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I N S T R U M E N T S

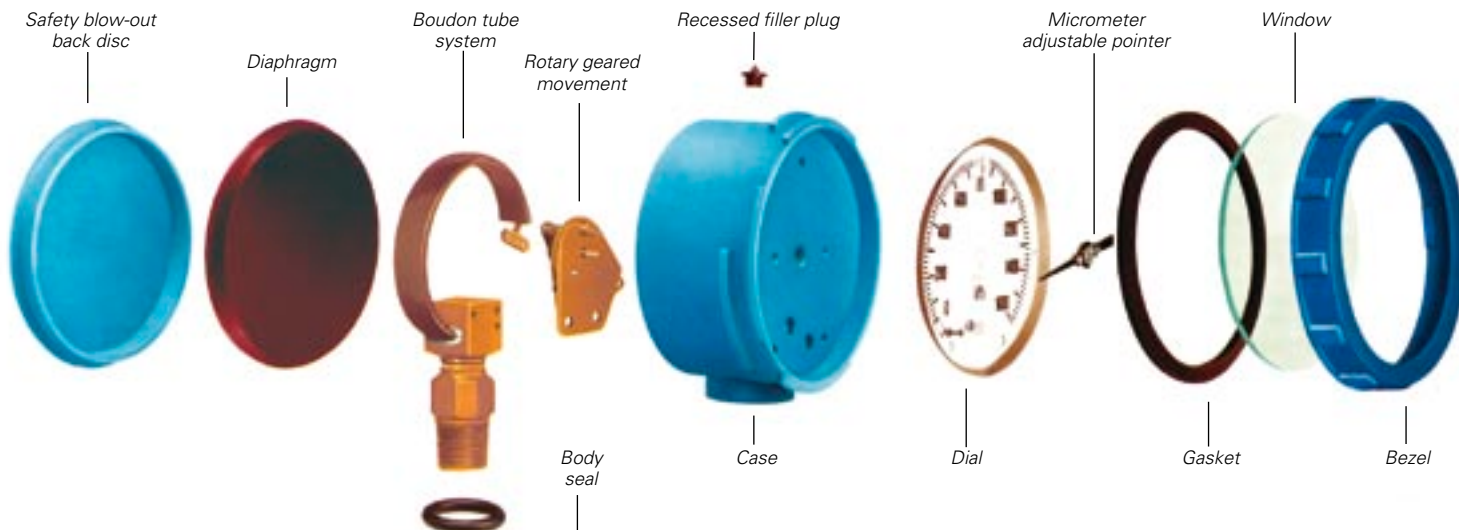
*Designer & Manufacturer of Pressure & Temperature Instruments
Chemical Seals & Accessories*





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Key Factors for Gauge Selection

Many factors should be evaluated including temperature, vibration, process conditions, pulsation and corrosion, but by carefully considering the 7 key factors outlined below, the chances of correct selection will increase significantly.

Process Medium

The process medium to which the gauge will be exposed is especially important when using a thin walled Bourdon tube because, if the wrong materials are selected, corrosion may occur which could lead to catastrophic failure. Materials which display the essential combination of properties (good spring memory, easy to form, easy to join, reasonably priced) are phosphor bronze, 316 stainless steel and Monel.

Where these materials can't satisfy the application, a diaphragm seal (gauge isolator) can be added to prevent the process media from contacting the Bourdon tube. This protects the gauge from corrosion attack, and also prevents viscous or dirty media from clogging the small bore Bourdon tube. The only limitation in using a diaphragm seal is that it typically degrades the accuracy of the pressure gauge by an additional 0,5 % of the full scale deviation.

Pressure Gauge Range

It is important to select a pressure range which accommodates all anticipated pressure swings, and which prevents excessive needle movement. It is recommended to confine normal operating pressure to 25 % - 75 % of scale. With fluctuating pressures (e.g. pulsation caused by a pump or compressor), the maximum operating pressure should be lower (50 % of the full range).

Gauges in severe service should be liquid filled and throttled to reduce Bourdon tube stresses. To minimise sensing element stress and to extend the life of the gauge use internal throttle screws, pulsation dampeners, pressure snubbers, gauge savers or diaphragm seals.

The Environment

Temperature changes affect the elastic modulus of the Bourdon tube to indicate higher pressure than actual as temperature increases, (lower as temperature decreases), except if made with expensive constant modulus materials.

In a liquid filled gauge with an uncompensating case, a temperature increase of as little as 10° C results in internal case pressure build up which causes a downscale pointer shift. An upscale pointer shift can result from a temperature drop of 10° C or more. This potential error most often occurs in pressure ranges of 600 kPa or less. In gauges with true case compensation, temperature error from internal case pressure build-up is negligible.

Where ambient conditions are corrosive or contain a large number of particles, specify hermetically sealed and / or liquid filled pressure gauges to prevent foreign elements from entering the case.

Vibration can cause wear to the gears of the rotary movement and can make it difficult to accurately read pressure off an oscillating pointer. Filling a gauge with dampening fluid, such as glycerine, helps prevent these problems.

Accuracy

Accuracy is the conformity of a pressure gauge reading to an accepted standard (e.g. deadweight tester). Inaccuracy is the difference (error) between the true value and the indication, expressed as a percent of the span. It includes the combined errors of method, observer, apparatus and environment. Total accuracy error includes hysteresis and repeatability errors. Accuracy is not a percentage of the gauge reading - for mechanical pressure gauges, accuracy is a percentage of the full range, full scale or span of the gauge. Accurate to within the stated accuracy at 20 DC. Add or deduct 0,3 % for every 10 DC above or below the stated accuracy

Guidelines are:

Test Gauges (0,25 % up to 25 MPa, above 25 MPa up to 100 MPa. 0,3 %);
Critical Processes (0,50 %); General Industry Processes (1,0 %);
Less Critical Commercial Uses (2,0 %).

Dial Size

Sizes range from 40 mm to 250 mm diameters, with the 63 mm, 100 mm and 150 mm being the most popular. The dial size is generally determined by the readability requirements (larger for remote reading and smaller where the gauge is close to the operator). More accurate pressure gauges generally have larger dials as more dial graduations are needed to read the higher degree of accuracy.

Connections

Factors to consider include gauge pressures, size and weight, space limitations, leak integrity and past experience. 150 mm and 100 mm process gauges usually have 1/2" NPT/BSP connections, especially when direct stem mounted and liquid filled. Smaller dial sizes generally have 1/4" or 1/8" connections.

Mountings

Pressure gauges may be:

- Direct stem mount bottom connection;
- Remote wall - surface mount bottom connection;
- Panel surface mount back connection;
- Panel hole U clamp (yoke) flush mount back connection;
- Panel hole front flange flush mount back connection.

Rhomberg Process Gauges

Liquid Fillable Process Gauges with Brass, Stainless Steel or Monel Wetted Parts

- PBB** - stainless steel case and bezel
- PBZ** - colour coded case and bezel
- PBX** - colour coded, solid front safety pattern case
- PBT** - turret case gauge
- PCB** - stainless steel case capsule gauge
- PBR** - aluminium case gauge
- CBC** - aluminium case simplex & duplex gauge
- BBR** - aluminium case butterfly gauge
- MBB** - stainless steel case master gauge
- HGZ** - stainless steel case homogeniser gauge
- DPG** - digital pressure gauge



Features common to all Rhomberg Process Gauges

Window

Acrylic as standard (safety glass optional)

Seal

Nitrile (natural rubber for silicon fills)

Dampening Fluid

Glycerine, silicon or halocarbon (for oxidising services)

Socket and Bourdon Tube

Code:	SS	BB	MM
Socket:	316L/Ti	brass	Monel 400
Bourdon tube:	316Ti	bronze	K-Monel

Movement

Code:	SS/MM	BB
	300 series stainless steel	brass/nickel silver
	high impact movement	high impact movement

Dial

Aluminium, black lettering on white background

Pointer

Black aluminium, micrometer adjustable

Connections

1/4" + 3/8" + 1/2" (NPT - BSP)
Other connections available on request

Maximum Range

Vacuum through 100 MPa
Higher ranges available on request

Snubbing

Snubbing / throttle screws available in brass and stainless steel

Accuracy

100 mm & 150 mm	1.0 % FSD (SABS 1062)
63 mm	1.6 % FSD

Temperature Range

Ambient temperature -25° C to 60° C
Note: minimum temperature should not be less or equal to the freezing point of the process fluid.
Higher temperatures can be accommodated with heat reducing devices.

Approvals

SABS 1062 (1985) for 100 mm and 150 mm

Feature Highlights

- Adjustable micrometer pointer as standard

- Field liquid fillable

- Limited one year warranty on materials and workmanship

- Threaded for retro-fit snubber / throttle screw

- Fully repairable

- Retro-fit electrical contacts

- SABS 1062 (1985) for 100 mm and 150 mm

PBB - Stainless Steel Case and Bezel

Welded Construction with Back Blow Out Disc

This gauge is ideally suited to most industrial applications where high accuracy and durability is required.

Gauges are available with either brass / bronze internals, all stainless steel internals, or Monel Bourdon tube and socket with stainless steel movement.

All gauges are retro-fillable and totally repairable. A number of optional accessories are available either as factory fitted or retro-fitted. A Rhomberg vibration free movement (VFM) can be fitted where filling material is not allowed or excessive vibration is present.

(Conforming to military specification) the high impact movement protects against entanglement of the hairspring in the pinion and segment - the most common cause of gauge failure.

Case

Brush finish 304 stainless steel

Bezel

Brush finish 304 stainless steel

Blow-Out Disc

Material: TPV (optional)

Configuration

A B D E F U V

Mountings

Direct, surface or panel mounting

Nominal Sizes

mm	63	100	150	250
Imp	2 1/2"	4"	6"	10"

Nett Mass

	63 mm	100 mm	150 mm	250 mm
Dry	155 g	556 g	850 g	1789 g
Filled	230 g	816 g	1 750 g	2690 g

Pointer

Black aluminium, micrometer adjustable

Accuracy

1 % FSD

(Optional 0.5 % FSD)



Nominal size

Dimensions (X is panel cut-out diameter)

Metric	B	C	C1	C2	D	E	E1	E2	E3	G	H	S	L	L1	N	O	X
Imperial																	
63 mm	22,70	85,00	42,50	36,00	69,60	32,50	35,70	27,20	22,00	62,00	60,00	66,50	9,00	13,00	27,00	3,50	63,50
2 1/2"	0,89	3,35	1,67	1,42	2,74	1,28	1,41	1,07	0,87	2,44	2,36	2,62	0,35	0,51	1,06	0,14	2,50
100 mm	36,85	133,00	66,50	56,50	108,00	47,65	57,50	38,55	29,70	99,00	92,60	106,00	16,50	21,90	38,00	4,80	101,00
4"	1,54	5,24	2,62	2,22	4,43	2,17	2,26	1,64	1,17	3,90	3,39	4,17	0,74	0,86	1,49	0,19	3,98
150 mm	29,00	196,00	98,00	86,00	155,00	56,00	59,00	32,00	28,00	140,00	108,00	146,00	17,00	18,00	38,00	5,80	142,00
6"	1,14	7,72	3,85	3,38	6,10	2,20	2,32	1,26	1,10	5,51	4,25	5,75	0,67	0,71	1,49	0,23	5,60
250 mm	34	285	N/A	N/A	250	56	58	36	51	248	156	N/A	19	22	41	N/A	253
9.8"	1.3	11.2	N/A	N/A	9.8	2.2	2.3	1.4	2.0	9.8	6.1	N/A	0.7	0.9	1.6	N/A	10.0



PBZ - Colour Coded Case and Bezel

The PBZ gauge has the same features and internals as the PBB stainless steel gauge, but offers the additional benefits of colour codification and economical pricing.

All gauges are retro-fillable and totally repairable. A number of optional accessories are available either as factory fitted or retro-fitted. A Rhomberg vibration free movement (VFM) can be fitted where filling material is not allowed or excessive vibration is present.

The innovative polybutyleneterephthalate (P.B.T.) case is injection moulded to form a reinforced, high impact, UV resistant case which will not fade in colour or break down in most corrosive environments.

Safety is always a key issue in industrial applications. The use of either international or in-house colour codification rules to identify gauge materials, range, process fluids and location can help to improve plant management and avoid unsafe conditions.

Case

P.B.T. Polybutyleneterephthalate - colour coded

Bezel

P.B.T. Polybutyleneterephthalate - colour coded

Blow-Out Disc

Top blow out (compensating optional)

Configuration

A B

Mountings

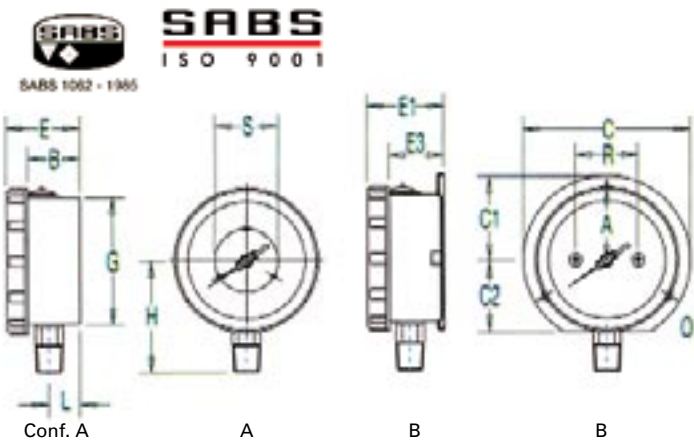
Direct, surface or panel mounting

Nominal Sizes

mm	80	100	150
Imp	3"	4"	6"

Pointer

Black aluminium, micrometer adjustable



Conf. A
Nominal size

Dimensions

Metric	A	B	C	C1	C2	E	E1	E3	G	H	L	N	O	R	S
100 mm	57,50	41,00	133,00	66,50	56,50	58,00	60,70	43,50	100,00	88,00	25,00	30,00	4,80	50,00	
4"	2,26	1,61	5,24	2,62	2,22	2,28	2,39	1,71	3,94	3,46	0,98	1,18	0,19	1,96	
150 mm	84,00	41,00	180,00			58,00	61,70	44,50	144,40	110,00	27,00	30,00	5,80		100,00
6"	3,31	1,61	7,09			2,28	2,43	1,75	5,69	4,33	1,06	1,18	0,23		3,94



Nett Mass

	100 mm	150 mm
Dry	456 g	737 g
Glycerine filled	706 g	1 593 g

Accuracy

1 % FSD
(Optional 0.5 % FSD)

PBX - Colour Coded Case & Bezel Safety Pattern Design

Ideal for industrial applications where high accuracy and durability is required and where the risk of Bourdon tube failure could compromise the safety of the operator.

All gauges are retro-fillable and totally repairable. A number of optional accessories are available either as factory fitted or retro-fitted. A Rhomberg vibration free movement (VFM) can be fitted where filling material is not allowed or excessive vibration is present.

The 54 mm dial size safety pattern design is especially suitable for welding and medical gas regulators. Solid front baffle and flimsy back blow-out for all bottom entry gauges to meet SABS and U.L. safety requirements as standard.

Case

P.B.T. Polybutyleneterephthalate - colour coded. Fully open back for maximum area to release pressure in case of major failure. Easy disassembly to allow access for calibration.

Bezel

P.B.T. Polybutyleneterephthalate - colour coded.

Back Plate

Fitting: non-screw fitting, locating by interface fit when used in conjunction with diaphragm

Back vented: to permit gauge "breathing"

Dual Purpose Diaphragm

Material: natural rubber

Operation: the diaphragm acts as a back plate seal and is stretched over the full diameter of the back plate, allowing for expansion of air or the filling medium in the gauge.

Adjustments

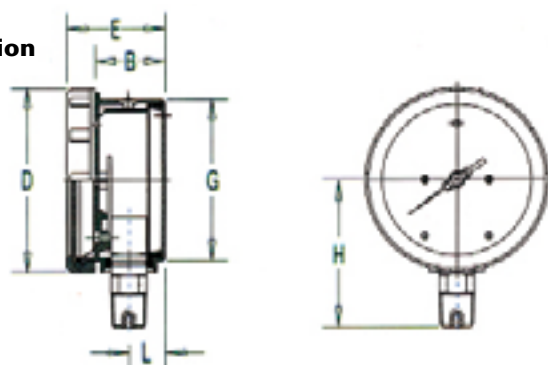
Either by removing bezel and window and using micro-adjust pointer or by removing the back plate and diaphragm and adjusting the movement.

Dampening Fluid

Glycerine (54 mm cannot be filled)

Configuration

A



Nominal size

Conf. A

A

Dimensions

Metric Imperial	B	D	E	G	H	L
54 mm 2"	22,50 0,89	59,00 2,32	34,50 1,36	55,00 2,16	51,00 2,01	11,50 0,45
100 mm 4"	45,00 1,77	114,40 4,50	62,00 2,44	100,00 3,94	91,50 3,60	22,50 0,89
150 mm 6"	45,00 1,77	163,00 6,41	62,00 2,44	145,00 5,70	117,50 4,62	22,50 0,89



54mm (2") PBX gauge option

Non-fillable, with polycarbonate screw-on window and 'fold-back' blow out safety back

Internals: brass

Connections: 1/8 + 1/4 (BSP - NPT - BSBT)

Maximum Range: 60 MPa

Accuracy: 1,6 % FSD

Mass: ± 99 g

Mountings

Direct mounting only



Nominal Sizes

	54	100	150
mm	54	100	150
Imp	2"	4"	6"

Pointer

Black aluminium, micrometer adjustable

Nett Mass

	100 mm	150 mm
Dry	±505 g	±800 g
Glycerine filled	±750 g	±1 500 g

Approvals

Explosion tests: in line with U.L. 404 which requires a controlled volume explosion bursting the Bourdon tube with the back plate dislodging in preference to the window

IP 65 tests: approved, SABS 1062: approved

Accuracy

1 % FSD (Optional 0.5 % FSD)

PBT - Turret Case Gauge

Features

Solid front, full aperture blow-out back
Liquid fillable (on lower entry option only)

Dial

Dished aluminium, black lettering on white background

Dial size

4 1/2"

Case material

Polypropylene compound resistant to the most aggressive chemicals, also ultra violet ray resistant

System materials

Stainless steel or monel

Ranges

-100 kPa to 250 Mpa stainless steel

Accuracy

1 % FSD (Optional 0.5 % FSD)

Options

Liquid filling for bottom entry only.
Alternately: Rhomberg vibration free movement (VFM)
media exposed surfaces to MR-01-75

Window

Acrylic as standard (safety glass optional)

Seal

Nitrile (natural rubber for silicon fills)

Dampening Fluid

Glycerine, silicon or halocarbon (for oxidising services)

Socket and Bourdon Tube

Code: SS MM
Socket: 316 L/Ti Monel 400
Bourdon tube: 316 Ti K-Monel

Movement

Code: SS/MM
300 series stainless steel high impact movement

Pointer

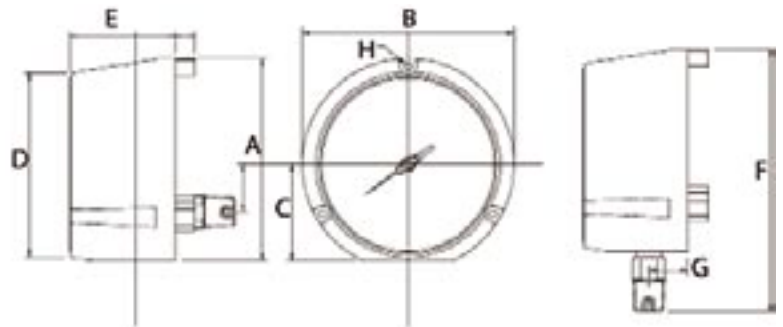
Black aluminium, micrometer adjustable

Connections

1/4" + 3/8" + 1/2" (NPT - BSP)
Bottom entry (fillable) and back entry (non-fillable)

Maximum Range

Vacuum through 250 MPa
Higher ranges available on request



Snubbing

Snubbing / throttle screws available in stainless steel

Temperature Range

Ambient temperature -25° C to +60° C
Note: minimum temperature should not be less or equal to the freezing point of the process fluid.
Higher temperatures can be accommodated with heat reducing devices.

Nominal size

Dimensions

Metric	A	B	C	D	E	F	G	H
Imperial								
mm	140	147.5	66.5	127	71	181	27	6.4



PCB - Capsule Gauges

All stainless steel pressure gauge suitable for measuring low pressures in dry, gaseous media.

Case and Bezel

PCB - brush finish 304 stainless steel case and bezel
 PCZ - P.B.T. colour coded case and bezel
 PCK - black mild steel, bezel integral with threaded window
 PCG - brush finish 304 stainless steel bezel and case (crimp on bezel)

Window

Acrylic (polycarbonate) as standard

Mountings

Direct, surface or panel mounting (63 mm stainless steel back entry only)

Nominal Sizes

	black mild steel case	stainless steel case			PBT case	
mm	68	63	100	150	100	150
Imp	2 1/2"	2 1/2"	4"	6"	4"	6"

Socket and Capsule

Code:	SS	BB
Socket:	316 L/Ti	brass
Capsule:	316 Ti	bronze

Movement

Code:	SS	BB
	300 series stainless steel	brass

Dial

Aluminium, black lettering on white background

Pointer

Black aluminium, micrometer adjustable

Zero Adjustment

Through window (remove window)

Connections

Threaded entry 1/4" + 1/2" (NPT - BSP)
 Other connections available on request

Scale Ranges

0-25 mbar to 0-1 000 mbar
 or equivalent other units of pressure or vacuum



Accuracy

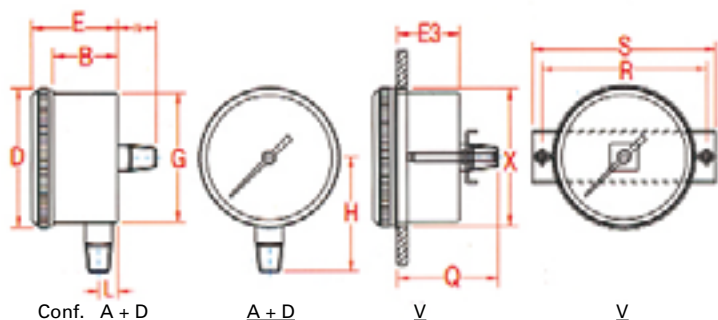
100 mm & 150 mm	1,6 % FSD
63 mm & 68 mm	1,6 % FSD

Temperature Range

Ambient temperature -25° C to +60° C
 Medium temperature to 100° C
 Note: minimum temperature should not be less or equal to the freezing point of the process fluid.
 Higher temperatures can be accommodated with heat reducing devices

Weather Protection

IP 54



Nominal size

Dimensions

Metric	B	D	E	E3	G	H	L	N	Q	R	S	X
Imperial												
68 mm	33,50	73,00	45,00	28,50	67,00	56,50	10,00	20,00	51,00	74,00	83,00	68,50
2 1/2"	1,32	2,87	1,77	1,12	2,64	2,22	0,39	0,79	2,00	2,91	3,27	2,70

Dimensions as per selected casing. PCB (as PBB) dimensions page 4; PCZ (as PBZ) dimensions page 5.



PBR - Aluminium Case Gauges

A uniquely designed gauge for the railways and boiler industry. Black epoxy coated aluminium case with bezel.

Case and Bezel

Aluminium, black epoxy coated

Back Plate

Removable back plate giving ready access to gauge internals

Window

Glass

Dial

Standard aluminium, white with black scale and numerals

Size

100 mm, 150 mm

Pressure ranges

-100 Kpa to 6 000 Kpa

Accuracy

1 % FSD



Mounting

Direct vertical or surface

Pointer

Black aluminium, micrometer adjustable

Thread sizes

3/8", 1/2" BSP or NPT

Over pressure limit

30 % for brief periods

Operating temperature

Ambient, -25° C to +60° C

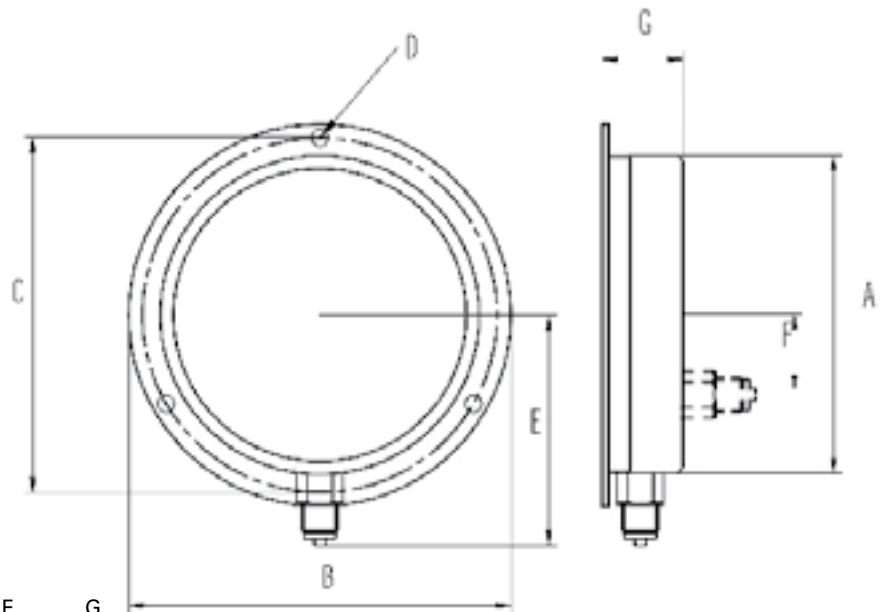
Temperature error

Accurate to within the stated accuracy at 20 DC. Add or deduct 0,3 % for every 10 DC above or below the stated accuracy

Operating Pressure

Steady pressures: Max 2/3 of scale value
Fluctuating pressures: Mid scale

Size	A	B	C	D	E	F	G
100 mm	102	127	114	Ø8	85	32	40
150 mm	151	179	167	Ø8	110	32	40



CBC - Aluminium Case Duplex Gauge

A uniquely designed gauge for the railway industry. Dual measurements on the dial with a pressure and vacuum range available in the same housing. Front flange designed with light slots for easier measurement reading.

Case

Aluminium, black epoxy coated
Twin tube - duplex
Single tube - simplex

Back Plate

Removable back plate giving ready access to gauge internals

Window

Glass

Dial

Standard aluminium, white with black scale and numerals or as per customer specification

Size

100 mm

Pressure ranges

-100 Kpa to 6 000 Kpa

Accuracy

1 % FSD

Mounting

Direct vertical or surface

Pointer

Vane, aluminium black, white or red

Thread sizes

$\frac{3}{8}$ " , $\frac{1}{2}$ " BSP or NPT

Over pressure limit

30 % for brief periods

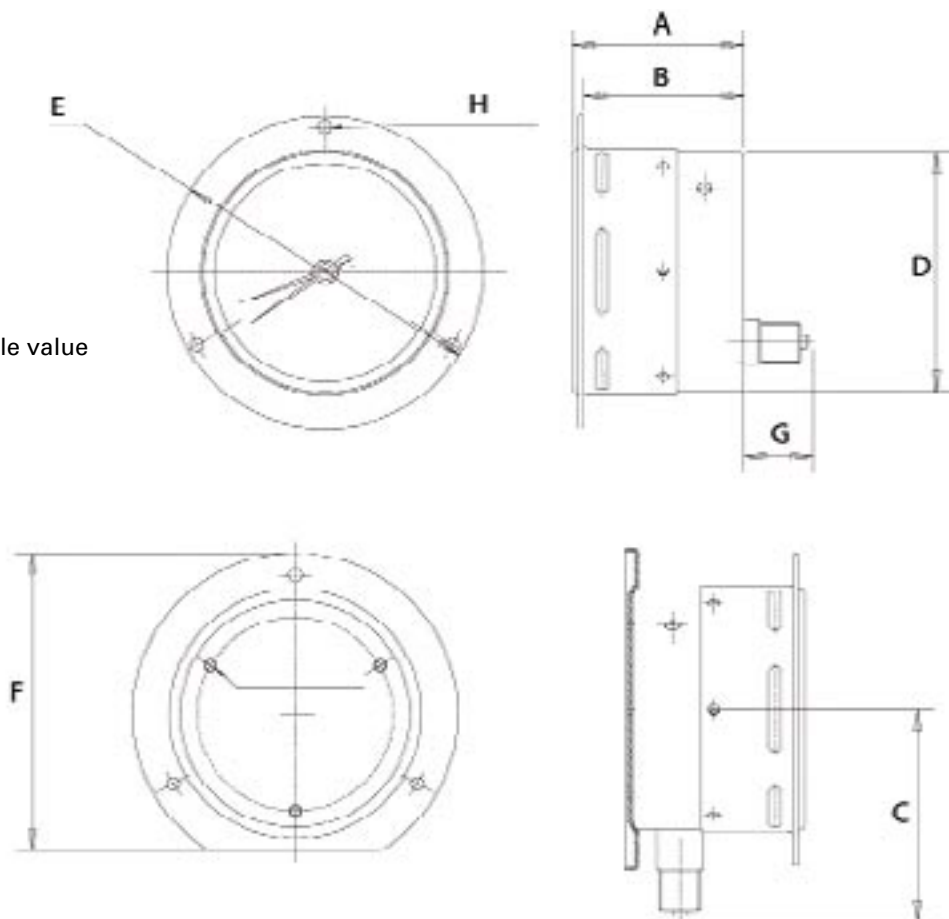
Operating temperature

Ambient, -25° C to +60° C

Operating Pressure

Steady pressures: Max $\frac{2}{3}$ of scale value

Fluctuating pressures: Mid scale



Size	A	B	C	D	E	F	G
100 mm	69.9	65.2	88.4	99.0	129.0	123.0	28.4

BBR - Butterfly Aluminium Case Duplex Gauge

This gauge is designed and manufactured for the diesel, steam and electrical and railways industry. Uniquely designed square front flange with light slots for easy measurement readings.

Case

Aluminium, black epoxy coated
Twin tube - duplex

Back Plate

Removable back plate giving ready access to gauge internals

Window

Glass

Dial

Standard aluminium, white with black scale and numerals

Size

150 mm

Pressure ranges

-100 Kpa to 6 000 Kpa

Accuracy

1 % FSD

Mounting

Direct vertical or surface

Pointer

Black aluminium, micrometer adjustable

Thread sizes

3/8", 1/2" BSP or NPT

Over pressure limit

30 % for brief periods

Operating temperature

Ambient, -25° C to +60° C

Temperature error

Accurate to within the stated accuracy at 20 DC
Add or deduct 0,3 % for every 10 DC above or below the stated accuracy

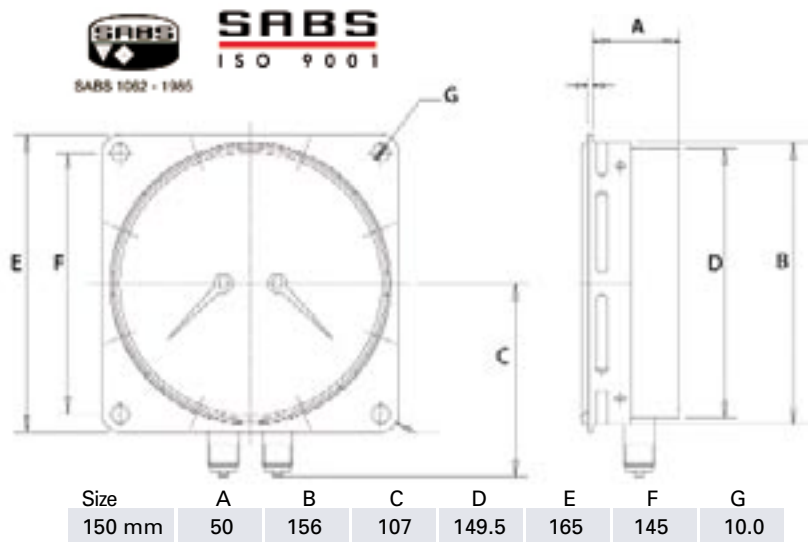
Operating Pressure

Steady pressures:

Max 2/3 of scale value

Fluctuating pressures:

Mid scale



MBB - Master Gauge

The MBB series is normally used in laboratories for instrument testing where accuracy and repeatability is priority.

Size

Is available in 100 mm (4") & 150 mm (6") dial size only

Case

Case is manufactured of 304 stainless steel

Dial

Mirror segment to eliminate parallax error

Pointer

Balanced Knife edge pointer. High precision jewel movement. For a brass system the tube material is beryllium copper. For a stainless system the tube material is 316L/Ti

Thread sizes

Thread connection can either be 316 stainless steel or brass. Bayonet bezel with a traceable A4 test certificate.

Accuracy

6" = 0.25 %, 4" = 0.5 % FSD

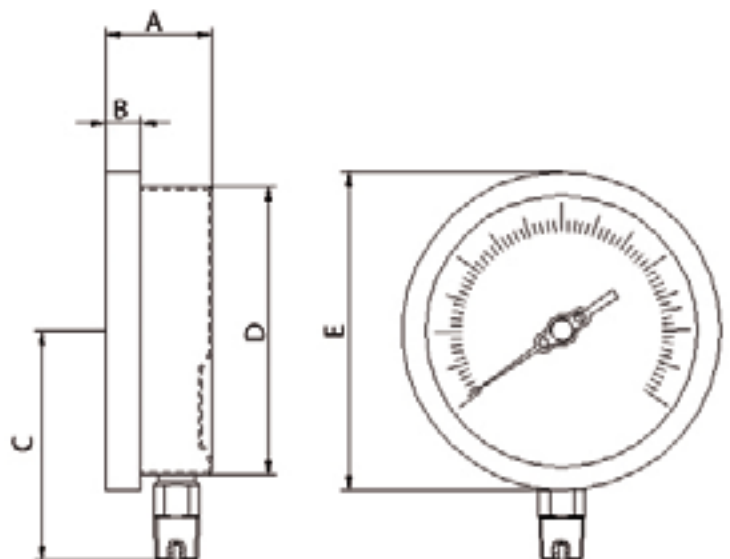
Thread

Thread connection is available in $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " NPT/BSP/BSPT/NPS

Range

Brass (-100 kPa to 70 Mpa), stainless steel (-100 kPa to 200 Mpa)

Please note that the unit is not fillable!



Size	A	B	C	D	E
150 mm (6")	52	17	109	140	155
100 mm (4")	47	11	90	99	107.5



DPG - Digital Pressure Gauge

It is designed for use on process plants where high accuracy is required.

Range

1 Bar to 600 Bar

Accuracy

0.25 % FS

Temp Range

-20 to 85° C compensated

Process Connection

¼" to ½" NPT/BSP/BSPT

Wetted material

316 SS / Ceramic / Viton

Case Material

PBT 15 % GF

Media Compatibility

Gases or liquids compatible with 316 SS/Ceramic/Viton

Ingress Protection

IP65 /NEMA 4

Display Type

LCD with backlight

Display Digits

Character height 5 digit alphanumeric 0.35"
4½ digit numeric 0.73"

Power

2 x "C" battery cells.
Optional: Loop powered

Optional:

4 — 20 mA output
Alarm outputs.



Keypad Functions

On/Off: Manually turns on & off.
Options are: Never, 5 min, 10 min, 20 min

Engineering Units:
Psi, cmHg, mmHg, kPa, mPa, Bar

Min / Max:
Displays/stores min/max values

Zero:
Clears min/max values or displays zeros

Backlight:
Any key pressed turns backlight on for a settable auto-off time

Enter:
Enters/escapes menu structure



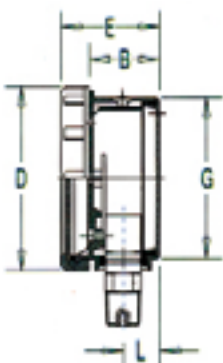
Nominal size

Dimensions

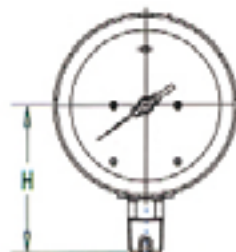
Metric	B	D	E	G	H	L
100 mm	45,00	114,40	62,00	100,00	91,50	22,50
4"	1,77	4,50	2,44	3,94	3,60	0,89

Configuration

A



Conf. A



HGZ - Homogeniser Gauge

It is designed specifically for hygienic environments and is mainly used in the food industry. In the dairy industry, milk is homogenised and the pressures vary from 40 to 70 Mpa.

Case

304 stainless steel

Configuration

bottom entry only

Internals

316 stainless steel

Dial size

100 mm (4"), 150 mm (6")

Connections

block or Dairy nut

Other connections available on request

Dial material

Standard aluminium, white with black scale numerals

Accuracy

1.6 % FSD

Pointer

Black aluminium, micrometer adjustable

Bezel

bayonet

Seal fill fluid

vegetable or mineral oil

Gauge housing fill

glycerine "Optional"

Wetted parts

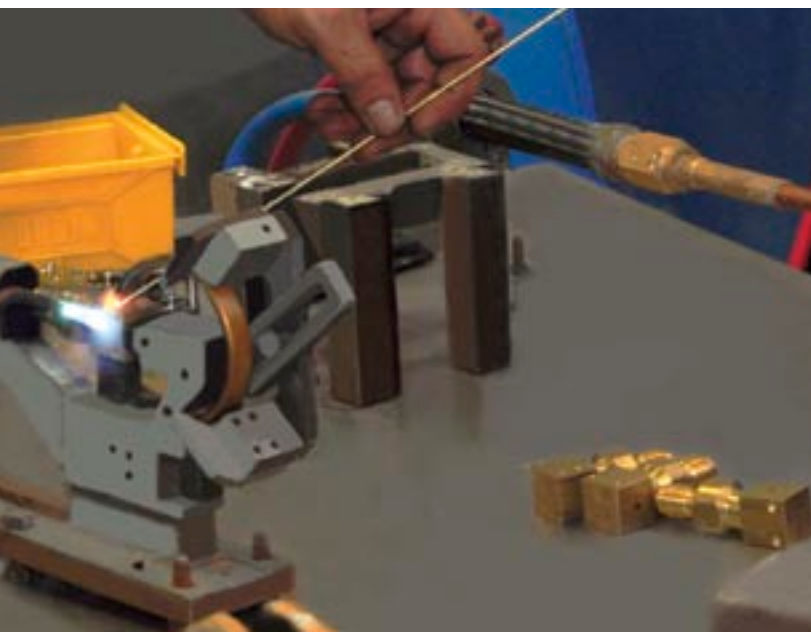
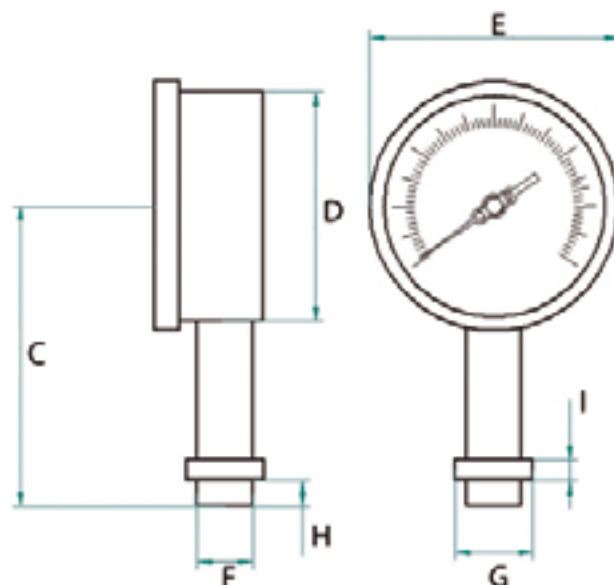
316 stainless steel



SABS
150 9001



Size	A	B	C	D	E	F	G	H	I
150 mm (6")	52	17	109	140	155	23.8	33.5	11	9
100 mm (4")	47	11	90	99	107.5	23.8	33.5	11	9



Rhomberg Utility Gauges



Liquid Filled & Dry Utility Gauges with Brass, Stainless Steel Wetted Parts

PBG - stainless steel case with crimped on bezel

PBJ - injection moulded plastic case with crimped on bezel

External zero adjustment screw

PBU - steel case and bezel (optional stainless steel case)

PBV - steel case with crimped on bezel

PBM - steel case with clip on window

PBN - injection moulded plastic case with clip on window

PBK - steel case with screw on window, internal zero adjustment screw

Features common to Rhomberg Utility Gauges

Window

Acrylic as standard (safety glass optional)

Seal

Nitrile (natural rubber for silicon fills)

Dampening Fluid

Glycerine, silicon or halocarbon (for oxidising services)

Socket and Bourdon Tube

Code:	SS	BB
Socket:	316 L/Ti	brass
Bourdon tube:	316 Ti	bronze

Movement

Code:	SS	BB
	300 series stainless steel	brass
	high impact movement	high impact movement

Dial

Aluminium, black lettering on white background

Pointer

Black aluminium

Connections

$\frac{1}{4}'' + \frac{3}{8}'' + \frac{1}{2}''$ (NPT - BSP)
Other connections available on request

Maximum Range

Vacuum through 25 MPa
Higher ranges available on request

Snubbing

Snubbing / push-in on brass and throttle screws on stainless steel

Accuracy

100 mm & 150 mm	1.6 % FSD (SABS 1062)
63 mm	1.6 % FSD

Temperature Range

Ambient temperature -25° C to +60° C
Note: minimum temperature should not be less or equal to the freezing point of the process fluid.
Higher temperatures can be accommodated with heat reducing devices.



PBG - Robust Liquid Filled - Equipment and Industrial Gauges

For heavy duty service where vibration or pulsation of medium would cause excessive wear on a dry gauge or where corrosive ambient conditions prevail. Specific application examples are hydraulic equipment, mining equipment and irrigation equipment.

Case

Case: 304 stainless steel
 Bezel: 304 stainless steel
 Window: extruded acrylic sheet
 Seal: neoprene
 Dampening fluid: glycerine, silicone (options available)

Configurations

A B D E F U V mm 52 63 100
 (52 mm available only D conf.) Imp 2" 2½" 4"

Internals

Socket: brass or stainless steel
 Bourdon tube: bronze or stainless steel
 Movement: brass or stainless steel
 Dial: aluminium, white with black numerals
 Pointer: aluminium, black anodised

Connections

1/8" + 1/4" (BSP - NPT - BSPT) Options 3/8" + 1/2"
 (bottom and centre-back)

Maximum Range

60 MPa (brass) 100 Mpa (SS)

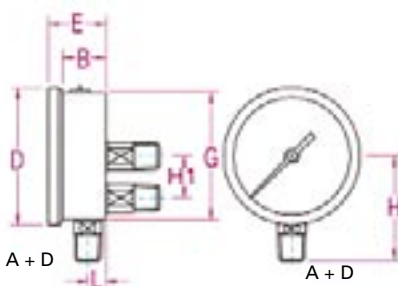
Accuracy

1,6 % FSD

Temperature Range

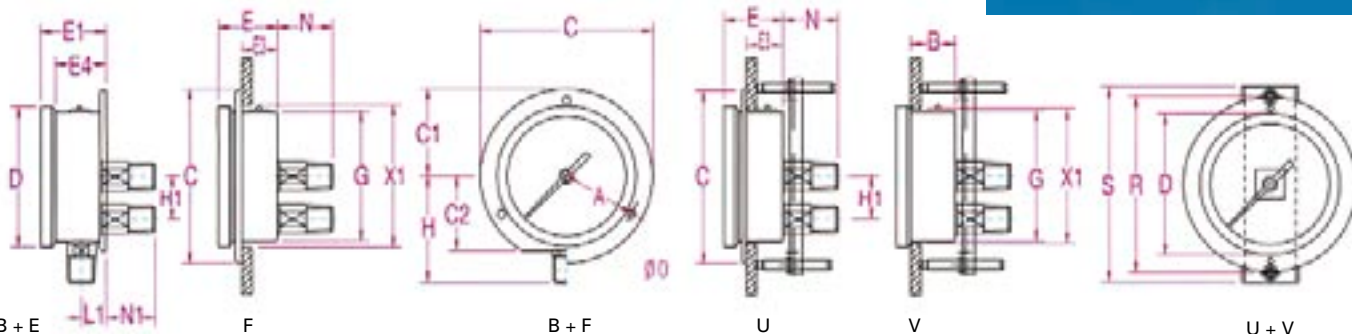
Ambient temperature -25° C to +60° C

Note: minimum temperature should not be less or equal to the freezing point of the filling fluid.



Conf. A + D

A + D



Conf. B + E

F

B + F

U

V

U + V

Nominal size

Dimensions (X is panel cut-out diameter)

Metric	A	B	C	C1	C2	D	E	E1	E3	E4	G	H	H1	L	L1	N	N1	O	R	S	X1
Imperial																					
63 mm	37,00	22,00	85,00	42,50	36,50	69,00	29,00	33,00	22,00	25,50	62,00	60,00	16,50	9,00	13,00	27,00	23,00	3,50	68,00	77,00	63,50
2½"	1,48	0,87	3,35	1,67	1,44	2,72	1,14	1,30	0,87	1,01	2,44	2,36	0,65	0,35	0,51	1,06	0,91	0,14	2,68	3,03	2,50
100 mm	58,00	22,00	133,00	66,50	56,00	108,50	29,00	34,00	22,00	24,00	99,50	77,50		9,00	13,00	23,50	23,50	5,00	110,00	122,00	101,00
4"	2,28	0,87	5,24	2,62	2,20	4,27	1,14	1,34	0,87	0,95	3,92	3,05		0,35	0,51	0,93	0,91	0,20	4,33	4,80	3,98

PBJ - Liquid Filled Plastic-Cased Industrial Gauges with External Zero Adjustment

For heavy duty service where vibration or pulsation of medium would cause excessive wear on a dry gauge or where corrosive ambient conditions prevail. Specific application examples are hydraulic equipment, irrigation equipment, refrigeration and compressors.

Case

- Case: injection moulded (colour coded)
- Bezel: 304 stainless steel
- Window: extruded acrylic sheet
- Seal: neoprene
- Dampening fluid: glycerine (options available)

Configurations

A	Nominal Sizes		
	mm	63	80
	Imp	2 1/2"	3 1/8"

Internals

- Socket: brass
- Bourdon tube: bronze
- Movement: brass
- Dial: aluminium, white with black numerals
- Pointer: aluminium, black anodised

Connections

1/8" + 1/4" (BSP - NPT - BSPT)
(bottom entry only)

Options

Colour options available in blue, red, black, white, green

Maximum Range

60 MPa

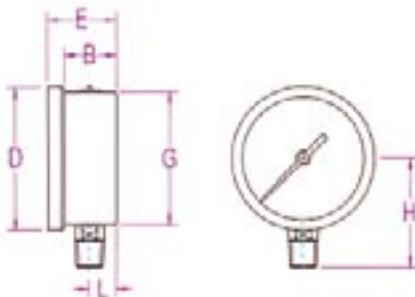
Accuracy

1,6 % FSD

Temperature Range

Ambient temperature -25° C to +60° C

Note: minimum temperature should not be less or equal to the freezing point of the filling fluid.



Conf. A

Nominal size

Dimensions

Metric	B	D	E	G	H	L
63 mm	25,00	68,50	33,00	63,50	52,00	13,00
2 1/2"	1,00	2,70	1,30	2,50	2,05	0,51
80 mm	26,50	85,00	34,00	79,50	60,50	14,40
3 1/8"	1,04	3,35	1,34	3,13	2,38	0,57



PBU/PBM - Economic Steel Case Gauges

For non-corrosive liquids and gases on light duty service.

Case

Case: steel, black enamel
 Lens: extruded acrylic sheet
 Bezel: steel, black, pressed on

Configurations

A B D (other configurations on request)

Nominal Sizes

mm	42	54	68	100
Imp	1 1/2"	2"	2 1/2"	4"

Internals

Socket: brass
 Bourdon tube: brass or bronze, soldered
 Movement: brass
 Dial: aluminium, white with black numerals
 Pointer: aluminium, black anodised

Connections

1/8" + 1/4" (BSP - NPT - BSPT)
 (bottom and centre-back)

Options

Integral zero adjustment for sizes 54 mm (2") and above on bottom entry only

Maximum Range

6 000 kPa

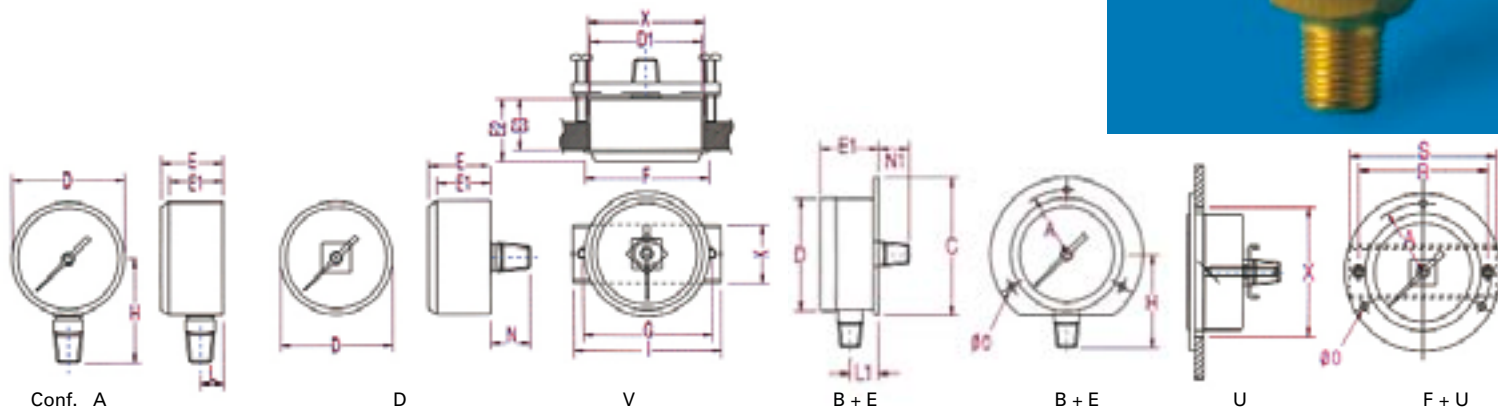
Accuracy

1,6 % FSD

Temperature Range

Ambient temperature -25° C to +60° C

Note: minimum temperature should not be less or equal to the freezing point of the process fluid.



Nominal size

Dimensions (X is panel cut-out diameter)

Metric Imperial	D	D1	E	E1	E2	E3	F	G	H	I	K	L	N	X			
42 mm 1 1/2"	42,00 1,65	41,50 1,63	28,00 1,10	24,00 0,95	26,50 1,04	22,30 0,88	46,50 1,83	50,00 1,97	41,00 1,61	59,00 2,32	28,00 1,10	11,00 0,43	19,00 0,75	44,00 1,73			
54 mm 2"	55,00 2,17	55,00 2,17	30,00 1,18	26,00 1,02	30,00 1,18	26,00 1,02	60,00 2,36	62,00 2,44	50,00 1,97	71,00 2,80	28,00 1,10	11,00 0,43	19,00 0,75	57,00 2,24			
68 mm 2 1/2"	68,00 2,67	66,00 2,60	32,00 1,26	28,00 1,10	30,00 1,18	26,00 1,02	72,50 2,85	74,00 2,91	54,00 2,13	83,50 3,29	28,00 1,10	11,00 0,43	19,00 0,75	69,00 2,72			
Metric Imperial	A	C	D	E	E1	E3	F	G	H	L	L1	N	N1	O	R	S	X
100 mm 4"	57,50 2,26	132,00 5,20	100,00 3,94	32,00 1,26	37,00 1,46			99,00 3,90	78,00 3,07	13,00 0,51	18,00 0,71	30,00 1,18	25,00 0,98	5,00 0,20	110,00 4,33	120,00 4,72	103,00 4,06



SABS 1002 - 1995

PBN - Economic Injection Moulded Case Utility Gauges

For non-corrosive liquids and gases on light duty service in more corrosive environments. Specific application examples are coastal application for valve positioner and regulators, swimming pool pumps and stationary irrigation systems.

Case

Case: injection moulded
 Lens: clip-in, injection moulded polycarbonate

Configurations

A D	mm	42	54	68
	Imp	1 1/2"	2"	2 1/2"

Nominal Sizes

Internals

Socket: brass
 Bourdon tube: brass or bronze, soldered
 Movement: brass
 Dial: aluminium, white with black numerals
 Pointer: aluminium, black anodised

Connections

1/8" + 1/4" (BSP - NPT - BSPT)
 (bottom and centre-back)

Options

Integral zero adjustment for sizes 54 mm (2") and above



PBK - Equipment and Light Industrial Gauges

For non-corrosive liquids and gases on medium duty service. Specific application examples are oxygen / acetylene regulators, medical regulators and allied equipment.

Case

Case: steel, black enamel, threaded
 Lens: integral with window
 Window: threaded, injection moulded polycarbonate

Configurations

A D V*
 *54 mm (2") and 68 mm (2 1/2")

Nominal Sizes

mm	42	54	68	96*
Imp	1 1/2"	2"	2 1/2"	4"*

Internals

Socket: brass
 Bourdon tube: brass or bronze, soldered
 Movement: brass
 Dial: aluminium, white with black numerals
 Pointer: aluminium, black anodised

Connections

1/8" + 1/4" (BSP - NPT - BSPT)
 (bottom and centre-back)



Options

Integral zero adjustment for sizes 54 mm (2") and above (on bottom entry only). Nickel-plated, brass-plated, stainless steel case

Maximum Range

60 MPa

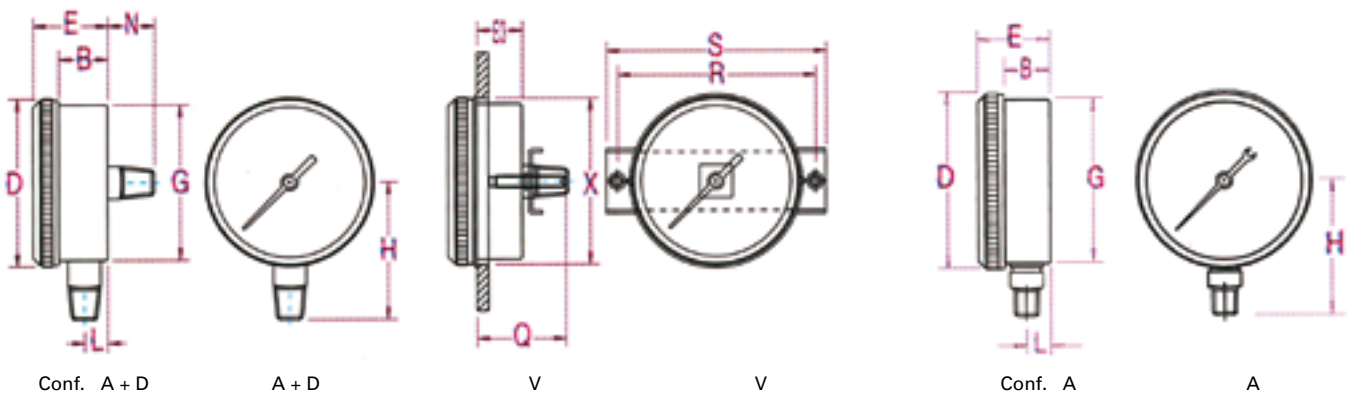
Accuracy

1,6 % FSD

Temperature Range

Ambient temperature -25° C to +60° C

Note: minimum temperature should not be less or equal to the freezing point of the process fluid.



Nominal size

Dimensions (X is panel cut-out diameter)

	Metric	Imperial	B	D	E	E3	G	H	L	N	Q	R	S	X
	42 mm	1 1/2"	18,20	46,00	29,50		41,50	36,00	9,00	20,00				
			0,72	1,81	1,16		1,63	1,42	0,35	0,79				
	54 mm	2"	20,00	59,00	30,00	16,50	54,00	51,00	10,00	20,00	34,50	62,00	71,00	55,00
			0,79	2,32	1,18	0,65	2,13	2,01	0,39	0,79	1,36	2,44	2,80	2,19
Safety Pattern	54 mm	2"	22,50	59,00	34,50		55,00	51,00	11,50					
			0,89	2,32	1,36		2,16	2,01	0,45					
	68 mm	2 1/2"	21,00	72,00	32,00	19,50	67,00	59,00	10,00	20,00	38,00	74,00	83,00	68,50
			0,83	2,83	1,26	0,77	2,64	2,32	0,39	0,79	1,50	2,91	3,27	2,70
	96 mm	4"	22,00	97,00	33,00		93,00	73,00	11,00	20,00				
			0,87	3,81	1,30		3,66	2,87	0,43	0,79				
PBS 68*	68 mm	2 1/2"	22,00	72,50	34,50		67,50	58,00	12,00					
			8,66	2,85	1,36		2,66	2,28	0,47					

PBV - Panel Mounted Equipment Gauges

For non-corrosive liquids and gases on light duty service. Specific application examples are mobile compressor panels, heavy automotive machinery and medical equipment systems.

Case

Case: steel, black enamel
 Lens: steel, black enamel or nickel plated crimped
 Window: extruded acrylic plastic

Configurations

D V

Nominal Sizes

mm 52
 Imp 2"

Internals

Socket: brass
 Bourdon tube: brass or bronze, soldered
 Movement: brass
 Dial: aluminium, white with black numerals
 Pointer: aluminium, black anodised

Connections

1/8" + 1/4" (BSP - NPT - BSPT)
 (centre-back only)

Maximum Range

60 Mpa

Accuracy

1,6 % FSD

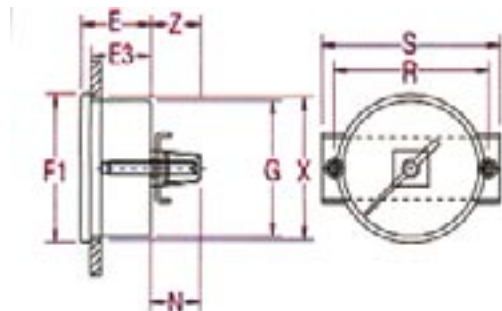
Temperature Range

Ambient temperature -25° C to +60° C

Note: minimum temperature should not be less or equal to the freezing point of the process fluid.

Nominal size

Dimensions (X is panel cut-out diameter)



Conf. V



Metric	E	E3	F1	G	N	R	S	X	Z
52 mm	28,00	24,00	59,00	52,00	20,00	62,00	71,00	53,50	24,50
2"	1,10	0,94	2,32	2,05	0,79	2,44	2,80	2,11	0,96



Accessories and Optional Features

Red Set Pointer ①

To indicate a specific pressure limit
External key or knob to reset hand

Maximum Drag Pointer

Available for gauges 63 mm, 100 mm and 150 mm
Indicates maximum pressure attained
External key or knob to reset hand

Maximum Stop

To protect movement against overpressure

Minimum Stop

To protect low range gauges against vacuum

Special Dial

Ranges different from standards, or custom artwork,
available on application

Windows

4 mm instrument glass or laminated safety glass

Cooling Element ②

To protect the gauge from high temperatures of $\pm 400^{\circ}\text{C}$
encountered on liquid based applications

Isolation Valves and Gauge Cocks ③

To isolate pressure from gauge. Equipped with a facility
to vent the gauge. Suitable for use with gases, liquids and
vapour.

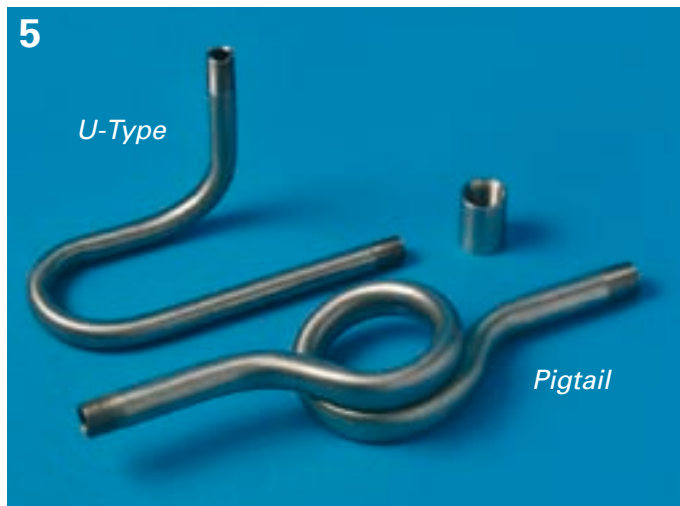
Electric Warning Contacts ④

The contact assembly is available for 100 mm & 150 mm
PBB pressure gauges and for 100 mm PBZ.
Indicating accuracy of process gauges, above 250 kPa, with
electric contact:

- pointer not carrying contact - 0,5 %
- pointer carrying contact - 1,5 %

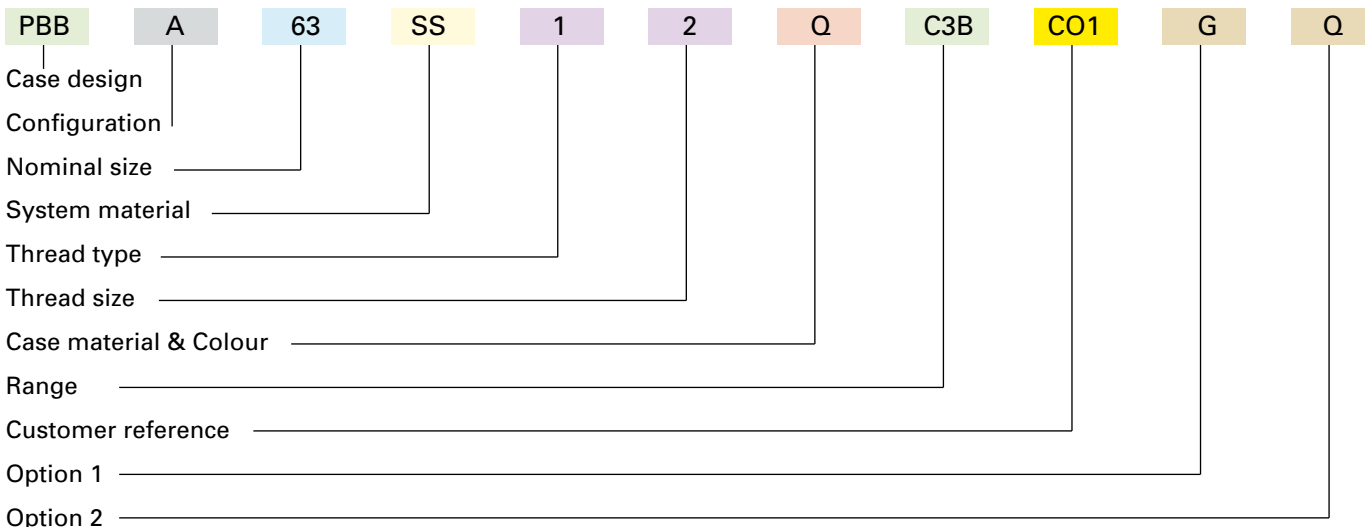
Siphons ⑤

Siphons should be installed on all live steam applications to
protect the gauge from the high temperatures encountered.
Available in either "pigtail" or "U-type" configurations for
installation on horizontal or vertical line respectively.



Gauges Ordering Code

Example of how to make up the ordering product code:



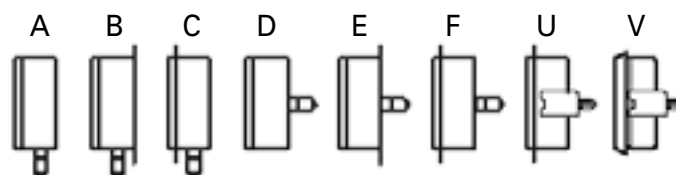
For the complete part number for Diaphragm Pressure Gauges, please consult with your sales representative when placing an order.

Case Type and Size

Case	Case & Bezel Material (Std)	Size Code	Nom. size mm (inch)	Available Configuration
PBB	polished 304 stainless steel	63 10 15	63 (2 1/2) 100 (4) 150 (6)	ABC* DEFUV *100 mm only
PBZ	colour coded (grey) PBT	10 15	100 (4) 150 (6)	AB
PBX	colour coded (black) PBT	10	100 (4)	A
PCB	polished 304 stainless steel	63 10 15	63 (2 1/2) 100 (4) 150 (6)	ABC* DFUV *100 mm only
PCZ	colour coded (grey) PBT	10 15	100 (4) 150 (6)	AB
PCK	(black) mild steel	68	68 (2 1/2)	A D V
PDB	polished 304 stainless steel	10 15	100 (4) 150 (6)	H
PDZ	colour coded (grey) PBT	10 15	100 (4) 150 (6)	H
DPG	colour coded (blue) PBT	10	100 (4)	A
MBB	polished 304 stainless steel	10 15	100 (4) 150 (6)	ABC* DEFUV *100 mm only
HGZ	polished 304 stainless steel	10 15	100 (4) 150 (6)	A
PBG	304 stainless steel	52 63 10	52 (2) 63 (2 1/2) 100 (4)	ABD* EFUV *52 mm back entry only
PBJ	(black) injection moulded, 304 stainless steel bezel	63 80	63 (2 1/2) 80 (3)	A

Case	Case & Bezel Material (Std)	Size Code	Nom. size mm (inch)	Available Configuration
PBN	(black) injection moulded case polycarbonate clip-in lens	42 54 68	42 (1 1/2) 54 (2) 68 (2 1/2)	A D
PBM	(black) mild steel polycarbonate clip-in lens	42 54 68	42 (1 1/2) 54 (2) 68 (2 1/2)	A D V
PBK	(black) mild steel threaded polycarbonate window	42 54 68 96	42 (1 1/2) 54 (2) 68 (2 1/2) 96 (4)	A* D V* * only option for safety pattern ** 54 mm & 68 mm only
PBU	(black) mild steel flat acrylic window	42 54 63 10 12	42 (1 1/2) 54 (2) 63 (2 1/2) 100 (4) 125 (5)	AB**DE**F*U* * 54 mm & 68 mm only ** on application 100 mm, 125 mm
PBV	(black) mild steel with nickel plated bezel, flat acrylic window	52	52 (2)	D V

Configurations



- A bottom connection, stem mounting
- B bottom connection, back flange, surface mounting
- C bottom connection, front flange, surface mounting
- D back connection, stem mounting
- E back connection, back flange, surface mounting
- F back connection, wide front flange, (drilled) panel mounting
- U back connection, wide front flange, (undrilled) panel mounting (yoke)
- V back connection, narrow front-ring, panel mounting (yoke)

Bourdon Tube Selection

System code	Socket material	Bourdon tube material (kPa)	Tube type	Range selection
BB	brass	bronze tube brass tip	C-tube	60 / 6 000
BB	brass brass tip	bronze tube -tube	Spiral	10 000 ... / 60 000
SS	316 L stainless steel	316 Ti tube and tip	C-tube	60 / 6 000
SS	316 L stainless steel	316 Ti tube and tip	spiral	10 000 ... / 250 000
MM	Monel 400	K-Monel	C-tube	60 / 6 000
MM	Monel 400	K-Monel	Spiral	10 000 ... / 60 000

Utility gauges-ranges above 20 MPa on request

Capsule Systems Materials Selection

System code	Socket material	Capsule material (kPa)	Tube type	Range selection
SS	316 L	stainless	capsule	2,5 to 100 kPa -10 to -25 kPa (Vac)
BB	brass	copper	capsule	2,5 to 100 kPa -6 to -25 kPa (Vac)

Thread Type and Size

Thread type	Thread size (size code = number 1/8" 's)
O = NPT	1 = 1/8"
1 = BSP	2 = 1/4"
2 = BSPT	3 = 3/8"
	4 = 1/2"

Customer Reference

Codes allocated to customers describing their specific requirements
Standard CI gauge code is C01
Where applicable consult with our sales representative for your specific code

Case Material and Case Colour

Q = standard (see Case type & size)
C = nickel plated
P = brass plated
S = stainless steel case (where not standard)

H = white R = red
E = yellow L = blue
A = purple N = green
O = orange B = black
X = non standard (describe under special instructions)

Standard Metric Ranges (kPa)

Range kPa (kilopascal)	range code	Dial graduation	
		figure interval	minor graduation
0/10 Pa	C1A	1	0,1
0/16 Pa	C1B	1	0,2
0/25 Pa	C1C	5	0,2
0/40 Pa	C1D	5	0,5
0/60 Pa	C1E	10	0,5
0/100 Pa	C1F	10	1
0/160 Pa	C1G	10	2
0/250 Pa	C1H	50	5
0/400 Pa	C1J	50	5
0/600 Pa	C1K	100	10
0/1 000 Pa	C1L	100	10
0/1 600 Pa	C1M	100	20
0/2 500 Pa	C2A	500	50
0/4 000 Pa	C2B	500	50
0/6 000 Pa	C2C	1 000	100
0/1	C2D	0,1	0,01
0/1,6	C2E	0,1	0,02
0/2,5	C2F	0,5	0,5
0/4	C2G	0,5	0,5
0/6	C2H	1	0,1
0/10	C2J	1	0,1
0/16	C2K	1	0,2
0/25	C2L	5	0,2
0/40	C2M	5	0,5
0/60	C3A	10	0,5
0/100	C3B	10	1
0/160	C3C	10	2
0/250	C3D	50	5
0/400	C3E	50	5
0/600	C3F	100	10
0/1 000	C3G	100	10
0/1 600	C3H	100	20
0/2 500	C3J	500	50
0/4 000	C3K	500	50
0/6 000	C3L	1 000	100
0/1 MPa	C3M	0,1	0,01
0/1,6 MPa	C4A	0,1	0,02
0/2,5 MPa	C4B	0,5	0,5
0/4 MPa	C4C	0,5	0,5
0/6 MPa	C4D	1	0,1
0/10 MPa	C4E	1	0,1
0/16 MPa	C4F	1	0,2
0/25 MPa	C4G	5	0,2
0/40 MPa	C4H	5	0,5
0/60 MPa	C4J	10	0,5
0/100 MPa	C4K	10	1
0/160 MPa	C4L	10	2
0/250 MPa	C4M	50	5
vacuum			
-100/0	A5B	10	1
compound			
-100/0/150	B5A	50	5
-100/0/300	B5B	50	5
-100/0/500	B5C	100	10
-100/0/900	B5D	100	10
-100/01 500	B5E	100	20
-100/0/2 400	B5F	500	50

Gauges may be ordered with non-standard metric dials (kPa, bar or kg/cm²). Range in accordance with SABS 1062. Dual scale dials will be supplied with a standard metric inner scale and equivalent psi outer scale. psi dominant dual scales are also available. Please be specific when ordering.

Other Standard Metric Ranges (kg/cm² & Bar)

Range		Dial graduation	
kg/cm ² (kilograms per sq.cm ²)	bar	figure interval	minor graduation
<i>pressure</i>			
0/1	0/1	0,1	0,01
0/1,6	0/1,6	0,2	0,02
0/2,5	0/2,5	0,5	0,05
0/4	0/4	0,5	0,05
0/6	0/6	0,5	0,1
0/10	0/10	1	0,1
0/16	0/16	1	0,2
0/25	0/25	5	0,5
0/40	0/40	5	0,5
0/60	0/60	5	0,5
0/100	0/100	10	1
0/160	0/160	10	2
0/250	0/250	50	5
0/400	0/400	50	5
0/600	0/600	50	10
0/1 000	0/1 000	100	10
<i>vacuum</i>			
-10/0	-1/0	0,1	0,01
<i>compound</i>			
-10/0/1,5	-1/0/1,5	0,5	0,05
-1/0/3	-1/0/3	0,5	0,05
-1/0/5	-1/0/5	1	0,1
-1/0/9	-1/0/9	1	0,1
-1/0/15	-1/0/15	2	0,2
-1/0/24	-1/0/24	5	0,5

Note: Where required range has no code indicated, that range should be clearly specified on ordering.

Options

Both option digits to be filled in:
No options = QQ; One option = selected digit then Q;
Two options = list from below alpha-numerically

- Q = no options
- X = special instruction
- A = drag pointer
- B = blow-out back with baffle (safety)
- C = red set pointer
- D = micro switch movement single
- E = micro switch movement double
- F = vibration free movement (VFM)
- G = safety glass
- H = bar secondary scale
- I = kPa secondary scale
- J = zero adjuster
- K = oil free, oxygen clean logo; gauge bagged in plastic
- L = psi secondary scale

Standard Imperial Ranges (psi)

Range		Dial graduation	
psi	range code	figure interval	minor graduation
0/15	G2D	1	0,2
0/30	G2F	5	0,5
0/60	G2G	10	1
0/100	G3A	10	1
0/160	G3E	10	2
0/200	G3C	50	2
0/300	G3D	50	5
0/400	G3E	50	5
0/600	G3G	100	10
0/800	G3H	100	10
0/1 000	G3J	100	10
0/1 500	G3K	500	20
0/2 000	G3L	500	20
0/3 000	G4A	500	50
0/4 000	G4B	500	50
0/5 000	G4C	1 000	100
0/6 000	G4D	1 000	100
0/10 000	G4E	1 000	100
0/15 000	G4F	5 000	500
<i>vacuum</i>			
30-0 inches mercury	E1A	5 inches	0,5
<i>compound</i>		<i>'Hg psi</i>	<i>'Hg psi</i>
30" Hg Vac/0/15psi	F1A	5 3	1 0,5
30" Hg Vac/0/30psi	F1B	10 5	1 1
30" Hg Vac/0/60psi	F1C	10 10	2 1
30" Hg Vac/0/100psi	F1D	10 10	2 1
30" Hg Vac/0/150psi	F1E	10 25	5 5
30" Hg Vac/0/300psi	F2B	30 25	5 5

- M = refrigeration scale
- N = retarded scale
- P = overload stop internal
- R = studs and bracket
- S = nickel plated block
- T = snubbers
- U = adaptor fitted
- V = silicon oil filled
- W = block welded to case
- Y = glycerine filled
- Z = opanol oil filled
- 2 = other filling medium (Siltherm 800, Fluorolube, Krytox GPL 100, etc.)
- 3 = female thread
- 4 = stainless steel movement in brass system
- 5 = no aluminium parts
- 9 = centre back option

Pressure Cross Reference Chart

psi	atms.	Ft.Hd. H ₂ O at 20° C	in H ₂ O	kg/cm ²	meters H ₂ O	in.Hg. at 20° C	mm.Hg.	cm.Hg.	bar	Milibar (mbar)	kPa
1	0,0680	2,310	27,720	0,0700	0,704	2,043	51,884	5,188	0,0690	68,947	6,895
14,696	1	33,659	407,513	1,0330	10,351	30,019	762,480	76,248	1,0130	1013,0	101,325
0,433	0,0290	1	12,000	0,0300	0,305	0,884	22,452	2,245	0,0300	29,837	2,984
0,036	0,0025	0,833	1	0,0025	0,025	0,074	1,871	0,187	0,0025	2,486	0,249
14,233	0,9680	32,867	394,408	1	10,018	29,054	737,959	73,796	0,9810	980,662	98,066
1,422	0,0970	3,287	39,370	0,0990	1	2,905	73,796	7,379	0,0980	98,066	9,807
0,489	0,0330	1,131	13,575	0,0340	0,345	1	25,400	2,540	0,0340	33,753	3,375
0,019	0,0013	0,045	0,534	0,0014	0,0136	0,039	1	0,100	0,0010	1,329	0,133
0,193	0,0131	0,445	5,340	0,0140	0,1360	0,393	10,000	1	0,0133	13,290	1,328
14,503	0,9870	33,514	402,164	1,0200	10,2110	29,625	752,470	75,247	1	1000,0	100,00
0,014	0,0009	0,033	0,402	0,0010	0,0102	0,029	0,752	0,075	0,001	1	0,100
0,145	0,0098	0,335	4,021	0,0100	0,1020	0,296	7,525	0,752	0,010	10,000	1

PDBH - Diaphragm Type Gauge

All stainless steel pressure gauge suitable for measurement to maximum pressure of 2 500 kPa especially in corrosive environments where a pressure element of exotic materials is required. Also suitable where start up pressures are significantly higher than operating pressures and to measure viscous fluids or fluids with suspended solids.

Case and Upper Diaphragm Housing

PDB - polished 304 stainless steel case and bezel
PDZ - P.B.T. colour coded case and bezel

Window

Acrylic as standard (safety glass optional)

Blow-Out Disc

Top blow out (compensating optional)

Diaphragm Sealing Ring

Neoprene

Nominal Sizes

mm	100	150
Imp	4"	6"

Pressure Element

< 250 kPa stainless steel 1,4571
> 250 kPa steel cold galvanised

Movement

All stainless steel

Dial

Aluminium, black lettering on white background

Pointer

Black aluminium, micrometer adjustable

Connections

Process connection 1/4" + 1/2" (NPT - BSP)
Other connections available on request

Scale Ranges

Flange size is determined by the pressure range
0-40 to 0-400 mbar (150mm diaphragm)
0-60 to 0-2500 kPa (100mm diaphragm)
or equivalent other units of pressure or vacuum

Working Pressure

Steady: full scale value
Fluctuating: 0,9 x full scale value

Accuracy

100 mm & 150 mm 1,6 % FSD

Temperature Range

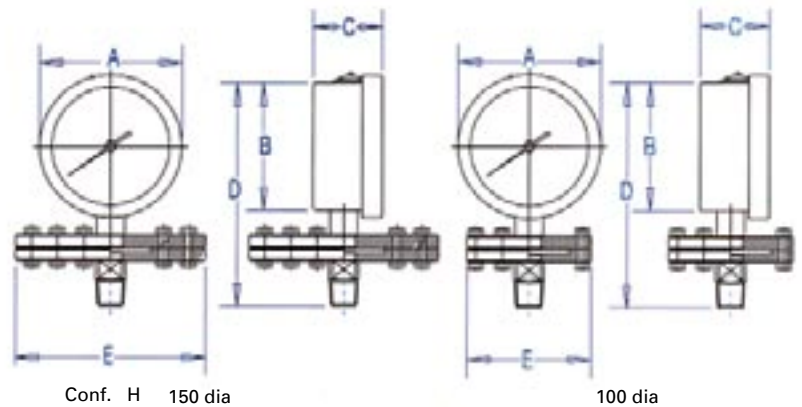
Ambient temperature -25° C to +60° C
Medium temperature to 100 °C
Note: minimum temperature should not be less or equal to the freezing point of the filling fluid.
Higher temperatures can be accommodated with heat reducing devices

Weather Protection

IP 54

Options

Diaphragm and wetted parts lined or coated with special materials such as:
PTFE (Teflon) coated, Hastelloy B2, Hastelloy C4, Monel, Inconel, Tantalum



Conf. H 150 dia

100 dia

Range	Dia Case	Dia Flange	A	B	C	D	E
kPa 60-2 500	100 mm 4"	100 mm 4"	112,60 4,43	99,00 3,90	55,00 2,16	177,00 6,99	98,00 3,86
kPa 60-2 500	150 mm 6"	100 mm 4"	155,00 6,10	140,00 5,51	56,00 2,20	177,00 6,99	98,00 3,86
mbar 40-400	100 mm 4"	150 mm 6"	122,60 4,43	99,00 3,90	55,00 2,16	177,00 6,99	155,00 6,10
mbar 40-400	150 mm 6"	150 mm 6"	155,00 6,10	140,00 5,51	56,00 2,20	177,00 6,99	98,00 6,10

Chemical Seals



MIDI 50 mm Midi seal (welded system)

Application: in the process industry where space is minimal

Material: Grade 316 Stainless Steel

Diameter: 50 mm

Diaphragm: Welded 316 Stainless Steel

Gauge Port: Female: 1/4" BSP, BSPT or NPT

Optional: 3/8", 1/2" BSP, BSPT or NPT

Process Connection: Male & Female: 1/4" BSP, BSPT or NPT

Optional: 3/8", 1/2" BSP or NPT

Minimum Pressure: 15 PSI

Maximum Pressure: 2 500 PSI

Burst Pressure: 10 000 PSI

MINI 35 mm Mini seal (welded system)

Diameter: 35 mm

Minimum Pressure: 100 PSI

Maximum Pressure: 6 000 PSI

Burst Pressure: 25 000 PSI



DAIRY SEAL

Application: food, beverage, paint, biochemical and pharmaceutical industry

Material: Grade 316 Stainless Steel

Diaphragm: Flush welded 316 Stainless Steel (other material/coatings on request)

Protection: PTFE (Teflon coating available)

Gauge Port: Female: 1/4" BSP, BSPT or NPT

Optional: 3/8", 1/2" BSP, BSPT or NPT

Process Connection: NW25 — 65, SMS 38 & 51

Minimum Pressure: 30 PSI

Maximum Pressure: 40 BAR



PULP & PAPER

Application: DN48 used in the pulp and paper industry

Material: Grade 316 Stainless Steel

Diaphragm: Flush welded 316 Stainless Steel (other material/coatings on request)

Gauge Port: Female: 1/4", 1/2" BSP or NPT

Process Connection: DN48

Minimum Pressure: 30 PSI

Maximum Pressure: 40 BAR



TRI-CLAMP

Application: food and beverage industry

Material: Grade 316 Stainless Steel

Diaphragm: Flush welded 316 Stainless Steel (other material/coatings on request)

Gauge Port: Female: 1/4", 3/8", 1/2" BSP or NPT

Process Connection: 1.5" or 2" Tri-clamp

Minimum Pressure: 15 PSI

Maximum Pressure: 580 PSI

Burst Pressure: 25 000 PSI

Chemical Seals



XWD1

Application: general application in the process industry
Material: 316 Stainless Steel (upper & lower flange)
Diaphragm: Welded 316 Stainless Steel
 (other materials/coating on request)
Thread Option: Gauge Port: Female: 1/4" BSP
 Optional: 1/4" 3/8", 1/2" BSP, BSPT or NPT
 Process Connection: Male & female: 1/2" BSP, 3/8" BSP, BSPT or NPT. Optional: 1/4" 3/8" BSP, BSPT or NPT, flanged type
Minimum Pressure: 15 PSI
Maximum Pressure: 2 500 PSI
Burst Pressure: 50 Mpa



XWD3

Application: water purification plants
Material: Top & bottom housing material: PTFE (Teflon)
Diaphragm: PTFE (Teflon)
 Options: PVC or Polypropylene top & bottom housings
Fill Screw: 316 Stainless Steel
Thread Ranges: 1/8", 1/4" 3/8", 1/2", 1" (NPT/NPTS/BSP/BSPT) female threads
Minimum Pressure: 100kpa
Maximum Pressure: 40 BAR



XWD4

Application: general in the process industry
Material: Top & bottom housing material: 316 Stainless Steel
Diaphragm: Welded 316 Stainless Steel/Tantalum/Teflon coated
Sealing: O-ring, Viton
Fill Screw: 316 Stainless Steel
Thread Ranges: 1/8", 1/4" 3/8", 1/2", 1" (NPT/NPTS/BSP/BSPT)
 Male threads are available on request
Minimum Pressure: 100kpa
Maximum Pressure: 40 BAR
 (Higher pressures available on request - complete welded system).



FLANGED SEAL

Flanged seals are for continuous use for safety concerns. Cleanout type for easy cleaning, with flushing connections available.
Material: Grade 316 Stainless Steel (Upper & lower flange)
Options: Monel, Hastelloy B, Hastelloy C, Titanium, Tantalum, PVC, Carbon steel, Teflon, Alloy 20 and more available (nickel plated carbon steel upper housing standard, other material available).
Configurations: 1/2" (15 mm), 1" (25 mm), 1 1/2" (40 mm) and 2" (50 mm)
 Pipe size & #150 and #300 pressure rating standard. (Other configurations available).
Instrument Connections: 1/4" & 1/2" BSP female gauge connections standard (other connections available).
 Saddle diaphragm seals available upon request.

V-Line Glass Thermometers

The operation of the glass thermometer is similar to that of other thermometers using the liquid or gas expansion principle. The sealed glass capillary contains a small bulb filled with a liquid or mercury. This fluid will expand with the application of temperature and will rise into the capillary. A scale is fixed in a corresponding position next to the capillary. The divisions are etched on to the glass itself and the scale is printed on to the corresponding "V" formed aluminium housing. The assembly of the thermometer is practical and resistant to breakage if correctly installed.

All components are readily disassembled even on pipelines or tanks holding contents. This is made possible as the pocket or thermowell can be left in place without disturbing the contents of the vessel or pipeline. Special elastomers are fitted to render the glass capillary vibration resistant and the "V" formation of the housing protects the glass from external damage. A combination of anodised aluminium and glass with etched numerals and graduations is highly resistant to sea water, acids, alkali and solvents.

V-line thermometers are typically used in diesel engines, refrigeration and heating, chemical and petrochemical plants, compressors, ship yards, turbines and power stations.

Design

Durable design, indicator housing / glass insert / thermowell / pocket / components easily interchangeable

Housing

Die cast aluminium; brass anodised, V-shaped scale section

Thermowell / Pocket

Brass or stainless steel

Glass Thermometer

Vibration resistant with blue spirit filled columns

Temperature Ranges

-60 up to 600° C

Insertion Lengths

63 mm, 100 mm, 150 mm

Press Connection

1/2" BSP or NPT

Stem Configurations

Vertical or 90° angle

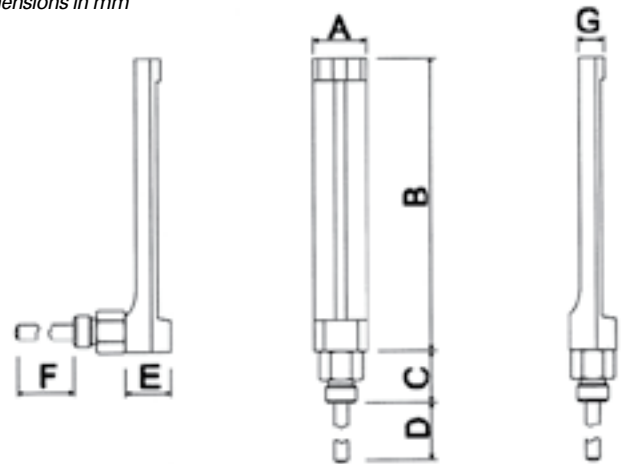
Accuracy

1 %



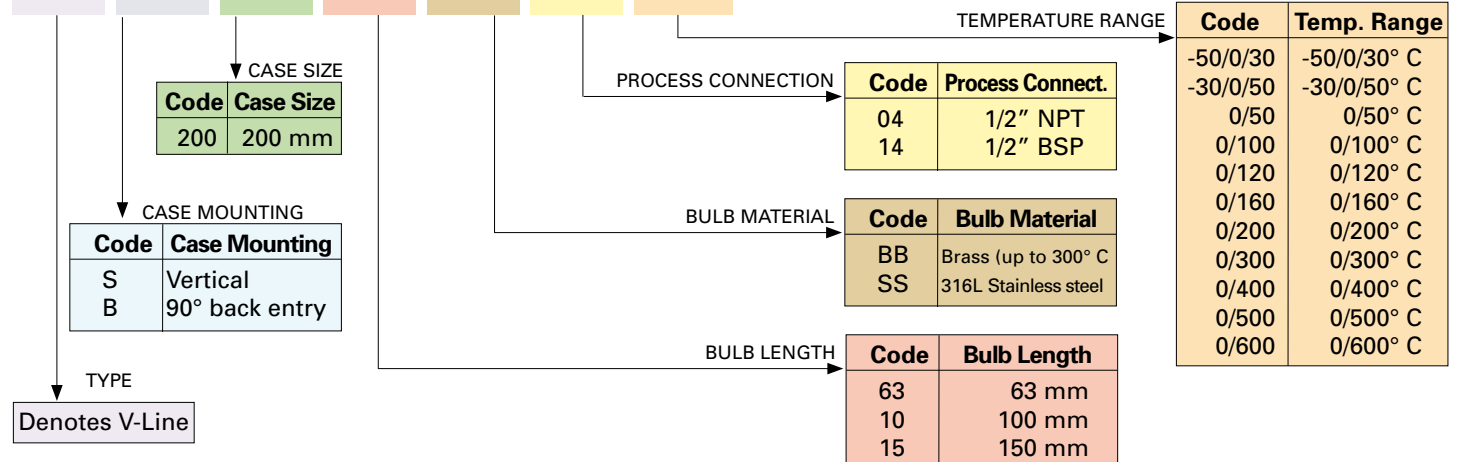
Specs	A	B	C	D	E	F	G
63 mm	34,8	200,0	35,8	95,0	31,2	95,0	17,6
100 mm	34,8	200,0	35,8	135,0	31,2	135,0	17,6

Dimensions in mm



V-LINE Thermometers Ordering code

TGX S 200 63 BB 14 0/100



TPS - Bi-Metal Thermometers

Unlike most dial indicating instruments, the Bi-Metal thermometer has no pinion and segment movement and the pointer is directly driven by the coiled bimetallic strip. This simple, yet rugged construction ensures long, trouble free service with enduring accuracy.

Bi-Metal thermometers are typically used in heating, ventilation and air conditioning (HVAC), chemical and petroleum plants, pulp and paper industries, food and beverage industries.

Features

Hermetically sealed. Sturdy all stainless steel construction. Crimped on bezel. No geared movement. The pointer is directly driven by the Bi-metallic coil. This sturdy assembly renders the few moving components virtually impervious to shock and the effects of vibration.

Housing

Grade 304 SS

Stem and Fitting

Grade 316 SS, zero externally adjustable

Dial

Aluminium, white with printing in black

Pointer

Matt black anodised aluminium

Environmental Protection

IP65

Temperature Ranges

Between 40° C and 500° C

Accuracy

1 % FSD

Stem Lengths

From 63 mm up to 600 mm

Stem Diameter

Standard 6 mm (other sizes on application)

Thread Sizes

1/4", 3/8", and 1/2" (sliding union as an option)



Stem Configurations

Bottom, back, every angle

External Zero Adjustment

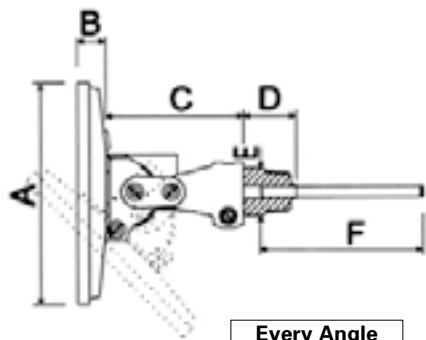
Standard on all options

Dial Sizes

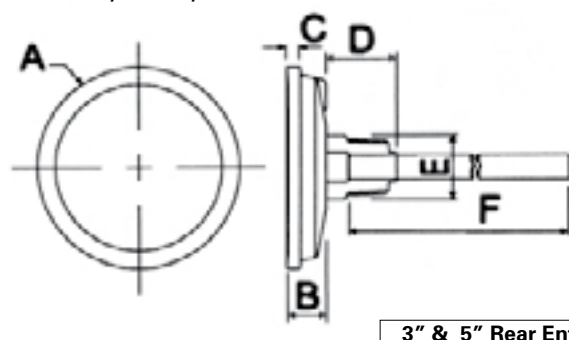
63 mm (2.5"), 76 mm (3"), 100 mm (4"), 125 mm (5"), 150 mm (5")

Options

Options	Description	Case Size
Rear entry		63, 76, 100, 125 & 150 mm
Every angle		76, 100, 125 & 150 mm
Bottom entry	Bayonet bezel	100 & 150 mm



Every Angle



3" & 5" Rear Entry

Every Angle

Specs	A	B	C	D	E	F
3"	80,0	13,8	65,0	23,7	22 HEX	63 - 600
5"	127,8	15,6	65,0	23,7	22 HEX	63 - 600

Dimensions in mm

Rear Entry

Specs	A	B	C	D	E	F
3"	80,0	13,8	5,2	23,7	22 HEX	63 - 600
5"	127,8	14,2	6,4	23,7	22 HEX	63 - 600

Dimensions in mm

See page 31 for Ordering code

All stem lengths are including the thread

TPB - Nitrogen Gas Thermometers

Nitrogen Gas thermometers are designed for the accurate measurement of temperature in a wide variety of industries: Heating, ventilation and air conditioning (HVAC), nuclear, chemical and petrochemical plants, pulp and paper industries, food industries, refrigeration industries, diesel, exhausts and turbines, refineries and compressors. Ideally suited to the nuclear and food industries (where the use of mercury is prohibited). Also more practical in situations where there is no ready access to electricity - necessary for the power supplies of Resistance thermometers as an example.

Case

AISI 304 brush finish stainless steel. Liquid fillable on request

Bezel

Electro polished AISI 304 stainless steel bayonet lock bezel

Bezel Gasket

Neoprene

Pointer

Matt black anodised aluminium

Element & Movement

Helical or "C" shaped coil with AISI 304 stainless steel pendant and segment movements

Probe / Capillary

Grade 316 SS

Dry or liquid filled: alternatively retrofillable

Window

Standard polycarbonate - options glass or safety laminated safety glass

Dial Size

63 mm, 100 mm and 150 mm

Temperature Ranges

Standard Celsius or Fahrenheit scales or alternately a combination of both are available for most common temperature measuring applications.

Accuracy

1 % FSD

Environmental Protection

IP65

Dial

Aluminium; white with black numerals and scales

Options

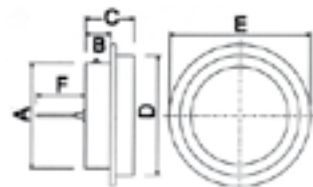
Armoured capillary

Electrical contacts - Reed design on 100 mm only
- Microswitch on 100 mm and 150 mm

Drag pointers - minimum or maximum pointer indication

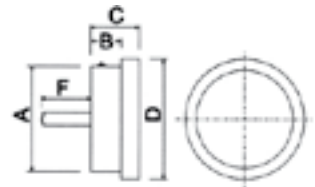


FC: Remote Mounted Back Connection with Front Flange



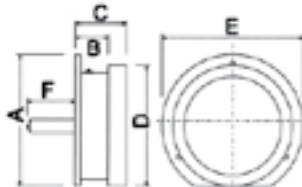
Specs	A	B	C	D	E	F
100 mm	99,5	19,9	44,0	112,9	131,8	Various
150 mm	139,7	139,7	55,0	154,5	196,0	Various

DS: Rigid Back Connection



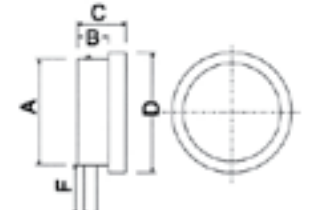
Specs	A	B	C	D	E	F
100 mm	99,5	32,0	49,0	112,9	-	Various
150 mm	139,7	34,7	55,0	154,5	-	Various

ES: Rigid Back Connection with Back Flange



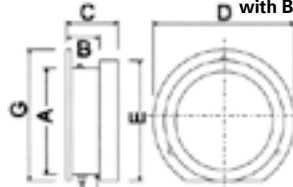
Specs	A	B	C	D	E	F
100 mm	122,5	29,9	45,6	112,6	132,9	Various
150 mm	184,0	36,2	53,2	154,5	190,0	Various

AS: Rigid Lower Connection



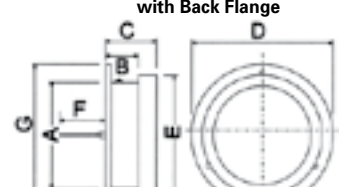
Specs	A	B	C	D	E	F
100 mm	99,5	32,0	49,0	112,9	-	Various
150 mm	139,7	34,7	55,0	154,5	-	Various

BC: Remote Mounted Lower Connection with Back Flange



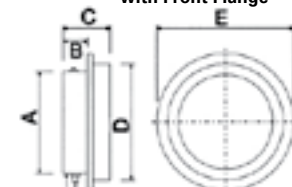
Specs	A	B	C	D	E	F
100 mm	99,5	29,9	45,6	132,9	112,6	Various 122,5
150 mm	139,7	36,2	53,2	190,0	154,5	Various 184,0

EC: Rigid Back Connection with Back Flange



Specs	A	B	C	D	E	F
100 mm	99,5	29,9	45,6	132,9	112,6	Various 122,5
150 mm	139,7	36,2	53,2	190,0	154,5	Various 184,0

CC: Remote Mounted Lower Connection with Front Flange



Specs	A	B	C	D	E	F
100 mm	99,5	29,9	45,6	132,9	112,6	Various
150 mm	139,7	36,2	53,2	190,0	154,5	Various

Dimensions in mm

Bi-Metal Thermometer Ordering code

31

TPS RS 30 SS 025 x 6 04F 0/100

PROCESS CONNECTION

Code		Process Connection (Thread)
BSP	NPT	
12F	02F	1/4" 6,0 mm OD only
13F	03F	3/8" up to 6,35 mm (1/4") OD only
14F	04F	1/2" up to 9,52 mm (3/8") OD only
15F	05F	3/4"
Adjustable Union		
12U	02U	1/4" up to 6,0 mm OD only
13U	03U	3/8" up to 6,35 mm (1/4") OD only
14U	04U	1/2" up to 9,52 mm (3/8") OD only

PROBE DIAMETER

Code	Length	X	Code	Diameter
025	63 mm		6	6,0 mm OD
040	100 mm		8	8,0 mm OD
060	150 mm		9,52	3/8"
090	228 mm			
120	304 mm			
150	381 mm			
180	457 mm			
240	610 mm			

SYSTEM MATERIALS

Code	System Material
SS	316 Stainless Steel Probe, Capillary & Armouring

DIAL SIZE

Code	Dial Size
20	63 mm diameter
30	76 mm diameter
40	100 mm diameter
50	125 mm diameter
60	150 mm diameter

MOUNTING

Code	Mounting
RS	Rigid back connection
ES	Every angle rigid back connection
AS	Bottom entry

RANGE

Code	Range
-10/50	-10/0/50° C
-20/120	-20/0/120° C
-40/160	-40/0/160° C
-50/50	-50/0/50° C
0/50	0/50° C
0/60	0/60° C
0/100	0/100° C
0/120	0/120° C
0/150	0/150° C
10/150	10/0/150° C
0/200	0/200° C
0/300	0/300° C
10/450	10/450° C
100/500	100/500° C

TYPE
Denotes Nitrogen

Nitrogen Thermometer Ordering code

TPB AS 10 SS 015 150x12 04F 0/100

PROCESS CONNECTION

Code		Process Connection (Thread)
BSP	NPT	
12F	02F	1/4" 6,0 mm OD only
13F	03F	3/8" up to 6,35 mm (1/4") OD only
14F	04F	1/2" up to 9,52 mm (3/8") OD only
15F	05F	3/4"
Adjustable Union		
12U	02U	1/4" up to 6,0 mm OD only
13U	03U	3/8" up to 6,35 mm (1/4") OD only
14U	04U	1/2" up to 9,52 mm (3/8") OD only

PROBE DIAMETER

Code	Length	X	Code	Diameter
100	100 mm		6	6,0 mm OD
150	150 mm		8	8,0 mm OD
200	200 mm		9,52	3/8"
250	250 mm		10	10,0 mm OD
300	300 mm		12	12,0 mm OD
350	350 mm			
400	400 mm			
450	450 mm			

longer lengths available

CAPILLARY LENGTH

Code	Capillary Length
015	1,5 metre
020	2,0 metre
030	3,0 metre
050	5,0 metre

DIAL SIZE

Code	Dial Size
10	100 mm diameter
15	150 mm diameter

MOUNTING

Code	Mounting
AS	Rigid lower connection
DS	Rigid back connection
ES	Rigid back connection with back flange
BC	Remote mounted lower connection with back flange
CC	Remote mounted lower connection with front flange
EC	Remote mounted back connection with back flange
FC	Remote mounted back connection with front flange

SYSTEM MATERIALS

Code	System Material
SS	316 Stainless Steel Probe, Capillary & Armouring

RANGE

Code	Range
-10/50	-10/0/50° C
-10/110	-10/0/110° C
-20/120	-20/0/120° C
-20/160	-20/0/160° C
-20/200	-20/0/200° C
-30/50	-30/0/50° C
-40/40	-40/0/40° C
-50/50	-50/0/50° C
0/60	0/60° C
0/100	0/100° C
0/120	0/120° C
0/160	0/160° C
0/200	0/200° C
0/250	0/250° C
0/300	0/300° C
0/400	0/400° C
0/500	0/500° C
0/600	0/600° C
50/600	50/600° C

TYPE
Denotes Nitrogen

RPT-Pressure & Hygienic Transmitters

Monitoring product, process and hydraulic pressures and triggering safety shutdowns when hazardous conditions are detected.

Mining industries - monitoring of hydraulic pit props to indicate condition of the prop and ground strata. Monitoring of hydraulic pressure on cutting machinery using hydraulic systems.

Oil rigs - monitoring ballast tanks levels and hydraulic pressure on jack-up drilling rigs. Monitoring pressure on platform flowlines; on additive metering pumps; on sub-sea injection valves / well cleanouts.

Refrigeration - monitoring compressor pressure of both low and high pressure sides.

Heavy duty - modern industrial gas turbines use pressure transmitters for control and automatic start-up.

Electrical industry - monitoring of steam pressures and distribution pressures within the generating of steam. Oil and nitrogen gas cooled systems are used on high voltage three phase cables. Local and telemetry monitoring of the coolant pressures are often required.

Features

Accuracy to better than 0.25 % FS (including linearity and repeatability).

Transducer rated at 50 million cycles.

Metalwork made of Type 316 stainless steel.

Protected against reverse voltage and overvoltage.

Protected against noise on the supply line.

Wide supply range, 8 to 36V DC - allows a wide range of load resistance. CE approved.

Transducer is temperature compensated by means of laser-trimmed resistors.

Operating temperature range from 0° C to +85° C.

Description of Operation

The RPT-1 series are a range of precision 2-wire pressure transmitters. These units are factory calibrated to deliver an output of 4 mA at 0 pressure and 20 mA at full scale. If necessary, the units can be calibrated in the field.

Pressure ranges are from vacuum (-1 Bar) to 800 Bar.

Description of Controls

Connect as shown below and carefully remove the electrical connector, exposing the controls.

VR1: set pressure to 0 Bar. Adjust for a reading of 4 mA.

Turning the control counterclockwise increases the reading and clockwise reduces the reading.

VR2: set pressure to full scale. Adjust for a reading of 20 mA.

Turning the control counterclockwise reduces the reading and clockwise increases the reading.

RPT3 (FLUSH MOUNT TRANSMITTER)

The RPT3 series are a range of precision 2-wire pressure transmitters which can be used in applications where the process fluid (medium) is corrosive or viscous (could even contain waste particles) and could clog the instruments internally.

It can also be used in hygienic environments e.g. dairy plants and food industries.

Technical specifications:

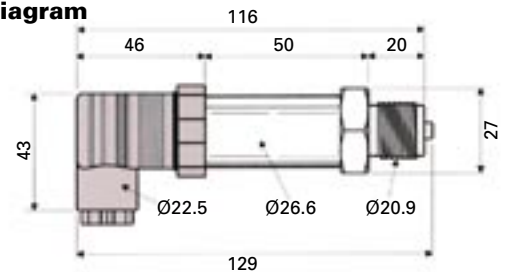
- Pressures ranging from 6 Bar to 600 Bar (consult factory for lower ranges)
- Accuracy 0.5 % of full scale
- Field calibration able
- Thread scope: 1/2", 3/4", 1" (BSP & NPT)
- 4 to 20 mAmp (standard)



See page 33 for Ordering code

Dimensional Diagram

Dimensions in mm



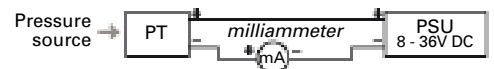
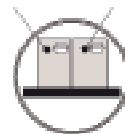
Technical Specifications

General Specifications	
Output	4 - 20 mA
Excitation Voltage	8 - 36V DC (Loop powered)
Accuracy (BFSL)	<0.25% FS
Compensated temp. range	0° to 85° C
Temperature error zero	<-0,02% FS / K
Temperature error span	<-0,01% FS/K (0-70° C)
Ingress protection	IP65
Burst pressure	2.5 x FS (except where indicated)
Wetted parts/connection	316 Stainless Steel, ceramic, Nitrile (specify media where Nitrile is not compatible)

Ranges (Bar) () = Burst pressure				
-1	1.6	2.5	4	6
10	16	25	40	60
100 (175)	160 (280)	250 (400)	400 (700)	600 (1050)

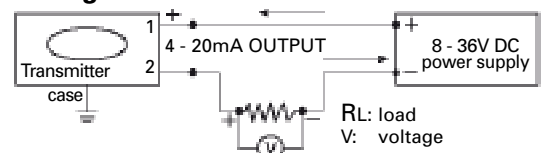
Wiring connections		
1 red	2 black	⊕ yellow
+Us	-Vs	GND

VR2 VR1



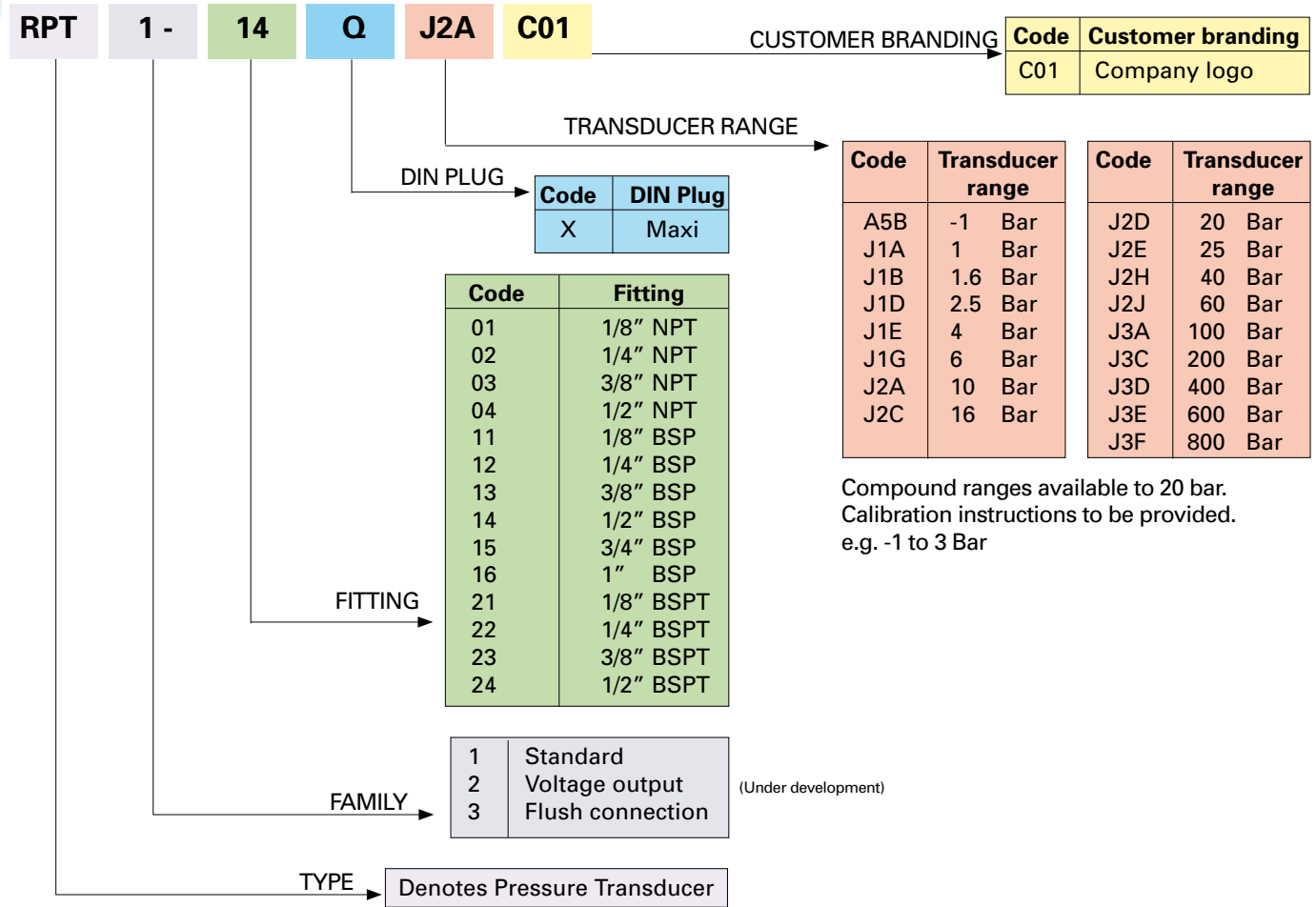
Note: Precision of calibration is determined by the accuracy of the pressure source and the accuracy of the milliammeter.

Wiring and Connection



Maximum load at 36V = 800Ω

RPT Ordering code



Compound ranges available to 20 bar.
Calibration instructions to be provided.
e.g. -1 to 3 Bar

LDC - Bin Level Switch

Designed for measuring the levels in silos, storage containers, coal feeders for boilers and dust container levels.

Case

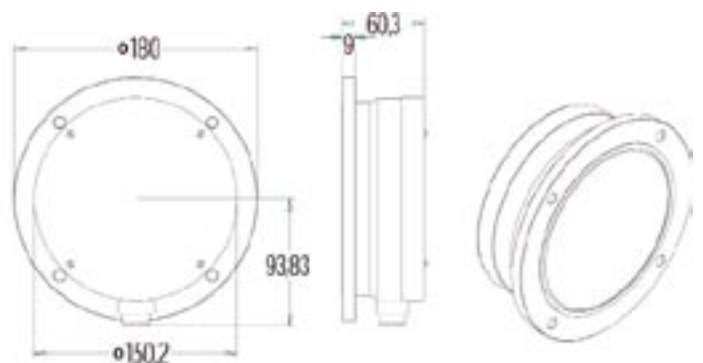
PVC or aluminium, black epoxy coated for corrosion prevention

Diaphragm

Rubber or Teflon diaphragm
150 mm diameter with aluminium centre switch disk

Switch Element

Micro switch. SPDT



Temperature Sensors

All our products are known for their consistent high reliability, cost effectiveness and durability. We are continually examining and improving our engineering, production and service operations to meet constantly changing customer requirements. Our ISO 9001 certification is objective proof of our company wide commitment to quality.

OEM Sensors

Supplying today's manufacturers with temperature sensors that meet their needs. We can help you develop, then manufacture the sensor that works with your product. We manufacture temperature sensors for many different types of customers' applications:

- Scientific instruments - storage and measurement
- Food equipment - cooking, storing and cleanup
- Medical equipment - sterilizing, biological storage
- Jet fighters, helicopters



Thermocouple Types

- **Type J** - 0° to 750° C (32° to 1380° F)
- **Type T** - 0° to 350° C (32° to 660° F)
- **Type K** - 0° to 1250° C (32° to 1380° F)
- **Type J** - 0° to 750° C (32° to 2280° F)
- **Type E** - 0° to 900° C (32° to 1650° F)

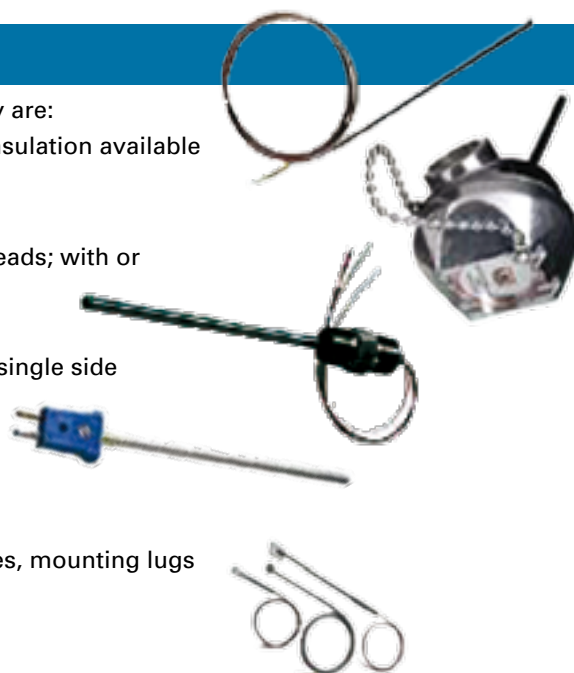
Thermocouple Insulation Types

- **GP** - General purpose thermocouples that are comprised of a air of thermocouple wires inside a tube. These are used to measure temperatures of 260° C (500° F) or less
- **MI** - For higher temperature applications, a Mineral Insulation canbe added in the tube. For UE MI thermocouples compressed magnesium oxide is added inside the tube. These are used to measure temperatures of 260° C (500° F) and higher
- **BTC** - Beaded thermocouples are mainly used in furnace applications.

Temperature Sensor Styles

Temperature Sensors at UE are built in a broad spectrum of styles. They are:

- **Leadwire** - Standard thermocouples with fibreglass, Teflon® or PVC insulation available with a variety of protective coverings including Teflon® sleeves.
- **Terminal Heads** - Configurations including Enclosure Type 4 and 7 heads; with or without NUN (nipple-union-nipple) connections.
- **Process Mount** - Double and single sided process mount styles and single side instrument mounts.
- **Plugs** - Standard and mini male plugs with and without leadwires.
- **Surface Mount** - A variety of monting options including washer styles, mounting lugs and weld pads; with fibreglass or Teflon® or insulation.



Hazardous Location Pressure, Differential Pressure and Temperature Switches

12 Series — Vibration-resistant, 316 Stainless Steel Pressure, Differential Pressure and Temperature Switches

- Class 1, Divisions 1 & 2, Zone 1
- UL listed, cUL certified, ATEX flame-proof & CE (LVD, PED) compliant
- Compact, 316 stainless steel enclosure
- Belleville spring design provides set-point stability and vibration resistance
- SPDT or DPDT hermetically sealed switches
- Variety of pressure sensor materials, including welded stainless steel diaphragm
- Convenient field adjustment through concealed adjustment compartment; optional cover locking ring prevents incidental tampering
- 72" lead-wire with strain relief provided
- Adjustable set-point ranges:
 - Pressure: 1 to 6000psi 0,1 to 413,7 bar
 - Differential Pressure: 0.7 "wcd to 150 psid 1,7 mbar to 10,3 bar
 - Temperature: -130 to 65° F -90 to 343.3° C



120 Series — Rugged, Explosion-proof Pressure, Vacuum, Differential Pressure and Temperature Switches

- Class 1, Divisions 1 & 2, Zone 1
- UL listed, cUL certified, ATEX flame-proof & CE (LVD, PED) compliant
- SPDT, DPDT, or dual SPDT switch output
- Variety of pressure sensor materials, including welded stainless steel diaphragms and bellows
- Internal and external set-point adjustment
- Heat trace & freeze protection temperature models
- Dual electrical conduit openings provide mounting flexibility while terminal block provides ease of wiring
- Adjustable set-point ranges:
 - Pressure & Vacuum: 30 "Hg Vac to 6000psi -1 to 413,7 bar
 - Water Column: 300 "wc Vac to 250 "wc -746,7 to 622,3 mbar
 - Differential Pressure: 0.2 "wcd to 500 psid 0,5 mbar to 34,5 bar
 - Temperature: -180 to 650° F -117.8 to 343.3° C



117 Series — Pressure & Temperature Switches

- Compact design
- Division 2
- SPDT or DPDT hermetic switch output
- Terminal block wiring
- Adjustable ranges:
 - 30 "Hg Vac to 3500 psi 1 bar Vac to 241 bar
 - -120 to 650° F -85 to 340° C
- Approvals: UL, CSA, CENELEC, CE, NACE



TX200 Series — Explosion Proof Pressure Transmitter

- Compact, 316 Stainless Steel, hermetically sealed enclosure
- Fixed range or field-adjustable Pressure Transmitter
- 4-20 mA, or 1-5 VDC, or 0-10 VDC output
- 0.25% accuracy
- UL & ATEX approved for hazardous locations worldwide
- Pressure Ranges up to 40,000 psi



General Purpose Pressure, Differential Pressure and Temperature Switches

100 Series — Pressure, Differential Pressure & Temperature Switches

- Rugged, NEMA 4x, epoxy coated enclosure
- SPDT or DPDT switch output
- Easy access wiring
- Single switch output
- Internal reference scale and adjustable deadband available
- Adjustable ranges:
 - 30 "Hg Vac to 5000 psi, 1 bar VAc to 344 bar
 - 0.2 "wcd to 500 psid 0,5 mbar d to 34,5 bar d
 - -180 to 650° Cost Effective Switches for OEM 38° C
- Approvals: UL, CSA, CE, TUV



400 Series — Vacuum Pressure, Differential Pressure & Temperature

- Rugged, epoxy coated enclosure type 4x, epoxy coated enclosure
- One, two or three switch outputs
- Available with calibrated dials and local pressure indication
- Adjustable ranges:
 - "WC ranges: 300 "wc vacuum to 250 "wc pressure -746,7 to 622,3 mbar
 - Pressure: 30 "Hg Vac to 6000 psi, -1,0 to 413,7 bar
 - Differential pressure: 1" wcd to 200 psid 2.5 mbar to 13,8 bar
 - Temperature: -180 to 650° F, -117 to 343.3° C
- Approvals: UL, FM, CE



J21K Series — Differential Pressure Switch

- Rugged, NEMA 4x, epoxy coated enclosure
- SPDT switch output
- Welded 316 stainless steel or brass sensors
- Unique isolated sensor design
- Adjustable ranges:
 - 30 "Hg Vac to 90 psid, 1 bar Vac to 6,2 bar d
- Approvals: UL, CSA, CE



J6 Series — Pressure Switch

- Rugged, NEMA 4x, epoxy coated enclosure
- SPDT switch output, and single switch output
- Adjustable deadband versions available
- Adjustable ranges:
 - 30 "Hg Vac to 6000 psi, 1 bar Vac to 414 bar
- Approvals: UL, CSA, CE



800 Series — Indicating Temperature Switch

- No external power required
- NEMA 4 enclosure
- SPDT or dual switch outputs
- Stainless steel bulb and capillary, optional capillary lengths and materials
- Adjustable ranges: -180 to 650° F, -117 to 340° C
- Approvals: UL, CSA, CE



Electronic Pressure, Differential Pressure and Temperature Products

One Series 2W/ 2X(Ex d) — Electronic Pressure Switches and Electronic Temperature Switches

- Digital display
- 100 % adjustable set point and deadband
- All solid state design
- Remote and local "I am working®" status signal
- Captures and displays MAX/MIN process extremes
- Continuously stores HI/LO extremes
- Adjustable ranges:
 - 0 to 4500 psig, (310, 3 bar)
 - 0 to 200 psid (13, 8 bar)
 - -300 to 1000° F -184 to 538° C
- 4-20 mA output models available
- Division 1 (Intrinsically Safe) + Division 2 models available
- Approvals: UL, cUL, CE, ATEX, GOST



One Series 2W/ 4X(Ex d) — Electronic Pressure Switch and Electronic Temperature Switch

- 2-wire connection to a PLC, DCS or Relay Coil; NO ADDITIONAL WIRING REQUIRED!
- 24 VDC, 115 VAC or Loop-Powered models now available
- Field scalable 4-20 mA models available (2WLP)
- Field adjustable set point and deadband, covering 100% of sensor range
- Temperature, Gauge Pressure and Differential Pressure sensors available with all stainless-steel wetted parts
- Advanced programmable features including MAX/MIN capture, nuisance trip filtering, clogging sensor detection and manual reset
- "I Am Working®" (IAW) self-diagnostics reported locally (on the switch display) and remotely (in the control room)
- Class 1 Division 1 Intrinsically Safe (2W2D models only) and Division 2 Non-incendive all models



One Series 4W — 10 AMP Electronic Pressure Switch and Electronic Temperature Switch

- Accepts 90-130 VAC power; provides high capacity local switching
- Solid-state relay switch output rating: 10 A @ 24-280 VAC
- Fully adjustable Set Point and Deadband; large LCD process display
- Type 4x epoxy-coated aluminium enclosure, polycarbonate faceplate
- Sensor ranges: Gauge Pressure 0-4,500 PSI (310,3 bar); Differential Pressure 0-200 PSID (13,8 bar); Temperature -300 to 1000° F (538° C)
- Advanced features include IAW self diagnostics, min/max memory, plugged port detection, switch delay and manual reset
- UL listed, Class 1, Division 2 Groups A, B, C & D (Non-incendive)



One Series 8W/ 8X(Ex d) — dual set point electronic switch with 4-20ma output

- All solid-state microprocessor controlled design
- Dual solid-state relay outputs provide independent SPST or SPDT switch action
- Independently programmable set point, deadband, and operating mode for each switch output
- Local LCD digital display of the process variable, indication of trip points, and access to programmed parameters
- Patented I Am Working® (IAW) self diagnostics
- Field-scalable 4-20 mA analog output for process trending
- Ex-rating Class 1 Division 1 & 2
- Many switch output and sensor options

Cost Effective Switches for the OEM

Spectra 10™ Series — Compact Cylindrical Pressure Switch

- Easy on-line pressure adjustment
- NEMA 1 & 4 enclosures
- SPDT switch output
- Variety of electrical termination and pressure connection options available
- O-ring sealed piston or diaphragm sensor
- Adjustable ranges:
 - 4 to 7500 psi, 0,3 to 517,2 bar
- Approvals: UL, CSA, CE



Delta-Pro™ 24 Series — Pressure & Differential Pressure Switch

- Corrosion resistant molded NEMA 4 enclosure
- Brass, Teflon® or polysulfone wetted parts
- Terminal block wiring
- Our lowest cost differential pressure switch
- Adjustable ranges:
 - 30 "Hg Vac to 90 psi, 1 bar Vac to 6,2 bar
 - 1 to 45 psid, 70 mbar d to 3 bar d
- Approvals: UL, CSA, CE



54 Series — Pressure & Temperature Switches

- NEMA 1 or open frame construction
- SPDT or dual switch outputs
- Reference dial or hex adjustment
- Adjustable ranges:
 - 30 "Hg Vac to 6000 psi, 1 bar Vac to 414 bar
 - -130 to 650° F, -90 to 340° C
- Approvals: UL, CSA, CE

55 Series — Temperature Switch

- NEMA 4 or open frame construction
- SPDT or dual switch output
- Panel or surface mount
- Copper or stainless steel bulb and capillary
- Adjustable ranges:
 - -130 to 650° F, -90 to 340° C
- Approvals: UL, CSA, CE



J40 Series — Pressure Switch

- Open frame construction
- SPDT switch output
- Sealed metal bellows sensors compact size
- Proven reliability
- Adjustable ranges:
 - 30 "Hg Vac to 300 psi, 1 bar Vac to 20,5 bar
- Approvals: UL, CSA



RHOMBERG

I N S T R U M E N T S



RHOMBERG

I N S T R U M E N T S

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