



Thermometers and Instrumentation Industrial Catalogue

Second Edition





S. Brannan & Sons has manufactured and supplied thermometers, gauges and instrumentation since 1913. A century of tradition, combined with modern manufacturing methods at our facilities in the UK and Sweden ensure an unequalled service.

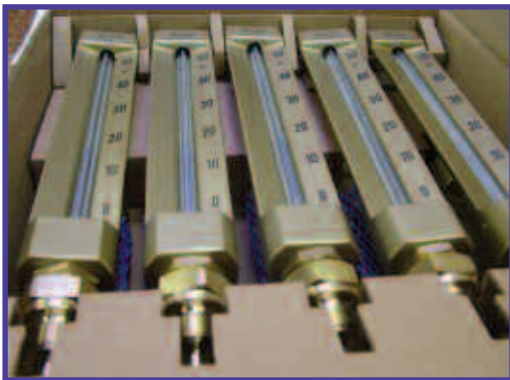
The Company has operated a quality management system since 1991 and currently operates within the scope of ISO 9001 : 2008.



This catalogue describes a wide range of thermometers and gauges for industrial applications. Standard items are normally available for immediate delivery. Many can be supplied with customer branding or include modifications to suit special applications.

Products may also be viewed on our website: www.brannan.co.uk.

Complimenting our production facilities, the Company provides a calibration service where, in addition to having new thermometers and pressure gauges tested, customers may also have existing instruments calibrated.



With increasing demand for an alternative to mercury in thermometers, organic, non hazardous filling materials are now available where applicable.

The thermometers and gauges illustrated are in use throughout the world in industries as diverse as heating, ventilation, air conditioning, process manufacturing, refrigeration, pneumatic, hydraulic, marine and many others.



Every effort has been made to ensure that this catalogue is correct at the time of publication. However we reserve the right to amend or change product specifications or appearance.

Brannan



Site Photographs

Brannan Thermometers & Instrumentation



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Dial Pressure Gauges

The pressure and altitude gauges in this catalogue are activated by a responsive metal element which deforms under the effect of the pressure being measured. The following British and European Standards form the basis of the design and manufacture of these pressure gauges and of these guidelines. They should also be the source of reference for additional information:

BS EN 837-1 : 1998	Bourdon Tube Pressure Gauges - Dimensions, Metrology, requirement and testing.
BS EN 837-2 : 1998	Selection and Installation recommendations for pressure gauges.
BS EN 837-3 : 1998	Diaphragm and Capsule Pressure Gauges - Dimensions, Metrology, requirement and testing.

Selection

Pressure Range - The range of the pressure gauge should be selected such that the maximum working pressure does not exceed 75% of the full scale value, when measuring constant pressure, or 65% for fluctuating pressure.

Safety Design - The criteria for selection of the safety design required for any gauge is a function of four factors. The pressure range (up to 25 bar or over 25 bar); the dial size (less than 100mm or 100mm and above); whether the gauge is 'dry' or liquid (eg glycerine) filled; and the state of the material under pressure (as a liquid or as gas or steam). 'Dry' gauges with dial diameter 100mm and above are fitted with a blow out device, safety design code S1. All these gauges are suitable for use with liquids to any pressure range. They are also suitable for use with gas or steam up to 25 bar. Above 25 bar, a safety pattern gauge is required for gas or steam pressures. Certain gases, oxygen and acetylene, require special gauges which should be marked accordingly. They must be used with safety pattern gauges and oxygen gauges must be degreased and free of oil. Oxygen and strong oxidising fluids must not be used with glycerine filled gauges.

Materials - Those parts of a pressure gauge which are in contact with the fluid being measured (the 'wetted parts') are, as standard, made from alloys or copper (brass and phosphor bronze) but can be stainless steel or other more exotic materials. If a customer is in doubt as to the suitability of the standard gauge, the supplier should be consulted. Standard gauges should not be used in conjunction with fluids which could solidify or where the process materials could deteriorate or be contaminated within the gauge (eg, foodstuff, dairy products). Special diaphragm type or hygienic gauges can be supplied for such applications. When atmospheric conditions could corrode the case or other non wetted parts, stainless steel cases and movements may be specified.

Storage and Transport

Gauges should be kept in dry, clean conditions within a temperature range of -40 to +60°C and should be protected from impact damage.

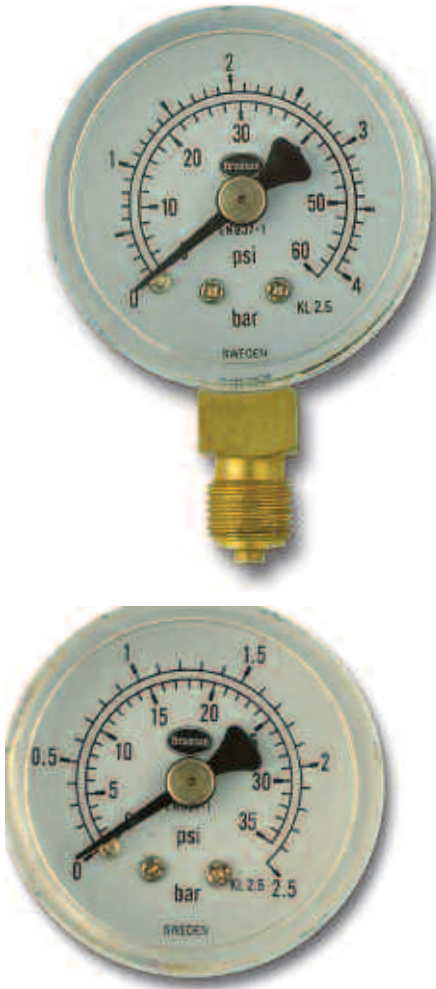
Installation

General - When installing a gauge the user should check that the correct range and type has been selected. It is advisable to install the gauge with an isolation cock or valve which facilitates removal of the gauge for maintenance or replacement. On installation a leak tight seal should be achieved. If using sealing materials, ensure these do not prevent the fluids entering the gauge. When tightening the gauge, a spanner must be used on the flats of the gauge shank. Never use the instrument case as a means of tightening.

Gauges should be mounted vertically unless designed (and marked) for another attitude.

Gauges fitted with a blow out device must have at least 20mm clearance from any obstacle to permit the blow out device to operate correctly (particular attention to this should be given for gauges which are panel or wall mounted).

Conditions - If a gauge would be subject to mechanical shocks it should be mounted remotely using a flexible pipe. If the location is subject to vibration then a liquid filled gauge should be selected. If there are pressure pulses, the gauge may be protected with a damper device, or such a device could be installed into the gauge at manufacture. Installation should take account of the ambient temperature conditions and should these effect the gauge adversely (eg cause the medium to freeze within the pressure element), then the gauge should be located remotely. A pressure gauge should not be installed in contact with fluids whose temperature is outside -30 to +60°C. Under these conditions a syphon should be installed or a suitably removed location selected where the temperature conditions can be more suitable.



Standard Specifications

- Case:** Black Steel
- Class:** 2.5
- Window:** Plastic
- Connection:** 1/8" BSP Brass
- Internals:** Copper Alloy
- Filling:** Dry

Options

- Case:** Plastic, Stainless Steel
- Class:** 1.6
- Range:** Customer to specify
- Connection:** Other sizes/materials inc. NPT
- Internals:** Stainless Steel
- Filling:** Glycerine (with Stainless Steel case)
- Logos:** Available

Standard Product Numbers

Bar/PSI	Bottom Entry (Radial)	Back Entry (Axial)
0 to 2.5	34/023/0	34/043/0
0 to 4	34/024/0	34/044/0
0 to 6	34/025/0	34/045/0
0 to 10	34/026/0	34/046/0
0 to 16	34/027/0	34/047/0
0 to 25	34/028/0	34/048/0
0 to 40	34/029/0	34/049/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



Standard Specifications

Case:	Black Steel
Class:	2.5
Window:	Plastic
Connection:	1/4" BSP Brass
Internals:	Copper Alloy
Filling:	Dry

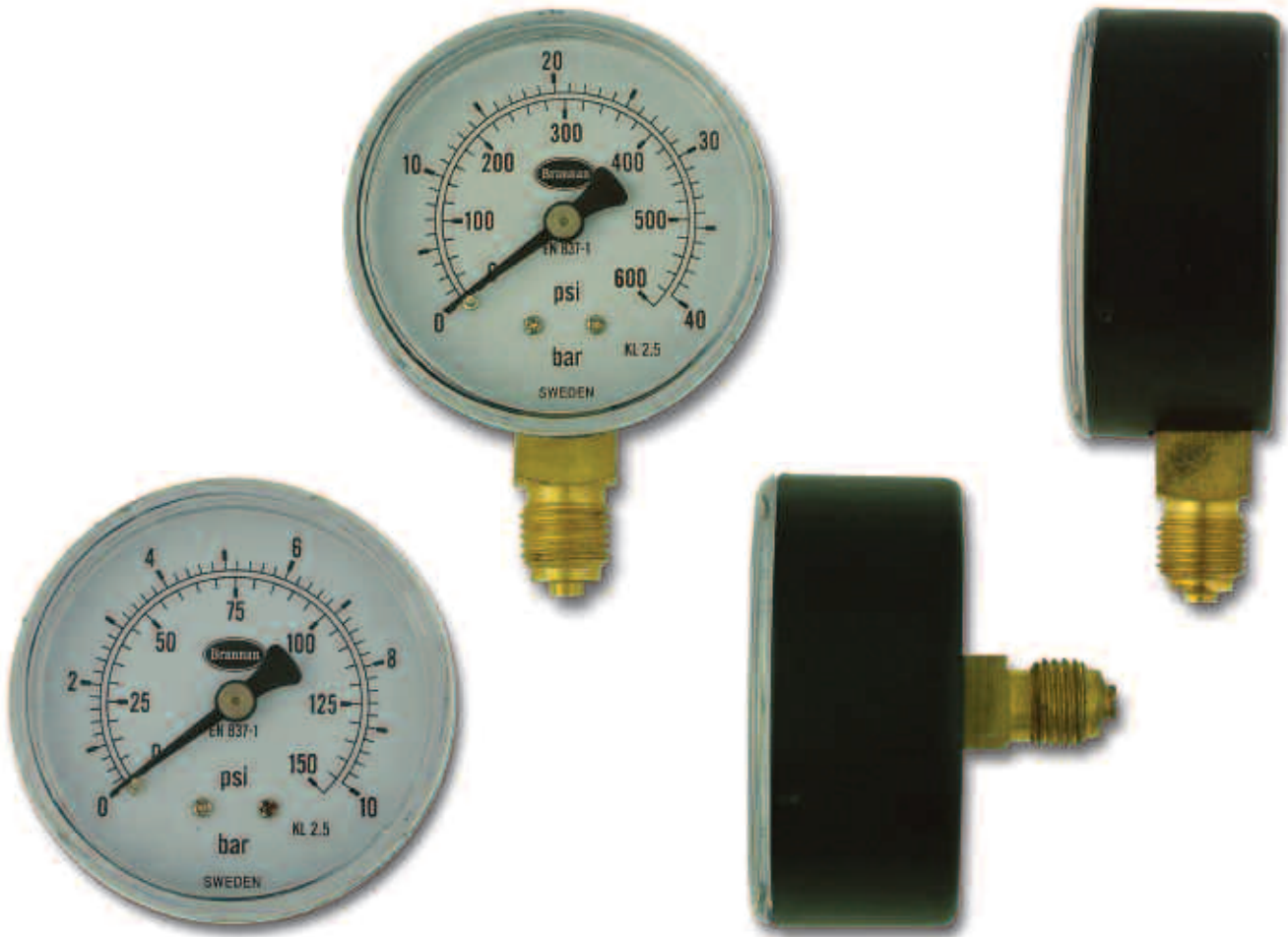
Options

Case:	Plastic, Stainless Steel
Class:	1.6
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Internals:	Stainless Steel
Filling:	Glycerine (with Stainless Steel case)
Logos:	Available

Standard Product Numbers

Bar/PSI	Bottom Entry (Radial)	Back Entry (Axial)
0 to 1.6	34/122/0	34/142/0
0 to 2.5	34/123/0	34/143/0
0 to 4	34/124/0	34/144/0
0 to 6	34/125/0	34/145/0
0 to 10	34/126/0	34/146/0
0 to 16	34/127/0	34/147/0
0 to 25	34/128/0	34/148/0
0 to 40	34/129/0	34/149/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



Standard Product Numbers

Bar/PSI	Bottom Entry (Radial)	Back Entry (Axial)
0 to 1	34/421/0	34/441/0
0 to 1.6	34/422/0	34/442/0
0 to 2.5	34/423/0	34/443/0
0 to 4	34/424/0	34/444/0
0 to 6	34/425/0	34/445/0
0 to 10	34/426/0	34/446/0
0 to 16	34/427/0	34/447/0
0 to 25	34/428/0	34/448/0
0 to 40	34/429/0	34/449/0
0 to 60	34/460/0	34/480/0
0 to 100	34/461/0	34/481/0
0 to 160	34/462/0	34/482/0
0 to 250	34/463/0	34/483/0
0 to 400	34/464/0	34/484/0
-1 to 0	34/466/0	34/486/0
-1 to 3	34/469/0	34/489/0
-1 to 5	34/468/0	34/488/0
-1 to 9	34/467/0	34/487/0

Standard Specifications

Case: Black Steel
Class: 2.5
Window: Plastic
Connection: 1/4" BSP Brass
Internals: Copper Alloy
Filling: Dry

Options

Case: Plastic, Stainless Steel
Class: 1.6
Range: Customer to specify
Connection: Other sizes/materials inc. NPT
Internals: Stainless Steel
Filling: Glycerine (with Stainless Steel case)
Logos: Available

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



Standard Specifications

Case:	Stainless Steel
Class:	1.6 (* 2.5 for 0 to 1 bar/psi)
Window:	Plastic
Connection:	1/4" BSP Brass
Internals:	Copper Alloy
Filling:	Glycerine

Options

Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Internals:	Stainless Steel
Filling:	Dry/Fillable
Logos:	Available

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

Standard Product Numbers

Bar/PSI	Bottom Entry (Radial)	Back Entry (Axial)
0 to 1*	37/441/0	37/421/1
0 to 1.6	37/442/0	37/422/1
0 to 2.5	37/443/0	37/423/1
0 to 4	37/444/0	37/424/1
0 to 6	37/445/0	37/425/1
0 to 10	37/446/0	37/426/0
0 to 16	37/447/0	37/427/0
0 to 25	37/448/0	37/428/0
0 to 40	37/449/0	37/429/0
0 to 60	37/480/0	37/460/0
0 to 100	37/481/0	37/461/0
0 to 160	37/482/0	37/462/0
0 to 250	37/483/0	37/463/0
0 to 400	37/484/0	37/464/0
-1 to 0	37/486/0	37/466/0
-1 to 3	37/489/0	37/469/0
-1 to 5	37/488/0	37/468/0
-1 to 9	37/487/0	37/467/0



Standard Specifications

- Case:** Black Steel
- Class:** 2.5
- Window:** Plastic
- Connection:** 1/2" BSP Brass
- Internals:** Copper Alloy
- Filling:** Dry

Options

- Case:** Stainless Steel
- Class:** 1.6
- Range:** Customer to specify
- Connection:** Other sizes/materials inc. NPT
- Internals:** Stainless Steel
- Filling:** Glycerine (with Stainless Steel case)
- Logos:** Available

Standard Product Numbers

Bar/PSI	Bottom Entry (Radial)	Back Entry (Axial)
0 to 1	34/522/0	34/542/0
0 to 2.5	34/523/0	34/543/0
0 to 4	34/524/0	34/544/0
0 to 6	34/525/0	34/545/0
0 to 10	34/526/0	34/546/0
0 to 16	34/527/0	34/547/0
0 to 40	34/529/0	34/549/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



Standard Specifications

- Case:** Black Steel with blow out disc
 - Class:** 1.6
 - Window:** Plastic
 - Connection:** 3/8" BSP Brass
 - Internals:** Copper Alloy
 - Filling:** Dry
- With loose red pointer and chrome bezel.
Suitable for flange fitting.

Options

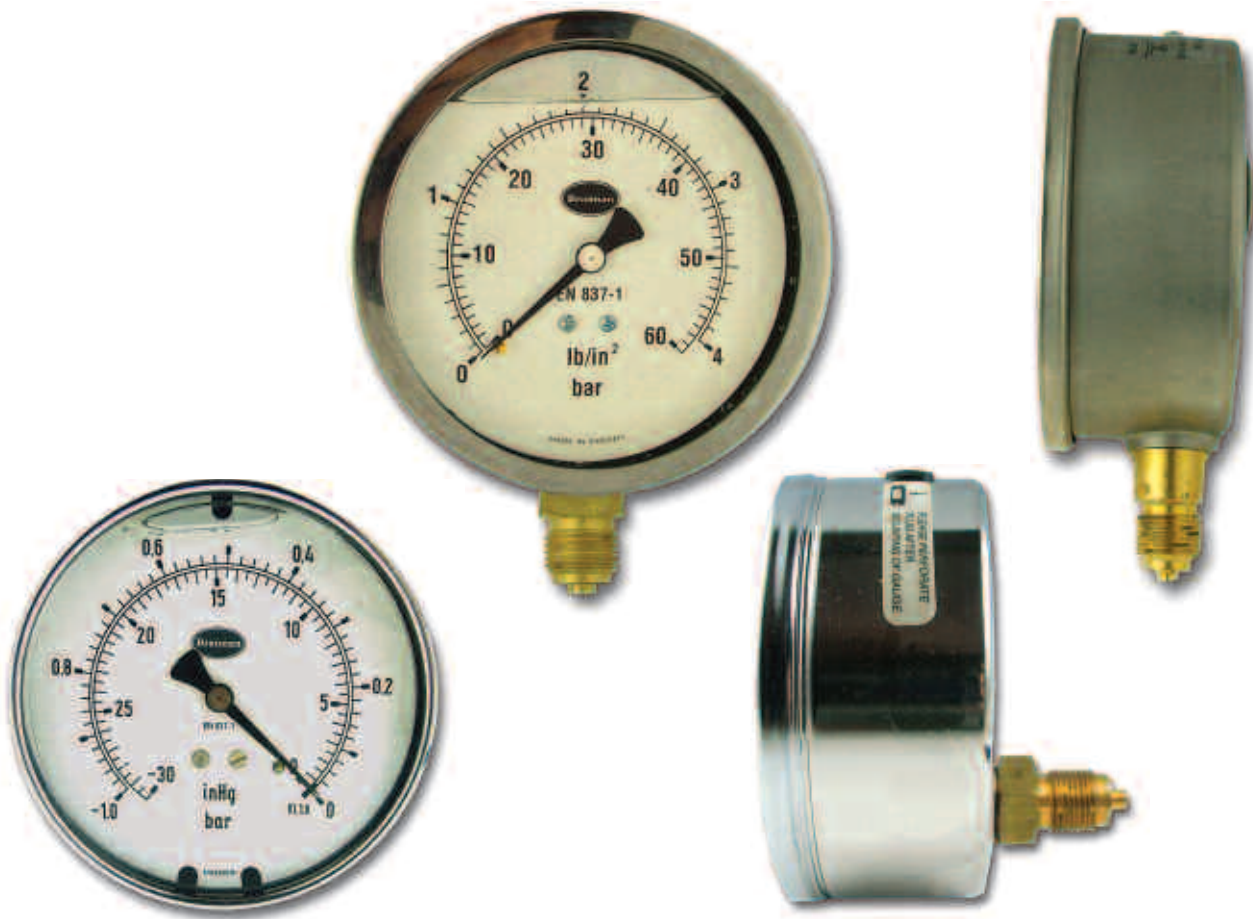
- Case:** Stainless Steel
- Class:** 1
- Orientation:** Back entry (axial)
- Range:** Customer to specify
- Connection:** Other sizes/materials inc. NPT
- Internals:** Stainless Steel
- Filling:** Glycerine (with Stainless Steel case)
- Logos:** Available

Standard Product Numbers

Bar/PSI	Bottom Entry (Radial)
0 to 1	34/651/0
0 to 2.5	34/652/0
0 to 4	34/653/0
0 to 6	34/654/0
0 to 10	34/655/0
0 to 16	34/656/0
0 to 25	34/657/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.





Standard Product Numbers		
Bar/PSI	Bottom Entry (Radial)	Back Entry (Axial)
0 to 1	37/741/0	37/721/0
0 to 1.6	37/742/0	37/722/0
0 to 2.5	37/743/0	37/723/0
0 to 4	37/744/0	37/724/0
0 to 6	37/745/0	37/725/0
0 to 10	37/746/0	37/726/0
0 to 16	37/747/0	37/727/0
0 to 25	37/748/0	37/728/0
0 to 40	37/749/0	37/729/0
0 to 60	37/780/0	37/760/0
0 to 100	37/781/1	37/761/1
0 to 160	37/782/1	37/762/1
0 to 250	37/783/1	37/763/0
0 to 400	37/784/1	37/764/1
0 to 600	37/785/1	37/765/1
-1 to 0	37/786/0	37/766/0
-1 to 3	37/789/0	37/769/0
-1 to 5	37/788/0	37/768/0
-1 to 9	37/787/0	37/767/0

Standard Specifications	
Case:	Stainless Steel
Class:	1.6
Window:	Plastic
Connection:	3/8" BSP Brass
Internals:	Copper Alloy
Filling:	Glycerine
IP Code:	66

Options	
Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Internals:	Stainless steel
Filling:	Dry/Fillable
Logos:	Available

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.





Standard Specifications

- Case:** Black Steel with blow out disc
 - Class:** 1.6
 - Window:** Plastic
 - Connection:** 3/8" BSP Brass
 - Internals:** Copper Alloy
 - Filling:** Dry
- With loose red pointer and chrome bezel.
Suitable for flange fitting.

Options

- Case:** Stainless Steel
- Class:** 1
- Orientation:** Back entry (axial)
- Range:** Customer to specify
- Connection:** Other sizes/materials inc. NPT
- Internals:** Stainless Steel
- Filling:** Glycerine (with Stainless Steel case)
- Logos:** Available

Standard Product Numbers

Bar/PSI	Bottom Entry (Radial)
0 to 1	34/951/0
0 to 2.5	34/952/0
0 to 4	34/953/0
0 to 6	34/954/0
0 to 10	34/955/0
0 to 16	34/956/0
0 to 25	34/957/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



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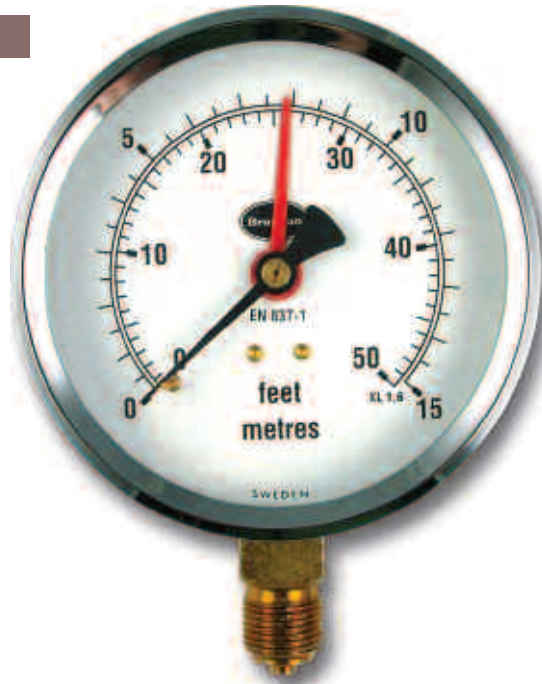


Dial Altitude Gauges

100mm Altitude Gauges

Standard Specifications

Case: Black Steel with blow out disc
Class: 1.6
Window: Plastic
Connection: 3/8" BSP Brass
Internals: Copper Alloy
Filling: Dry
 With loose red pointer and chrome bezel.
 Suitable for flange fitting.



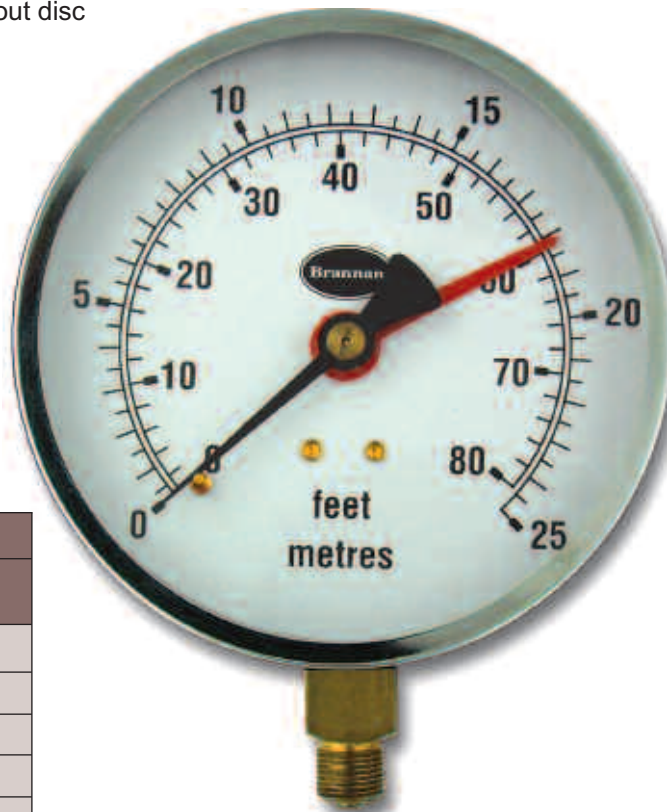
Standard Product Numbers

Metres / Feet	Bottom Entry (Radial)
0 to 10 m / 30 ft	34/601/0
0 to 15 m / 50 ft	34/602/0
0 to 25 m / 80 ft	34/604/0
0 to 40 m / 130 ft	34/605/0
0 to 60 m / 200 ft	34/606/0

150mm Altitude Gauges

Standard Specifications

Case: Black Steel with blow out disc
Class: 1.6
Window: Plastic
Connection: 3/8" BSP Brass
Internals: Copper Alloy
Filling: Dry
 With loose red pointer and chrome bezel.
 Suitable for flange fitting.



Standard Product Numbers

Metres / Feet	Bottom Entry (Radial)
0 to 10 m / 30 ft	34/901/0
0 to 15 m / 50 ft	34/902/0
0 to 25 m / 80 ft	34/904/0
0 to 40 m / 130 ft	34/905/0
0 to 60 m / 200 ft	34/906/0



Dial Thermometers

The thermometers in this section have circular dials and are actuated by a bimetal strip element or liquid filled (some thermometers use N₂ gas) bourdon tube, linked to the pointer. The following British and European Standard forms the basis of the design and manufacture of the thermometers and of these guidelines. The standard should also be the source of reference for additional information:

BS EN 13190 : 2001 Dial Thermometers.

Selection

Temperature Range - The nominal range shall be selected such that the operating temperature, including ambient temperature, shall extend over between 2/3 and 3/4 of that range.

Safety Design - Where appropriate, thermometers are supplied with a pocket and should not be installed without them or other suitable pockets.

Materials - Standard pockets are brass with 1/2" BSP process connection and are suitable for pressures up to 25 bar. Other sizes and materials are available. Some pockets are produced as an interference fit on the thermometer stem to ensure a high degree of sensitivity. Customers uncertain of the suitability of the standard pocket should consult their supplier.

Storage and Transport

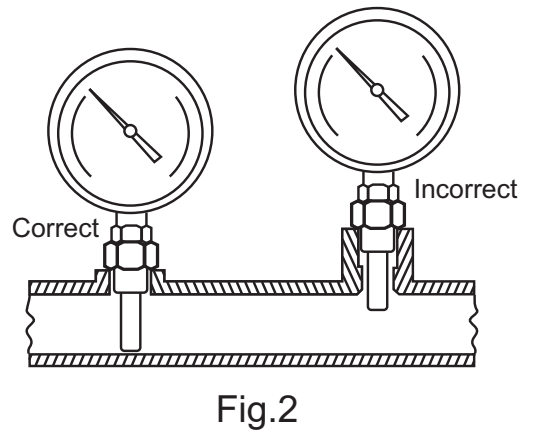
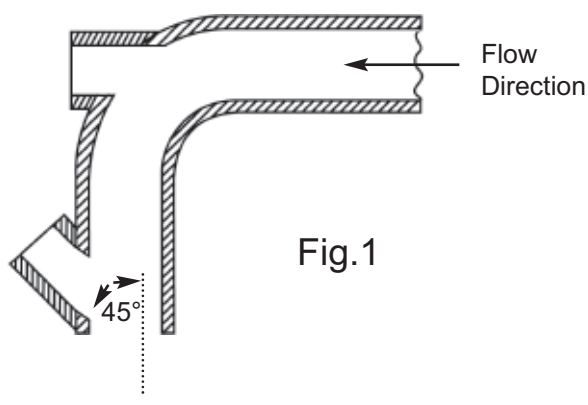
Gauges should be kept in dry, clean conditions within a temperature range of -40 to +60°C and should be protected from impact damage.

Installation

General - Thermometers will only measure the temperature experienced by the sensor probe. It is important, to achieve correct readings, that the probe is fully immersed into the flow of the pipeline or vessel. Customers must ensure the correct nominal range and stem lengths have been selected before a thermometer is installed.

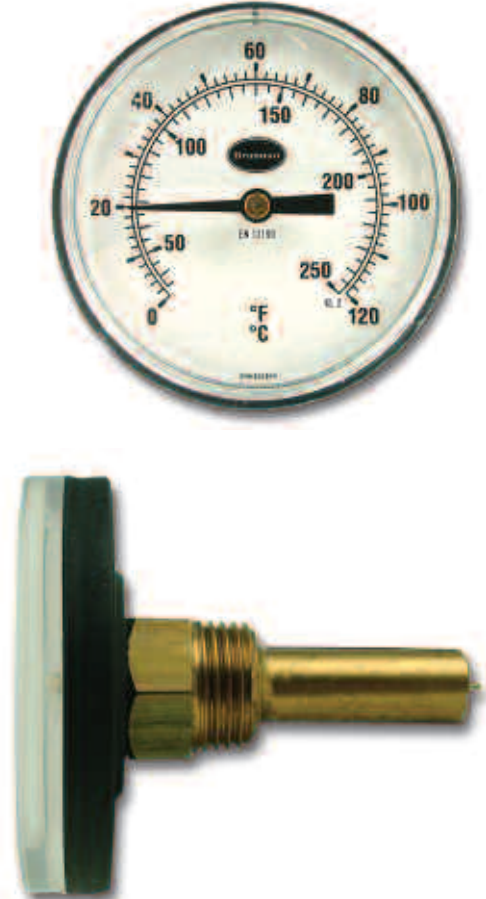
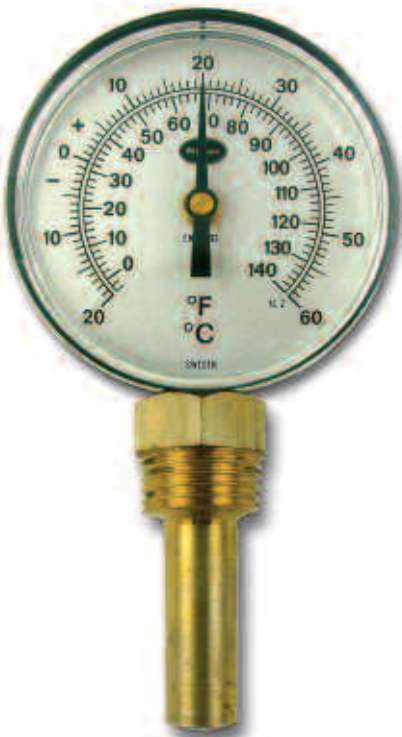
Conditions - In smaller diameter pipelines the bulb or pocket should be located across the whole of the pipe diameter. In larger pipes adequate immersion can be achieved by ensuring that the stem is inserted to the centre of the flow.

When mounting thermometers in pipelines having a diameter of less than 50mm, the female connection, or stud, should be placed in a pipe bend or at an angle of 45° to provide greater immersion. See the illustrations below (Figures 1 and 2).



The pockets (or thermowell), protect the thermometer against mechanical, thermal and chemical damage. Replacement of the instrument is also simplified. Removal from the pocket being possible without disturbing operations. Always check that the pocket material is compatible with the water, gas or other liquid into which it is to be immersed.





Standard Specifications

Case:	Plastic
Class:	2
Window:	Plastic
Connection:	1/2" BSP
Pocket:	Brass
Sensor Mechanism:	Standard bimetal coil
Filling:	Dry

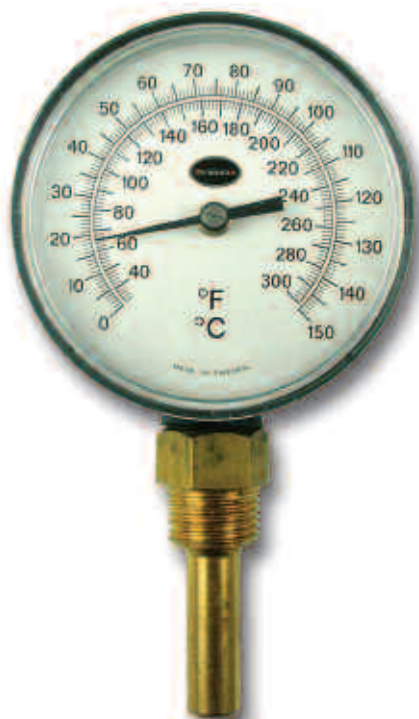
Options

Case:	Plastic or Stainless Steel
Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Pocket:	Stainless Steel
Sensor Mechanism:	Stainless Steel
Filling:	Glycerine (with Stainless Steel case)
Logos:	Available

Standard Product Numbers

Range	Bottom Entry (Radial)			Back Entry (Axial)		
	Stem Length			Stem Length		
	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	32/428/0	32/448/0	32/468/0	31/428/0	31/448/0	31/468/0
0 to 120°C&F	32/421/0	32/441/0	32/461/0	31/421/0	31/441/0	31/461/0
0 to 160°C&F	32/424/0	32/444/0	32/464/0	31/424/0	31/444/0	31/464/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



Standard Specifications

Case:	Black Steel
Class:	2
Window:	Plastic
Connection:	1/2" BSP
Pocket:	Brass
Sensor Mechanism:	Standard bimetal coil
Filling:	Dry

Options

Case:	Stainless Steel
Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Pocket:	Stainless Steel
Sensor Mechanism:	Stainless Steel
Filling:	Glycerine (with Stainless Steel case)
Logos:	Available

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

Standard Product Numbers

Range	Bottom Entry (Radial)			Back Entry (Axial)		
	Stem Length			Stem Length		
	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	32/524/0	32/544/0	32/564/0	31/524/0	31/544/0	31/564/0
0 to 120°C&F	32/521/0	32/541/0	32/561/0	31/521/0	31/541/0	31/561/0
0 to 160°C&F	32/525/0	32/545/0	32/565/0	31/525/0	31/545/0	31/565/0

100mm Thermometer : BS EN 13190 Direct Mounting Bimetal Mechanism



Standard Specifications

Case:	Black Steel with Chrome Bezel
Class:	2
Window:	Plastic
Connection:	1/2" BSP
Pocket:	Brass
Sensor Mechanism:	Standard bimetal coil
Filling:	Dry

Options

Case:	Stainless Steel
Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Pocket:	Stainless Steel
Sensor Mechanism:	Stainless Steel
Filling:	Glycerine (with Stainless Steel case)
Logos:	Available

Standard Product Numbers

Range	Bottom Entry (Radial)			Back Entry (Axial)		
	Stem Length			Stem Length		
	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	32/624/0	32/644/0	32/664/0	31/624/0	31/644/0	31/664/0
0 to 120°C&F	32/621/0	32/641/0	32/661/0	31/621/0	31/641/0	31/661/0
0 to 160°C&F	32/628/0	32/648/0	32/668/0	31/625/0	31/645/0	31/665/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

100mm Stainless Steel Thermometer : BS EN 13190 Direct Mounting Bimetal Mechanism



Standard Specifications

Case:	Stainless Steel
Class:	1
Window:	Plastic
Connection:	1/2" BSP
Pocket:	Supplied without pocket unless specified
Sensor Mechanism:	Standard bimetal coil
Filling:	Dry

Options

Orientation:	Back entry (axial)
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Pocket:	Stainless Steel
Sensor Mechanism:	Stainless Steel
Filling:	Glycerine
Logos:	Available

Standard Product Numbers

Range	Stem Length		
	50mm	100mm	160mm
-30 to 50°C	32/722/0	32/725/0	32/726/0
0 to 120°C	32/752/0	32/755/0	32/756/0
0 to 160°C	32/762/0	32/765/0	32/766/0
	Stainless Steel Pockets		
	39/145/0	39/146/0	39/163/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



100mm Thermometer : BS EN 13190 Direct Mounting Liquid Expansion Mechanism



Standard Specifications

Case:	Black Steel
Class:	2
Window:	Plastic
Connection:	1/2" BSP
Pocket:	Brass
Sensor Mechanism:	Liquid Expansion
Filling:	Dry

With 50mm lagging extension

Options

Case:	Stainless Steel
Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Pocket:	Stainless Steel
Logos:	Available
Filling:	Glycerine (with Stainless Steel case)

Standard Product Numbers

Range	Bottom Entry (Radial)			Back Entry (Axial)		
	Stem Length			Stem Length		
	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	97/624/0	97/644/0	97/664/0	96/624/0	96/644/0	96/664/0
0 to 120°C&F	97/626/0	97/646/0	97/666/0	96/626/0	96/646/0	96/666/0
0 to 160°C&F	97/628/0	97/648/0	97/668/0	96/628/0	96/648/0	96/668/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

100mm Thermometer : BS EN 13190

Remote Mounting Liquid Expansion Mechanism



Standard Specifications

Case:	Black Steel with chrome bezel
Class:	2
Window:	Plastic
Connection:	1/2" BSP
Pocket:	Brass
Sensor Mechanism:	Liquid Expansion
Filling:	Dry
Capillary:	1.5m, 3m or 5m Plastic coated Bronze

Suitable for surface mounting.
Complete with back flange.

Options

Case:	Stainless Steel
Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Pocket:	Stainless Steel
Filling:	Glycerine (with Stainless Steel case)
Logos:	Available
Capillary:	Other sizes/materials

Standard Product Numbers

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

Range	1.5m Capillary			3m Capillary			5m Capillary		
	Pocket Length			Pocket Length			Pocket Length		
	50mm	100mm	150mm	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	91/624/0	91/624/1	91/624/2	91/634/0	91/634/1	91/634/2	91/654/0	91/654/1	91/654/2
0 to 120°C&F	91/626/0	91/626/1	91/626/2	91/636/0	91/636/1	91/636/2	91/656/0	91/656/1	91/656/2



100mm Stainless Steel Thermometer : BS EN 13190 Remote Mounting Liquid Expansion Mechanism



Standard Specifications

Case:	Stainless Steel
Class:	2
Window:	Plastic
Connection:	1/2" BSP Female Stainless Nut
Sensor Mechanism:	Liquid Expansion
Filling:	Dry
Capillary:	2m, 5m or 10m Stainless Interlocking

Suitable for surface mounting.
Complete with back flange.

Options

Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Filling:	Glycerine (with Stainless Steel case)
Logos:	Available
Capillary:	Other sizes/materials

Standard Product Numbers

Range	Capillary		
	2m	5m	10m
0 to 120°C	90/160/6	90/170/6	90/180/6
0 to 160°C	90/161/6	-	90/181/6
-20 to 60°C	90/163/6	90/173/6	-

For high temperature or demanding applications, see Marine Thermometers, page 32.

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

150mm Thermometer : BS EN 13190 Direct Mounting Bimetal Mechanism



Standard Specifications

Case: Black Steel with chrome bezel
Class: 2
Window: Plastic
Connection: 1/2" BSP
Pocket: Brass
Sensor Mechanism: Standard bimetal coil

Options

Case: Stainless Steel
Class: 1
Range: Customer to specify
Connection: Other sizes/materials inc. NPT
Pocket: Stainless Steel
Sensor Mechanism: Stainless steel
Filling: Glycerine (with Stainless Steel case)
Logos: Available

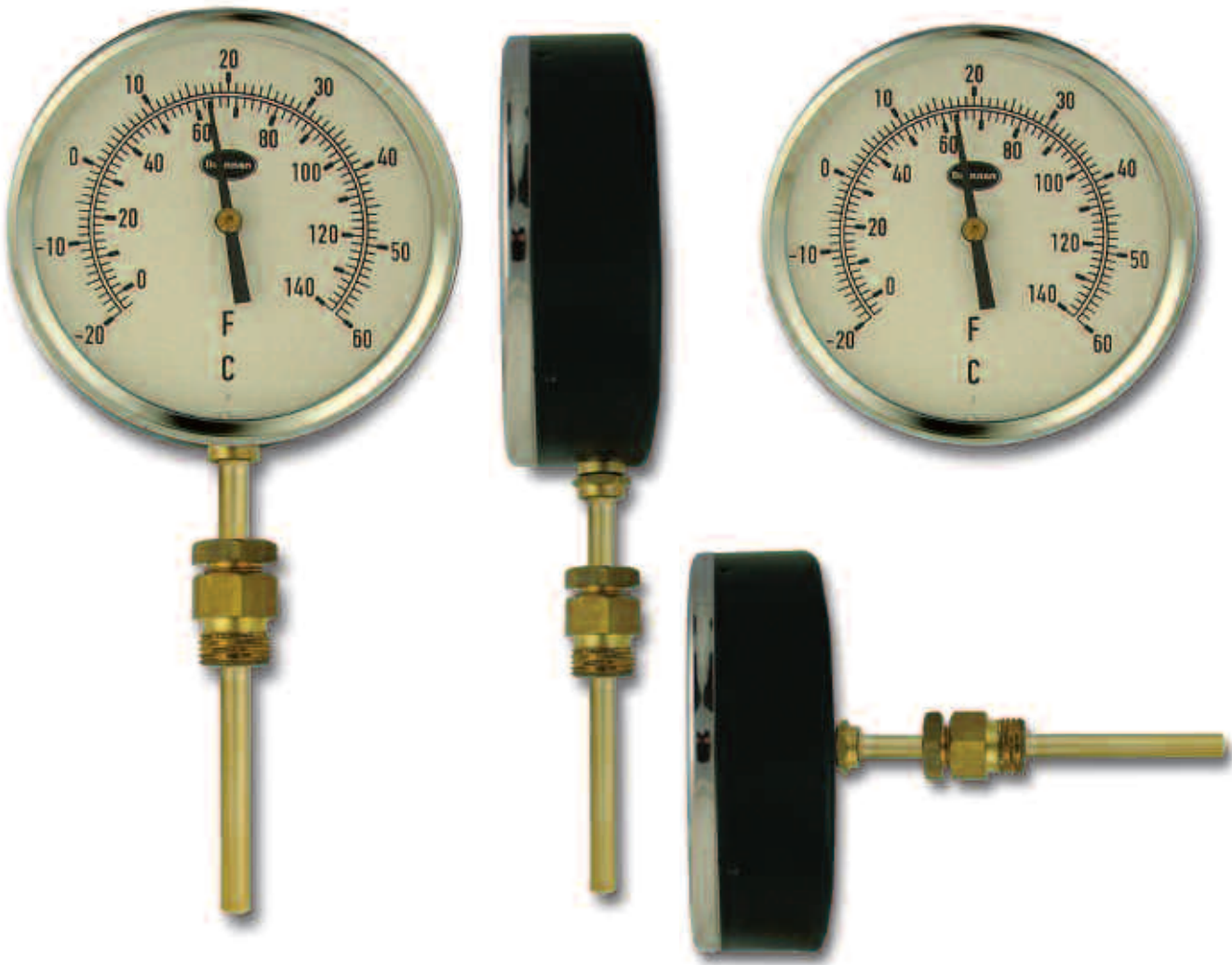
Standard Product Numbers

Range	Bottom Entry (Radial)			Back Entry (Axial)		
	Stem Length			Stem Length		
	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	32/924/0	32/944/0	32/964/0	31/924/0	31/944/0	31/964/0
0 to 120°C&F	32/921/0	32/941/0	32/961/0	31/921/0	31/941/0	31/961/0
0 to 160°C&F	32/925/0	32/945/0	32/965/0	31/925/0	31/945/0	31/965/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



150mm Thermometer : BS EN 13190 Direct Mounting Liquid Expansion Mechanism



Standard Specifications

Case: Black Steel with chrome bezel
Class: 2
Window: Plastic
Connection: 1/2" BSP
Pocket: Brass
Sensor Mechanism: Liquid Expansion
Filling: Dry

Options

Case: Stainless Steel
Class: 1
Range: Customer to specify
Connection: Other sizes/materials inc. NPT
Pocket: Stainless Steel
Sensor Mechanism: Stainless Steel
Filling: Glycerine (with Stainless Steel case)
Logos: Available

Standard Product Numbers

Range	Bottom Entry (Radial)			Back Entry (Axial)		
	Stem Length			Stem Length		
	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	97/924/0	97/944/0	97/964/0	96/924/0	96/944/0	96/964/0
0 to 120°C&F	97/926/0	97/946/0	97/966/0	96/926/0	96/946/0	96/966/0

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.



150mm Thermometer : BS EN 13190 Remote Mounting Liquid Expansion Mechanism



Standard Specifications

Case:	Black Steel with chrome bezel
Class:	2
Window:	Plastic
Connection:	1/2" BSP
Pocket:	Brass
Sensor Mechanism:	Liquid Expansion
Filling:	Dry
Capillary:	1.5m, 3m or 5m Plastic coated Bronze

Suitable for surface mounting.
Complete with back flange.

Options

Case:	Stainless Steel
Class:	1
Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Pocket:	Stainless Steel
Sensor Mechanism:	Stainless Steel
Logos:	Available
Filling:	Glycerine (with Stainless Steel case)

Standard Product Numbers

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

Range	1.5m Capillary			3m Capillary			5m Capillary		
	Pocket Length			Pocket Length			Pocket Length		
	50mm	100mm	150mm	50mm	100mm	150mm	50mm	100mm	150mm
-20 to 60°C&F	91/924/0	91/924/1	91/924/2	91/934/0	91/934/1	91/934/2	91/954/0	91/954/1	91/954/2
0 to 120°C&F	91/926/0	91/926/1	91/926/2	91/936/0	91/936/1	91/936/2	91/956/0	91/956/1	91/956/2



150mm Stainless Steel Thermometer : BS EN 13190 Remote Mounting Liquid Expansion Mechanism



Standard Specifications

Case:	Stainless Steel
Class:	2
Window:	Plastic
Connection:	1/2" BSP Female Stainless Nut
Sensor Mechanism:	Liquid Expansion
Filling:	Dry
Capillary:	2m or 5m Stainless Interlocking

Suitable for surface mounting.
Complete with back flange.

Options

Range:	Customer to specify
Connection:	Other sizes/materials inc. NPT
Filling:	Glycerine (with Stainless Steel case)
Logos:	Available
Capillary:	Other sizes/materials

For high temperature or demanding applications, see page 32, Marine Thermometers.

Standard Product Numbers

Range	Capillary	
	2m	5m
0 to 120°C	90/260/6	-
0 to 160°C	-	90/271/6

Special products can be supplied to order. Quantities required will affect unit price and initial leadtime may be extended.

41mm Dial Bimetal Thermometer

Standard Specifications

- Case:** Steel
- Window:** Glass
- Sensor Mechanism:** Standard bimetal coil
- Filling:** Dry
- Stem:** 100mm x 4mm Stainless Steel



Standard Product Numbers

Range	Product No
0 to 120°C	31/343/0

63mm Magnetic Pipe and Radiator

Standard Specifications

- Case:** Steel
- Window:** Glass
- Sensor Mechanism:** Standard bimetal coil
- Filling:** Dry



Standard Product Numbers

Range	Product No
0 to 120°C&F	33/409/0
0 to 200°C&F	33/410/0
-50 to 50°C&F	33/411/0

63mm Clip on Pipe

Need to add 33/501/0 and 33/503/0

Standard Specifications

- Case:** Plastic painted bezel (except*)
- Window:** Glass
- Connection:** Spring
- Sensor Mechanism:** Standard bimetal coil
- Filling:** Dry

Standard Specifications

- Case:** Metal
- Window:** Glass
- Connection:** Spring
- Sensor Mechanism:** Standard bimetal coil
- Filling:** Dry



Standard Product Numbers

Range	Product No
-40 to 40°C&F	33/403/0
0 to 120°C&F	33/401/0
0 to 200°C&F	33/402/0
0 to 120°C&F	33/404/0*

Standard Product Numbers

Range	Product No
-40 to 40°C&F	33/503/0
0 to 120°C&F	33/501/0

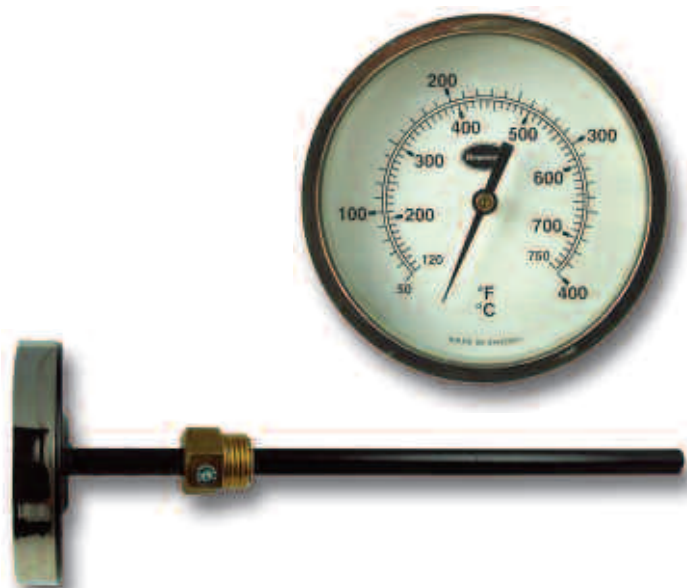
* no bezel



80mm Flue Gas

Standard Specifications

Case:	Steel
Window:	Glass
Connection:	1/2" BSP sliding union
Sensor Mechanism:	Standard bimetal coil
Stem:	250mm x 10mm
Filling:	Dry



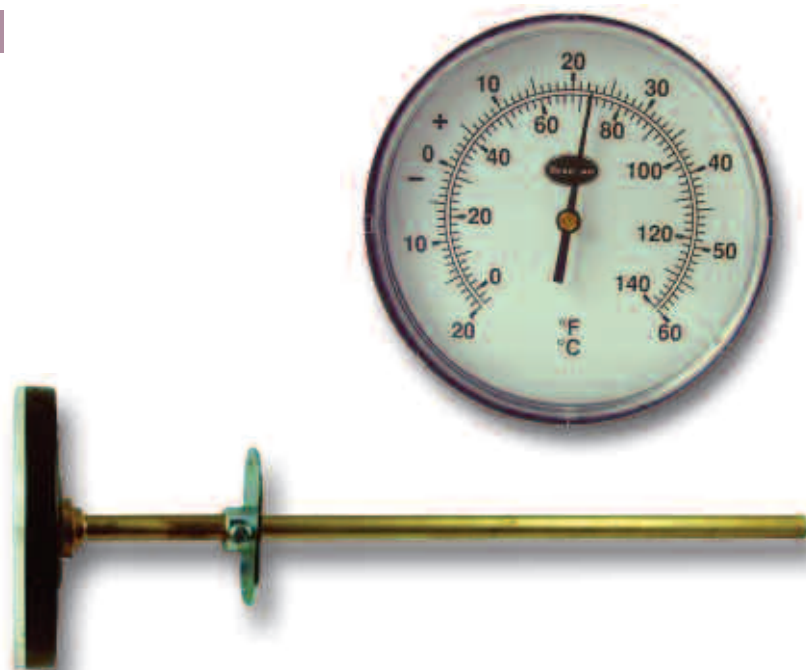
Standard Product Numbers

Range	Product No
50 to 400°C&F	33/593/0

100mm and 150mm Air Duct

Standard Specifications

Case:	Steel
Window:	Plastic
Connection:	Sliding flange
Sensor Mechanism:	Stainless bimetal coil
Stem:	300mm x 10mm
Filling:	Dry

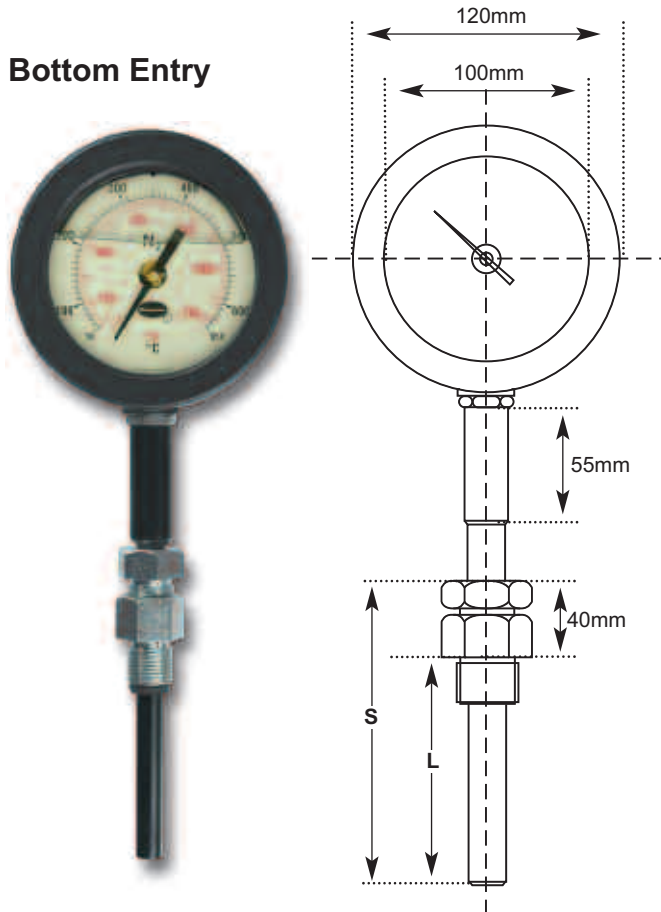


Standard Product Numbers

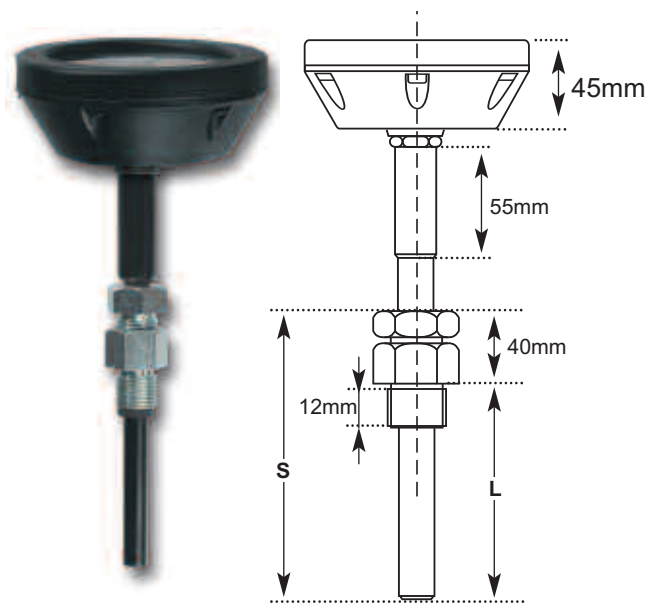
Dial Diameter	Range	Product No
100mm	-20 to 60°C&F	33/773/0
100mm	0 to 120°C&F	33/771/0
150mm	-20 to 60°C&F	33/973/0

Diesel Engine Exhaust Gas

The Brannan Nitrogen filled thermometer is the most widely specified instrument for measuring exhaust gas temperatures and is fitted as original equipment by leading engine manufacturers. The Nitrogen filled system is both reliable and accurate as well as environmentally friendly. The instruments are protected against vibration using silicone oil to ensure the maximum life under the most severe conditions.



Back Entry



Sliding connections to suit 12mm stems are:

Thread 'G'	Product No
1/2"	39/237/0
3/4"	39/238/0

The following table identifies the most popular product codes.

Standard Product Numbers			
Stem Length 'L'	Stem Diameter 'D'	Product No	
		Bottom Entry	Back Entry
100mm	12mm	93/100/0	93/110/0
150mm	12mm	93/100/1	93/110/1
200mm	12mm	93/100/2	93/110/2
250mm	12mm	93/100/3	93/110/3
300mm	12mm	93/100/4	93/110/4
350mm	12mm	93/100/5	93/110/5
400mm	12mm	93/100/6	93/110/6
450mm	12mm	93/100/7	93/110/7
500mm	12mm	93/100/8	93/110/8

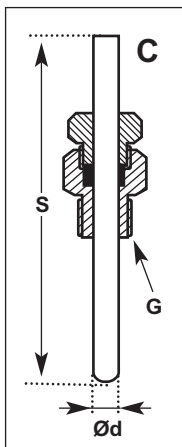
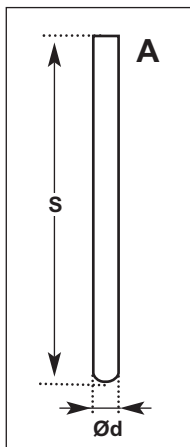
Diesel Engine Exhaust Gas

Standard Specifications

Temperature Range:	+50 to +650°C&F
Casing/Bezel:	Black painted die-cast aluminium 120mm diameter case = 100mm dial face (standard) 100mm diameter case = 80mm dial face (optional)
Max Working Temp:	Full scale value at continuous operation
Measuring System:	N ₂
Degree of Protection:	IP67
Mounting:	Bottom or back
Stem Diameter Options:	12, 13 or 16mm
Thermowells:	To fit Available in steel or stainless steel on request
Typical Sliding Union Connections:	Adjustable union - 1/2" for stem 12 or 13mm, 3/4" for 16mm in 316 stainless steel
Connection:	Type C unless specified

Options

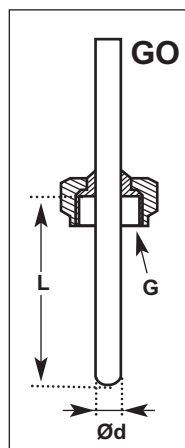
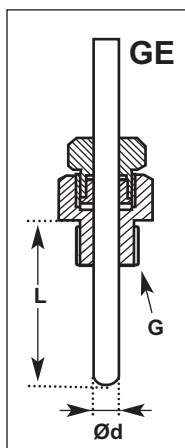
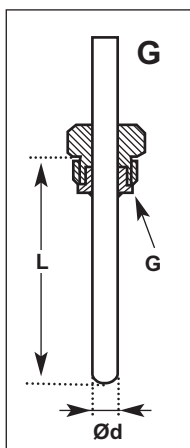
Ranges:	0 to +120°C&F, 0 to +160°C&F, 0 to +200°C&F and 0 to +250°C&F,
Connections:	Other connections available on request as below.
Casing:	100mm case with 80mm face is available on request



Optional Connections

- A** = Plain stem
- C** = Sliding union 1/2" BSP or 3/4" BSP
- G** = Swivel nut 1/2" BSP or 3/4" BSP - not sealed
- GE** = Union nut 1/2" BSP or 3/4" BSP fixed position on stem - sealed
- GO** = Swivel connection with capped nut 1/2" BSP or 3/4" BSP or M18 x 1.5

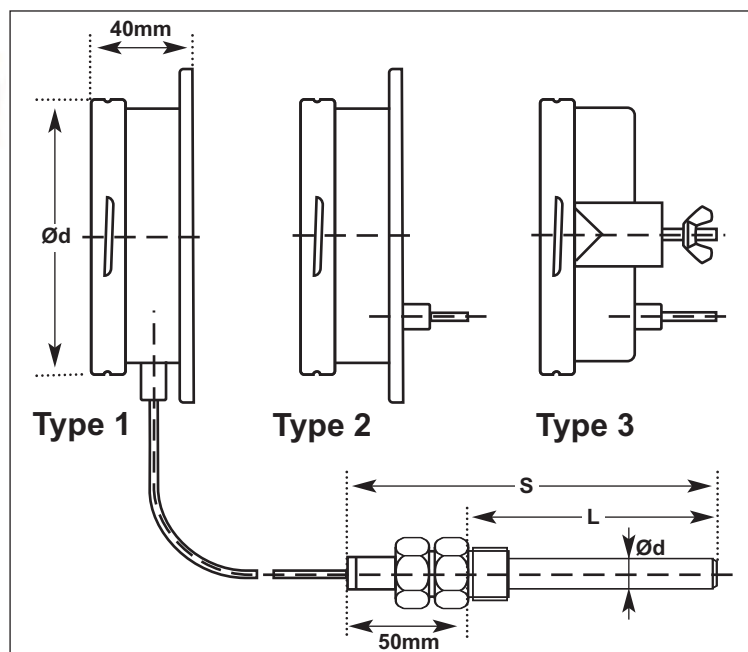
Version **G** may be supplied with E nipple.
Version **GO** may be supplied with pocket.
L and S measurements to be stated on order.
Ød to be stated on order if any special diameter is requested.



Remote Reading Diesel Engine Exhaust Gas Thermometers

The Brannan Nitrogen filled thermometer is the most widely specified instrument for measuring exhaust gas temperatures and is fitted as original equipment by leading engine manufacturers. The Nitrogen filled system is both reliable and accurate as well as environmentally friendly.

Remote reading instruments are protected against vibration using a capillary and silicone filled cases to ensure the maximum product life under severe conditions. The silicone-filled version is available in 100mm cases only. However, a dry version, for less extreme conditions, is available in both 100mm and 150mm cases.



Standard Specifications

Temperature Range:	+50 to +650°C&F
Max Working Temp:	Full scale value at continuous operation
Measuring System:	N ₂
Degree of Protection:	IP 65
Immersion Lengths:	'L' and 'S' (see diagram) 'L' = minimum 100mm 'S' = To customers' specification
Working Pressure:	PN25
Capillary:	Interlocking flexible capillary (SS 316) Solid capillary available on request
Accuracy:	+/-1.5% of full scale value

Options

Optional ranges available on request:

-40 to +40°C,	-30 to +120°C,	-10 to +50°C,
0 to +60°C,	0 to +100°C,	0 to +120°C,
0 to +160°C,	0 to +200°C,	0 to +250°C,
+50 to +300°C,	+50 to +400°C,	

Other ranges in °C only, °F only or °C&F

Casing/Bezel:

Type 1 = Stainless steel 304 with bayonet bezel, back flange with capillary bottom entry

Type 2 = Stainless steel 304 with bayonet bezel, back flange with capillary back entry

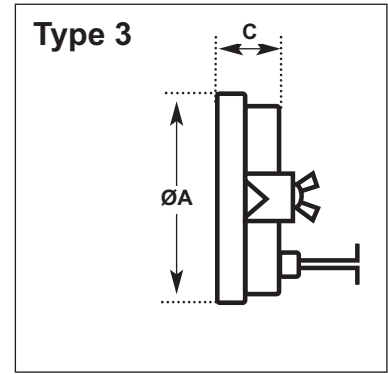
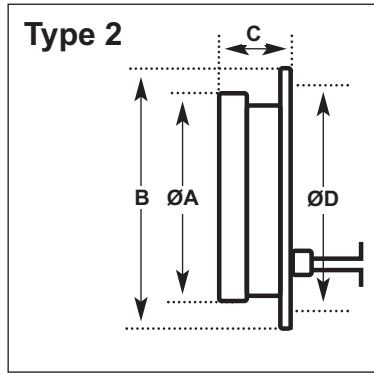
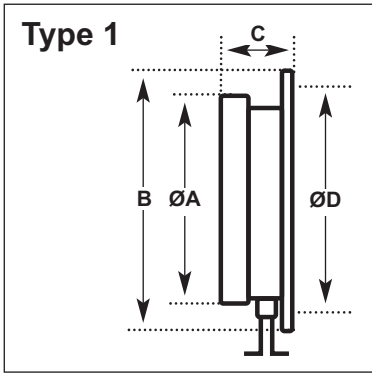
Type 3 = Stainless steel 304 with bayonet bezel, clamp fixing with capillary back entry

Options - Die cast aluminium case (Type 1 only)
- Silicone filled available in 100mm case versions.

Standard Product Numbers for Type 1 : Bottom Entry Filled

Capillary Length	Product No
2m	93/010/1
3m	93/010/2
5m	93/010/3
7m	93/010/4
10m	93/010/5

Remote Reading Diesel Engine Exhaust Gas Thermometers



	Case Dimensions: 100mm			Case Dimensions: 150mm		
	Type 1	Type 2	Type 3	Type 1	Type 2	Type 3
A	110	110	110	160	160	160
B	130	130	-	185	185	-
C	40	40	40	40	40	40
D	116	116	-	168	168	-

Options

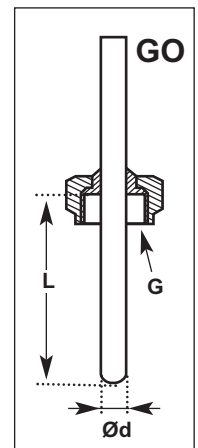
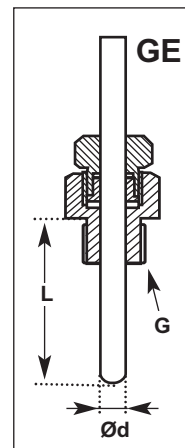
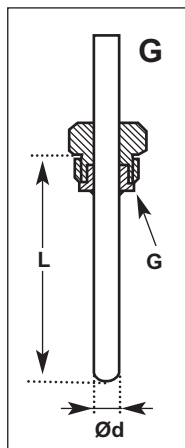
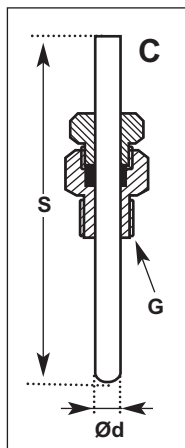
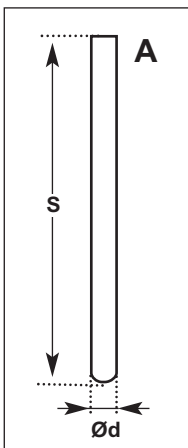
As below, all supplied in Stainless Steel 316

Optional Connections

- A = Plain stem
- C = Sliding union 1/2" BSP or 3/4" BSP
- G = Swivel nut 1/2" BSP or 3/4" BSP - not sealed
- GE = Union nut 1/2" BSP or 3/4" BSP fixed position on stem - sealed
- GO = Swivel connection with capped nut 1/2" BSP or 3/4" BSP or M18 x 1.5

Version **G** may be supplied with E nipple.
 Version **GO** may be supplied with pocket/thermowell.
 L and S measurements to be stated on order.
 Ød to be stated on order if any special diameter is requested.

NB. Standard products are supplied with type C sliding unions unless specified.

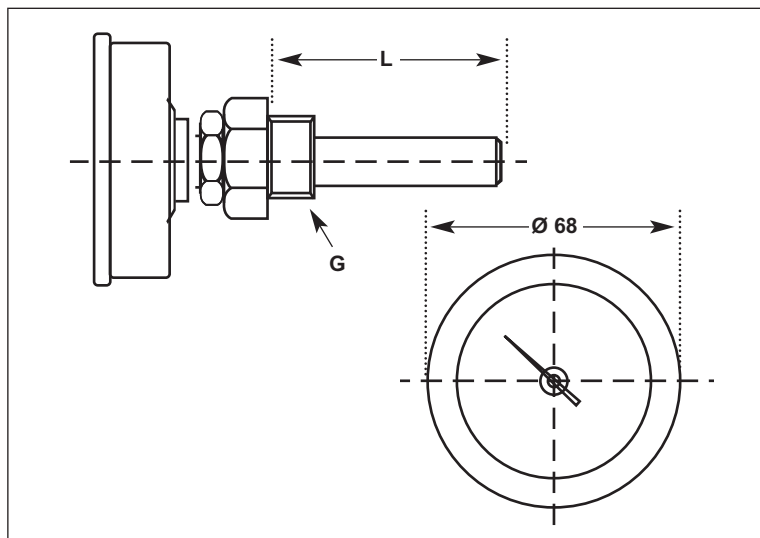
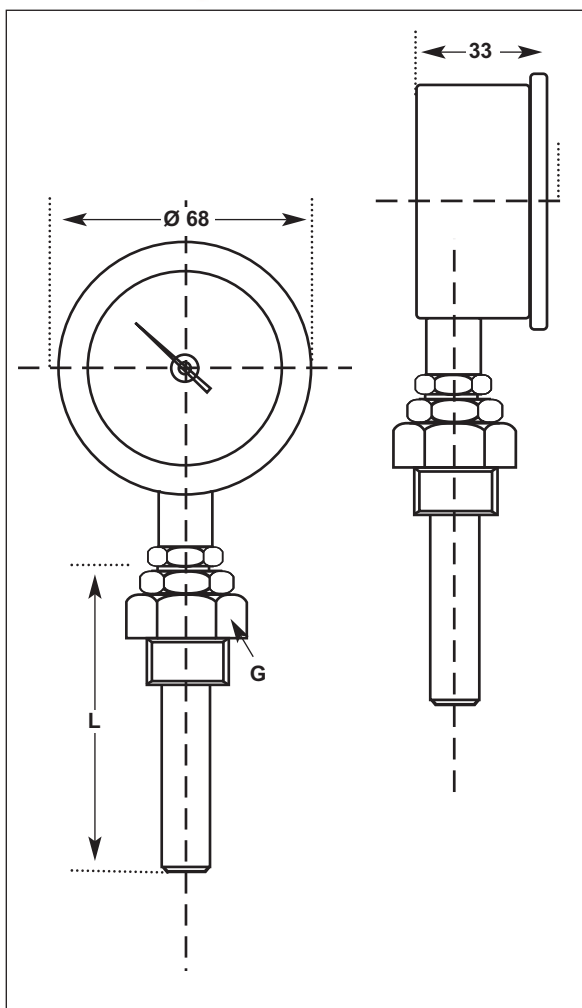


Zincified Cased Bimetal Thermometers

For cooling water systems in marine applications. Special copper alloy in stems, pocket to withstand salt water, stabilized against vibrations.

**Standard Specifications**

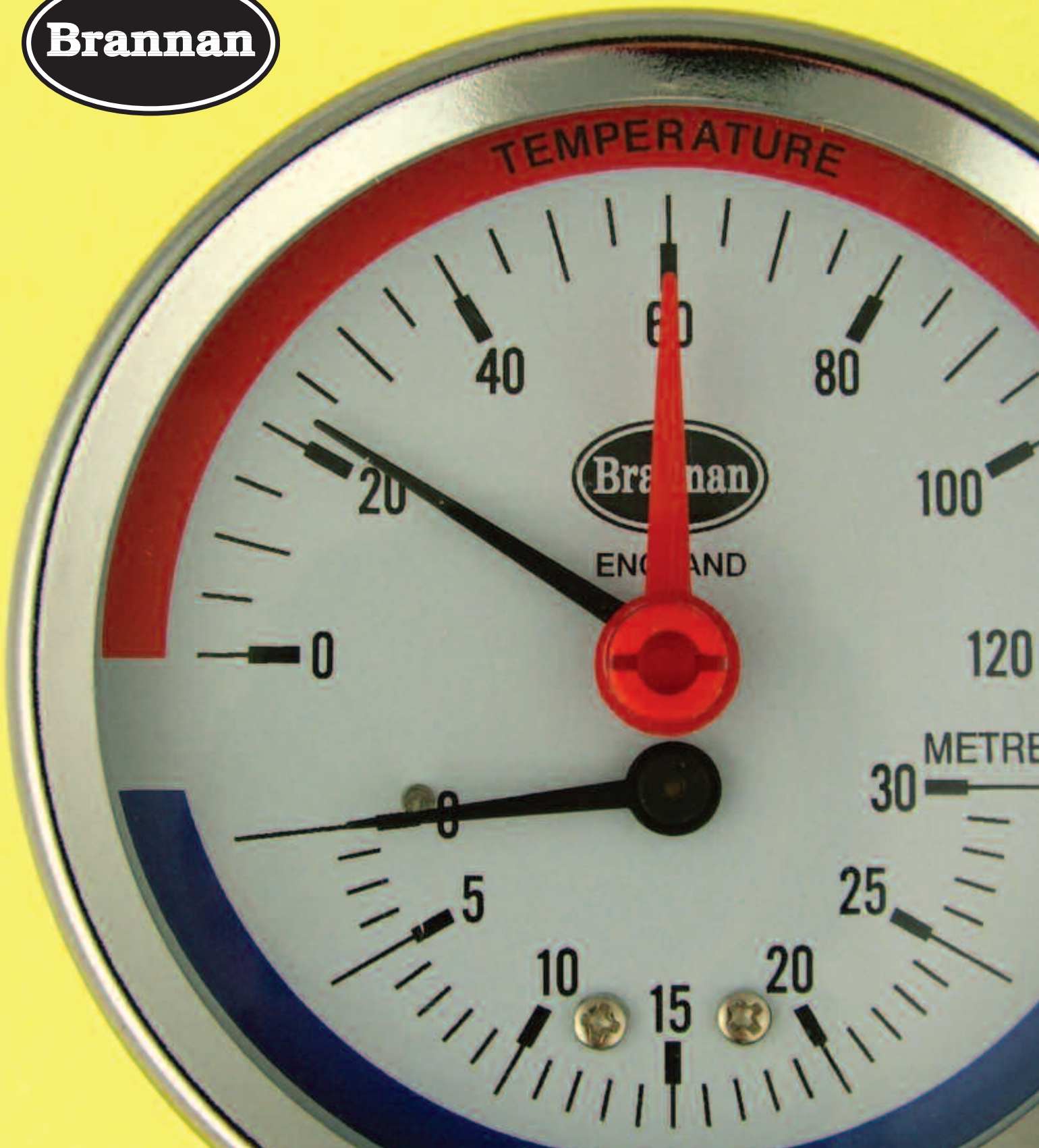
Dimensions:	See diagrams below
Design:	Thermometer with bottom or back stem entry, complete with thermowell dezincified brass to withstand salt water
Casing/Bezel:	Zincified casing with stainless bezel, silicone oil filled
Max Working Temp:	Full scale value at continuous operation, 10% over-load capacity for temporary operation only
Measuring System:	Bimetal
Degree of Protection:	IP65
Mounting:	Bottom or back stem entry
Immersion Length:	See table below
Working Pressure:	PN25
Thermowell:	1/2" BSP as standard (Option - M18 x 1.5)

**Standard Product Numbers - Bottom Entry**

Range	Stem Length			
	63mm	75mm	100mm	125mm
0 to 120°C	93/300/0	93/304/0	93/308/0	93/312/0
0 to 160°C	93/301/0	93/305/0	93/309/0	93/313/0
0 to 200°C	93/302/0	93/306/0	93/310/0	93/314/0
0 to 300°C	93/303/0	93/307/0	93/311/0	93/315/0

Standard Product Numbers - Back Entry

Range	Stem Length			
	63mm	75mm	100mm	125mm
0 to 120°C	94/300/0	94/304/0	94/308/0	94/312/0
0 to 160°C	94/301/0	94/305/0	94/309/0	94/313/0
0 to 200°C	94/302/0	94/306/0	94/310/0	94/314/0
0 to 300°C	94/303/0	94/307/0	94/311/0	94/315/0



Dial Combined Gauges

Although not subject directly to the same standards and specifications as the separate pressure gauges and thermometers, these combined instruments are of a similar quality.

By combining two instruments in one, they offer an economic solution where separate units are considered to be unnecessary.

80mm Thermometer / Pressure Gauge

Standard Specifications

Case: Black Steel
Window: Plastic
Connection: 1/2" BSP
Pocket: Self Sealing Brass
Sensor Mechanism: Bimetal Coil, Copper Alloy Bourdon
Filling: Dry
 With loose red pointer and chrome bezel.

Standard Product Numbers

Range	Bottom Entry (Radial)	Back Entry (Axial)
0 to +120°C 0 to 4 bar	36/617/1	35/617/1
0 to +120°C 0 to 6 bar	36/618/1	35/618/1



80mm Thermometer / Altitude Gauge

Standard Specifications

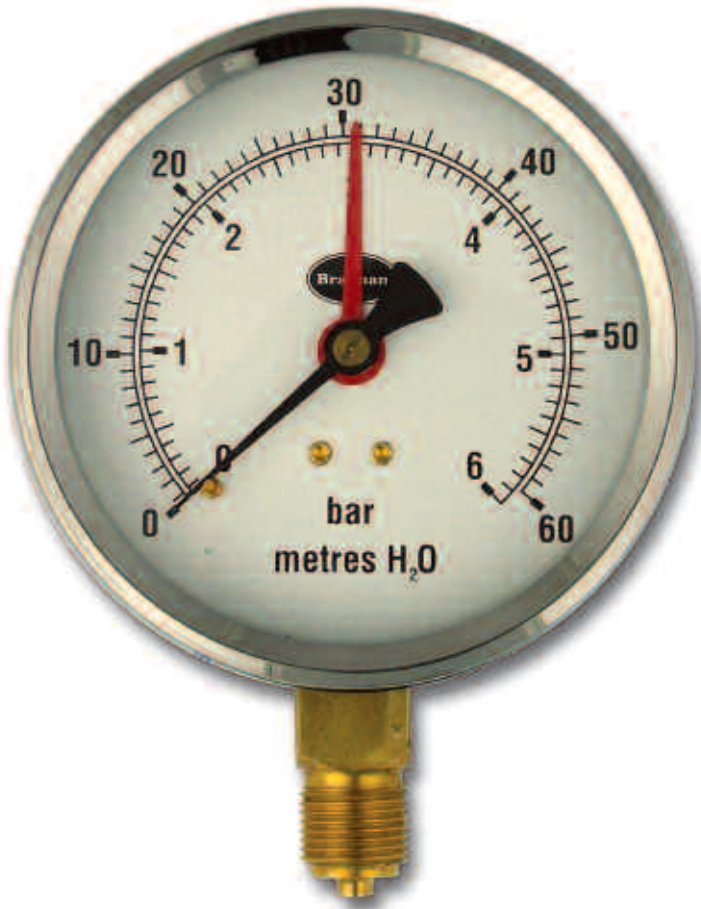
Case: Black Steel
Window: Plastic
Connection: 1/2" BSP
Pocket: Self Sealing Brass
Sensor Mechanism: Bimetal Coil, Copper Alloy Bourdon
Filling: Dry
 With loose red pointer and chrome bezel.

Standard Product Numbers

Range	Bottom Entry (Radial)	Back Entry (Axial)
0 to +120°C 0 to 30 metres	36/615/1	35/615/1
0 to +120°C 0 to 45 metres	36/616/1	35/616/1



100mm Pressure / Altitude Gauges



Standard Specifications

- Case:** Black Steel with Chrome Bezel
 - Window:** Plastic
 - Connection:** 3/8" BSP
 - Internals:** Copper Alloy
 - Filling:** Dry
- With loose red pointer and chrome bezel.
Suitable for flange fitting.

Standard Product Numbers

Range	Product No
0 to 1 bar 0 to 10 metres	34/661/0
0 to 1.6 bar 0 to 15 metres	34/662/0
0 to 2.5 bar 0 to 25 metres	34/663/0
0 to 4 bar 0 to 40 metres	34/664/0
0 to 6 bar 0 to 60 metres	34/665/0

150mm Pressure / Altitude Gauges



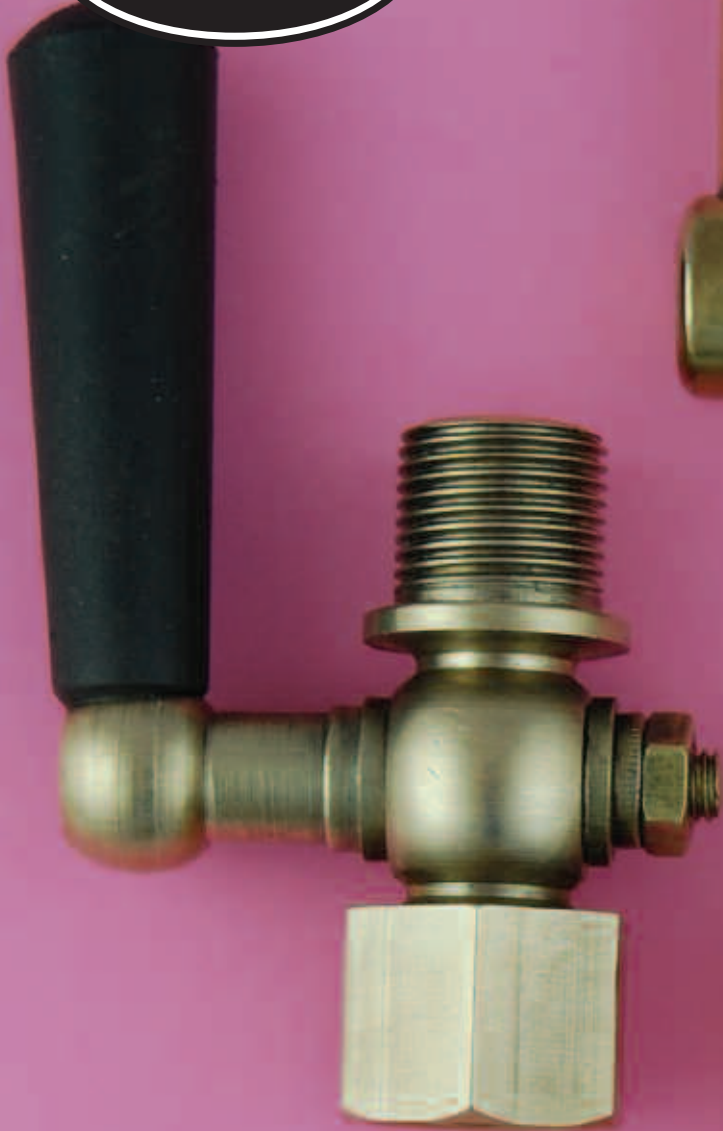
Standard Specifications

Case:	Black Steel with Chrome Bezel
Window:	Plastic
Connection:	3/8" BSP
Internals:	Copper Alloy
Filling:	Dry
With loose red pointer and chrome bezel.	
Suitable for flange fitting.	

Standard Product Numbers

Range	Product No
0 to 1 bar	34/961/0
0 to 10 metres	
0 to 1.6 bar	34/962/0
0 to 15 metres	
0 to 2.5 bar	34/963/0
0 to 25 metres	
0 to 4 bar	34/964/0
0 to 40 metres	
0 to 6 bar	34/965/0
0 to 60 metres	

Brannan



Dial Accessories

Brass Gauge Cock



Connection	Product No
1/4" BSP F x F	39/008/0
3/8" BSP F x F	39/001/0
1/2" BSP F x F	39/003/0
3/8" BSP M x F	39/202/0

Stainless Steel Ball Valve



Material	Size	Product No
Stainless Steel	3/8" BSP M	39/005/0
Stainless Steel	1/2" BSP M	39/007/0

Back Flange for Pressure & Altitude Gauges

Back flanges to suit 100mm and 150mm pressure and altitude gauges



Gauge Size	Product No
100mm	34/600/0
150mm	34/900/0

'U' Syphon

Material	Size	Product No
Mild Steel	3/8" BSP M	39/011/0
Stainless Steel	3/8" BSP M	39/022/0
Brass	3/8" BSP M	39/013/0
Mild Steel	1/2" BSP M	39/012/0



Ring Syphon

Material	Size	Product No
Mild Steel	3/8" BSP M	39/015/0
Stainless Steel	3/8" BSP M	39/023/0
Brass	3/8" BSP M	39/017/0
Mild Steel	1/2" BSP M	39/016/0



Brass Adaptors

Connection	Product No
1/8" BSP F x 1/8" NPT M	39/354/0
1/8" BSP F x 1/4" BSP M	39/351/0
1/8" BSP F x 1/4" NPT M	39/352/0
1/4" BSP F x 1/8" BSP M	39/358/0
1/4" BSP F x 1/8" NPT M	39/361/0
1/4" BSP F x 1/4" NPT M	39/355/0
1/4" BSP F x 3/8" BSP M	39/353/0
1/4" BSP F x 3/8" NPT M	39/362/0
1/4" BSP F x 1/2" BSP M	39/025/0
1/4" BSP F x 1/2" NPT M	39/363/0
3/8" BSP F x 1/4" BSP M	39/357/0
3/8" BSP F x 1/4" NPT M	39/359/0
3/8" BSP F x 3/8" NPT M	39/360/0
3/8" BSP F x 1/2" BSP M	39/021/0
3/8" BSP F x 1/2" NPT M	39/356/0
1/2" BSP F x 3/8" BSP M	39/366/0
1/2" BSP F x 3/8" NPT M	39/364/0
1/2" BSP F x 1/2" NPT M	39/365/0



Brass Check Valve for Pressure Gauge (Snubber)

The 'Snubber' performs the dual function of both protecting the gauge and also dampening oscillations, enabling a steady reading to be taken.



Connection	Product No
1/4" BSP M x 1/4" BSP F	39/304/0
3/8" BSP M x 3/8" BSP F	39/306/0
1/2" BSP M x 1/2" BSP F	39/307/0

Description of Operation

A pressure seal consists of a pressure-tight diaphragm clamped or welded to a top member. The space above the diaphragm and all space within the measuring system are completely filled with a liquid. Pressure applied to the diaphragm is transferred to the measuring system through this liquid.

Normally the liquid is paraffin oil, but silicone oil is used in applications with more than 5m of tubing, and where a vacuum is being measured.

Applications

Pressure seals enable pressure gauges and controllers, as well as standard pneumatic and electronic transmitters, to be used with corrosive and viscous media. They can be used with pressure seals. The pressure gauges may be mounted directly or via tubing.

NOTE: Pressure seals in combination with instruments with a measurement range below 1 bar become temperature and position dependent due to the larger volume of liquid.

See instruction MWP10iGB.

Measurement of Viscous Media

For viscous media which tend to solidify when "stationary", we recommend the use of a pressure seal without bottom member:

PN 16 hygienic version:	MWP10-3246-9Rd60-6 3247-9Rd70-6
PN25 with flange connection:	MWP10-5240-0/41-0 3540-0/41-0 5940-0/41-0
PN40 with flange connection:	MWP10-6740-0/41-0
PN250 with sleeve-type connection:	MWP10-8344-6/45-6



PN 25

Pressure Limits	See Table 1.
Top Member	Brass, chromium-plated.
Bottom Member/ Clamping Ring	Stainless Steel AISI 316.
Diaphragm	Clamped in place, see Table 1 for material.
Tubing	Tobak, max recommended length 40m. Stainless Steel, max recommended length 25m.
Connections to:	
- Pressure Gauge	Direct or via capillary tubing to male connection of gauge. In both cases the top member connection is 3/8 BSP female.
- Medium	1/2 BSP male or flange For flange dimensions see fig 1.
Dampening device	Directly connected pressure seals are fitted with a dampening devise and cooling nipple. For pressure seals connected by tubing, the tubing itself provides dampening action.
Medium Temperature	Max. 150°C for positive pressure. Max. 100°C for vacuum.

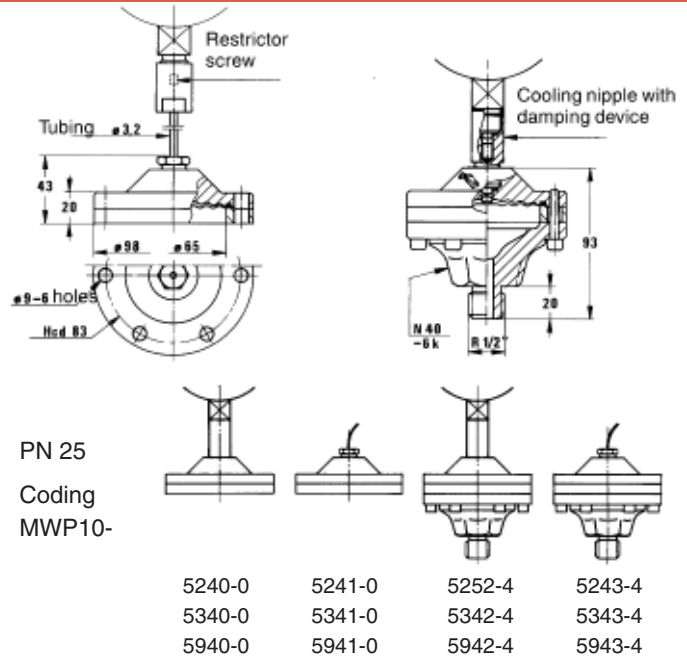


Fig 1. Dimension drawing and connection standard for PN 25

PN 40

Pressure Limits	See Table 1.
Top Member	Stainless Steel AISI 316.
Flange	Galvanised Steel
Diaphragm	Seam-welded, see table 1.
Tubing	Stainless Steel AISI 316. Max recommended length 25m.
Connections to:	
- Pressure Gauge	Direct or via capillary tubing to male connection of gauge. In both cases the top member connection is 3/8 BSP female.
- Medium	DN 50 flange, see fig 2.
Dampening Device	Directly connected pressure seals are fitted with a dampening devise and cooling nipple. For pressure seals connected by tubing, the tubing itself provides dampening action.
Medium Temperature	Max. 150°C for positive pressure. Max. 100°C for vacuum.

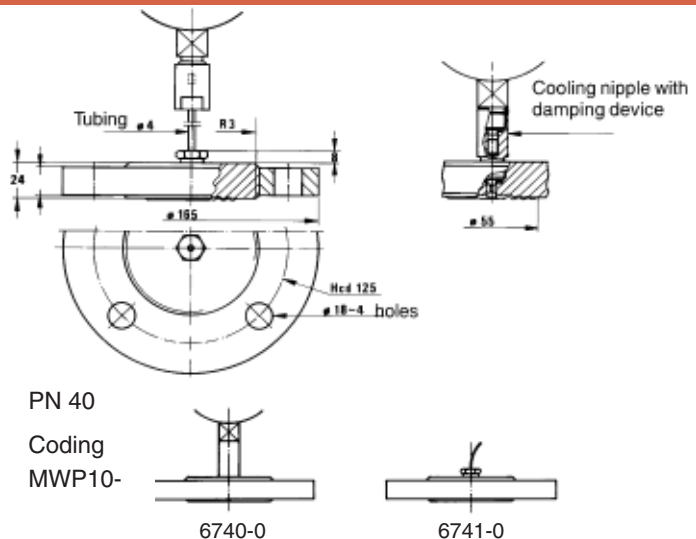


Fig 2. Dimension drawing and connection standard for PN 40

Table 1

Coding MWP10-	Pressure Class PN	Measuring range, pascal and bar		Zero shift due to temperature change ¹ pascal and bar	Diaphragm Material	Max Vacuum pascal and bar		Max temperature °C	
		Minimum	Maximum			Continuous	Intermittent	Pressure	Vacuum
5240-0/41-0/ 42-4/43-4	25	0-40 kPa 0-0.4 bar	0-600 kPa 0-6 bar	1.5 kPa 0.015 bar	Stainless steel AISI 316 ²			Directly connected	
5340-0/41-0/ 42-4/43-4	25	0-100 kPa 0-1 bar	0-2.5 MPa 0-25 bar	3 kPa 0.03 bar	PTFE coated			150	100
5940-0/41-0/ 42-4/43-4	25	0-100 kPa 0-1 bar	0-2.5 MPa 0-25 bar	3 kPa 0.03 bar	Tantalum PTFE coated	-0.8 bar -80 kPa	-0.9 bar -90 kPa	Connected by tubing 150 100	
6740-0/41-0/	40	0-100 kPa 0-1 bar	0-4 MPa 0-40 bar	5 kPa 0.05 ba	Tantalum				

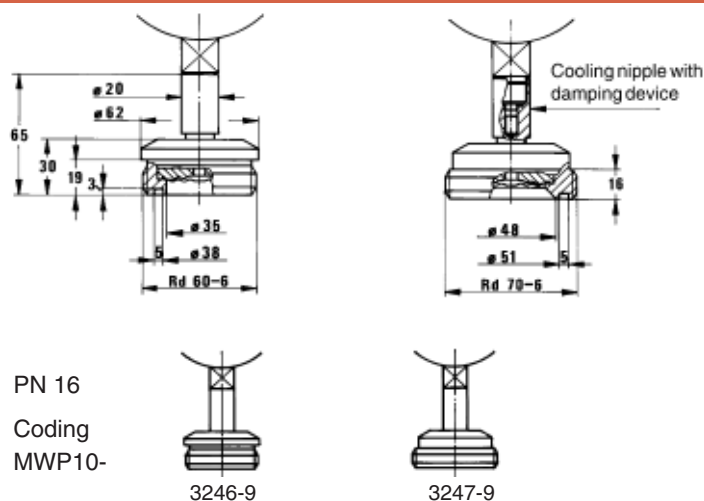
¹) Medium temperature change of 50°C, not ambient temperature change.

If tubing is used, this error is reduced by 50%. If a cooling nipple is used it is reduced by 75%. See also document MWP10 iGB for information about transmitters.

²) MWP10-5240/41-0 and MWP10-5242-4/43-4 has an extra thin diaphragm. See "General technical information".

PN 16

Pressure Limits	See Table 2.
Top Member	Brass, chromium-plated.
Bottom Member	Stainless Steel AISI 316.
Diaphragm	Clamped in place, AISI 316.
Connections	Tap RD60-6. RD70-6 for tubing 38 and 51 respectively.
Dampening Device	Cooling nipple with damping device SS2346.
Medium	Max. 150°C for positive pressure.
Temperature	Max. 100°C for vacuum.



PN 16

Coding
MWP10-

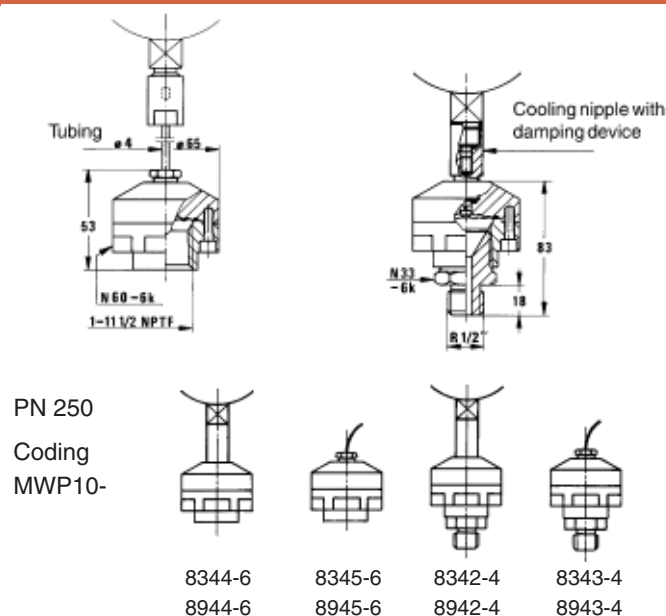
3246-9

3247-9

Fig 3. Dimension drawing and connection standard for PN 16

PN 250

Pressure Limits	See Table 2.
Top Member	Stainless Steel AISI 316.
Bottom Member	Stainless Steel AISI 316.
Diaphragm	Clamped in place, see Table 2 for material.
Tubing	Stainless Steel AISI 36. Max recommended length 6m.
Connections To	
- Pressure Gauge	Direct or via capillary tubing to male connection of gauge. In both cases the top member connection is 3/8 BSP female.
- Medium	Sleeve-type connection with 1-11 1/2 NPT female thread or 1/2 BSP male connection.
Dampening device	Directly connected pressure seals are fitted with a dampening device and cooling nipple. For pressure seals connected by tubing, the tubing itself provides dampening action.
Medium	Max. 150°C for positive pressure.
Temperature	Max. 100°C for vacuum.



PN 250

Coding
MWP10-

8344-6

8345-6

8342-4

8343-4

8944-6

8945-6

8942-4

8943-4

Fig 4. Dimension drawing and connection standard for PN 250

Table 2

Coding MWP10-	Pressure Class PN	Measuring range, pascal and bar		Zero shift due to temperature change ¹ pascal and bar	Diaphragm Material	Max Vacuum pascal and bar		Max temperature °C	
		Minimum	Maximum			Continuous	Intermittent	Pressure	Vacuum
3246-9 3247-9	16	0-4 bar 0-400 kPa	0-15 bar 0-1.5 MPa	0.04 bar 4 kPa	Stainless steel AISI 316			Directly connected	
8344-6/45-6/ 42-4/43-4	250	0-1 MPa 0-10 bar	0-25 MPa 0-250 bar	10 kPa 0.1 bar	Stainless steel AISI 316	-80 kPa -0.8 bar	-90 kPa -0.9 bar	150	100
8944-6/45-6/ 42-4/43-4	250	0-1 MPa 0-10 bar	0-25 MPa 0-250 bar	10 kPa 0.1 bar	Tantalum PTFE coated			Connected by tubing 150 100	

¹) Medium temperature change of 50°C, not ambient temperature change.
If tubing is used, this error is reduced by 50%. If a cooling nipple is used it is reduced by 75%.

Optional Items

Stainless Steel Top Member (PN 25)

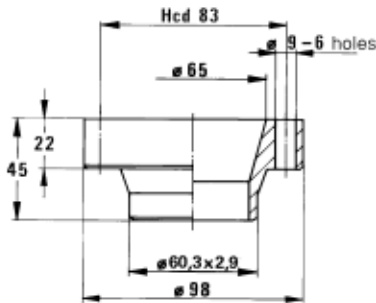
Pressure seal with chromium-plated brass top member can be supplied to special order in stainless steel (this increases the nominal pressure to 40 bar).

Clamping Ring of Hastelloy C or Titanium (PN 25)

Pressure seal without bottom member is available with a clamping ring of Hastelloy C or titanium, making it suitable for corrosive media that attack stainless steel.

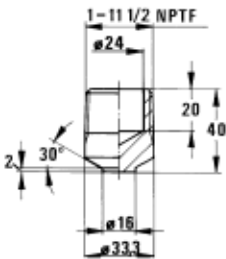
Stainless Steel Flange (PN 40)

The threaded flange on the pressure seal is available in stainless steel equivalent to AISI 316.



3900-0

Coding
MWP10



3900-6

MWP10

Fig 5. Dimension Drawing, Welding Flange, PN 25 and Welding Connection PN 250

Accessories

Welding flange and welding connection PN 250.

Pressure seal without bottom member is also available with a welding flange PN 25 and a welding connection PN 250 made of stainless steel AISI 316. See fig 5.

The welding flange is supplied with screws, nuts and washers of acid-resistant stainless steel AISI 316.

For gas pressure measurement, a welding connection with dry seal threads (1-11 1/2 NPTF) should be provided.

Counter-Flanges

Fig 6 shows counter-flanges that are stocked by pipework wholesalers, for example.

Stainless Steel

Flange PN 10-40, DN 50/165 to SMS/DIN.

Flat gasket DN 50-107 to SMS/DIN.

Plastic: (PVC, PP etc)

Collar pipe PN 10, DN 50, with "not" sealing surface.

Seal: viton O-ring.

Loose flange PN 10, DN 50/165.

Note: for dangerous liquids that do not attack PVC, select a lower pressure glass, eg at 20°C - PN 6, at 40° - PN 2.5.

Extra Thin Diaphragm

If the measurement range is narrow and there are temperature fluctuations, it is advisable to use a pressure seal with an extra-thin diaphragm that reduces measuring errors - MWP10-5240-0/41-0 and MWP10-5242-4/43-4. These diaphragms should only be used for media with negligible corrosive action.

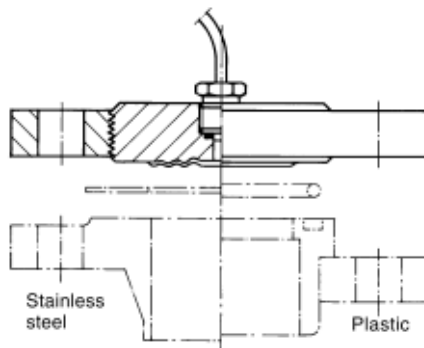


Fig 6. Counter-Flanges

General Technical Information

The PN 25, PN 40 and PN 250 pressure seals are designed to be connected to the system under measurement either directly or via tubing. See figs 1, 2, 3, and 4.

The PN 25 pressure seal is designed for connection to the medium via one of two types of bottom member, with a flange or a male connector. See fig 1.

The PN 40 pressure seal is designed for connection to the medium via a standard DN 50 threaded flange. See fig 2.

The PN 250 pressure seal is available with a sleeve-type connection with 1-11 1/2 NPT female threads, or with a 1/2 BSP male connector. See fig 3.

When fitting pressure seals PN 25 and PN 250 with male connector, the entire bottom member or connector can be removed without losing any of the liquid above the diaphragm; this is because the diaphragm is clamped to the top member. This feature makes it very much easier to fit the pressure seals, particularly when the pressure gauge is connected via tubing.

In the case of PN40, the DN 50 counter-flange can be removed without the risk of losing liquid.

Because of the weight of the liquid above the diaphragm, the vertical distance between the pressure seal and the instrument must be taken into account. This is particularly important for low measuring ranges and large vertical distances.

When the temperature of the liquid above the diaphragm fluctuates because of changes in either the medium temperature or the ambient temperature, its volume increases or decreases, causing variations in the load on the membrane. This introduces a minor error, but if the temperature fluctuation is slight and the pressure gauge is connected to the pressure seal directly or via a short length of tubing, this error is so small that it can normally be disregarded.

See instruction MWP10 iGB.

Ordering Example

Coding	MWP10-5343-4
Pressure class	PN25
Connections*	
to meter	4m of tubing
to medium	1/2 bsp

* state any height difference between pressure gauge and pressure seal.

Pockets for Thermometers (Thermowells)

Spare or alternative pockets can be ordered separately using the codes listed on the table below.



Size	Material	L=50mm	L=100mm	L=150mm
Interference fit F x 1/2" BSP M	Brass	39/097/0	39/098/0	-
Interference fit F x 1/2" BSP M	Stainless Steel	39/095/0	39/096/0	-
3/8" BSP F x 1/2" BSP M	Brass	39/121/0	39/122/0	39/123/0
3/8" BSP F x 1/2" BSP M	Stainless Steel	39/111/0	39/112/0	39/113/0
3/8" BSP F x 1/2" BSP M with 50mm Lagging Extension	Brass	39/160/0	39/161/0	-
3/8" BSP F x 1/2" BSP M with 50mm Lagging Extension	Stainless Steel	39/170/0	39/171/0	-
3/8" BSP F x 3/4" BSP M	Brass	39/124/0	39/125/0	39/120/0
3/8" BSP F x 3/4" BSP M	Stainless Steel	39/114/0	39/115/0	39/116/0
1/2" BSP F x 1/2" BSP M	Stainless Steel	39/145/0	39/146/0	39/163/0

Brass Pressure Gauge to Test Plug Adaptor

For use with suitable pressure gauges and test plugs.
See 50mm Pressure Gauges on page 6 and 63mm Pressure Gauges on pages 7 and 8 and Thermometers on page 28 .

Size	Product Number
1/4" BSPT F Pressure Gauge Adaptor	39/309/0



Brass Self Sealing Test Plugs

Test plugs are used to gain access to the fluid within pipework in order to check its temperature and/or pressure. Suitable for low temperature hot water, chilled water and low temperature steam. Not recommended for medium or high temperature hot water.

Standard Specifications

Body:	Brass
Cap:	Brass
Window:	Plastic
Retaining Knob:	NBR Rubber
Max. Pressure:	35 bar
Temp. Range:	-8 to +135°C

Size	Product Number
1/4" BSPT M	39/308/0
1/2" BSPT M	39/312/0
1/4" BSPT M with 50mm Lagging Extension	39/313/0
1/2" BSP M with 50mm Lagging Extension	39/314/0



Brannan



V-Line Thermometers

Brannan V-Line Thermometers are primarily used in industrial applications such as Marine and Heating markets. The durability and vibration-resistance of the product lends itself to these more robust end uses. The temperature scales of the product vary from -30°C to 600°C .

We offer a broad selection of temperature ranges in both straight and 90° angled cases in 110mm, 150mm and 200mm lengths. Additionally, we have a range of 135° , obtuse angled cases in 150mm and 200mm lengths.

Case materials are Polypropylene (up to 120°C) and Aluminium for higher ranges. Lens glass offers a clear view of the scale, in both Blue Spirit (up to 300°C) and ~~Mercury fillings~~. Pockets are available in Brass and Stainless Steel, with standard connections as $1/2$ " BSP, with other threads available on request. The straight cased V-Lines are fitted with screw-in pockets as standard. Angled V-Lines are supplied with push-on pockets as standard and tightened with grub screws.

Where possible, please order in multiples of ten.

The tables on the following pages identify the more popular product codes.

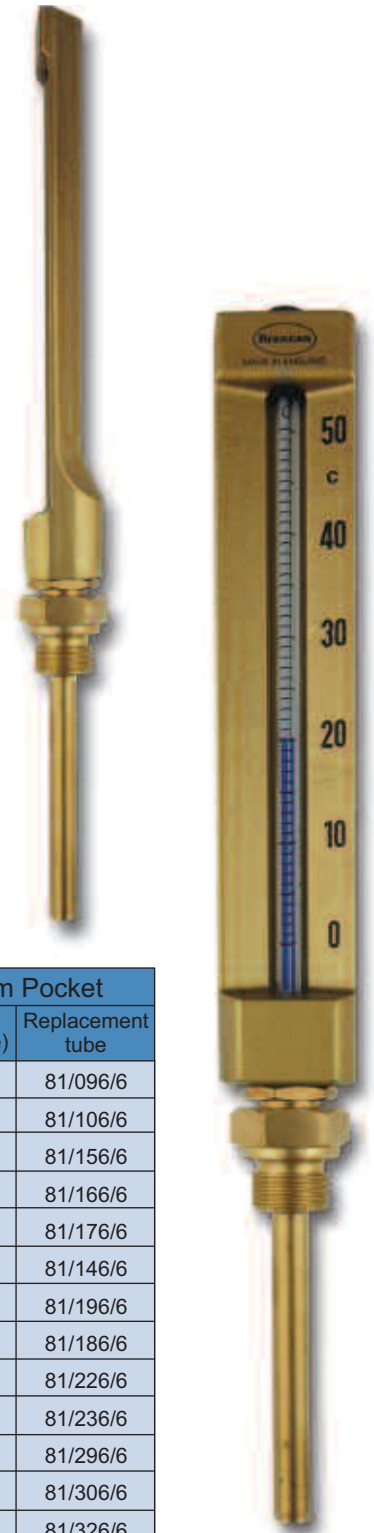


Standard Specifications

Case Size:	200mm Straight
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges > 400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



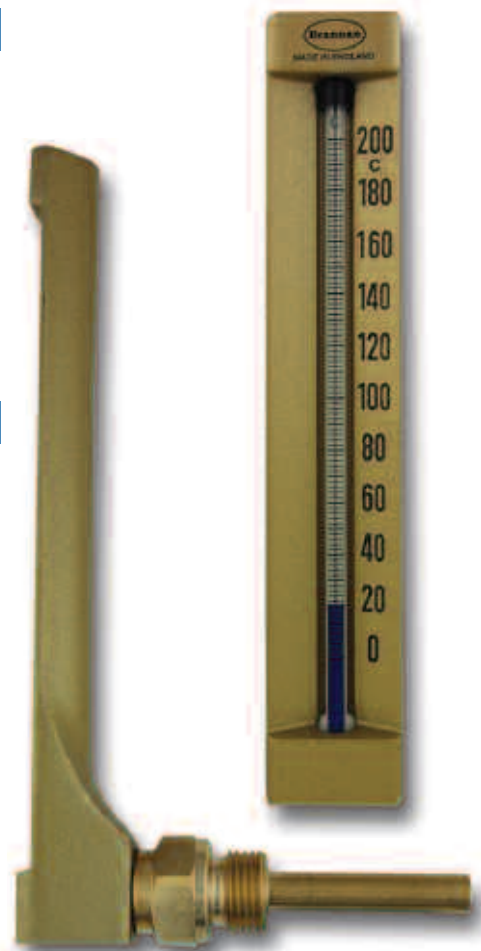
Range	Divisions	63mm Pocket		100mm Pocket		160mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	81/093/0	81/093/6	81/095/0	81/095/6	81/096/0	81/096/6
-30 to +50°C&F	1C	81/103/0	81/103/6	81/105/0	81/105/6	81/106/0	81/106/6
0 to +50°C	1C	81/153/0	81/153/6	81/155/0	81/155/6	81/156/0	81/156/6
0 to +50°C&F	1C	81/163/0	81/163/6	81/165/0	81/165/6	81/166/0	81/166/6
0 to +60°C	1C	81/173/0	81/173/6	81/175/0	81/175/6	81/176/0	81/176/6
0 to +60°C&F	1C	81/143/0	81/143/6	81/145/0	81/145/6	81/146/0	81/146/6
0 to +100°C	1C	81/193/0	81/193/6	81/195/0	81/195/6	81/196/0	81/196/6
0 to +100°C&F	1C	81/183/0	81/183/6	81/185/0	81/185/6	81/186/0	81/186/6
0 to +120°C	1C	81/223/0	81/223/6	81/225/0	81/225/6	81/226/0	81/226/6
0 to +120°C&F	1C	81/233/0	81/233/6	81/235/0	81/235/6	81/236/0	81/236/6
0 to +160°C	2C	81/293/0	81/293/6	81/295/0	81/295/6	81/296/0	81/296/6
0 to +160°C&F	2C	81/303/0	81/303/6	81/305/0	81/305/6	81/306/0	81/306/6
0 to +200°C	2C	81/323/0	81/323/6	81/325/0	81/325/6	81/326/0	81/326/6
0 to +200°C&F	2C	81/333/0	81/333/6	81/335/0	81/335/6	81/336/0	81/336/6
0 to +300°C	2C	81/863/2	81/863/6	81/865/2	81/865/6	81/866/2	81/866/6
0 to +300°C&F	2C	81/873/2	81/873/6	81/875/2	81/875/6	81/876/2	81/876/6
0 to +400°C	5C	81/903/2	81/903/6	81/905/2	81/905/6	81/906/2	81/906/6
0 to +400°C&F	5C	81/883/2	81/883/6	81/885/2	81/885/6	81/886/2	81/886/6
0 to +500°C	5C	81/933/2	81/933/6	81/935/2	81/935/6	81/936/2	81/936/6
0 to +500°C&F	5C	81/943/2	81/943/6	81/945/2	81/945/6	81/946/2	81/946/6
0 to +600°C	5C	81/963/0	81/963/6	81/965/0	81/965/6	81/966/0	81/966/6
0 to +600°C&F	5C	81/973/0	81/973/6	81/975/0	81/975/6	81/976/0	81/976/6

Standard Specifications

Case Size:	200mm 90° Angle
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges > 400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



Range	Divisions	63mm Pocket		100mm Pocket		160mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	82/093/0	82/093/6	82/095/0	82/095/6	82/096/0	82/096/6
-30 to +50°C&F	1C	82/103/0	82/103/6	82/105/0	82/105/6	82/106/0	82/106/6
0 to +50°C	1C	82/153/0	82/153/6	82/155/0	82/155/0	82/156/0	82/156/6
0 to +50°C&F	1C	82/163/0	82/163/6	82/165/0	82/165/0	82/166/0	82/166/6
0 to +60°C	1C	82/173/0	82/173/6	82/175/0	82/175/0	82/176/0	82/176/6
0 to +60°C&F	1C	82/143/0	82/143/6	82/145/0	82/145/0	82/146/0	82/146/6
0 to +100°C	1C	82/193/0	82/193/6	82/195/0	82/195/6	82/196/0	82/196/6
0 to +100°C&F	1C	82/183/0	82/183/6	82/185/0	82/185/6	82/186/0	82/186/6
0 to +120°C	1C	82/223/0	82/223/6	82/225/0	82/225/6	82/226/0	82/226/6
0 to +120°C&F	1C	82/233/0	82/233/6	82/235/0	82/235/6	82/236/0	82/236/6
0 to +160°C	2C	82/293/0	82/293/6	82/295/0	82/295/6	82/296/0	82/296/6
0 to +160°C&F	2C	82/303/0	82/303/6	82/305/0	82/305/6	82/306/0	82/306/6
0 to +200°C	2C	82/323/0	82/323/6	82/325/0	82/325/6	82/326/0	82/326/6
0 to +200°C&F	2C	82/333/0	82/333/6	82/335/0	82/335/6	82/336/0	82/336/6
0 to +300°C	2C	82/863/2	82/863/6	82/865/2	82/865/6	82/866/2	82/866/6
0 to +300°C&F	2C	82/873/2	82/873/6	82/875/2	82/875/6	82/876/2	82/876/6
0 to +400°C	5C	82/903/2	82/903/6	82/905/2	82/905/6	82/906/2	82/906/6
0 to +400°C&F	5C	82/883/2	82/883/6	82/885/2	82/885/6	82/886/2	82/886/6
0 to +500°C	5C	82/933/2	82/933/6	82/935/2	82/935/6	82/936/2	82/936/6
0 to +500°C&F	5C	82/943/2	82/943/6	82/945/2	82/945/6	82/946/2	82/946/6
0 to +600°C	5C	82/963/2	82/963/6	82/965/2	82/965/6	82/966/2	82/966/6
0 to +600°C&F	5C	82/973/2	82/973/6	82/975/2	82/975/6	82/976/2	82/976/6

Standard Specifications

Case Size:	200mm 135° Angle
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges > 400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



Range	Divisions	63mm Pocket		100mm Pocket		160mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	83/093/0	83/093/6	83/095/0	83/095/6	83/096/0	83/096/0
-30 to +50°C&F	1C	83/103/0	83/103/6	83/105/0	83/105/6	83/106/0	83/106/0
0 to +50°C	1C	83/153/0	83/153/6	-	-	-	-
0 to +50°C&F	1C	83/163/0	83/163/6	-	-	-	-
0 to +100°C	1C	83/193/0	83/193/6	-	-	-	-
0 to +100°C&F	1C	83/183/0	83/183/6	-	-	-	-
0 to +120°C	1C	83/223/0	83/223/6	83/225/0	83/225/6	83/226/0	83/226/6
0 to +120°C&F	1C	83/233/0	83/233/6	83/235/0	83/235/6	83/236/0	83/236/6
0 to +160°C	2C	83/293/0	83/293/6	83/295/0	83/295/6	83/296/0	83/296/6
0 to +160°C&F	2C	83/303/0	83/303/6	83/305/0	83/305/6	83/306/0	83/306/6
0 to +200°C	2C	83/323/0	83/323/6	83/325/0	83/325/6	83/326/0	83/326/6
0 to +200°C&F	2C	83/333/0	83/333/6	83/335/0	83/335/6	83/336/0	83/336/6
0 to +300°C	2C	83/863/2	83/863/6	-	-	-	-
0 to +300°C&F	2C	83/873/2	83/873/6	-	-	-	-
0 to +400°C	5C	83/903/2	83/903/6	-	-	-	-
0 to +400°C&F	5C	83/883/2	83/883/6	-	-	-	-
0 to +500°C	5C	83/933/2	83/933/6	-	-	-	-
0 to +500°C&F	5C	83/943/2	83/943/6	-	-	-	-
0 to +600°C	5C	83/963/0	83/963/6	-	-	-	-
0 to +600°C&F	5C	83/973/0	83/973/6	-	-	-	-

Standard Specifications

Case Size:	150mm Straight
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges > 400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



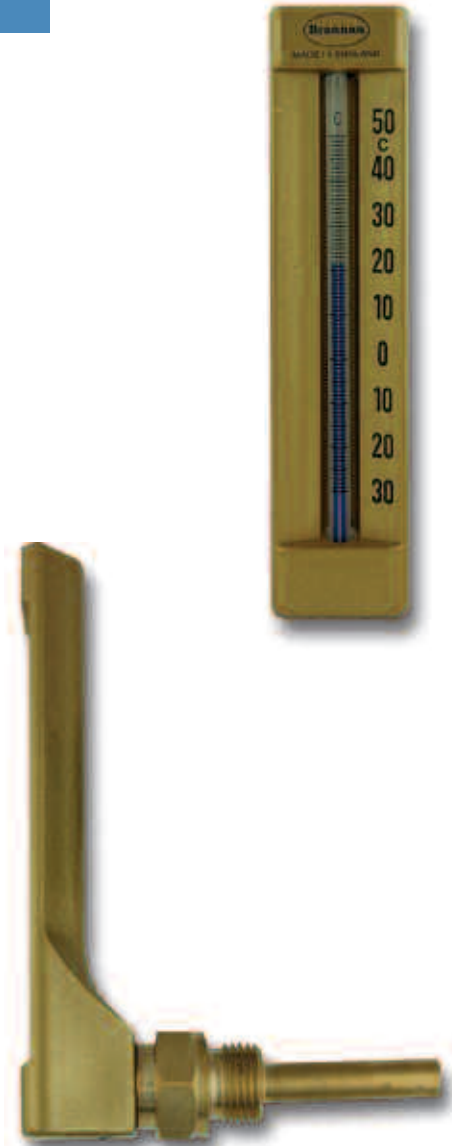
Range	Divisions	63mm Pocket		100mm Pocket		160mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	84/093/0	84/093/6	84/095/0	84/095/6	84/096/0	84/096/6
-30 to +50°C&F	1C	84/103/0	84/103/6	84/105/0	84/105/6	84/106/0	84/106/6
0 to +60°C	1C	84/173/0	84/173/6	84/175/0	84/175/6	84/176/0	84/176/6
0 to +60°C&F	1C	84/143/0	84/143/6	84/145/0	84/145/6	84/146/0	84/146/6
0 to +100°C	2C	84/193/0	84/193/6	84/195/0	84/195/6	84/196/0	84/196/6
0 to +100°C&F	2C	84/183/0	84/183/6	84/185/0	84/185/6	84/186/0	84/186/6
0 to +120°C	2C	84/223/0	84/223/6	84/225/0	84/225/6	84/226/0	84/226/6
0 to +120°C&F	2C	84/233/0	84/233/6	84/235/0	84/235/6	84/236/0	84/236/6
0 to +160°C	2C	84/293/0	84/293/6	84/295/0	84/295/6	84/296/0	84/296/6
0 to +160°C&F	2C	84/303/0	84/303/6	84/305/0	84/305/6	84/306/0	84/306/6
0 to +200°C	2C	84/323/0	84/323/6	84/325/0	84/325/6	84/326/0	84/326/6
0 to +200°C&F	2C	84/333/0	84/333/6	84/335/0	84/335/6	84/336/0	84/336/6

Standard Specifications

Case Size:	150mm 90° Angle
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges > 400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



Range	Divisions	63mm Pocket		100mm Pocket		160mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	85/093/0	85/093/6	85/095/0	85/095/6	85/096/0	85/096/6
-30 to +50°C&F	1C	85/103/0	85/103/6	85/105/0	85/105/6	85/106/0	85/106/6
0 to +60°C	1C	85/173/0	85/173/6	85/175/0	85/175/6	85/176/0	85/176/0
0 to +60°C&F	1C	85/143/0	85/143/6	85/145/0	85/145/6	85/146/0	85/146/0
0 to +100°C	2C	85/193/0	85/193/6	85/195/0	85/195/6	85/196/0	85/196/6
0 to +100°C&F	2C	85/183/0	85/183/6	85/185/0	85/185/6	85/186/0	85/186/6
0 to +120°C	2C	85/223/0	85/223/6	85/225/0	85/225/6	85/226/0	85/226/6
0 to +120°C&F	2C	85/233/0	85/233/6	85/235/0	85/235/6	85/236/0	85/236/6
0 to +160°C	2C	85/293/0	85/293/6	85/295/0	85/295/6	85/296/0	85/296/6
0 to +160°C&F	2C	85/303/0	85/303/6	85/305/0	85/305/6	85/306/0	85/306/6
0 to +200°C	2C	85/323/0	85/323/6	85/325/0	85/325/6	85/326/0	85/326/6
0 to +200°C&F	2C	85/333/0	85/333/6	85/335/0	85/335/6	85/336/0	85/336/6

Standard Specifications

Case Size:	150mm 135° Angle
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges > 400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



Range	Divisions	63mm Pocket		100mm Pocket		160mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	86/093/0	86/093/6	86/095/0	86/095/6	86/096/0	86/096/6
-30 to +50°C&F	1C	86/103/0	86/103/6	86/105/0	86/105/6	86/106/0	86/106/6
0 to +120°C	2C	86/223/0	86/223/6	86/225/0	86/225/6	86/226/0	86/226/6
0 to +120°C&F	2C	86/233/0	86/233/6	86/235/0	86/235/6	86/236/0	86/236/6
0 to +160°C	2C	86/293/0	86/293/6	86/295/0	86/295/6	86/296/0	86/296/6
0 to +160°C&F	2C	86/303/0	86/303/6	86/305/0	86/305/6	86/306/0	86/306/6
0 to +200°C	2C	86/323/0	86/323/6	86/325/0	86/325/6	86/326/0	86/326/6
0 to +200°C&F	2C	86/333/0	86/333/6	86/335/0	86/335/6	86/336/0	86/336/6

Standard Specifications

Case Size:	110mm Straight
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges >400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



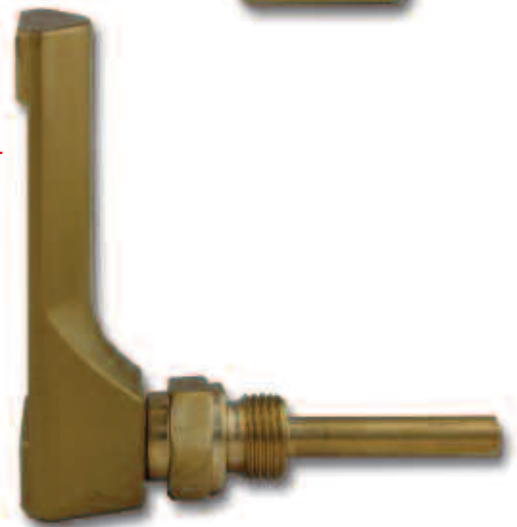
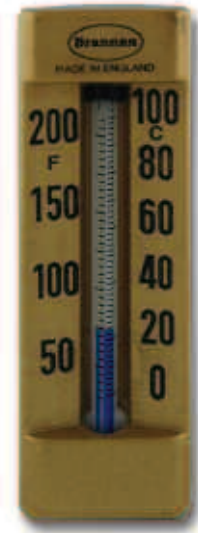
Range	Divisions	30mm Pocket		40mm Pocket		63mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	87/090/0	87/090/6	87/091/0	87/091/6	87/093/0	87/093/6
-30 to +50°C&F	1C	87/100/0	87/100/6	87/101/0	87/101/6	87/103/0	87/103/6
0 to +60°C	1C	87/170/0	87/170/6	87/171/0	87/171/6	87/173/0	87/173/6
0 to +60°C&F	1C	87/140/0	87/140/6	87/141/0	87/141/6	87/143/0	87/143/6
0 to +100°C	2C	87/190/0	87/190/6	87/191/0	87/191/6	87/193/0	87/193/6
0 to +100°C&F	2C	87/180/0	87/180/6	87/181/0	87/181/6	87/183/0	87/183/6
0 to +120°C	2C	87/220/0	87/220/6	87/221/0	87/221/6	87/223/0	87/223/6
0 to +120°C&F	2C	87/230/0	87/230/6	87/231/0	87/231/6	87/233/0	87/233/6
Range	Divisions	100mm Pocket		160mm Pocket			
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube		
-30 to +50°C	1C	87/095/0	87/095/6	87/096/0	87/096/6		
-30 to +50°C&F	1C	87/105/0	87/105/6	87/106/0	87/106/6		
0 to +60°C	1C	87/175/0	87/175/6	87/176/0	87/176/6		
0 to +60°C&F	1C	87/145/0	87/145/6	87/146/0	87/146/6		
0 to +100°C	2C	87/195/0	87/195/6	87/196/0	87/196/6		
0 to +100°C&F	2C	87/185/0	87/185/6	87/186/0	87/186/6		
0 to +120°C	2C	87/225/0	87/225/6	87/226/0	87/226/6		
0 to +120°C&F	2C	87/235/0	87/235/6	87/236/0	87/236/6		

Standard Specifications

Case Size:	110mm 90° Angle
Case Material:	< 120°C: Polypropylene > 160°C: Painted Aluminium
Glass Thermometer Filling:	Ranges up to 300°C: Blue Spirit Ranges > 400°C: Mercury
Connection:	1/2" BSP (27mm AF);
Pocket Material:	< 200°C: Brass > 300°C: Stainless Steel

Options

Stem Lengths:	Other stem lengths available on request
Pockets:	NPT pockets available on request Solid pockets available on request
Personalised/Branded Products:	Available subject to quantity
Inserts:	Prismatic (lens) glass
Accuracy:	1% of max scale value for Mercury. DIN 16195 for Spirit
Temperature Ranges:	Other ranges outside our standards may be available upon request, subject to quantity.



Range	Divisions	30mm Pocket		40mm Pocket		63mm Pocket	
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube
-30 to +50°C	1C	88/090/0	88/090/6	88/091/0	88/091/6	88/093/0	88/093/6
-30 to +50°C&F	1C	88/100/0	88/100/6	88/101/0	88/101/6	88/103/0	88/103/6
0 to +60°C	1C	88/170/0	88/170/6	88/171/0	88/171/6	88/173/0	88/173/6
0 to +60°C&F	1C	88/140/0	88/140/6	88/141/0	88/141/6	88/143/0	88/143/6
0 to +100°C	2C	88/190/0	88/190/6	88/191/0	88/191/6	88/193/0	88/193/6
0 to +100°C&F	2C	88/180/0	88/180/6	88/181/0	88/181/6	88/183/0	88/183/6
0 to +120°C	2C	88/220/0	88/220/6	88/221/0	88/221/6	88/223/0	88/223/6
0 to +120°C&F	2C	88/230/0	88/230/6	88/231/0	88/231/6	88/233/0	88/233/6
Range	Divisions	100mm Pocket		160mm Pocket			
		Complete (case & tube)	Replacement tube	Complete (case & tube)	Replacement tube		
-30 to +50°C	1C	88/095/0	88/095/6	88/096/0	88/096/6		
-30 to +50°C&F	1C	88/105/0	88/105/6	88/106/0	88/106/6		
0 to +60°C	1C	88/175/0	88/175/6	88/176/0	88/176/6		
0 to +60°C&F	1C	88/145/0	88/145/6	88/146/0	88/146/6		
0 to +100°C	2C	88/195/0	88/195/6	88/196/0	88/196/6		
0 to +100°C&F	2C	88/185/0	88/185/6	88/186/0	88/186/6		
0 to +120°C	2C	88/225/0	88/225/6	88/226/0	88/226/6		
0 to +120°C&F	2C	88/235/0	88/235/6	88/236/0	88/236/6		



PT 100 Sensors

Temperature sensors in standard or special design. Measuring element PT-100 or thermocouple.



Standard Specifications

- Application:** Temperature measurement of liquids and gases within:
- Chemical Process Engineering
 - Power Plant and Heat Distribution
 - Pulp and Paper
 - General Machinery Industry
 - Refrigeration and Food Industry
 - Water, Heating and Air Conditioning
- Temperature Ranges:** PT-100: -200°C to +600°C.
Single or double type.
Thermocouple: -200°C to +1700°C.
Single or double type.
- Calibration standard:** PT-100 class B acc. to DIN-IEC751 (standard).
Alt. Class A, 1/3- alt. 1/10- DIN acc. to DIN 43760.
Thermocouple type J, K or S acc. to IEC 584.



Accessories and Spares for Temperature Sensors Type PT-100 or Thermocouple Type

- Temperature transmitters:** Analogue and digital temperature transmitters for conversion of measured value to output signal 4-20mA.
Temperature range preset at the factory or by customer by means of configuration programme.
The transmitters are designed for mounting inside the sensor head.
- Measuring Inserts:** Temperature inserts in standard design.
For easy replacement during operation, or in special design to customers' requirement.
- Thermowells:** Screw-in types, flanged or weld-in pockets to be supplied in various materials such as stainless steel, Hastelloy, Inconell or Kanthal.
Thermowells can be supplied with material analysis certificates.



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37/446/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 10 Bar/PSI
37/447/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 16 Bar/PSI
37/448/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 25 Bar/PSI
37/449/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 40 Bar/PSI
37/460/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 60 Bar/PSI
37/461/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 100 Bar/PSI
37/462/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 160 Bar/PSI
37/463/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 250 Bar/PSI
37/464/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 400 Bar/PSI
37/466/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 400 Bar/PSI
37/469/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: -1 to 0 Bar/PSI
37/468/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: -1 to 3 Bar/PSI
37/467/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: -1 to 5 Bar/PSI
37/480/0	63mm Glycerine Filled Pressure Gauge Back Entry, Range: -1 to 9 Bar/PSI
37/481/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 60 Bar/PSI
37/482/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 100 Bar/PSI
37/483/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 160 Bar/PSI
37/484/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 250 Bar/PSI
37/486/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 400 Bar/PSI
37/489/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: -1 to 0 Bar/PSI
37/488/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: -1 to 3 Bar/PSI
37/487/0	63mm Glycerine Filled Pressure Gauge Bottom Entry, Range: -1 to 5 Bar/PSI
37/721/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 1 Bar/PSI
37/722/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 1.6 Bar/PSI
37/723/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 2.5 Bar/PSI
37/724/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 4 Bar/PSI
37/725/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 6 Bar/PSI
37/726/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 10 Bar/PSI
37/727/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 16 Bar/PSI
37/728/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 25 Bar/PSI
37/729/0	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 40 Bar/PSI
37/741/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 1 Bar/PSI
37/742/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 1.6 Bar/PSI
37/743/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 2.5 Bar/PSI
37/744/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 4 Bar/PSI
37/745/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 6 Bar/PSI
37/746/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 10 Bar/PSI
37/747/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 16 Bar/PSI
37/748/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 25 Bar/PSI
37/749/0	100mm Glycerine Filled Pressure Gauge Bottom Entry, Range: 0 to 40 Bar/PSI
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37/761/1	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 100 Bar/PSI
37/762/1	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 160 Bar/PSI
37/763/1	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 250 Bar/PSI
37/764/1	100mm Glycerine Filled Pressure Gauge Back Entry, Range: 0 to 400 Bar/PSI
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We have a comprehensive website which offers further information about our Company and the products listed in this catalogue. Please visit us at www.brannan.co.uk.

The screenshot displays the Brannan website interface. At the top, a yellow navigation bar contains links for Home, About, Sales and Service, Support, News, Educational Resources, Directions, and Contact. Below this is the Brannan logo and a background image of several gauges. A search bar is located on the left side. The main content area is divided into sections: Consumer (Healthcare, Kitchen, Garden, Home, Digital, Timers), Scientific (Laboratory, Education, Meteorology, Hydrometers, Environmental, Pharmaceutical, Digital, Timers), Industrial (HVAC, Process, Marine, Construction, Digital), and Calibration Services (Thermometers A to Z, Pressure Gauges A to Z, Hydrometers A to Z). A central text block titled 'Thermometers and Gauges' describes the company as leading European manufacturers of these instruments. Below the text is a collage of various products, including laboratory thermometers, industrial gauges, and handheld infrared thermometers.

Thermometers and Gauges

Brannan are leading European manufacturers of Thermometers, Pressure Gauges and associated products. Our thermometer and pressure gauge manufacturing plants in England and Sweden are highly mechanised offering high quality thermometers and gauges at internationally competitive prices. We can provide certification for thermometers, pressure gauges and hydrometers. We supply OEMs, Resellers and End-users in Retail, Scientific and Industrial markets worldwide.

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Located in Cleator Moor on the western fringe of the English Lake District, we manufacture and stock a wide range of glass thermometers and hydrometers along with associated electronic instruments.



Our Swedish factory is situated in Mullsjö, half way between Gothenburg and Stockholm. At this factory we manufacture dial thermometers and pressure gauges.



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