BOSS™

GAUGES AND THERMOMETERS

Pressure Gauges

FIG 408DM – BLACK STEEL CASE

DIRECT MOUNTING BOTTOM ENTRY

50mm and 63mm Plastic Case and Acrylic Window.
Brass block, ¼"BSP.

100mm and 150mm black steel case and bright bezel.
Brass block, ⅜"BSP.

Not recommended for outdoor use.

OTHER RANGES AVAILABLE ON REQUEST.
BACK ENTRY AVAILABLE ON REQUEST.

Pressure Range							
Bar	lbf/in²	50mm Dial	63mm Dial	100mm Dial	100mm c/w Calibration Cert	100mm Perspex Dial	150mm Dial
0-1	15	80010017	80010209	80011820			80012224
0-1.6	20			80011831			
0-2	30	80010050	80010242	80011842			80012246
0-4	60	80010072	80010275	80011875	80087490	80011757	80012257
0-7	100	80010094	80010297	80011897	80010360	80011768	80012268
0-10	150	80010113	80010316	80011916	80010371	80011779	80012279
0-14	200	80010124	80010327	80011949	80087479	80011790	80012290
0-21	300	80010146	80010349	80011971	80010382		80012309
0-42	600			80012010*			
0-70	1000			80012032*			

*S3 safety pattern

FIG 409S – SPRINKLER GAUGE

DIRECT MOUNTING BOTTOM ENTRY

100mm 304 Stainless Steel Case and Bezel.
Glycerine filled.
Brass wetted parts, ⅜"BSP.
Complies with LPC rules.

Pressure Range		
Bar	lbf/in²	100mm Dial
0-16	230	80046505

OTHER RANGES AVAILABLE ON REQUEST.
No loss connectors available on request.

FIG 410DM – ALL STAINLESS STEEL GAUGE

DIRECT MOUNTING BOTTOM ENTRY

100mm 304 Stainless Steel Case and Bezel.
Glycerine fillable on request.
316 stainless steel wetted parts, ½"BSP.

OTHER RANGES AVAILABLE ON REQUEST.
Matching Bi-metal thermometers available on request.

Can be used outdoors but may condensate due to changing temperatures.

Pressure Range		
Bar	lbf/in²	100mm Dial
0-2.5	35	80110006
0-4	60	80110017
0-6	90	80110028
0-10	150	80110039
0-16	230	80110050
0-21	250	80110061

* These gauges are full safety pattern and comply with the safety requirements of BS EN 837-1.

FIG 407DM – BRASS CASE AND BEZEL

DIRECT MOUNTING BOTTOM ENTRY

Dial Size: 80mm. Red set point on window. Brass block, ¼"BSP.

Dial Size: 100mm and 150mm. Red set point on window. Brass block, ⅜"BSP.

Pressure Range				
Bar	lbf/in²	80mm Dial	100mm Dial	150mm Dial
0-2	30		80010851	
0-4	60		80010895	
0-7	100	80010508	80010903	
0-10	150	80010530	80010925	80011222
0-14	200	80010541	80010958	
0-21	300	80010563	80010980	
0-42	600		80011019*	80011299
0-70	1000		80011041*	

*S3 safety pattern

OTHER RANGES AVAILABLE ON REQUEST
BACK ENTRY AVAILABLE ON REQUEST

FIG 342DM – LIQUID FILLED GAUGE

DIRECT MOUNTING BOTTOM ENTRY

63mm 304 Stainless Steel Case and Bezel. Glycerine filled. Brass wetted parts, ¼" BSP.

100mm 304 Stainless Steel Case and Bezel. Glycerine filled. Brass wetted parts, ⅜" BSP.

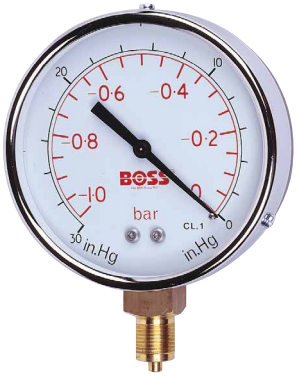
Pressure Range			
Bar	lbf/in²	63mm Dial	100mm Dial
0-4	60	80046110	80046206
0-7	100	80046121	80046198
0-10	140	80046132	80046217
0-14	200	80046143	
0-16	230		80046228
0-21	300		80046239

FIG 223DM – LOW PRESSURE CAPSULE GAUGE BRASS CASE AND BEZEL

DIRECT MOUNTING BOTTOM ENTRY

Brass block. 100mm diameter. ⅜" BSP.

Pressure Range		
mbar	w.g.	100mm Dial
0-60	0-25	80046003
0-100	0-40	80046014
0-250	0-100	80046036



BACK ENTRY
AVAILABLE ON REQUEST

FIG 412DM – BLACK STEEL CASE AND BRIGHT BEZEL

DIRECT MOUNTING

Brass block. 80mm Diameter. ¼" BSP.

Brass block. 100mm Diameter. ⅜" BSP.

FIG 411DM – BRASS CASE AND BEZEL

DIRECT MOUNTING BOTTOM ENTRY

Brass block. 80mm Diameter. ¼" BSP.

Brass block. 100mm Diameter. ⅜" BSP.

	Pressure Range			
Model	In Hg	Bar	80mm Dial	100mm Dial
FIG 412 DM	0-30	0 to -1		80013023
FIG 411 DM	0-30	0 to -1	80012918	80012929

Compound Gauges

FIG 420DM – BRASS CASE AND BEZEL

DIRECT MOUNTING BOTTOM ENTRY

Dual Scale Reading.
Brass wetted parts, 3/8"BSP.

FIG 421DM – BLACK STEEL CASE AND BRIGHT BEZEL

DIRECT MOUNTING BOTTOM ENTRY

Dual Scale Reading.
Brass Wetted Parts, 3/8"BSP.

	In Hg		
Model	lbf/1n²	Bar	100mm Dial
FIG 420DM	-30 to 30	-1 to +2	80014217
FIG 420DM	-30 to 60	-1 to +4	80014228
FIG 420DM	-30 to 100	-1 to +7	80014239
FIG 421DM	-30 to 30	-1 to +2	80014390

150mm AVAILABLE ON REQUEST
OTHER RANGES AVAILABLE ON REQUEST

Altitude Gauges

FIG 416DM – BLACK STEEL CASE AND BRIGHT BEZEL

DIRECT MOUNTING BOTTOM ENTRY

Dual Scale Reading.
Red Set Point.
Brass Wetted Parts, 3/8"BSP.

FIG 415DM – BRASS CASE AND BEZEL

DIRECT MOUNTING BOTTOM ENTRY

Dual Scale Reading.
Red Set Point.
Brass Wetted Parts, 3/8"BSP.

Description	Metres	100mm Dial
FIG 416DM	0-10	80013366
	0-16	80013377
	0-25	80013388
	0-40	80013399
	0-60	80013407
FIG415DM	0-10	80013204
	0-40	80013270

Description	Metres	100mm Dial	150mm Dial
FIG 416DM	0-10	80013879	80013942
	0-16	80013890	
	0-40	80013920	80013975
	0-60	80013931	
FIG417DM	0-16	80014003	80014121
	0-60	80014069	

150mm AVAILABLE ON REQUEST
OTHER RANGES AVAILABLE ON REQUEST

Flanged Backplates

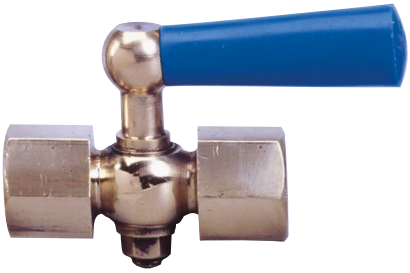
Two self-tapping screws are fitted on the back of certain models of the 3", 4", and 6" (80mm, 100mm and 150mm) gauges offered.

For direct mounting applications these screws should remain untouched but for the surface mounting installations the screws must be removed and a flanged backplate should be fixed to the back of the gauge with these two screws. Backplates are available in steel or brass to match the gauge cases.

For use with Class 1 gauges only.

Description	100mm Dial	150mm Dial
FLANGED BACKPLATE – STEEL	80014505	
FLANGED BACKPLATE – BRASS	80014612	80014623

Ancillary Equipment For Gauges



Note: Gauges and gauge cocks used on steam applications should be protected from live steam by a syphon, filled with water, before the gauge and gauge cock are put into service. Please ensure that working pressures of cocks, syphons etc. are suitable for installation requirements.

GAUGE COCKS

FIG 393S

Three-way gauge cock to allow inspectors gauge cock to be fitted when checking existing gauge. 3/8" BSP Female connection. Working pressure 150lbf/in. sq. water.

FIG 394S

Brass gauge cock with polypropylene handle. ¼", ⅜" and ½" BSP female connection. Working pressure 150lbf/in.sq. water.

FIG 396S

Brass gauge cock with polypropylene handle. Union and tail pipe screwed ⅛", ¼", ⅜" and ½" BSP connections. Working pressure 150lbf/in. sq. water.

FIG 395S

Brass gauge cock with brass handle. ¼", ⅜", and ½" BSP female connections. Working pressure 150lbf/in.sq. water

Description	¼" BSP	⅜" BSP	½" BSP
FIG 393S GAUGE COCK		22030317	
FIG 394S GAUGE COCK (BRASS)	22030402	22030413	22030424
FIG 395S GAUGE COCK (CHROME PLATED)		22030457	
FIG 395S GAUGE COCK		22030520	
FIG 396S GAUGE COCK		22030616	
BRASS HIGH PRESSURE GAUGE VALVES M/F	80080805	80080816	

"U" PATTERN SYPHONS

FIG 398S - POLISHED BRASS

Max. Working Pressure: 100lbf/in. sq. Sizes: ¼" BSP, ⅜" BSP and ½" BSP.

FIG 401S - MILD STEEL

Max. Working Pressure: Water: 42 bar. Steam: 21 bar - 260°C.
Sizes: ¼" BSP, ⅜" BSP and ½" BSP.

FIG 399S - STAINLESS STEEL 316L

Max. Working Pressure: Water: 42 bar. Steam: 21 bar - 260°C. Size: ½" BSP .

Description	¼" BSP	⅜" BSP	½" BSP
FIG 398S "U" SYPHON - BRASS		80018214	
FFIG 401S "U" SYPHON - MILD STEEL	80018406	80018417	80018428
FIG 399S "U" SYPHON - STAINLESS STEEL			80120001

Ancillary Equipment For Gauges

"RING" PATTERN SYPHONS

FIG 400S - POLISHED BRASS

Max. Working Pressure: 100lbf/in. sq. Sizes: ¼" BSP, ⅜" BSP and ½" BSP.

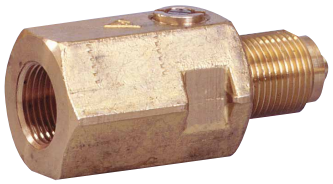
FIG 403S - MILD STEEL

Max. Working Pressure: Water: 42 bar. Steam: 21 bar - 260ºC.
Sizes: ¼" BSP, ⅜" BSP and ½" BSP.

FIG 402S - STAINLESS STEEL

Max. Working Pressure: Water: 42 bar. Steam: 21 bar - 260ºC. Size: ½" BSP .

Description	¼" BSP	⅜" BSP	½" BSP
FIG 400S "RING" SYPHON - BRASS		80018321	
FIG 403S "RING" SYPHON - MILD STEEL	80018450	80018461	80018472
FIG 402S "RING" SYPHON - STAINLESS STEEL			80120130



SNUBBERS

FIG 432S - BRASS

Adjustable snubbers to eliminate surge and pressure pulsation to pressure gauge.

¼"BSP maximum working pressure 125 bar @ 120°C.
⅜" & ½"BSP maximum working pressure 250 bar @ 120°C.

Description	¼" BSP	⅜" BSP	½" BSP
FIG 432S BRASS SNUBBERS	80017308	80017319	80017330

STAINLESS STEEL AVAILABLE ON REQUEST

Manometers

STANDARD U GAUGE MANOMETER

Produced in a durable plastic casing with a clearly marked scale in millibars.

STAND UP U-GAUGE MANOMETER

Professional quality hard cased 12" wg/30mb manometer for hanging or free standing with clear accurate reading

FLEXIBLE U-GAUGE MANOMETER

Durable and easy to use PVC manometer with clear scale in inches and millibars including inbuilt zero adjuster

Description	
30MB 12" WITH COVER/STAND	88336104
60MB 24" WITH COVER/STAND	88336115
30MB 12" WITH GLASS TUBE	88336126
45MB 18" FLEXIBLE U-GAUGE	88336181
90MB 36" FLEXIBLE U-GAUGE	88336200

Digital Thermometers

TEMPSTAR PORTABLE DIGITAL THERMOMETER

LCD Digital thermometer display in °C of °F
Complete with one meter of cable, stainless steel probe, stand and battery
With adjustable high and low alarms
Temperature range -50+300°C

TEMPSTAR DIGITAL THERMOMETER 80050617

Thermometer Pockets

FIG 465S

Pocket, ½"BSPT x 100mm immersion suitable for vapour pressure thermometers
Available in brass and stainless steel.
Also available in ½"BSPT x 63mm immersion.

Description	100mm Dial	63mm Dial
FIG 465S BRASS POCKET	80017020	80017009
FIG 465S STAINLESS STEEL POCKET	80017064	

Vapour Pressure Thermometers

FIG 438S - BLACK STEEL CASE AND BRIGHT BEZEL

Straight Stem, bottom entry.
Dual Scale Reading.
Complete with Brass Pocket, ½"BSPT x 100mm immersion.

FIG 439S - BLACK STEEL CASE AND BRIGHT BEZEL

Angle Stem, bottom back entry.
Dual Scale Reading.
Complete with Brass Pocket, ½"BSPT x 100mm immersion.

FIG 448S - BRASS CASE AND BEZE

Straight Stem, bottom entry.
Dual Scale Reading.
Complete with Brass Pocket, ½"BSPT x 100mm immersion.

FIG 449S - BRASS CASE AND BEZEL

Angle stem, bottom back entry.
Dual Scale Reading.
Complete with Brass Pocket, ½"BSPT x 100mm immersion.

FIG 450S - BRASS CASE AND BEZEL

Surface Mounting, bottom entry
Dual Scale Reading.
Complete with 2m capillary
Complete with Brass Pocket, ½"BSPT x 100mm immersion.

Description	Temp. Range °C	100mm Dial
FIG 438S STRAIGHT STEM	20-120	80014708
FIG 438S STRAIGHT STEM	-20 to +40	80014763
FIG 439S ANGLED STEM	20-120	80015005
FIG 439S ANGLED STEM	-20 to +40	80014774
FIG 448S STRAIGHT STEM	20-120	80014634
FIG 449S ANGLED STEM	20-120	80014656
FIG 450S SURFACE MOUNTING	20-120	80014678

150mm DIAMETER AVAILABLE ON REQUEST

Altitherm Combined Altitude And Thermometer

FIG EG100 - BLACK STEEL CASE AND BRIGHT BEZEL

Dial Size: 80mm.
½" BSP.
Dual Scale Reading.

Description	°C	Metres	BSS Code
FIG EG100 ALTITHERM	0-120	0-25	80015101
	0-120	0-40	80015112

OTHER RANGES AVAILABLE ON REQUEST

Bi-Metal Thermometers

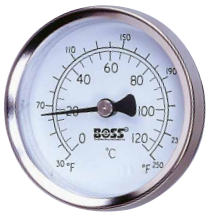


FIG 461S BLACK STEEL CASE AND BRIGHT BEZEL

Surface Contact Type.
Dial Size: 63mm.
Dual Scale Reading.

Attaches to pipe by a spring band.

Suitable for outdoor use.

*These thermometers only show the surface temperature of the pipe and are not recommended where a good degree of accuracy is required

FIG 463S BLACK STEEL CASE AND BRIGHT BEZEL

Centre Back Connection.
Dial Size: 63mm.
Dual Scale Reading.
Complete with pocket, ½"BSP x 42mm immersion.

Suitable for outdoor use.

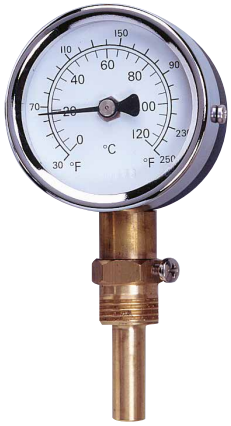


FIG 464S BLACK STEEL CASE AND BRIGHT BEZEL

Vertical Connection.
Dial Size: 63mm.
Dual Scale Reading.
Complete with pocket, ½"BSP x 42mm immersion.

Suitable for outdoor use.

	Temp. Range	
Description	°C	100mm Dial
FIG 461S SURFACE CONTACT THERMOMETER	0-120	80016605
FIG 463S CENTRE BACK THERMOMETER	0-120	80016701
	-30 to +50	80016712
FIG 464S BOTTOM CONNECTION THERMOMETER	0-120	80016819
	-30 to +50	80016830

CUSTOM PRINTED GAUGES AND THERMOMETERS

Get your company logo in the hands of your customers

Custom printed logos on BOSS gauges and thermometers now available on request.

Contact your local BSS branch for details

Bi-Metal Thermometers

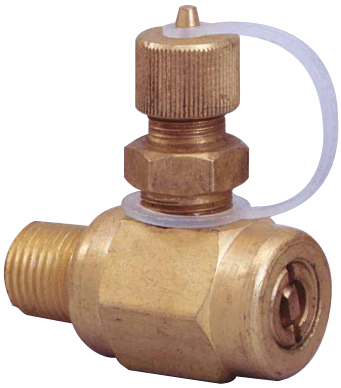
FIG 428S AND FIG 429S - BLACK STEEL CASE AND BRIGHT BEZEL

Dial Size: 100mm.
Dual Scale Reading.
Connection ½"BSP.
Complete with Brass Pocket, 60mm and 100mm immersion.

	Temp. Range °C	Dial Immersion Length	
		60mm	100mm
FIG 428S Bottom Entry Thermometer	-30 to +50	80015400	80015529
	0-120	80015411	80015540
	0-250	80015422	80015551
FIG 429S Centre Back Thermometer	-30 to +50	80015444	80015562
	0-120	80015455	80015573
	0-250	80015466	80015584

150mm DIAMETER AVAILIBLE ON REQUEST

Pressure Test Points



MECHSEAL MKII TEST POINT

BOSSTM pressure / temp test plugs in 316 s/steel available on request within 7-10 days in ¼" and ½" standard or ¼" and ½" extended type supplied E.P.D.M. as standard. Viton - price on application.

Description	BSS Code
Mechseal Pressure Test Point	25028102
BOSSTM ST8 Test Plug ¼" Brass Standard Length	25028604
BOSSTM ST15 Test Plug ½" Brass Standard Length	25028615
BOSSTM EX8 Test Plug ¼" Brass Extended Length	25028626
BOSSTM EX8 Test Plug ½" Brass Extended Length	25028637
Binder - Twinlock ¼" BSP Test Plug - Brass	25027004
Binder - Twinlock ¼" BSP EXT Test Plug - Brass	25027015

These notes have been prepared to assist in the selection and installation of Pressure Gauges and Thermometers for the purpose of ensuring, as far as possible they give a satisfactory service on the application for which they were intended and to ensure the highest possible level of safety. For further information, reference should be made to relevant British Standards on which these notes are largely based. All dial instruments included within this catalogue are available with contractors motifs printed onto the dials.

PRESSURE GAUGES

MATERIALS

The most usual wetted parts used in the construction of these gauges are made from brass and bronze and similar non ferrous materials. Such gauges are suitable for use on oil, water and other non-corrosive fluids. For corrosive fluids, alternative materials e.g. stainless steel should be specified. For special applications e.g. when the pressure medium may solidify in the tube or may contain solids in suspension, alternative designs of pressure gauges such as diaphragm or a chemical seal type should be used.

Environmental conditions should be taken into account when considering suitable materials for construction parts other than for wetted parts.

SAFETY ON GAS AND STEAM PRESSURE MEASUREMENT

For certain gas applications, safety pattern gauges MUST be used and these must incorporate a solid baffle between dial and pressure element, a splinter-proof or clear plastic window and blow-out release. Surface mounting gauges with a blow-out release at the back, MUST be mounted at least 20mm away from the surface panel by means of distance pieces.

For oxygen, safety pattern gauges MUST be used, they MUST be supplied, degreased and kept free from oil contamination.

For Acetylene, safety pattern gauges MUST be used.

For Steam and Gases, other than oxygen and acetylene, gauges of normal construction with a diameter of less than 100mm may be used for pressure ranges up to 25bar. For gauges 100mm diameter and greater the gauge must have a blow-out device. For higher pressure ranges, safety patterns must be used.

MAXIMUM WORKING PRESSURE

While gauges will withstand the full scale pressure, the working pressure should not exceed 75% of the full scale range for fluctuating pressures.

PULSATION ETC.

If pressures are expected to pulsate violently, oscillate with high frequency or occur with sudden shock, the manufacturer should be consulted.

MECHANICAL VIBRATION

Gauges should be mounted away from vibration and connected by means of flexible piping. If this is not possible the manufacturer should be consulted. Where liquid filled case gauges are used, a safety release MUST be incorporated in the case.

TEMPERATURE

If used on steam or other hot gases or liquids, gauges MUST be protected by the use of an effective syphon or by other means. A gauge is unduly hot if it cannot be grasped by hand without discomfort. It should also be remembered that gauges used on water may burst if exposed to frost. Working fluids at a temperature exceeding 60ºC* should not enter the bourdon tube or other wetted parts.

MOUNTING

All gauges should be mounted in a vertical position unless otherwise agreed with the manufacturer.

COCKS AND VALVES

Gauges should normally be fitted with either a cock or valve. This enables the gauge to be removed at any time for checking or any other purpose.

These cocks or valves MUST be opened or closed slowly to avoid sudden changes of pressure on the gauge.

THERMOMETERS

LOCATION OF BULB

The bulb of the instrument at the base of the stem, should be located where it is subject to the true temperature of the heated medium. Temperature gradients within the medium must be allowed for, and with instruments allowing variable depth of immersion (compression gland type) the bulb position should be varied experimentally until the optimum position is found. The full length of the sensitive portion of the bulb must at all times be immersed in the medium but direct contact with the source of heat to the medium should be avoided.

When securing the bulb on its location by means of the gland screw(s) care must be taken not to twist or distort the neck of the bulb. Where a pocket has been supplied this should be securely installed before the bulb is inserted. It may be found that the rate of the response of a pocketed bulb is improved by filling the intervening space with oil or copper (depending on the materials and operating temperatures).

LOCATION TUBING

The tube between the bulb and the instrument should be routed so that it is not subjected to large temperature changes, and should be supported in cleats. Bends should not be less than 1inch radius and under no circumstances must the tubing be cut. Where the tubing is likely to be exposed to corrosive atmosphere the exterior should be treated with an anti-corrosive paint and, in any case, should be inspected periodically for any signs of damage.

The capillary tubing between the bulb and the indicator is coiled for despatch purposes. This tubing must be uncoiled carefully in order to avoid twisting or kinking which would affect the accuracy of the system.

MAINTENANCE

Where there is a risk of corrosion, the bulb should be inspected periodically. If corrosion is evident it should be removed if possible by non-abrasive treatment. Any contamination on the bulb should be removed. Where a pocket is fitted this should be removed and inspected and treated similarly. If severe corrosion is evident the pocket should be replaced. It is advisable to inspect the capillary tubing periodically for corrosion or mechanical damage. An occasional temperature check should be carried out.

MAXIMUM WORKING TEMPERATURE

The working temperature should not exceed 60% of the full scale reading.

CERTIFICATION

Test Certificates and Calibration Certificates are available for all 80, 100 and 150mm dia pressure gauges shown in this price list. They are also available for vapour pressure and mercury-in-steel thermometers – Price on application.

Test and Calibration Certificates show the instrument serial number which is also printed on the dial and for this reason it is necessary to order these prior to manufacture.

As an alternative to test certificates all BSS branches are able to provide Quality Statements that conform all the test details shown on a test certificate but do not bear serial numbers.

Calibration certificates are more detailed and are more generally supplied with instruments used specifically for test purposes.

*According to BS:EN837-1:1998

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