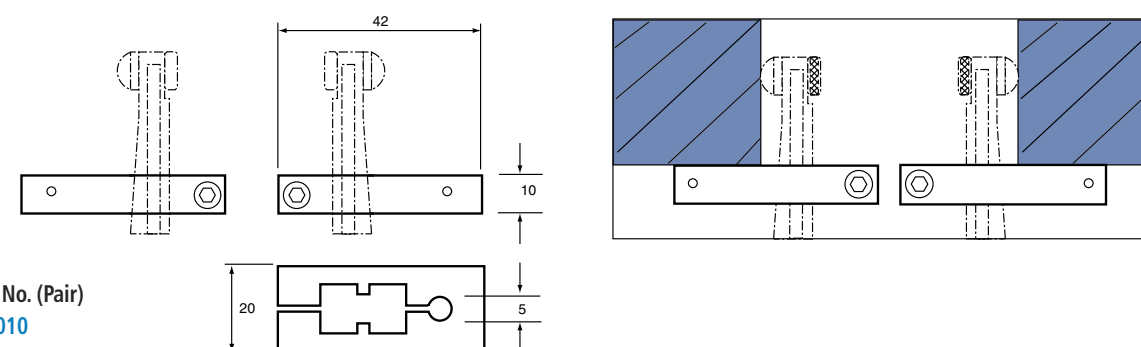


Clamping Insert

Model No. **TGUA 003**



Adjustable Depth Stops for Measuring Arms

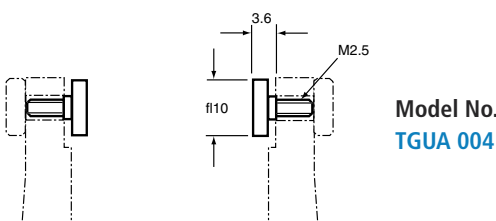


Model No. (Pair)
TGUA 010

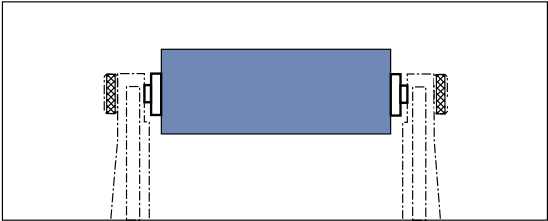
Universal Gauge

CONTACTS FOR USE WITH MEASURING ARMS

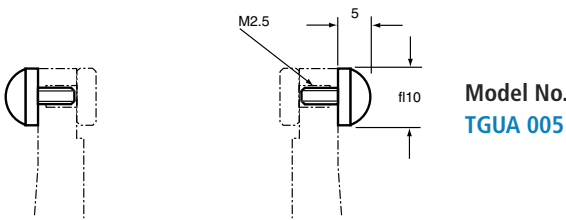
Flat for Outside Diameters/Lengths



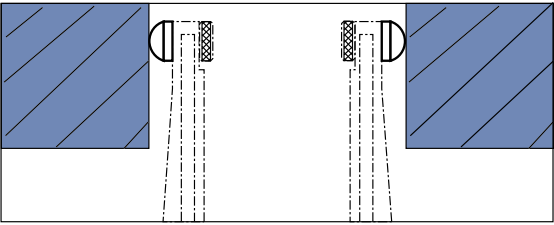
Model No.
TGUA 004



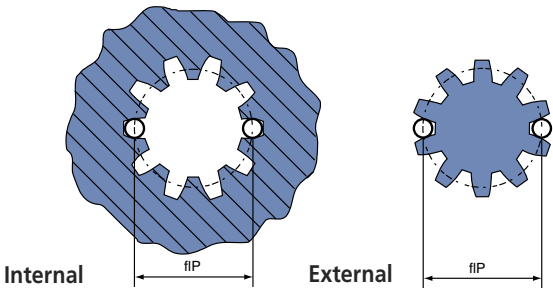
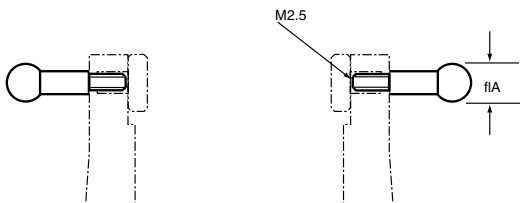
Spherical for Inside Diameters



Model No.
TGUA 005



Ball Anvils for Measurement of Pitch Diameter (P) on Internal or External Gears/Splines



Module	Nominal Ball Dia 'A'	Model No.
0.6	1.0	TGUA 100
0.7	1.25	TGUA 101
0.9	1.5	TGUA 102
1.0	1.75	TGUA 103
1.25	2.0	TGUA 104
1.5	2.5	TGUA 105
1.75	3.0	TGUA 106
2.0	3.5	TGUA 107
2.5	4.0	TGUA 108
2.75	4.5	TGUA 109
3.0	5.0	TGUA 110
3.25	5.5	TGUA 111
3.5	6.0	TGUA 112
4.0	7.00	TGUA 113
5.0	9.00	TGUA 114
6.0	10.00	TGUA 115

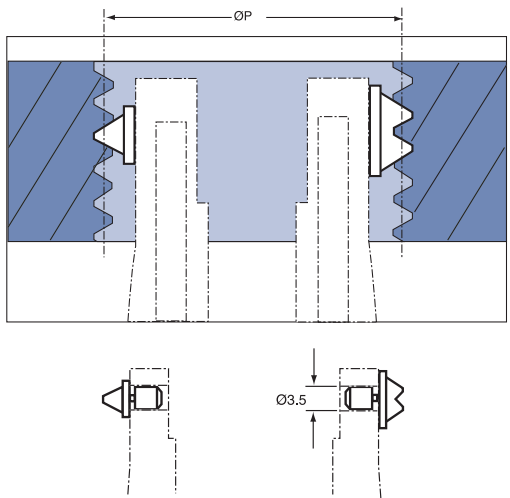
DP	Nominal Ball Dia 'A'	Model No.
40	0.043	TGUA 150
36	0.049	TGUA 151
32	0.054	TGUA 152
24	0.071	TGUA 153
20	0.089	TGUA 154
16	0.108	TGUA 155
12	0.144	TGUA 156
10	0.177	TGUA 157
8	0.216	TGUA 158
6	0.295	TGUA 159
5	0.354	TGUA 160
4	0.394	TGUA 161

Other sizes available P.O.A.

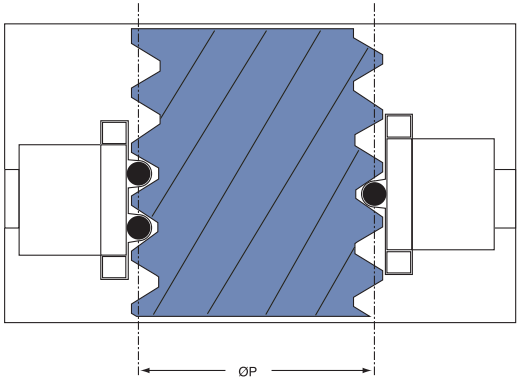
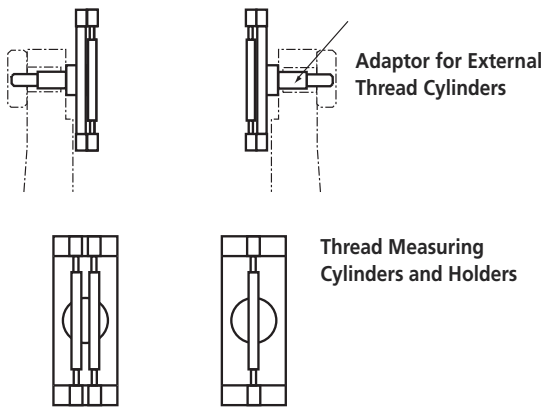
Universal Gauge

Thread Anvils for Internal Pitch Diameter

Metric Pitch	Model No. (Per Set)	Unified 60° T.P.I	Model No. (Per Set)	Whitworth 55° T.P.I	Model No. (Per Set)
0.4-0.45	TGUA 301	64.0	TGUA 401	60-48	TGUA 501
0.5-0.6	TGUA 311	56-44	TGUA 411	40-32	TGUA 511
0.7-0.8	TGUA 321	40-32	TGUA 421	28-22	TGUA 521
1.0-1.25	TGUA 331	28-20	TGUA 431	20-16	TGUA 531
1.5-1.75	TGUA 341	18-14	TGUA 441	14-11	TGUA 541
2.0-2.5	TGUA 351	13-10	TGUA 451	7-6	TGUA 551
3.0-3.5	TGUA 361	9.0-7.0	TGUA 461	7-6	TGUA 561
4.0-5.0	TGUA 371	6.0-5.0	TGUA 471	5-4	TGUA 571
5.0-6.0	TGUA 381	4.5-4.0	TGUA 481	3.5-2.75	TGUA 581
				2.625-2	TGUA 591



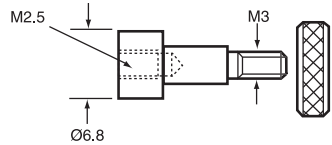
Thread Cylinders and Holders for External Threads



Metric Pitch	P Value in mm	Unified 60° T.P.I	P Value in inches	Whitworth 55° T.P.I	P Value in inches	Cylinder Diameter	Model No (Per Set)
0.25-30	0.0465-0.0899	—	—	80	.00421	0.170mm (.00669")	TGUA 30E
—	—	80	.00315	72	.00438	0.195mm (.00768")	TGUA 31E
.35	0.0831	72	.00337	64	.00491	0.220mm (.00866")	TGUA 32E
.40	0.0965	64	.00369	60	.00454	0.250mm (.00984")	TGUA 33E
.45-.50	0.0996-0.1430	56	.00404	48	.00670	0.290mm (.01142")	TGUA 34E
.60	0.1847	48	.00485	40	.00864	0.335mm (.01319")	TGUA 35E
.65	0.1730	44-40	.00433-0.0630	36	.00879	0.390mm (.01535")	TGUA 36E
.70-.75	0.1514-0.1946	36-32	.00615-0.0915	32	.00914	0.455mm (.01535")	TGUA 37E
.80-.90	0.1628-0.2494	28-26	.01006-0.1244	28-26	.00998-.01261	0.530mm (.02087")	TGUA 38E
1.0	0.2459	24	.01167	24-22	.01157-.01520	0.620mm (.02854")	TGUA 39E
1.25	0.3576	20	.01476	20-19	.01476-.01728	0.725mm (.02854")	TGUA 40E
1.5	0.4039	18-16	.01287-.01889	18-16	.01228-.01895	0.895mm (.03524")	TGUA 41E
1.75	0.4155	14-13	.01855-.02331	14	.01811	1.100mm (.04331")	TGUA 42E
2.0	0.3820	12-11	.01902-.02558	12-11	.01809-.02536	1.350mm (.05315")	TGUA 43E
2.5	0.5151	10-9	.02164-.03126	10-9	.02033-.03100	1.650mm (.06496")	TGUA 44E
3.0-3.5	0.5481-0.9809	8-7	.02754-.04301	8-7	.02598-.04313	2.050mm (.08071")	TGUA 45E
4.0-4.5	0.9141-1.3472	6	.04395	6	.04306	2.550mm (.10039")	TGUA 46E
5.0-5.5	1.1303-1.5631	5-4.5	.04722-.06647	5-4.5	.04525-.06659	3.200mm (.12598")	TGUA 47E

Other sizes available P.O.A.

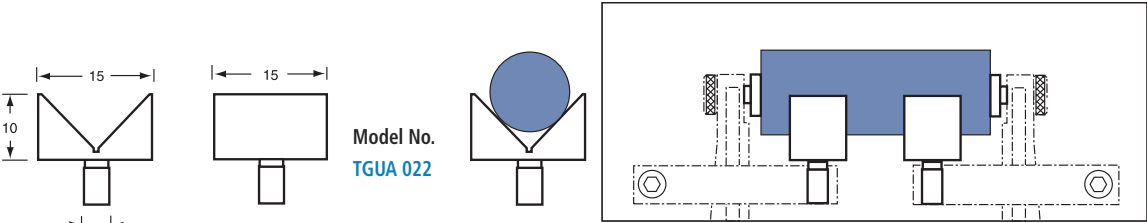
Adaptor for External Thread Cylinders or M2.5 Contact Tips/4-48 Contact Tips



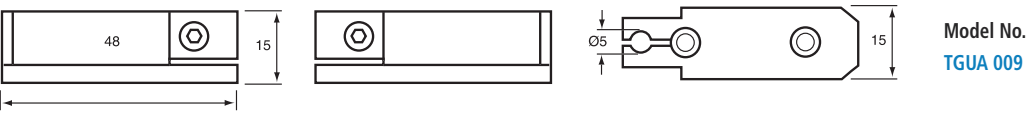
Model No.	
M2.5	TGUA 0017
4-48	TGUA 0018

Universal Gauge

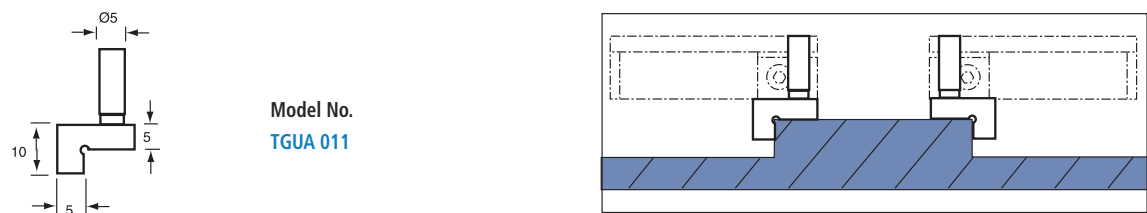
Vee Support for Length Measurement



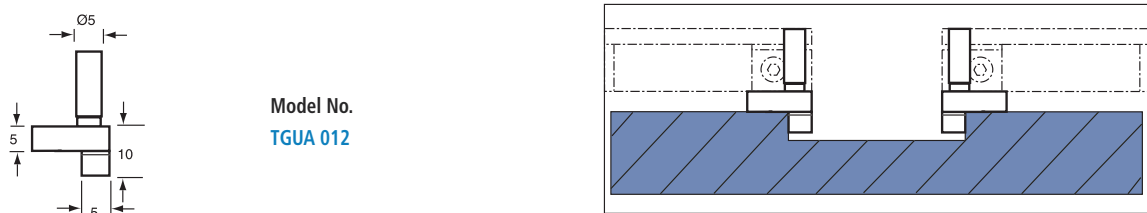
MOUNTING ATTACHMENTS FOR USE WITH THE FOLLOWING ANVILS



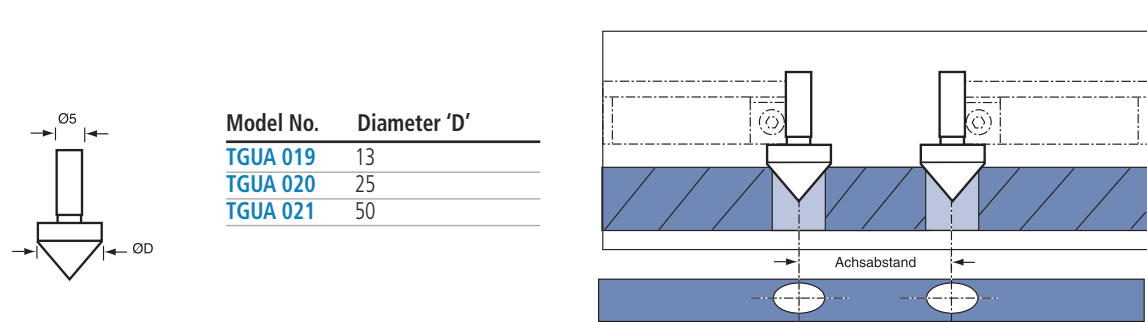
Shoulder Anvils Flat Outside Spigot Diameter



Semi-cylindrical Anvils for Inside Register Diameters



Cone Anvils for Measuring Hole Centre Distance

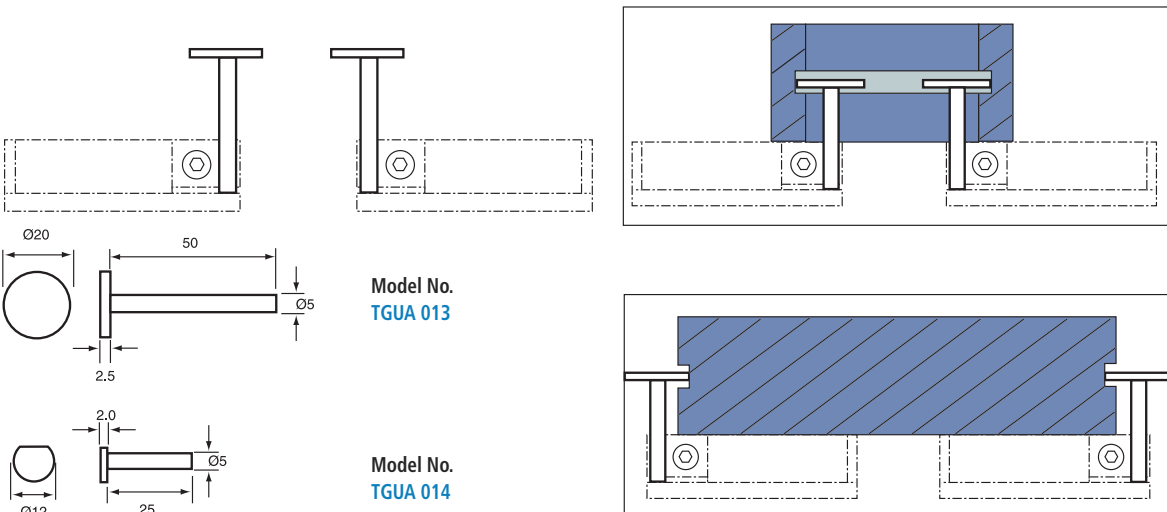


Model No.	Diameter 'D'
TGUA 019	13
TGUA 020	25
TGUA 021	50

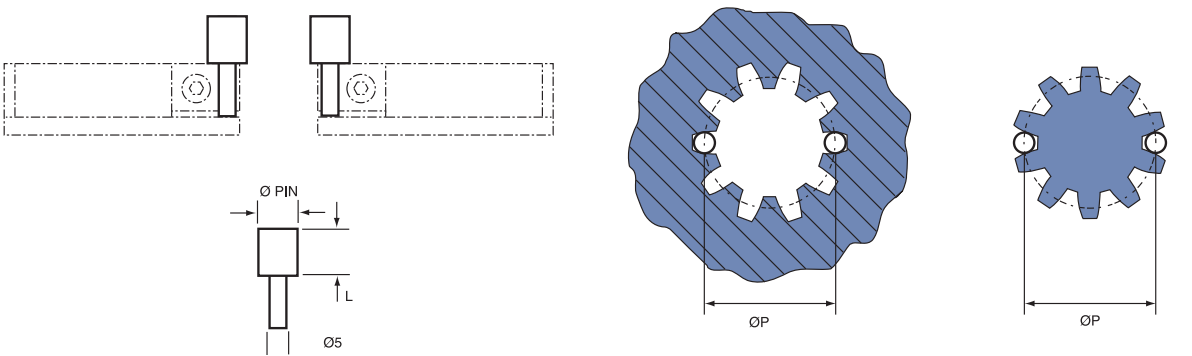
Universal Gauge

Although extremely comprehensive, the collection of Universal Gauge accessories cannot cover every measuring application, if your particular gauging need is not catered for within our standard range, specialised adaptors, contact points, etc can be quoted from a component drawing.

Disc Anvils for Groove Diameter Measurement



Cylindrical Measuring Pins for Internal and External Gear Measurement

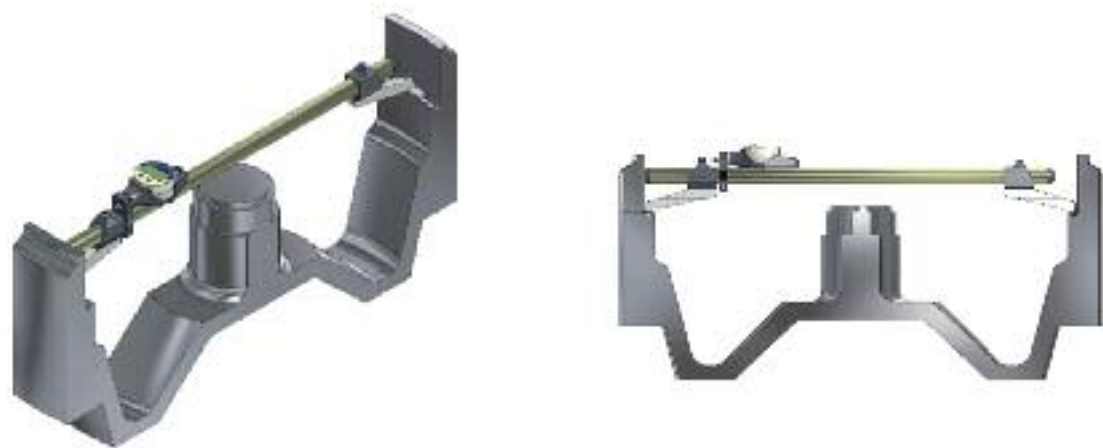


Module	Nominal Pin Dia	Length L	Model No.	DP	Nominal Pin Dia	Length L	Model No.
1.25	2.0	10 (0.4")	TGUA 200	20	0.089	10 (0.4")	TGUA 250
1.5	2.5	10 (0.4")	TGUA 201	16	0.108	10 (0.4")	TGUA 251
1.75	3.0	15 (0.6")	TGUA 202	12	0.144	15 (0.6")	TGUA 252
2.0	3.5	15 (0.6")	TGUA 203	10	0.177	20 (0.8")	TGUA 253
2.5	4.0	15 (0.6")	TGUA 204	8	0.216	20 (0.8")	TGUA 254
2.75	4.5	20 (0.8")	TGUA 205	6	0.295	25 (1.0")	TGUA 255
3.0	5.0	20 (0.8")	TGUA 206	5	0.354	25 (1.0")	TGUA 256
3.25	5.5	20 (0.8")	TGUA 207	4	0.394	25 (1.0")	TGUA 257
3.5	6.0	20 (0.8")	TGUA 208				
4.0	7.00	25 (1.0")	TGUA 209				
5.0	9.00	25 (1.0")	TGUA 210				
6.0	10.00	25 (1.0")	TGUA 211				

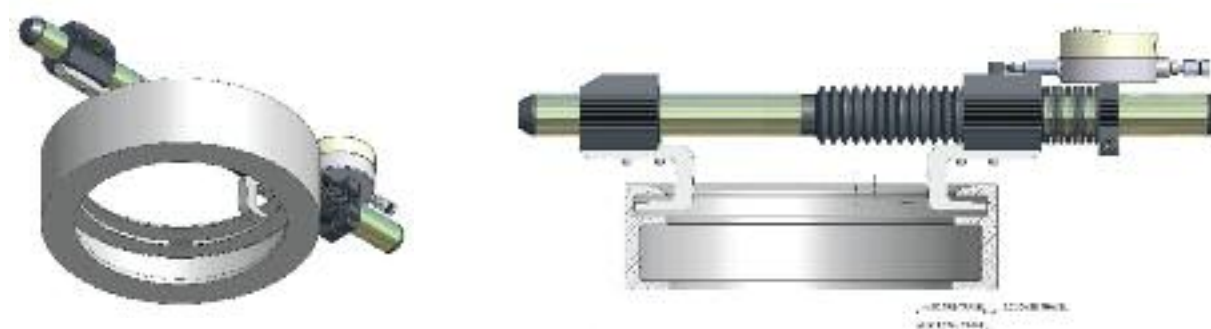
Other sizes available P.O.A.

Universal Gauge Special Applications

Universal Gauge with top-mounted indicator and extended reach measuring arms



Universal Gauge with extended 50mm travel (e.g. for internal grooves)



Special Universal Gauge for measuring across large diameter component with central boss



INTEX Comparator Beam-gauge

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



Features:

- Lightweight and rigid
- Measuring ranges : 200-400mm, 400-600mm, 600-800mm, 800-1000mm
- Sizes over 1000mm available on request
- Internal and external measurement
- 2mm travel on moving contacts
- Adjustable fixed contacts with up to 250mm adjustment range
- Digital or analogue indicator
- Hardened steel wear pads locate gauge onto component aiding repeatability and prolonging service life
- Setting master required to set the instrument

Checkmatic Universal Bench Fixture

The **Bowers Checkmatic** is a universal comparator gauge with a built in multifunction digital display. This versatile gauge can be configured in a multitude of ways, facilitating the rapid, accurate, internal or external gauging of both simple and complex components. A comprehensive range of accessories is available for the Bowers Checkmatic, alternatively special accessories can be designed for more specialised applications.

WiFi

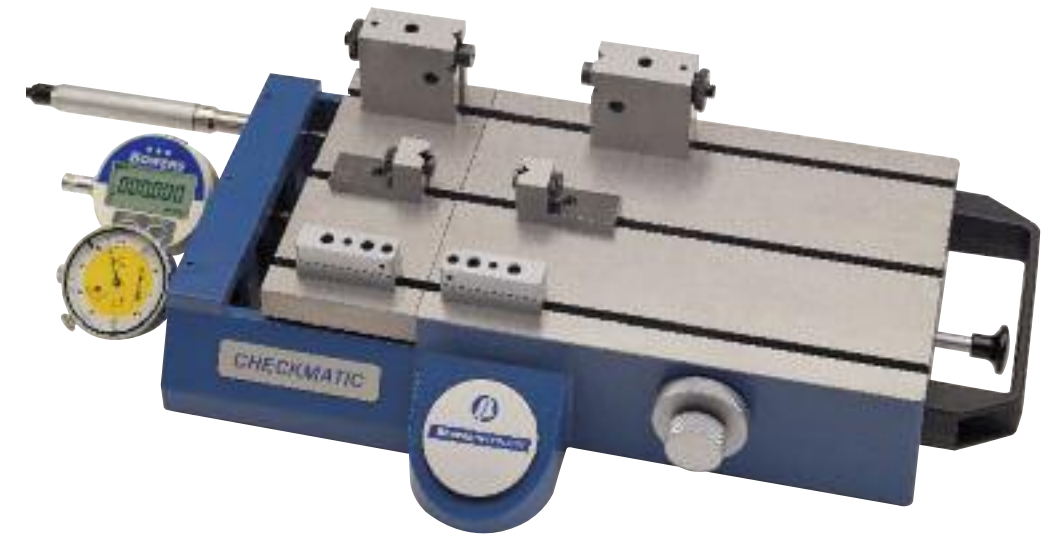
RS232



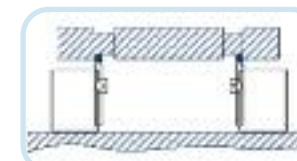
Features:

- Optional integral electronics
- 0.01/0.001mm (0.0005"/0.00005") switchable resolution
- Inch – Metric conversion
- Preset
- Preset recall
- Zero settings
- Memory hold
- Ref 1 & Ref 2 memories
- Min/Max
- Tolerance input
- RS-232 output
- 1 year battery life
- Three T-slots for mounting measuring accessories and contacts
- Nominal 15mm table travel
- Reversible measuring force
- Variable measuring force 7-9n
- Robust construction
- Central float position
- Caged ball technology

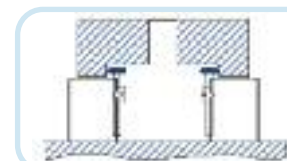
Checkmatic Universal Bench Fixture



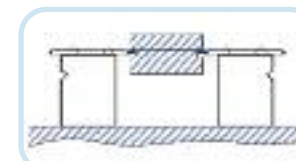
APPLICATIONS



Bearing Face Distance



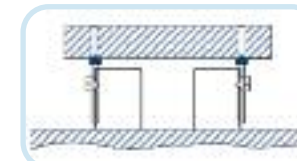
Internal Diameters



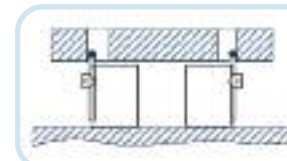
External Diameters



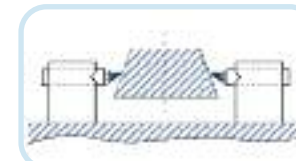
Concentricity/Wall Thickness



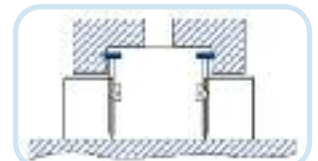
External Splines



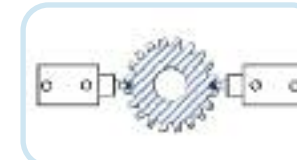
Hole Position



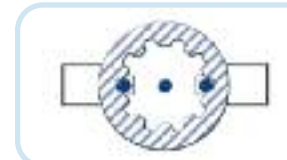
External Tapers



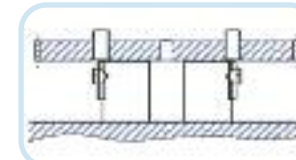
Internal Recess Diameter



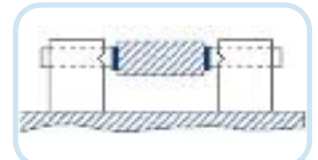
External Splines



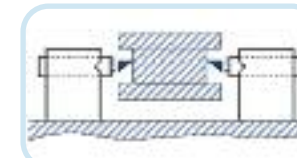
Internal Splines



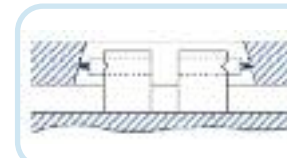
Roller-gear Measurement



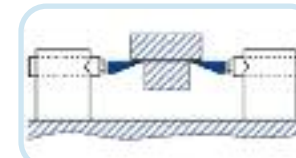
Length Measurement



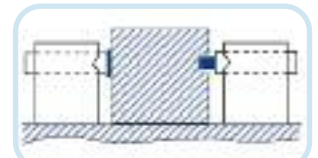
Recess Diameters



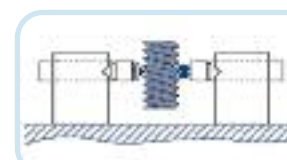
Internal Tapers



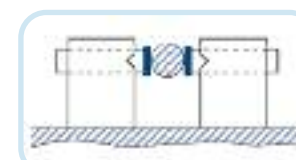
Rolling Gear Test



Slot Depth



Thread Measurement

External Diameters
(Round Parts)

Checkmatic Universal Bench Fixture



Thread Rolls



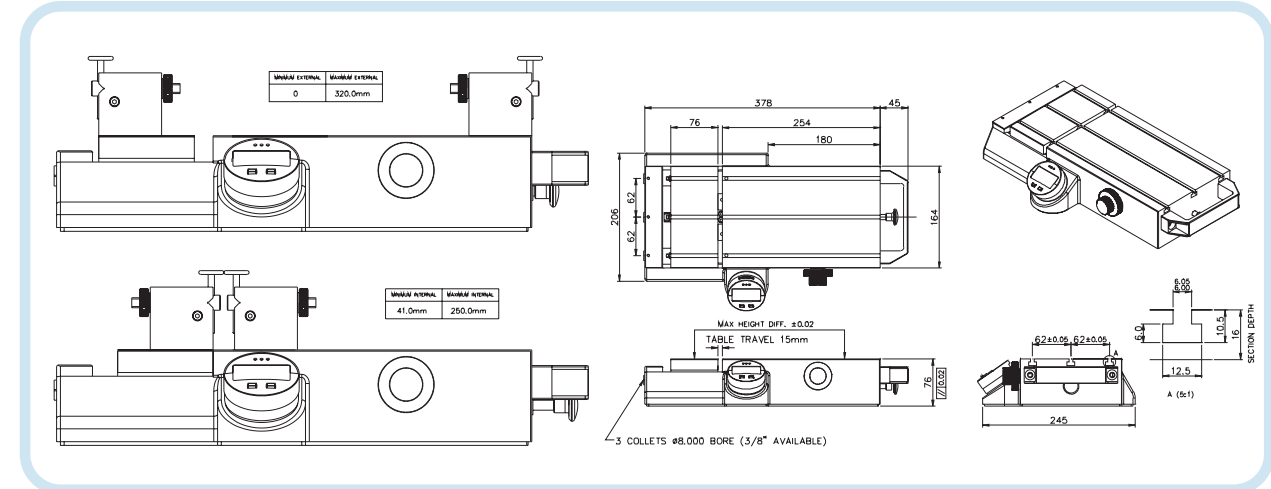
Internal/External Grooves



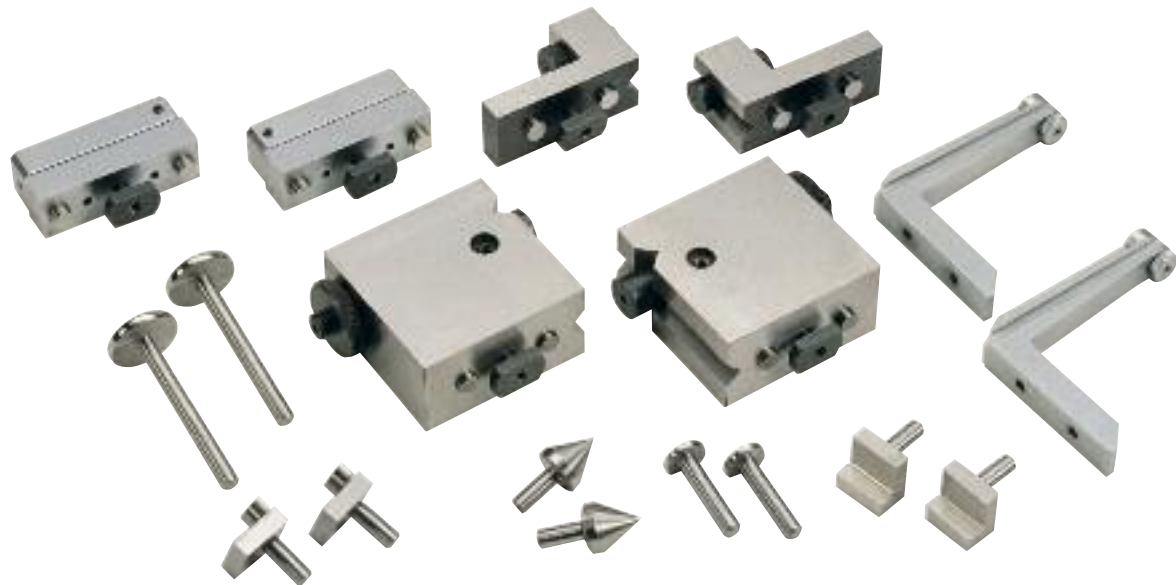
Internal/External Diameters



Centre Axis Distance (Max-Min)



Checkmatic Universal Bench Fixture



Tooling and accessories not included with Checkmatic basic gauge

CKUA005

Universal gauge
Tooling Adapter Arm

CKTB003

Large Tooling Block

CKTB004

Small Tooling Block

PRODUCT CODES			
CHECK001	Checkmatic with digital indicator	TGUA006	Measuring arms 50mm
CHECK002	Checkmatic without indicator	TGUA007	Measuring arms 75mm
CKTB003	Large tooling blocks (pair)	TGUA008	Measuring arms 100mm
CKTB004	Small tooling blocks (pair)		
CKUA005*	Universal Gauge tooling adapters (pair)		

*Note: The CKUA005 Universal Gauge tooling adapters will be necessary to use the following accessories

Snapmic Digital Indicating Micrometer

The **Bowers Snapmic** combines the attributes of an advanced digital micrometer with those of a quality, shop-floor proof snap-gauge. This combination facilitates the rapid measurement of components without compromising exacting accuracy standards

- WiFi
- RS232



Features:

- Measuring range 0 - 30mm & 30 - 60mm
- 2 preset memories
- Preset recall
- Zero set
- Max/min function
- Tolerance function
- Hold function
- Metric/inch conversion
- Switchable resolution 0.01 / 0.001mm 0.0005 / 0.00005"
- RS-232 output
- Half duplex transmission
- Bench stand available
- Special contact tips available for threads, gear tooth measurement, splines, grooves etc.
- Adjustable backstop

TECHNICAL DATA

Model No. mm	Range	Model No. inch	Range	Resolution	Flatness	Parallelism	Accuracy	Repeatability +/-
EIM030M	0-30	EIM030i	0 - 1.25	0.001/ 0.00005	0.3µm/ 0.00001"	1.0µm/ 0.00004"	4µm/ 0.00016"	1µm/ 0.00005"
EIM060M	30-60	EIM060i	1.25 - 2.5	0.001/ 0.00005	0.6µm/ 0.00002"	2.0µm/ 0.00008"	5µm/ 0.0002"	1µm/ 0.00005"



Accessories

Product Code	Description
EST0001	Snapmic stand

Snapmatic Snap-Gauge

The **Bowers Snapmatic** snap gauge has been designed specifically for quick, reliable and accurate measurement of external cylindrical diameters. Particularly suitable for use in series production, the instrument is tough and solid enough to use on the machine in the workshop and flexible enough to be used in the measuring room for sample measurements. The measuring surfaces are of top-quality tungsten carbide mounted on a no-maintenance spring-operated mechanism. Special anvils (e.g for grooves etc) can be fitted to the standard gauge by means of the mounting holes in the anvil.

- WiFi
- RS232



Features:

- Product ranges: 0-25mm (0-1"), 25-50mm (1-2"), 50-75mm (2-3"), 75-100mm (3-4"), 100-125mm (4-5"), 125-150mm (5-6")
- Gauging travel : 0.5mm
- Constant measuring pressure
- Adjustable depth-stop
- 8mm diameter indicator locking bush as standard (3/8" on request)
- Can be used with dial-gauges, digital indicators or measuring probes
- 16mm wide tungsten carbide measuring surfaces for positive-feel measurement (see table for flatness and parallelism)
- Measuring force : 13 N ± 3N
- Indicator protection
- Indicator can be swivelled through 360°
- Heat-resistant polymer grip
- Mounting holes for fitting special contacts e.g. for groove measurement



TECHNICAL DATA

Model No.	Range	Flatness	Parallelism	Measuring Force
SPM25X	0-25 mm	0.3µm	2µm	13 ± 3 N
	0-1 inch	0.000012 inch	0.00008 inch	
SPM50X	25-50 mm	0.3µm	2µm	13 ± 3 N
	1-2 inch	0.000012 inch	0.00008 inch	
SPM75X	50-75 mm	0.3µm	3µm	13 ± 3 N
	2-3 inch	0.000012 inch	0.00012 inch	
SPM100X	75-100 mm	0.3µm	3µm	13 ± 3 N
	3-4 inch	0.000012 inch	0.00012 inch	
SPM125X	100-125 mm	0.3µm	4µm	13 ± 3 N
	4-5 inch	0.000012 inch	0.00016 inch	
SPM150X	125-150 mm	0.3µm	4µm	13 ± 3 N
	5-6 inch	0.000012 inch	0.00016 inch	

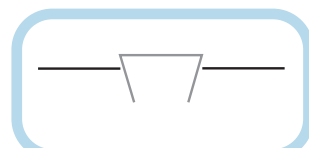
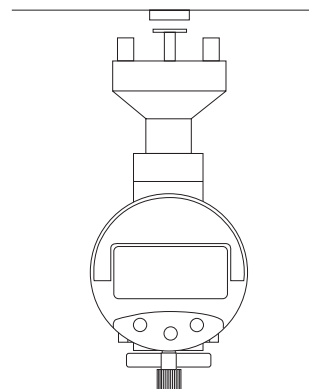
Indicator not included

Rivet Height Gauge

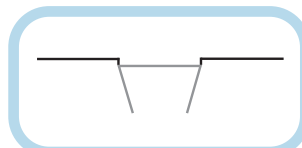
The **Bowers rivet-height gauge** has been specially designed to measure the height of rivets used on aircraft outer skin. If the top of the rivet is too high above or too low below the level of the rivet-hole, the streamlining of the aircraft will be affected. This wind-resistance will be magnified many times depending on the number of rivets present in the outer hull and on the wings 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.

WiFi

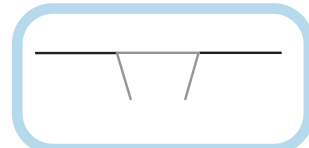
RS232



Proud



Deep



Flush



Model No.
DRHG003 Rivet Height Gauge

Features :

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

UniCal

Ultra Light Internal /External Sliding Gauge



Features :

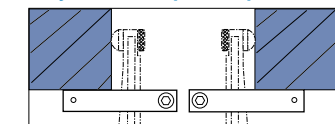
- Ranges : 0-300, 0-600, 0-1000
- Preset facility for internal / external measurement
- Constant measuring force
- Hold feature, freezes display for later viewing
- Incremental floating zero
- Metric/Inch switchable
- Resolution : 0.01 mm / 0.0005"
- MIN/MAX function
- Tolerance indicators
- 5mm Ø mounting bores on the top and underneath the gauge
- Adapters available to fit Bowers Universal Gauge accessories
- Wide range of measuring contacts
- Large easy to read LCD display, height of digits 8.5mm
- RS 232 output
- Water resistant

Ultra Light Internal /External Sliding Gauge

Model No.	Range	Max error	*Repeatability
UNICAL 300	0-300 mm	30µm	20µm
UNICAL 600	0-600 mm	40µm	20µm
UNICAL1000	0-1000 mm	60µm	20µm

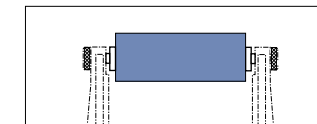
*Depending on contacts used

Adjustable Depth Stops



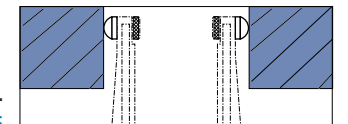
Model No. (Pair)
TGUA 010

Flat Contacts



Model No.
TGUA 004

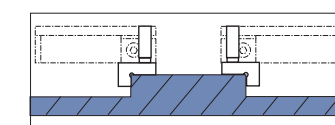
Spherical Contacts



Model No.
TGUA 005

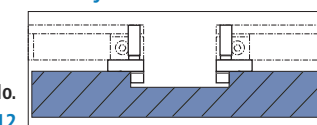
TO FIT DIRECTLY INTO 5 MM MOUNTING BORES

Shoulder Anvils



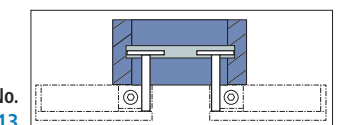
Model No.
TGUA 011

Semi-cylindrical Anvils



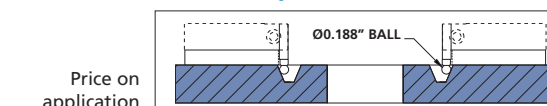
Model No.
TGUA 012

Disc Anvils



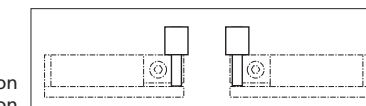
Model No.
TGUA 013

Measuring contacts for face-groove and V-groove Ø measurement (oil industry)

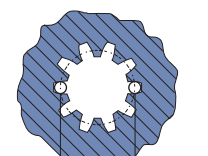


Price on application

Cylindrical Measuring Pins

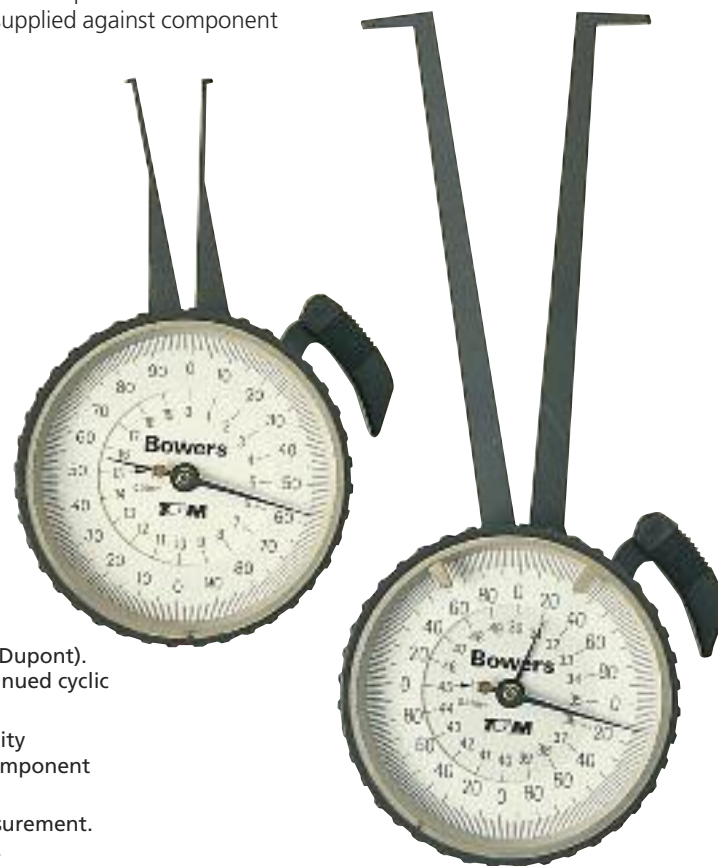


Price on application



TGM Internal Minor Calipers

The extensive range of internal **Bowers TGM calipers** has been further improved to ensure maximum durability and accuracy, with carbide contact points now fitted to all models. Quotations for non-standard calipers can be supplied against component drawings.



Features:

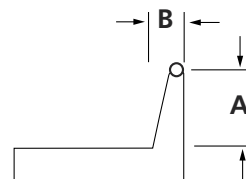
- High performance braided cable made from Dacron (by Dupont). For longer cable life and excellent repeatability. In continued cyclic testing Dacron out-performed braided steel cable.
- Carbide ball contacts as standard to give enhanced quality of feel, longer contact life and less prone to marking component surfaces.
- Longer tapered contacts for easy access on groove measurement.
- Easy setting with rotating scale and protective bezel for workshop use.

SHORT LEG TECHNICAL DATA

Metric				Inch			
Model No.	Measuring Range mm	Dimensions A B		Model No.	Measuring Range inch	Dimensions A B	
TGA020M	5 - 15	1.1	1.5	TGA020i	0.25-0.75	0.044	0.060
TGA021M	10 - 20	3.3	1.5	TGA021i	0.50-1.00	0.125	0.060
TGA022M	15 - 25	4.0	1.8	TGA022i	0.75-1.25	0.250	0.100
TGA023M	20 - 30	7.0	2.5	TGA023i	1.00-1.50	0.375	0.110
TGA024M	25 - 35	9.0	2.8	TGA024i	1.25-1.75	0.375	0.100
TGA025M	30 - 40	9.75	2.8	TGA025i	1.50-2.00	0.375	0.100
TGA026M	35 - 45	9.75	2.8				
TGA027M	40 - 50	9.75	2.8				

Short Leg Calipers

Metric graduations 0.01mm
Imperial graduations 0.0005"
Effective leg length 39.7mm/1.55"
A = Maximum groove depth
B = Maximum groove width at depth A



Long Leg Calipers

Metric graduations 0.02mm
Imperial graduations 0.001"
Effective leg length 87mm/3.42"
A = Maximum groove depth
B = Maximum groove width at depth A

TGM External Minor Calipers

The external versions of **Bowers TGM calipers** now include carbide contact points as standard. As with other Bowers TGM products non-standard applications can be quoted against a component drawing.



Features:

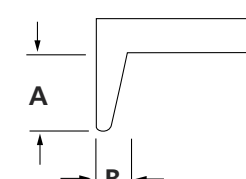
- High performance braided cable made from Dacron (by Dupont). For longer cable life and excellent repeatability. In continued cyclic testing Dacron out-performed braided steel cable.
- Carbide ball contacts as standard to give enhanced quality of feel, longer contact life and less prone to marking component surfaces.
- Longer tapered contacts for easy access on groove measurement.
- Easy setting with rotating scale and protective bezel for workshop use.

SHORT LEG TECHNICAL DATA

Metric				Inch			
Model No.	Measuring Range mm	Dimensions A B		Model No.	Measuring Range inch	Dimensions A B	
TGA010M	0 - 10	9.3	3.0	TGA010i	0-0.50	0.375	0.120
TGA011M	5 - 15	9.3	3.0	TGA011i	0.25-0.75	0.375	0.120
TGA012M	10 - 20	9.3	3.0	TGA012i	0.50-1.00	0.375	0.120
TGA013M	15 - 25	9.3	3.0	TGA013i	0.75-1.25	0.375	0.120
TGA014M	20 - 30	9.3	3.0	TGA014i	1.00-1.50	0.375	0.120
TGA015M	25 - 35	9.3	3.0	TGA015i	1.25-1.75	0.375	0.120
TGA016M	30 - 40	9.3	3.0	TGA016i	1.50-2.00	0.375	0.120
TGA017M	35 - 45	9.3	3.0				
TGA018M	40 - 50	9.3	3.0				

Short Leg Calipers

Metric graduations 0.01mm
Imperial graduations 0.0005"
Effective leg length 39.7mm/1.55"
A = Maximum groove depth
B = Maximum groove width at depth A



LONG LEG TECHNICAL DATA

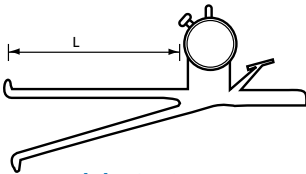
Metric				Inch			
Model No.	Measuring Range mm	Dimensions A B		Model No.	Measuring Range inch	Dimensions A B	
TGA030M	0 - 20	9.3	3.0	TGA030i	0-1.0	0.375	0.120
TGA031M	10 - 30	9.3	3.0	TGA031i	0.5-1.5	0.375	0.120
TGA032M	20 - 40	9.3	3.0	TGA032i	1.0-2.0	0.375	0.120
TGA033M	30 - 50	9.3	3.0	TGA033i	1.5-2.5	0.375	0.120
TGA034M	40 - 60	9.3	3.0	TGA034i	2.0-3.0	0.375	0.120

Long Leg Calipers

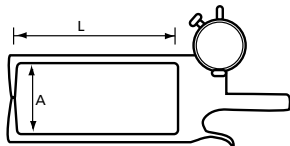
Metric graduations 0.02mm
Imperial graduations 0.001"
Effective leg length 87mm/3.42"
A = Maximum groove depth
B = Maximum groove width at depth A

TGM Major Calipers Analogue

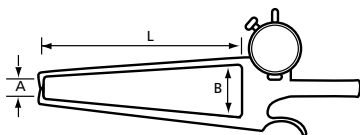
Designed to measure internal or external dimensions. This range of dial calipers gives a method of gauging where extended reach or clearance is required. Carbide measuring faces are standard.



Model TGDC
For internal measurement with extended reach



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



Model TGE
External caliper for use where access is limited.

INTERNAL TECHNICAL DATA

Metric

Model No.	Leg Length L	Graduation	Measuring Range A
TGDC053	125mm	0.02mm	22-72mm
TGDC054	125mm	0.1mm	22-72mm

Inch

Model No.	Leg Length L	Graduation	Measuring Range A
TGDC051	5"	0.001"	0.875-2.875"
TGDC052	5"	0.01"	0.875-2.875"

Measuring ranges on internal diameters above 100mm are available as specials.P.O.A.

EXTERNAL TECHNICAL DATA

Metric

Model No.	Leg Length L	Graduation	Measuring Range A
TGIC063	150mm	0.02mm	0-50mm
TGEC063	150mm	0.1mm	0-50mm
TGIC064	150mm	0.1mm	0-50mm
TGEC064	150mm	0.1mm	0-50mm
TGIC103	250mm	0.02mm	0-50mm
TGEC103	250mm	0.02mm	0-50mm
TGIC104	250mm	0.1mm	0-50mm
TGEC104	250mm	0.1mm	0-50mm
TGIC224	550mm	0.1mm	0-50mm
TGEC224	550mm	0.1mm	0-50mm

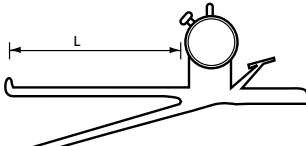
Inch

Model No.	Leg Length L	Graduation	Measuring Range A
TGIC061	6"	0.001"	0-2"
TGEC061	6"	0.001"	0-2"
TGIC062	6"	0.01"	0-2"
TGEC062	6"	0.01"	0-2"
TGIC101	10"	0.001"	0-2"
TGEC101	10"	0.001"	0-2"
TGIC102	10"	0.01"	0-2"
TGEC102	10"	0.01"	0-2"
TGIC222	22"	0.01"	0-2"
TGEC222	22"	0.01"	0-2"

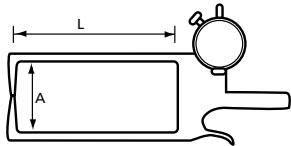
Measuring ranges on external calipers above 50mm are available as specials.P.O.A.

TGM Major Calipers Digital

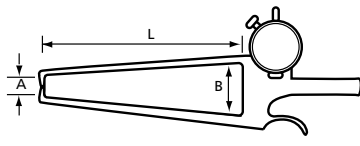
Digital Major Calipers have a direct Inch/Metric indicator with switchable resolutions of 0.02mm/0.001", 0.05mm/0.0025", 0.1mm/0.005" and 0.2mm/0.010". They have zero and preset facility for both absolute and comparative measurement.



Model TGDC



Model TGIC



Model TGE

Features:

- High contrast digital display
- Switchable resolution: 0.02/0.001", 0.05/0.0025", 0.1/0.005", 0.2/0.010"
- Inch/Metric switchable.
- Zero and preset facility for absolute and comparative readings.
- Output for connection to printer or computer.
- Carbide measuring faces as standard.
- Hold function for ease of reading.
- Min/max function.

OUTPUT CABLES

Model no.	Description
TGMC010	RS232 Cable
TGMC020	MTI Cable
TGMC030	BCD Cable

INTERNAL TECHNICAL DATA

Model No.	Leg Length L	Graduation	Measuring Range A
TGDC050	125mm/5"	0.02mm/0.001"	22-72mm/0.875-2.875"

Measuring ranges on internal diameters above 100mm are available as specials. P.O.A.

EXTERNAL TECHNICAL DATA

Model No.	Leg Length L	Graduation	Measuring Range A
TGIC060	150mm/6"	0.02mm/0.001"	0-50mm/0-2"
TGIC060	150mm/6"	0.02mm/0.001"	0-50mm/0-2"
TGIC100	250mm/10"	0.02mm/0.001"	0-50mm/0-2"
TGEC100	250mm/10"	0.02mm/0.001"	0-50mm/0-2"
TGIC200	550mm/22"	0.1mm/0.005"	0-50mm/0-2"
TGEC200	550mm/22"	0.1mm/0.005"	0-50mm/0-2"

Measuring ranges on external calipers above 50mm are available as specials. P.O.A.

PC 2200 Air/Electronic Column

The **PC 2200** is a state of the art flexible electronic/air column capable of operating with air gauging products and measuring probes. The advanced new column contains a multitude of measuring functions including static and dynamic gauging, classification grading, probe mixing, (A+B), (A-B), etc.

Features:

- Metric/Imperial
- 3 colour LED display
- Digital display
- Status indicator
- 2 probe input
- 4 probe input option
- Probe mixing, (A+B), (A-B), etc.
- Compatible with most electronics probes
- Air convertor option (1 or 2)
- Dynamic mode Max, Min, TIR, etc.
- Tolerance limit setting
- Approach limit setting
- Calibration, single or Max/Min
- Accuracy 0.5% full scale +/- resolution
- 6 range settings
- Resolution 0.1um (5 settings)
- Grading (1-100)
- RS-232 output
- Can be linked to PLC or Logic controller
- Dual supply voltage (220/110 volt)



PC 2200 ELECTRONIC COLUMN

Model No.	Description
55-MCOL2	Col2 Column mm/inch
55-MAIND2	A-IND2 analogue board (HBT) - 2 channels
55-MAIND4	A-IND4 analogue board (HBT) - 4 channels
55-MALVD2	A-IND2 analogue board (LVDT) - 2 channels
55-MALVD4	A-IND4 analogue board (LVDT) - 4 channels
55-MACAP2	A-CAP2 analogue board (Sylvac) - 2 channels
55-MACAP4	A-CAP4 analogue board (Sylvac) - 4 channels

PC 2200 AIR/ELECTRONIC COLUMN

Model No.	Description
55-MCOL2	Col2 Column mm/inch
55-MC	C AIR Converter+regulator
55-MAIR1	AIR1 1 channel analogue board
55-MAIR2	AIR2 2 channels analogue board

ACCESSORIES

Model No.	Description
55-PC2302	Power jump cable
55-PC2311	RS232 cable (9p/M/F)
55-PC2312	Output cable (9p/M-> no connector)
55-PC2312	External control cable (9p/M-> no connector)
55-PC2312	DC-out cable (9p/M-> no connector)
55-PC2321	Foot pedal with cable for 1 col.
55-PC2341	Switch box (4 functions) with cable for 1 col.
55-PC2332	CH-BUS cable for 2 col.

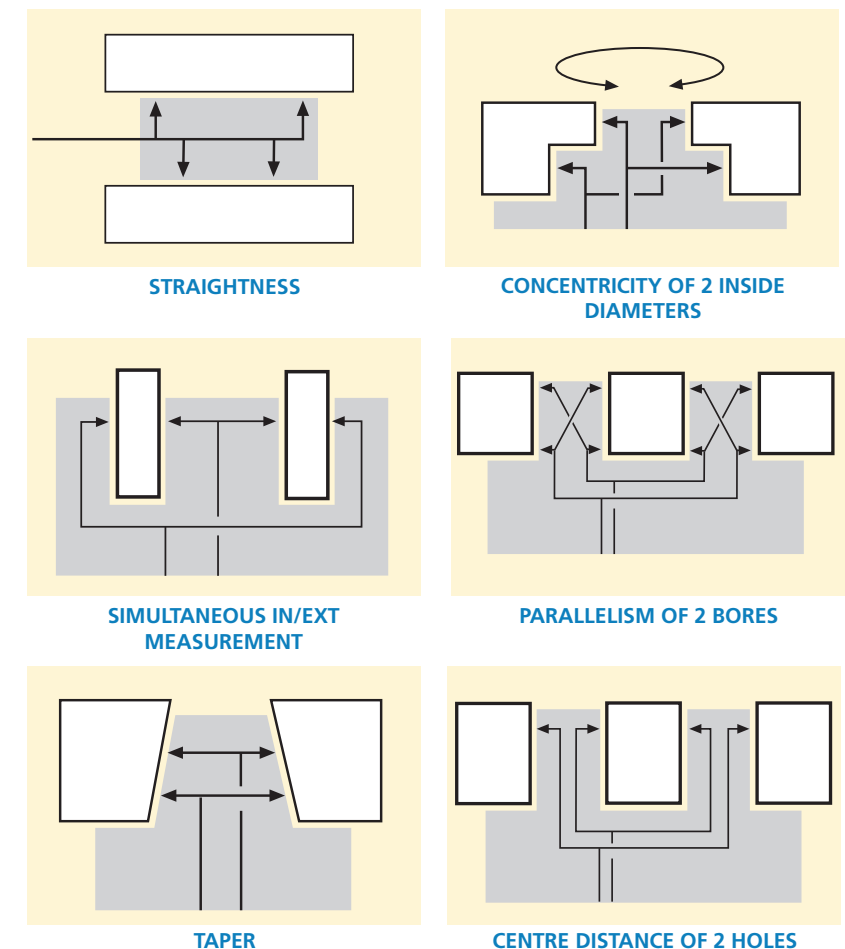
Bowers Air Gauging

Bowers offer the most comprehensive range of standard air plugs, rings, calipers, etc, currently available. To complement this service we also produce bespoke air gauging products to help solve customer's specific measuring problems. Our hi-tech manufacturing plant incorporates a first class UKAS calibration laboratory, ensuring the quality and accuracy of our air gauging products.



Features:

- High resolution
- 3mm to 150mm diameter
- High repeatability
- Non contact
- Static or dynamic measurement
- Multi parameter measurement
- 3mm to 150mm diameter
- Compatible with instruments from other sources
- Air plugs for internal measurement
- Air rings and calipers for external measurement
- In-cycle, in-process and post-process



Wireless Data Transmission

Allowing the wireless transmission of measurement values from gauge to PC, the **IBRit-rf1 Radio Module** is the latest development in interface technologies.

Communicating with up to 120 gauges, and with a maximum transmission distance of up to 200m, the wireless data transfer module connects via a port to your PC. The PC transmits address numbers to each gauge radio module where they are stored. The transmission of a measurement value is triggered simply by pressing the data key on the gauge module or on the gauge itself. An audible tone and visible light confirms a successful data transmission. Special data coding between the PC and the gauge radio module guarantees absolute data security.



Features:

- User-friendly
- Full data security
- Low cost
- Compact size
- Long transmitter battery life
- Long transmission distance
- CE & FCC approval
- Audible/visual transmission confirmation
- Individually programmable
- Connects to all types of gauges
- Up to 120 transmitters per receiver
- Allows integration into SPC software

WIRELESS TRANSMISSION RECEIVER

Code No	Description
25-604-013	IBRit-rf1-S233 Powered Radio Module
25-604-014	IBRit-rf1-opto RS232 output Radio Module
25-604-001	Receiver for PC & Software

Notes

Notes

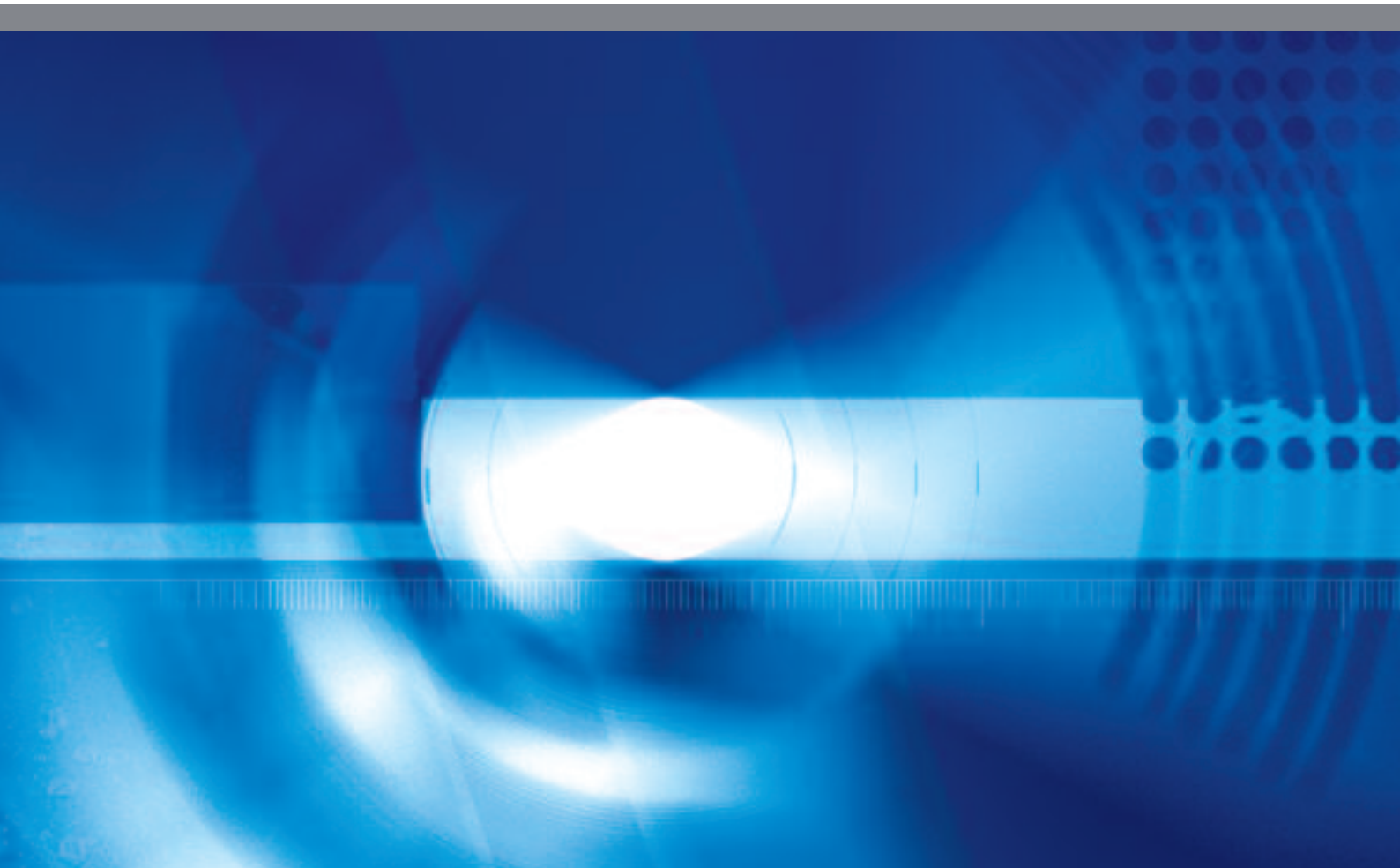
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