



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.



Option



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
- Specials (e.g. blind bore) on request
- Repeatability $\leq 1\mu\text{m}$
- Setting by means of a setting ring
- Quick and reliable measurement
- 2-point measurement as standard
- 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), Nitron MC., 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



SMA004

M6 Probe holder 8mm stem



SMA028

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



SMPDS00-09

Depth Stop



SMA007

M10 100mm extension



SMA006M

M10 Holder long 8mm stem



SMPDS00-09

Depth Stop

SmartPlugs

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), Nitron MC, Plain Steel



SmartPlugs

SmartPlug Applications & Options



SmartPlug with Nitron MC coated body



SmartPlug with MicroGauge head



SmartPlug with ceramic contacts



SmartPlug for blind bore measurement



SmartPlug with depth stop



SmartPlug with extension



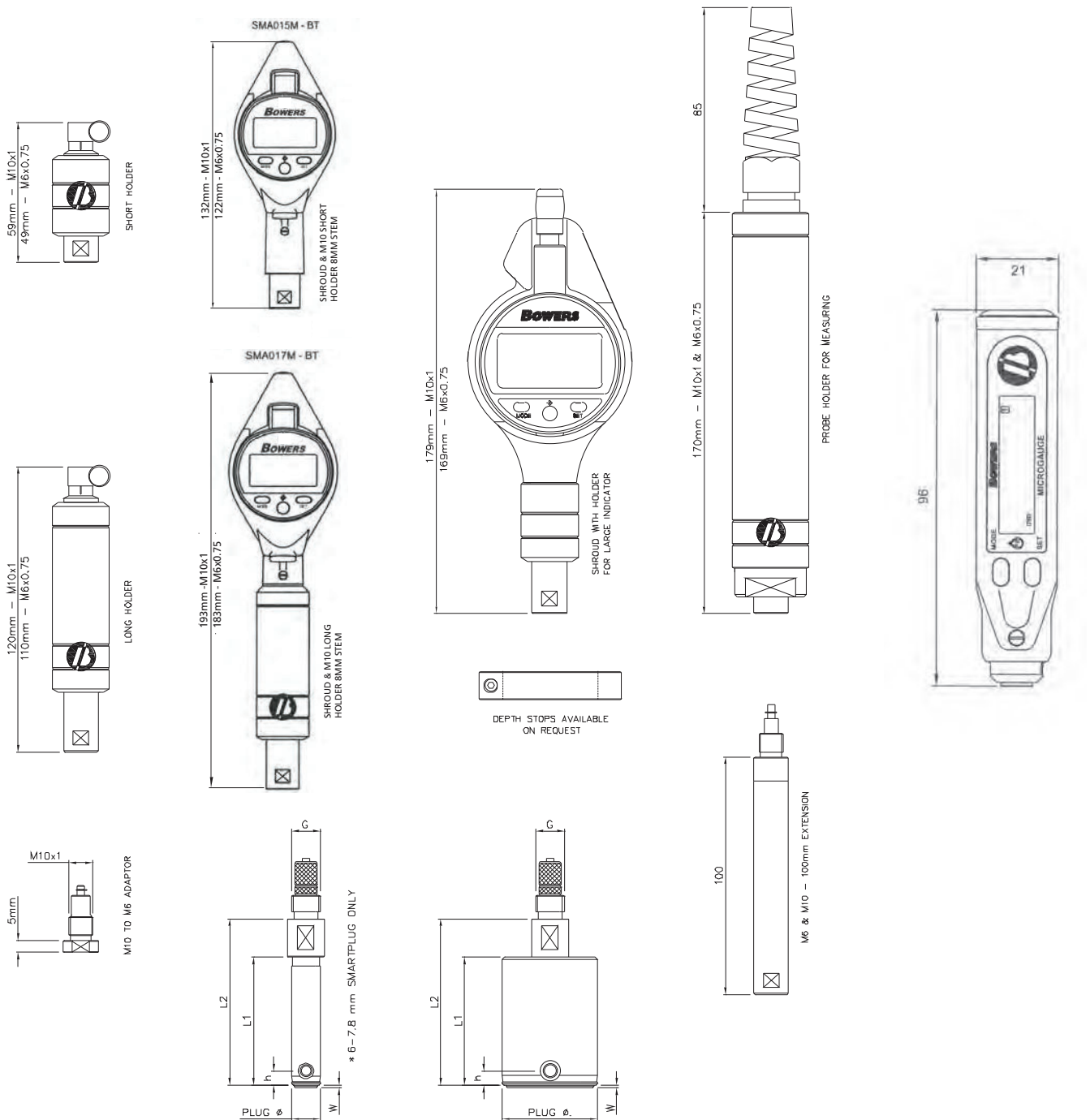
SmartPlug with transducer holder and standalone display



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

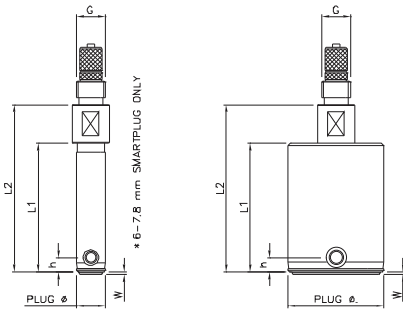
Sizes from 2.98mm - 6mm available on request, also available as Blind Bore heads (BB)

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-BT	*Type A Bluetooth Mini indicator with shroud & M6 short holder 8mm stem
SMA011M-BT	*Type A Bluetooth Mini indicator with shroud & M6 long holder 8mm stem
SMA013	Type C Indicator with shroud & M6 holder 8mm stem
SMA013-BT	Type C Bluetooth Indicator with shroud & M6 holder 8mm stem
SMA028	M6-M10 Adapter (to use M10 holders with M6 plugs)

Code No	Description
SMA005M	M10 Holder short 8mm
SMA006M	M10 Holder long 8mm stem
SMA007	M10 100mm extension
SMA008	M10 Probe holder 8mm stem
SMA015M-BT	*Type A Bluetooth Mini Indicator with shroud & M10 short holder 8mm stem
SMA017M-BT	*Type A Bluetooth Mini indicator with shroud & M10 long holder 8mm stem

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

SMARTPLUG INDICATING UNITS

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



Nitron MC coated body



Ceramic contacts



Ruby contacts



WiFi

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

