

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.



XTA Micro Features

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



MXTA10M – XTA Micro

Features

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

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	12.50	XTR12i	0.500
XTR20M	20.00	XTR20i	0.750
XTR35M	35.00	XTR35i	1.375
XTR65M	65.00	XTR65i	2.625
XTR80M	80.00	XTR80i	3.250
XTR125M	125.00	XTR125i	5.000
XTR175M	175.00	XTR175i	7.000
XTR225M	225.00	XTR225i	9.000
XTR275M	275.00	XTR275i	11.000

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

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

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



SMXTA3M

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



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.



WiFi

Option

RS232

USB

Non Bluetooth is available upon request



DATA TRANSMISSION

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

Features

- Ergonomic design with larger and clearer LCD display
- IP67 Electronics
- Simple 2-button operation
- 4 preset memories
- Proximity output with built-in Bluetooth
- Bi-directional communication
- 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
- 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 fitted wooden case

Digital Bore Gauges

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

DISPLAY UNITS ONLY

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

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)
SXTD1M-BT	2-6	5	3	SXTD1i-BT	0.080-0.250
SXTD3M-BT	6-10	2	1	SXTD3i-BT	1/4-3/8
SXTD4M-BT	10-20	3	2	SXTD4i-BT	3/8-3/4
SXTD5M-BT	20-50	3	2	SXTD5i-BT	3/4-2
SXTD6M-BT	50-100	3	2	SXTD6i-BT	2-4
SXTD7M-BT	100-150	2	1	SXTD7i-BT	4-6
SXTD8M-BT	150-200	2	1	SXTD8i-BT	6-8
SXTD9M-BT	100-200	4	2	SXTD9i-BT	4-8

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

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

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

EXTENSIONS

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



SXTD5M-BT



SXTD5U-BT

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

Digital Pistol Grip Bore Gauge

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.



WiFi

Option

RS232

USB

Non Bluetooth is available upon request



DATA TRANSMISSION

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

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 fitted wooden case



Digital Pistol Grip Bore Gauge

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

DISPLAY UNITS ONLY

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

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

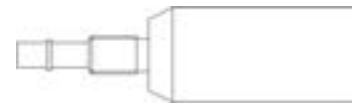
EXTENSIONS

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

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



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



SXTH5M-BT

Digital Lever Bore Gauge

The robust Bowers XTL Lever range is perfect for vertical bore measurement, providing accurate and repeatable bore gauging under inspection department or shop-floor conditions. The XTL has a simple ergonomic action and can be fitted with a wide variety of analogue and digital indicators or even transducer probes. The range can be provided with IP65 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

- Measuring range 6-100mm
- 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
- Bluetooth® indicator option available



Option



Option



INDIVIDUAL INSTRUMENTS: Supplied with head, ring and UKAS certificates

Code No	Range (mm)	Accuracy (mm)	Depth (mm)	Setting Ring (mm)
XTL6M	6-8	0.004	58	8.00
XTL8M	8-10	0.004	58	8.00
XTL10M	10-12.5	0.004	58	12.50
XTL12M	12.5-16	0.004	62	12.50
XTL16M	16-20	0.004	62	20.00
XTL20M	20-25	0.004	66	20.00
XTL25M	25-35	0.004	66	35.00
XTL35M	35-50	0.004	80	35.00
XTL50M	50-65	0.005	80	65.00
XTL65M	65-80	0.005	80	65.00
XTL80M	80-100	0.005	85	80.00

Code No	Range (inch)	Accuracy (inch)	Depth (inch)	Setting Ring (inch)
XTL6i	1/4-5/16	0.00015	2.28	0.312
XTL8i	5/16-3/8	0.00015	2.28	0.312
XTL10i	3/8-1/2	0.00015	2.28	0.500
XTL12i	1/2-5/8	0.00015	2.44	0.500
XTL16i	5/8-3/4	0.00015	2.44	0.750
XTL20i	3/4-1	0.00015	2.62	0.750
XTL25i	1-1 3/8	0.00015	2.62	1.375
XTL35i	1 3/8-2	0.00015	3.15	1.375
XTL50i	2-2 5/8	0.00020	3.15	2.625
XTL65i	2 5/8-3 1/4	0.00020	3.15	2.625
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	6-10	Mini Indicator	1/4-3/8	SXTL3i
SXTL4M	10-20	Mini Indicator	3/8-3/4	SXTL4i
SXTL5M	20-50	Standard Indicator	3/4-2	SXTL5i
SXTL6M	50-100	Standard Indicator	2-4	SXTL6i

6-20MM LEVER GAUGE DATA TRANSMISSION

Code No	Description
30-926-6821	Powered Opto / USB
25-604-013	Wireless Powered Opto Module

20-100MM LEVER GAUGE DATA TRANSMISSION

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



SXTL4M

XT500 Large Diameter 3-point Bore Gauge

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

Features

- Measuring range: 300-500mm
- 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 fitted case


WiFi

Option

RS232
USB

Non Bluetooth is available on request



The Bowers XT500 with extension for deeper bores

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

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

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

Code No (with BT)	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

DATA TRANSMISSION

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

Electronic Bore Gauge - Ultima

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.

WiFi

Option

RS232



ULTIMA HOLDERS

Code No	Range (mm)	Description
PH2	2-6	With Probe
PH3	6-20	With Probe
PH4	20-100	With Probe
PH5	100-310	With Probe
PW2	2-6	Without Probe
PW3	6-20	Without Probe
PW4	20-100	Without Probe
PW5	100-310	Without Probe

Features

- UKAS certificates standard for all measuring heads and setting rings
- Measuring range 2-310mm (0.080" -12.000")
- 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



USET8 20-50mm Set

ULTIMA SETS

Code No	Range (mm)	Description
USET2	2-6	With Sylvac D50S display
USET3	6-10	With Sylvac D50S display
USET4	10-20	With Sylvac D50S display
USET7	6-20	With Sylvac D50S display
USET8	20-50	With Sylvac D50S display
USET9	50-100	With Sylvac D50S display
USET10	20-100	With Sylvac D50S display
USET2W	2-6	Without Sylvac D50S display
USET3W	6-10	Without Sylvac D50S display
USET4W	10-20	Without Sylvac D50S display
USET7W	6-20	Without Sylvac D50S display
USET8W	20-50	Without Sylvac D50S display
USET9W	50-100	Without Sylvac D50S display
USET10W	20-100	Without Sylvac D50S 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+

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	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	0.0015	0.00006	80	3.15	ULR60	60	2.360	PH4
ULH24	60-70	2.360-2.756	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR60	60	2.360	PH4
ULH25	70-80	2.756-3.150	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR80	80	3.150	PH4
ULH26	80-90	3.150-3.543	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR80	80	3.150	PH4
ULH27	90-100	3.543-3.940	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR100	100	3.940	PH4
ULH28	100-110	3.940-4.330	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR100	100	3.940	PH5
ULH29	110-120	4.330-4.725	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR120	120	4.725	PH5
ULH30	120-130	4.725-5.120	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR120	120	4.725	PH5
ULH31	130-140	5.120-5.510	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR140	140	5.510	PH5
ULH32	140-150	5.510-5.900	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR140	140	5.510	PH5
ULH33	150-160	5.900-6.300	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR160	160	6.300	PH5
ULH34	160-170	6.300-6.690	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR160	160	6.300	PH5
ULH35	170-180	6.690-7.090	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR180	180	7.090	PH5
ULH36	180-190	7.090-7.480	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR180	180	7.090	PH5
ULH37	190-200	7.480-7.875	0.0015	0.00006	0.0015	0.00006	80	3.15	ULR200	200	7.875	PH5
ULH38	200-210	7.875-8.270	0.0015	0.00006	0.0015	0.00006	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



ULH19 28-32mm head



ULH25 70-80mm head

Special Bore Measurement

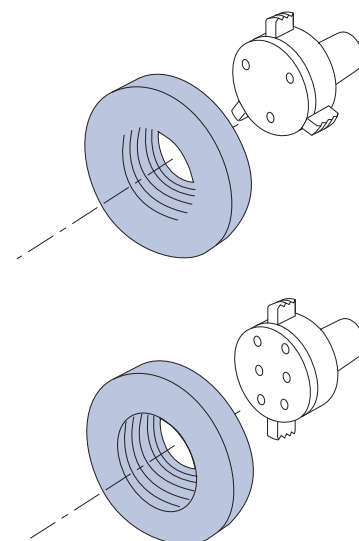
Although Bowers produces the most comprehensive series of bore gauges and internal measuring equipment available, not all applications can be covered by our standard instrument range. In line with our customer care ethos, Bowers has earned a reputation for manufacturing special heads for measuring non-standard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



Threads

Screw Threads

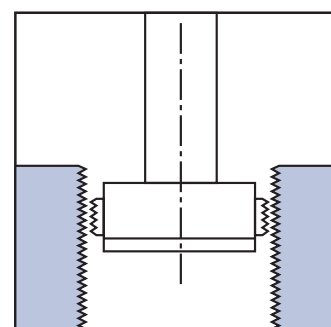
To measure effective (functional) diameter, pitch diameter, major diameter, between M4 - 300mm. / No. 8 UN - 12" diameter.



2 Point



3 Point



Ball Screw Threads

From Ø M10.



External Threads

External Thread



Special Bore Measurement - Grooves

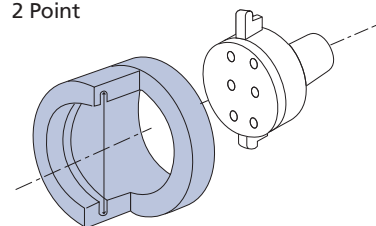
- Interchangeable with standard heads
- Suits Bowers XTD, XTH and Ultima
- Special forms, radius, ball contacts
- Depth stops available for quick location
- Annular grooves possible

Grooves

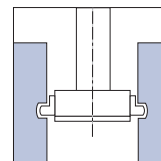
For sizes from 2-300mm diameter.



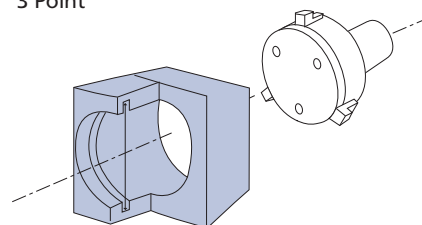
2 Point



Side view



3 Point



Groove Head
with Depth Stop

Brake Caliper Measurement



Caliper Groove
Measurement



Ball Race Measurement

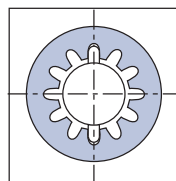
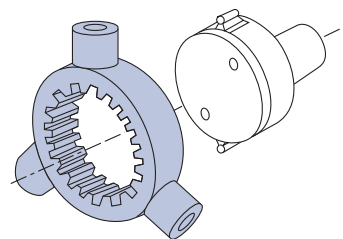


Measuring
Component

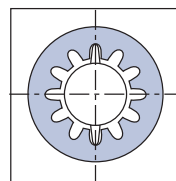


Special Bore Measurement - Internal Spline

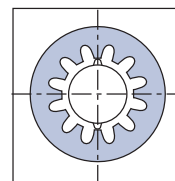
2 and 3 point heads available.
Anvils manufactured from tool steel.
Between pin, major and minor diameter heads available.
Diameters from 8-300mm
diameter (5/16"-12").



Pitch Diameter



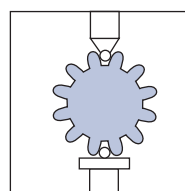
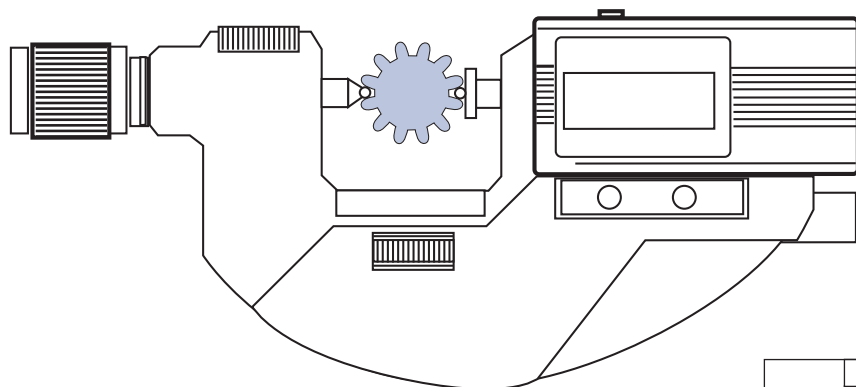
Major Diameter



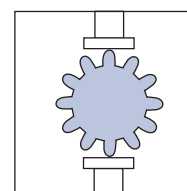
Minor Diameter

Special Measurement - External Spline

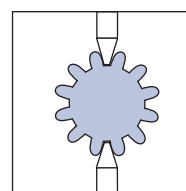
Frames fitted with 1 x ball and 1 x pin.



Pitch Diameter



Major Diameter



Minor Diameter

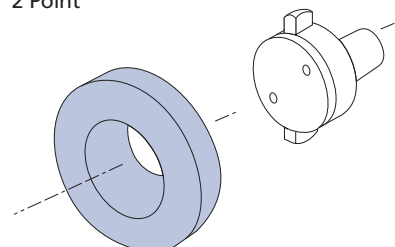
Special Bore Measurement - Spherical

2 Point Spherical

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

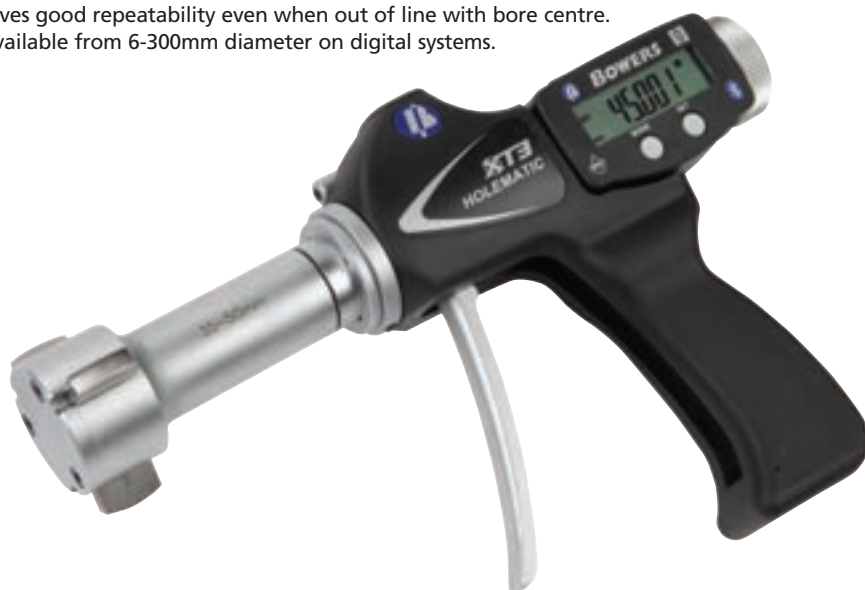


2 Point

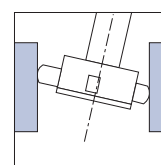
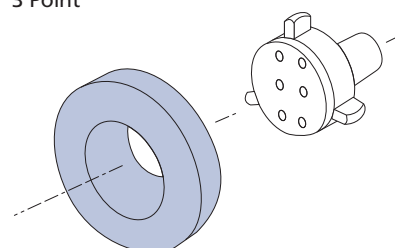


3 Point Spherical

Gives good repeatability even when out of line with bore centre.
Available from 6-300mm diameter on digital systems.

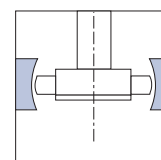
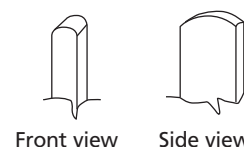
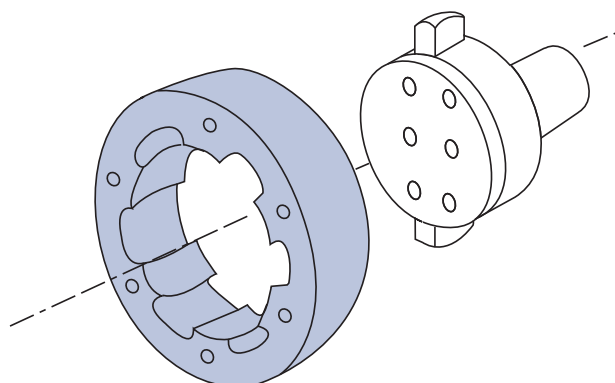


3 Point



Spherical Radius

Can be supplied as a 2 point
(for ovality) or 3 point contact.
Available from 6-300mm.



Special Bore Measurement - Deep Hole Pneumatic

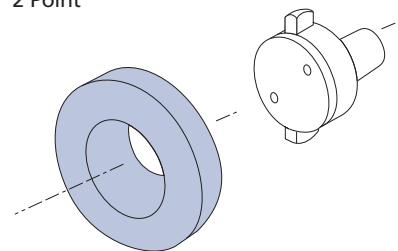
Operated by a pneumatic actuator powered by a 3 bar compressed air supply - either from a compressor or a workshop air-line. The measurement data is collected by a capacitive probe fitted just behind, and in constant contact with the measuring head. This direct contact ensures high-quality transducer-type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

Features

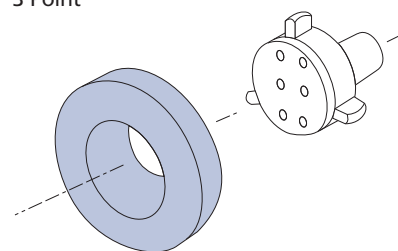
- Measures diameters from 50-310mm, up to 15m deep
- Spherical, Tungsten Carbide anvils
- 2 point and 3 point heads available
- Accuracy $\pm 0.005\text{mm}$ (subject to bore condition)
- Quick set-up time
- Easy to use
- Not adversely effected by temperature fluctuation
- Robust design
- Various readouts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



2 Point



3 Point

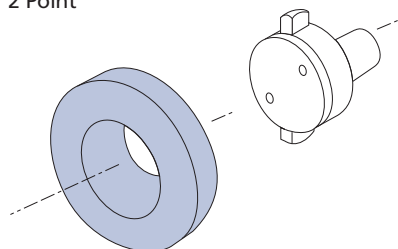


Deep Hole XT - Under 2 Metres

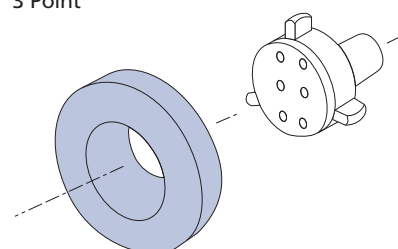
Up to 2.0 metres deep with standard extensions.



2 Point



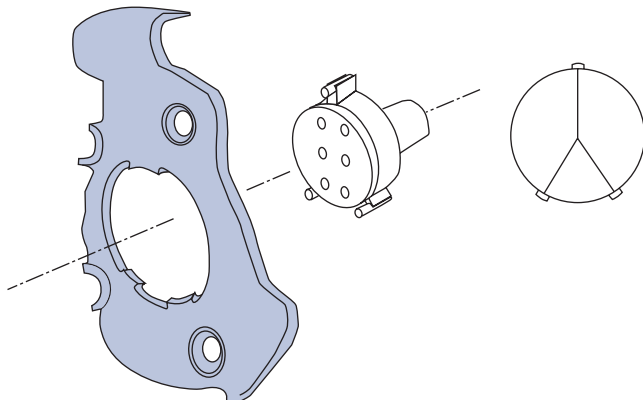
3 Point



Special Bore Measurement - Miscellaneous

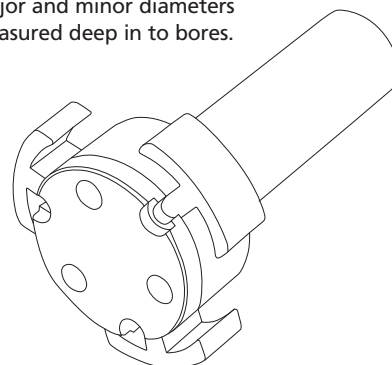
Irregular Spacing

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



Gun Barrel Head

Measurement of smooth bore and rifled bore gun barrels. Major and minor diameters measured deep in to bores.

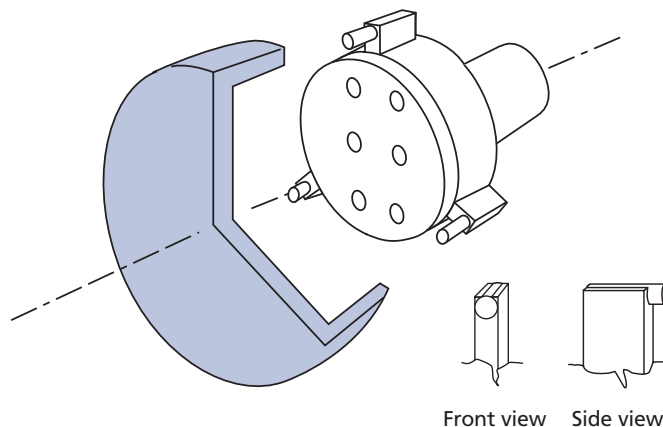


Right Angled Adaptor



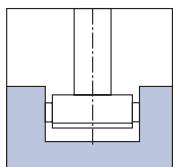
Blind Bore

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



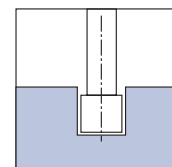
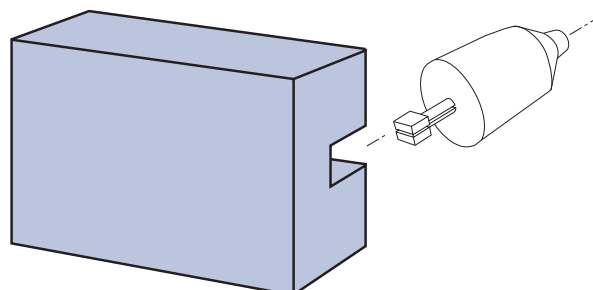
Slot Width (Large)

Slot widths from 6-100mm.



Slot Width (Small)

Slot widths from 2-6mm.



Special Bore Measurement - Measurement of Dovetail Slots & Turbine Blade Grooves

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:

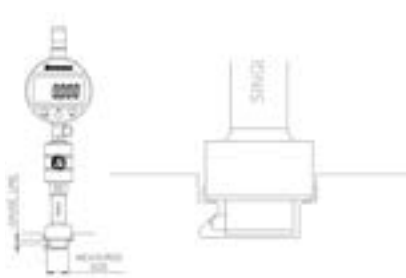
The Bowers dovetail variable gauge is able to output the actual size and position as opposed to competitors' attribute (Go / No Go) gauging. The gauge has a long working life and doesn't wear like attribute gauging.

Potential Industries:

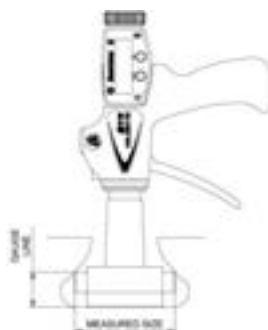
- Aerospace
- Nuclear
- Turbines
- Power Generation



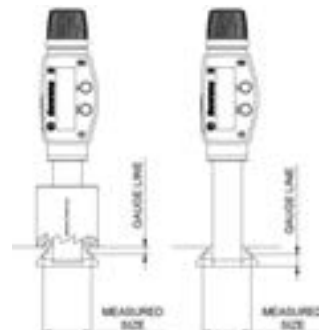
Single side measurement
for set-up / symmetry



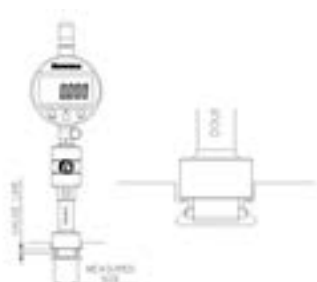
Measurement of dovetail seat face width



Other Dovetail & Fir Tree Slots



Double side measurement
for overall width



Measurement of bottom lobe width



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



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

Potential Industries:

- Oil & Gas
- Hydraulics
- Industrial Pipework



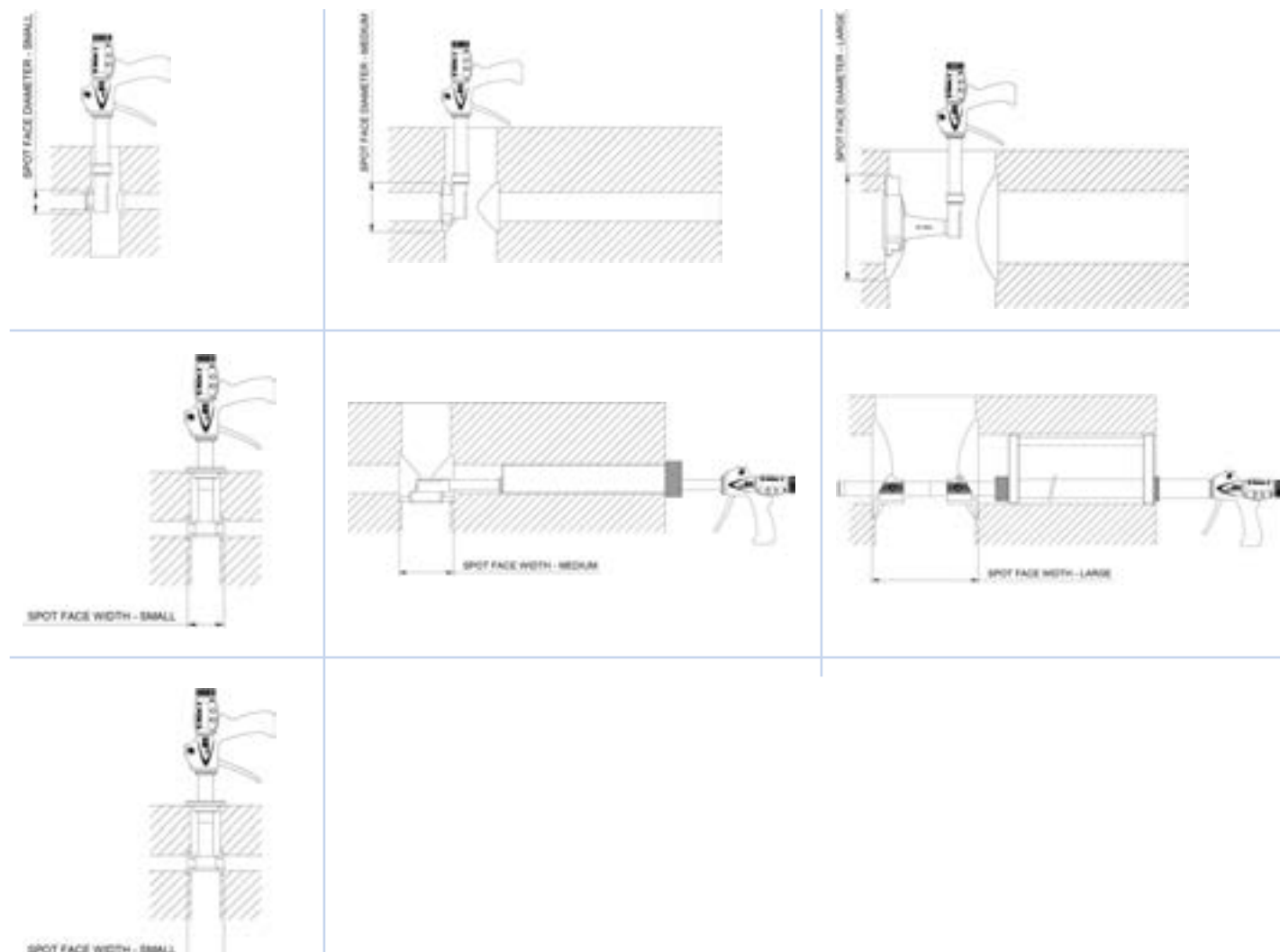
Typical part

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



SmartPlugs

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.



Features

- Range 6-280mm
- 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
- 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

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

Holders



SMA001M
M6 Holder short
8mm stem



SMA002M
M6 Holder long
8mm stem



SMA003
M6 100mm
extension



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



SMA004
M6 Probe holder
8mm stem

SMPDS00-09
Depth Stop



SMA007
M10 100mm
extension



SMA006M
M10 Holder long
8mm stem



SMA005M
M10 Holder
short 8mm

SMA008
M10 Probe holder
8mm stem



SMPDS00-09
Depth Stop

SmartPlugs

M6 Thread Range 6-20mm
Please state size to be measured



M10 Thread Range 15-280mm
Please state size to be measured



Contact Options: Tungsten Carbide (standard), Hard Chrome, Ruby, Ceramic
Plug-Body options: Hard Chrome Plated (standard), Titanium Nitride, Plain Steel

SmartPlugs

SmartPlug Applications & Options



SmartPlug with TiN coated body



SmartPlug with MicroGauge head



SmartPlug with ceramic contacts



SmartPlug for blind bore measurement



SmartPlug with depth stop



SmartPlug with extension



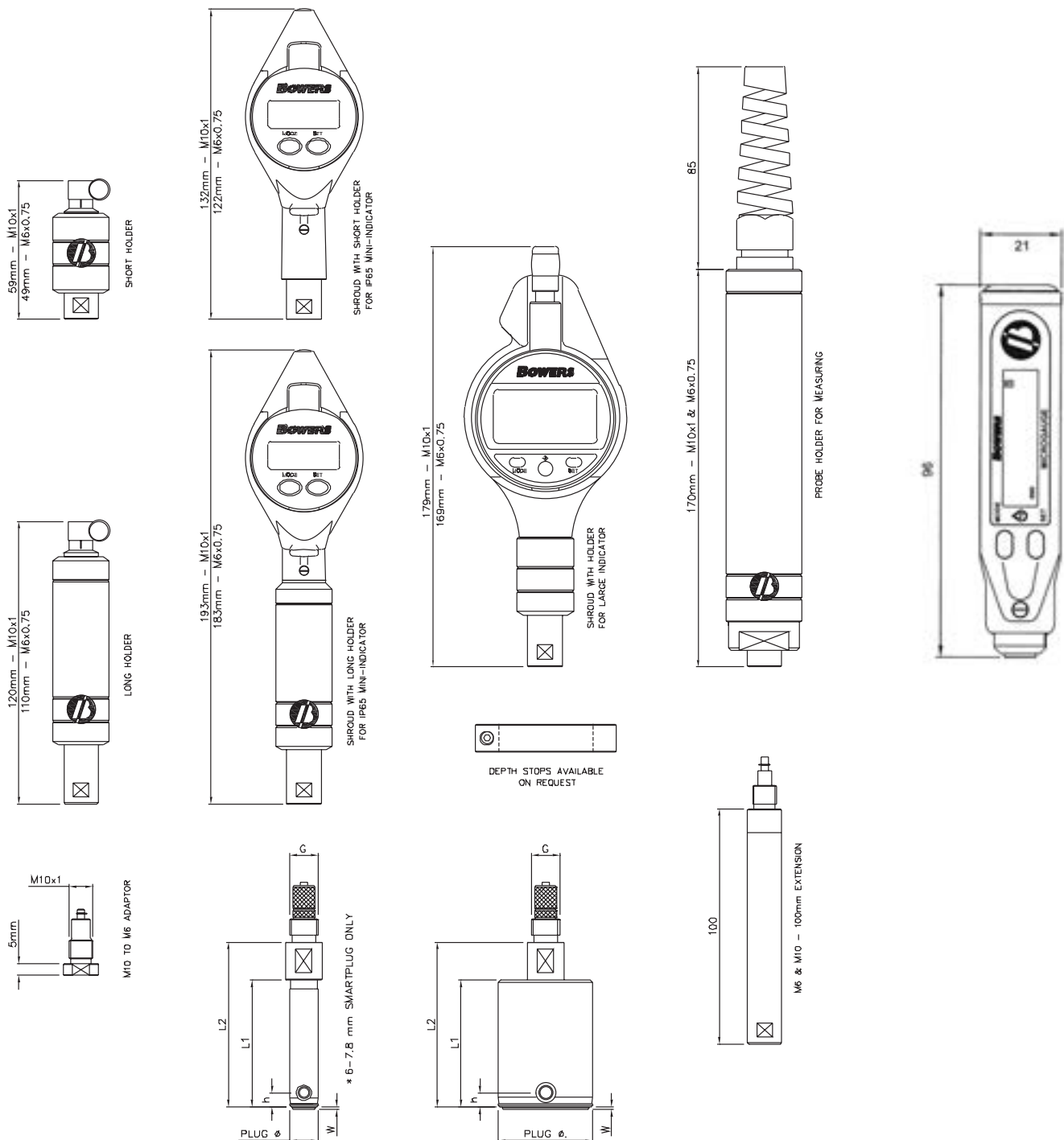
SmartPlug with transducer holder and standalone display



SmartPlug for large diameters (up to 280mm)

SmartPlugs

SmartPlug 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

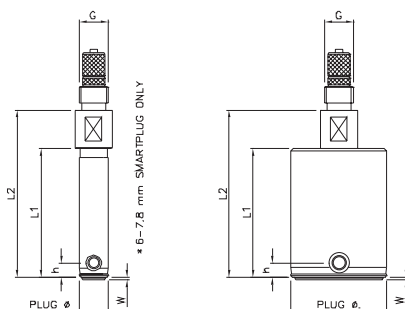
Sizes from 2.98mm - 6mm available on request, also available as Blind Bore heads (BB)

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



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	*Type A Mini indicator with shroud & M6 short holder 8mm stem
SMA011M	*Type A 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	*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 Indicator with shroud & M10 holder 8mm stem
SMA019-BT	Type C Bluetooth Indicator with shroud & M10 holder 8mm stem
SMA019-NANO	Type C Nano Indicator with shroud & M10 holder 8mm stem (0.0001mm res)

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

SMARTPLUG INDICATING UNITS

Code No	Description
SMA021	*Type 'A' digital Mini indicator. Res. 0.001mm
SMA022	Type 'B' mechanical dial-gauge. 0.001mm graduation
SMA023	Type 'C' digital indicator. Res. 0.001mm
SMA031	Type 'C' Nano Bluetooth Digital Indicator (0.0001mm res)

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

TiN coated body

Ceramic contacts

Ruby contacts



Bluetooth
SMART
Option

WiFi

Option

IoT
READY
Option

RS232

Note: BT denotes Bluetooth

SmartPlug Setting Rings

- Complete with UKAS Calibration Certificates

SETTING RING (MM) GRADE NOMINAL

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

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

SETTING RING (MM) GRADE "X"

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

Larger setting rings are available upon request

SETTING RING (MM) GRADE "XX"

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



DEPTH STOPS

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



Air Gauging "a new approach"

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 diameters, but geometric and relational characteristics, such as squareness, parallelism, ovality, taper and straightness.

The working range of our standard air gauge tooling is approx 0.08mm. For optimum accuracy, Bowers produce the UKAS Calibrated Setting Masters at the Upper and Lower product limits.

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 really 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
- Foot pedal for preset-clear-part characteristic-hold-data transfer

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 select automatically 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 130mm, height 111mm, depth 105mm
- Mass: 600g (700g with the power supply)

D400S – Multifunctional Multichannel Features

The D400S from Sylvac allows users to display readings simultaneously from multigauging applications. All of which offers readings for each dimension, the MIN, MAX and DELTA.

- 7" touchscreen display and customizable display interface
- Aluminium body
- 12VDC/30VDC Power supply
- RJ-45 Ethernet TCP4
- USB host (for usb key) and USB device (virtual keyboard)
- Footswitch
- M-BUS
- RS232
- Static and dynamic (Mini, Maxi, Maxi-mini, Average, Median)
- Trigonometrical measurements
- Analogical and digital display
- Manage up to 32 fixtures with automatic fixture detection by probe motion
- Up to 32 characteristic by fixture
- Up to 128 part references
- Calibration mode
- Individual probe display
- Displays resolution up to 5 decimals E 7
- SPC functions
- Measurement transfer by USB or RS232
- PLC programming



Bowers Air1/2

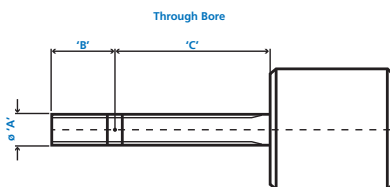


D400S

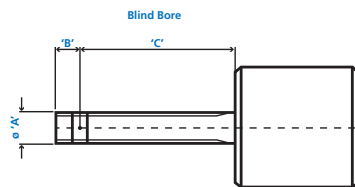
Air Gauge Tooling

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



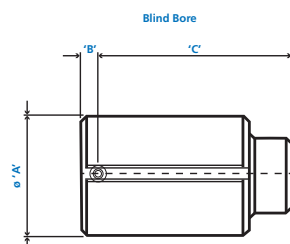
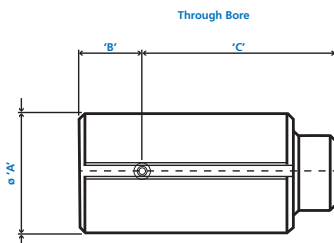
ø'A' Range	'B'	'C'
ø3.00 - 4.70	3.97	21.45
ø4.70 - 6.30	3.97	31.05
ø6.30 - 14.10	3.97	34.15



- Mercer System
Bayonet Adapter (included)
- Federal System
3/8" - 32 NS Internal Thread, Air Box Unit
Assembly NOT included
- Bowers PC2200 System
Hexagonal Handle (included)

Standard: 14.10-76.45mm

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

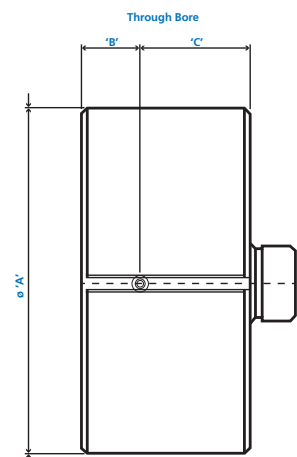


ø'A' Range	'B'	'C'
ø14.10 - 37.85	3.97	47.15
ø37.85 - 76.45	3.97	50.00

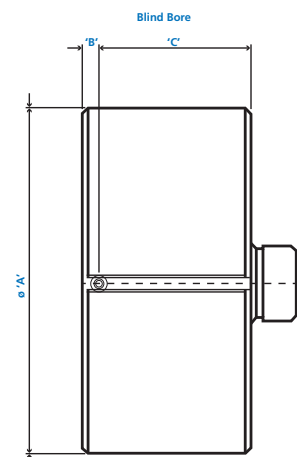
- Mercer System
Bayonet Adapter (included)
- Federal System
3/8" - 32 NS Internal Thread, Air Box Unit
Assembly NOT included
- Bowers PC2200 System
Hexagonal Handle (included)

Standard: 76.45-203.20mm

Supplied with handle, hose and connector

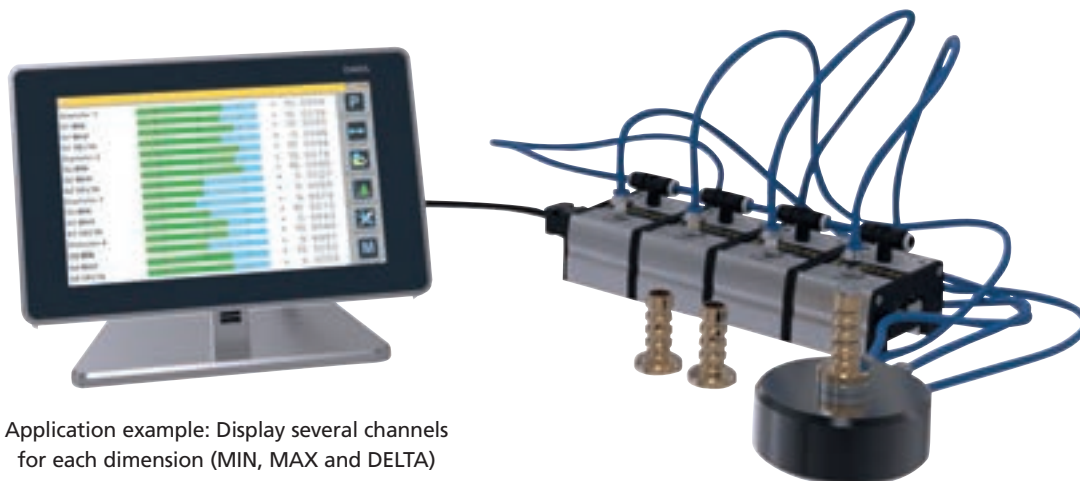


ø'A' Range	'B'	'C'
ø76.45 - 203.2	19.05	31.75



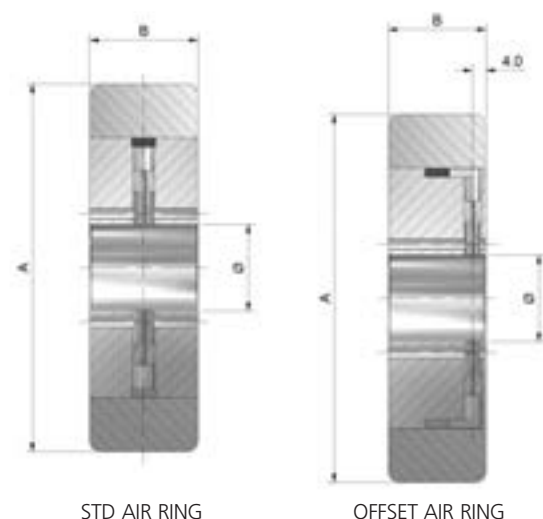
ø'A' Range	'B'	'C'
ø76.45 - 203.2	3.97	46.60

D400S Multifunctional/Multichannel Display



Application example: Display several channels for each dimension (MIN, MAX and DELTA)

Air Rings



Master Setting Rings

RING CODES

		From mm	To mm	From inch	To inch
R1X	RING GAUGE (CLASS X)	1.5	3	0.059	0.118
R3X	RING GAUGE (CLASS X)	3	6.1	0.118	0.24
R6X	RING GAUGE (CLASS X)	6.1	9.27	0.24	0.365
R9X	RING GAUGE (CLASS X)	9.27	12.95	0.365	0.51
R12X	RING GAUGE (CLASS X)	12.95	20.96	0.51	0.825
R20X	RING GAUGE (CLASS X)	20.96	28.83	0.825	1.135
R28X	RING GAUGE (CLASS X)	28.83	38.35	1.135	1.51
R38X	RING GAUGE (CLASS X)	38.35	51.05	1.51	2.01
R51X	RING GAUGE (CLASS X)	51.05	63.75	2.01	2.51
R63X	RING GAUGE (CLASS X)	63.75	76.45	2.51	3.01
R76X	RING GAUGE (CLASS X)	76.45	89.15	3.01	3.51
R89X	RING GAUGE (CLASS X)	89.15	101.85	3.51	4.01
R101X	RING GAUGE (CLASS X)	101.85	120.9	4.01	4.76
R120X	RING GAUGE (CLASS X)	120.9	139.95	4.76	5.51
R139X	RING GAUGE (CLASS X)	139.95	159	5.51	6.26
R159X	RING GAUGE (CLASS X)	159	178.05	6.26	7.01
R178X	RING GAUGE (CLASS X)	178.05	197.1	7.01	7.76
R197X	RING GAUGE (CLASS X)	197.1	203.2	7.76	8
R1XX	RING GAUGE (CLASS XX)	1.5	3	0.059	0.118
R3XX	RING GAUGE (CLASS XX)	3	6.1	0.118	0.24
R6XX	RING GAUGE (CLASS XX)	6.1	9.27	0.24	0.365
R9XX	RING GAUGE (CLASS XX)	9.27	12.95	0.365	0.51
R12XX	RING GAUGE (CLASS XX)	12.95	20.96	0.51	0.825
R20XX	RING GAUGE (CLASS XX)	20.96	28.83	0.825	1.135
R28XX	RING GAUGE (CLASS XX)	28.83	38.35	1.135	1.51
R38XX	RING GAUGE (CLASS XX)	38.35	51.05	1.51	2.01
R51XX	RING GAUGE (CLASS XX)	51.05	63.75	2.01	2.51
R63XX	RING GAUGE (CLASS XX)	63.75	76.45	2.51	3.01
R76XX	RING GAUGE (CLASS XX)	76.45	89.15	3.01	3.51
R89XX	RING GAUGE (CLASS XX)	89.15	101.85	3.51	4.01
R101XX	RING GAUGE (CLASS XX)	101.85	120.9	4.01	4.76
R120XX	RING GAUGE (CLASS XX)	120.9	139.95	4.76	5.51
R139XX	RING GAUGE (CLASS XX)	139.95	159	5.51	6.26
R159XX	RING GAUGE (CLASS XX)	159	178.05	6.26	7.01
R178XX	RING GAUGE (CLASS XX)	178.05	197.1	7.01	7.76
R197XX	RING GAUGE (CLASS XX)	197.1	203.2	7.76	8

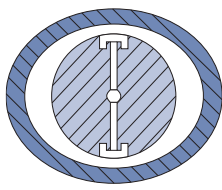
CLASS X OR XX TO ANSI/ASME B89.1.6M. All Setting Rings are supplied with UKAS Certificates

AIR RINGS - SPECIFICATION

Size Range (mm)	Size Range (inch)	Dia A (mm)	Dia A (inch)	B (mm)	B (inch)
3.17-6.35	1/8-1/4	63.50	2.5	19.05	3/4
6.35-25.40	1/4-1	82.55	3 1/4	25.40	1
25.40-38.10	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
50.80-63.5	2-2.5	133.35	5 1/4	28.58	1 1/8

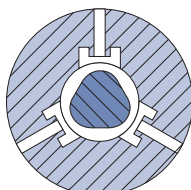
Air Gauge Tooling Applications

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



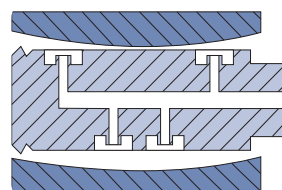
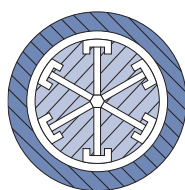
OUT-OF-ROUNDNESS

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.



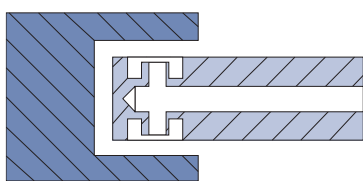
AVERAGING

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.



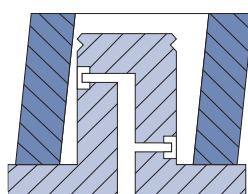
STRAIGHTNESS

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 measure diameter).



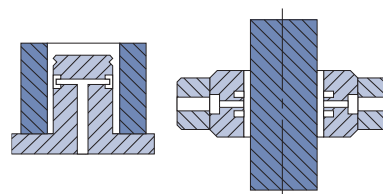
GROOVE WIDTH

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. This also allows for "match" gauging between spool and valve components.

Air / Electronics Columns

For the more traditional methods of Air Gauging Bowers offers a variety of display options e.g. air/electronic, which is capable of measuring functions including static and dynamic gauging, classification grading, probe mixing, ie (A+B) , (A-B).

FEATURES OF AIR/ELECTRONIC COLUMNS

	AEP 2045	PC 2200
Display Type	Tri-colour bar / Digital numeric	Tri-colour bar / Digital numeric
User Interface	Keypad	Keypad or remote program (1)
Channels	1	1 or 2 depending on model
Memory Capability	16 Tooling Characteristics	4 Tooling Characteristics
Resolution	Up to 0.0001mm	Up to 0.0001mm
Relative/Absolute	REL/ABS	REL/ABS
Measuring Mode	Static/Dynamic/TIR	Static/Dynamic/TIR
Units	mm or inch	mm or inch
Direct RS232	Yes	Yes
Data Collection	On board (2)	External
Connectivity	USB	RS232
Display Options	Tri-colour bar / Digital Numeric Tolerance + Approach	Tri-colour bar / Digital Numeric Tolerance + Approach
Auto Channel Recognition	No	No
Grading	Yes	Yes
Dimension (mm) (HxWxD)	500x60x200	450x57x215
Weight Approx (kg)	4.7	5
Power Requirements	230 VAC 50Hz	110/220 VAC 50Hz

(1) Additional parts / software required. (2) 1000 measurements. Download to Flash Drive via USB.



55-2045-AEP

PC 2200

Bowers MicroGauge 2-Point Bore Gauge

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.

**WiFi**

Option

RS232**USB**

Depth Stop

Features

- System range: 1-10mm
- 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
- Stand available as an option



FTS001 - Floating Table

Bowers 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

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

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

STANDS

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