

Pressure Gauge Catalogue



Process Pressure Gauges | Test Pressure Gauges | Diaphragm Seal Units | Digital Pressure Gauges
Differential Pressure Gauges | Pressure Gauges Accessories | Pressure Transmitters

Introduction

The British Rototherm group is an established manufacturer of custom designed process measurement equipment for a wide range of industries including Petrochemical, Oil and Gas, Chemical, Contract Engineering, Pharmaceutical, Food and Brewing, Power, Steel and Water.

We pride ourselves on our strength and versatility, expressed by our ability to design and manufacture to your exact requirements.

Our strong technical advice and software programmes, designed in-house, help to make your measurements accurate, reliable and easier to attain.

Our quality process is crucial to our service and our ISO 9001 and ATEX approved products ensure you get quality service not only from the product, but also from the moment you call us.



Pressure Gauges - Over 150 Years of Manufacturing Experience

British Rototherm has worked hard to establish itself as a world class manufacturer of pressure gauges.



With the acquisition of the pressure gauge manufacturer Sydney Smith Dennis (SSD) in 1998, Rototherm's range of pressure gauges dramatically increased to include gauges to suit most industrial applications.

For over 150 years Sydney Smith Dennis has been manufacturing pressure gauges. In this time the company had earned a reputation as a world class manufacturer of high quality, value for money gauges - today Rototherm carries on this tradition.

The Rototherm range of pressure gauges now includes a comprehensive selection of process, test and differential gauges. To complement these gauges a range of accessories are available that include diaphragm seal units and electrical contact heads.

For high accuracy process applications the DigiGauge range of Digital Pressure Gauges and Transmitters is available.

To complement the range of pressure gauges, Rototherm also manufactures pressure recorders, controllers and transmitters.

Please visit our website for more details.

www.rototherm.co.uk

Total Package Solution

Total Package Solution is aimed at giving all our customers temperature, pressure and flow measurement solutions, custom designed to enable a "one-stop-shop" convenience combined with cost effectiveness.

As part of our Total Package Solution, we can provide professional technical expertise and software to help with any questions, concerns or calculations you may have.

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Pressure Gauges - selection

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 cannot 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 pointer 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 intended for severe service conditions may be liquid filled and restricted to reduce Bourdon tube stresses. To minimise sensing element stress and to extend the life of the gauge use internal restriction screws, pulsation dampeners, pressure snubbers, gauge savers or diaphragm seals.

The Environment

Temperature changes cause 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.

All Rototherm pressure gauges are calibrated at an ambient temperature of 20°C ±3°C.

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 with 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.

Guidelines are: Test Gauges (0.25%); Critical Processes (0.5%); General Industry Processes (1.0%); Less Critical Commercial Uses (2.0%).

Dial Size

Sizes range from 63mm (2.5") to 300mm (12") diameters, with the 63mm (2.5"), 100mm (4") and 150mm (6") 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. 150mm (6") and 100mm (4") process gauges usually have 1/2" BSP or NPT connections, especially when direct stem mounted and liquid filled. Smaller dial sizes generally have 1/4" or 1/8" connections. High pressure and cone seal type connections can also be supplied.

Mountings

Pressure gauges may be:

- Direct stem mount bottom connection
- 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.

See page 19 for full configuration information.

SPG “Elite” SafeGauge Safety Pattern Pressure Gauge

- Available in 100mm and 150mm dial sizes
- Full safety pattern to EN837
- Class 1 Accuracy to EN837
- Available with stainless steel and Monel wetted parts

The Rototherm “Elite” SafeGauge, safety pattern pressure gauge incorporates a series of unique features that have given rise to new standards of safety and sealing.

SafeGauges are available in either 100mm (4”) or 150mm (6”) nominal sizes. All SafeGauges with the exception of the back entry types can be glycerine filled without the need for any modification. A damped movement to reduce the effects of vibration is offered as an option.

The back plate features a specially designed membrane forming a perfect seal every time - compensating for any atmospheric changes that could effect the calibration of the gauge.

The SafeGauge has a truly integral baffle wall between the gauge internals and dial, there is no dependence on welding or other joining methods previously used in safety pattern gauge construction.

The “SafeCase” blow out back provides even greater operator protection, over and above the requirements of EN837. Being retained on the gauge by a centre screw, it prevents the risk of injury due to flying debris from the rear of the case in the unlikely event of tube failure.



Test Gauge Option

The 150mm “Elite” SafeGauge is available as a high accuracy test gauge, ±0.25% accuracy with a knife edged pointer and mirror scale. This gauge is supplied with a factory calibration certificate.

Specifications & Dimensions

Case & Bezel

304 stainless steel - 100mm and 150 mm nominal sizes.
316 stainless steel option available

Element

Bourdon tube in 316 stainless steel or Monel 400 to NACE spec MR-01-75

Pressure Ranges

30” Hg VAC to 10000 psi (-1 to 600 bar)
Please refer to standard pressure ranges page 20.

Connections

1/4”, 3/8” or 1/2” (NPT - BSP) other connections available on request.

Mounting

Direct, panel or surface mounting

Window

Safety glass as standard, laminated safety glass or perspex (option)

Dial

Aluminium - white with black scale markings

Pointer

Aluminium, black finish (micrometer adjustable option)

Movement

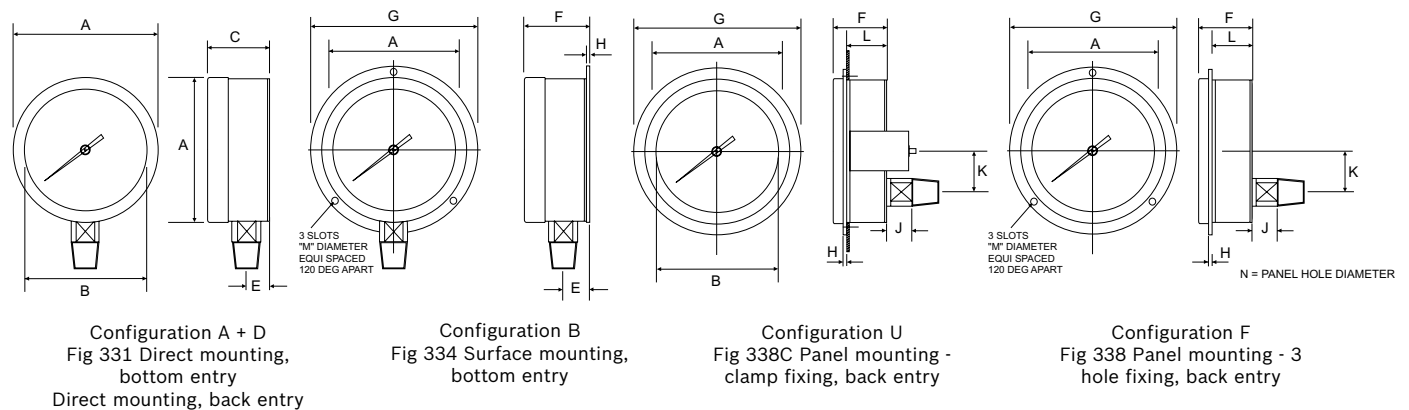
Stainless steel

Accuracy

Class 1 to EN837 (Class 0.5 option)

Weights (approx.)

100mm	Dry 600g	Filled 1.1 kg
150mm	Dry 1.1kg	N/A



Model / Nominal Size	A	B	C	E	F	G	H	J	K	L	M	N
SPG100 (100mm)	108	90	62	28	68	135	6.2	17	33	54	6	110
SPG150 (150mm)	162	144	62	28	68	196	6.2	17	33	54	6	164

N = Panel hole diameter

PCD 100mm = 118 PCD 150mm = 178 PCD

All dimensions are in mm. Drawings are for illustration purposes only



Please see page 19 for Pressure Gauge ordering information

RPG & RCG Stainless Steel Cased Pressure Gauge

Model RPG63, RPG100 and RPG150 features:

- Available in 63mm, 100mm, and 150mm dial sizes
- Adjustable micrometer pointer as standard (not 63mm)
- Field liquid fillable
- Class 1 Accuracy to EN837 (63mm dial Class 1.6)
- Simple installation and low maintenance
- Available with electrical contact head systems (100 and 150mm dial size only)
- Can be used in conjunction with Rotothem Diaphragm Seal Units



A range of economically priced 63mm, 100mm and 150mm nominal size pressure gauges ideally suited to most industrial applications where accuracy and durability is required.

Gauges are available with either brass/bronze internals or all stainless steel internals.

A number of optional accessories are available either as factory fitted or retro fitted - these include diaphragm seal units, electrical contact head systems, syphons, overrange protectors, snubbers and additional pointers

Model RCG100 and RCG150 (Low range capsule version)

A range of economically priced RCG capsule pressure gauges with 100mm and 150mm dials are ideally suited to measuring low range pressures in dry, gaseous media.

Specifications & Dimensions - RPG & RCG

Case & Bezel

304 stainless steel - 63mm, 100mm and 150 mm nominal sizes. 316 stainless steel option available

Element

Bourdon tube in non ferrous material, 316 stainless steel or Monel 400 to NACE spec MR-01-75 (RPG)
Beryllium Copper or 316 stainless steel capsule (RCG)

Pressure Ranges

Model RPG : 30" Hg VAC to 10000 psi (-1 to 600 bar)
Model RCG : -25 mbar to +1000 mbar
(Please refer to standard pressure ranges page 20.)

Connections

Model RPG : 1/4" + 3/8" + 1/2" (BSP - NPT)
Model RCG : 3/8" BSP, 1/2" BSP and NPT standard (RCG)
- other connections available

Mounting

Direct, panel or surface mounting

Window

Standard instrument glass as standard, laminated safety glass or perspex if required

Dial

Aluminium - white with black scale markings

Pointer

Aluminium, black finish - micrometer adjustable for 100mm and 150mm gauges (RPG only)

Movement

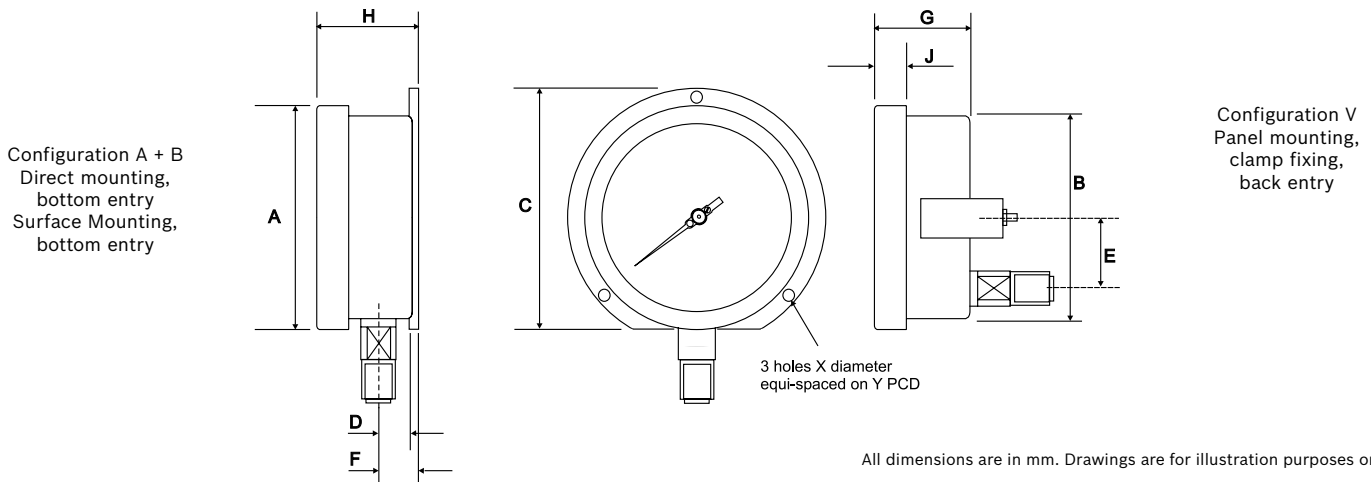
Brass or Stainless steel

Accuracy

Class 1 to EN837 (RPG100 & RPG150) (Class 0.5 option)
Class 1.6 to EN837 (RPG63)

Weights (approx.)

63mm	Dry 250 g	Filled 450 g
100mm	Dry 750 g	Filled 1.0 kg
150mm	Dry 1.0 kg	Filled 1.25 kg



Model / Nominal Size	A	B	C	D	E	F	G	H	J	X	Y
RPG63 (63mm)	69.0	62.0	78.5	8.0	18.0	20.0	36.0	38.0	13.0	3.6	75
RPG100 (100mm)	112.0	99.0	122.0	15.0	33.0	20.0	48.0	50.0	16.0	5.0	116
RPG150 (150mm)	172.0	158.0	184.0	15.0	33.0	20.0	50.0	53.0	18.0	5.0	178



Please see page 19 for Pressure Gauge ordering information

DMC Cased Safety Pattern Pressure Gauge

- Available in 100mm and 150mm dial sizes
- DMC case has high resistance to atmospheric and chemical corrosion
- DMC case can withstand 160°C direct heat without distortion.
- Full safety pattern to EN837
- Adjustable micrometer pointer available
- Class 1 Accuracy to EN837
- Simple installation and low maintenance
- Available with electrical contact head systems
- Can be used inconjunction with Rototherm Diaphragm Seal Units



The ideal instrument for petrochemical applications both on and off shore.

DMC (Dough Moulded Compound) material has a high resistance to atmospheric and chemical corrosion and high temperatures, being able to withstand 160°C direct heat without distortion.

DMC gauges are safety pattern gauges with a solid front and blow out back.

Specifications & Dimensions

Case & Bezel

Black DMC (Dough Moulded Compound) safety pattern case. DMC screw on type bezel. Weatherproof to IP65. 100mm and 150 mm nominal sizes.

Element

Bourdon tube in 316 stainless steel or Monel 400 to NACE spec MR-01-75

Pressure Ranges

Vacuum to 1000 bar
Please refer to page 20 for standard pressure ranges.

Connections

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

Mounting

Direct, panel (100mm dial size only) or surface mounting

Window

Safety glass as standard

Dial

Aluminium - white with black scale markings

Pointer

Aluminium, black finish (micrometer adjustable option)

Movement

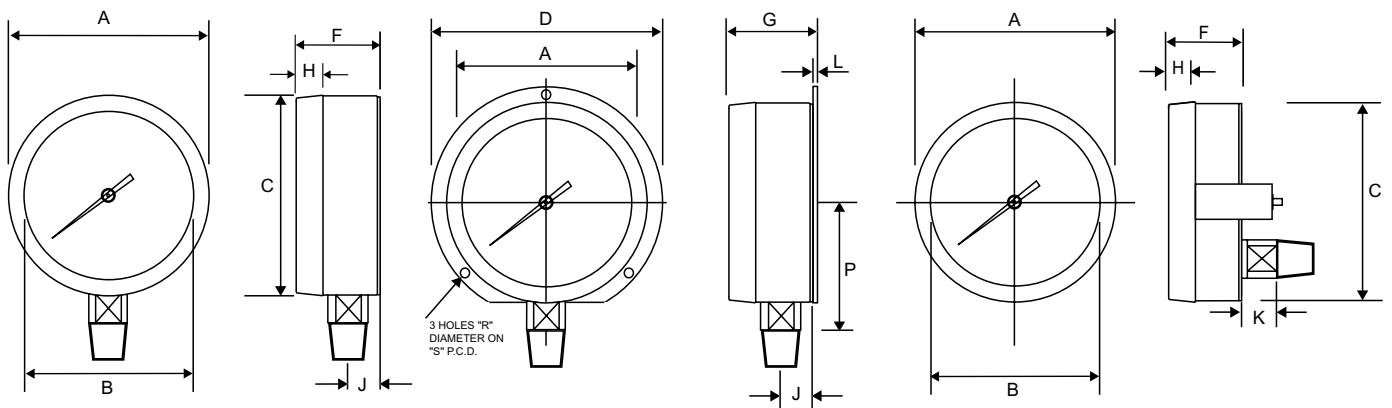
Stainless steel

Accuracy

Class 1 to EN837 (Class 0.5 option)

Weight

100mm Dry 600g
150mm Dry 1.1Kg



Configuration A
Fig 421 Direct mounting, bottom entry

Configuration B
Fig 424 Surface mounting, bottom entry

Configuration V
Fig 428C Panel mounting, back entry - 150mm dial gauge only

All dimensions are in mm. Drawings are for illustration purposes only

Model / Nominal Size	A	B	C	D	F	G	H	J	K	L	P	R	S
DMC100 (100mm)	111	92	109	127	48	50	23	16	16	3	65	5.4	116
DMC150 (150mm)	170	145	162	188	68	68	25	26	14	6	97	5.5	173

For DMC150, panel hole diameter = 165mm

 Please see page 19 for Pressure Gauge ordering information

TURRET Style Safety Pattern Pressure Gauge

- 115mm (4.5") dial size
- Phenolic case has high resistance to atmospheric and chemical corrosion
- Full safety pattern to EN837
- Available with stainless steel or Monel wetted parts
- Class 0.5 Accuracy to EN837 (dry gauges)

Turret style gauges are used extensively in harsh environments - primarily those found in chemical and off shore industries.

As part of their design, turret gauges are suitable for both direct and surface mounting, moulded spacer legs at three fixing points allow the back to blow out, even if the gauge is surface mounted.

Gauges are supplied as standard dry and sealed for liquid filling, or can be supplied ready filled.



Specifications & Dimensions

Case & Bezel

Phenolic case and screw bezel ring.

Pressure Element

Bourdon tube: 316 stainless steel or Monel 400 to NACE MR-01-75

Mountings

Direct or surface mounting

Connections

1/4", 1/2" NPT or 3/8", 1/2" BSP in 316 stainless steel or Monel 400 to NACE MR-01-75

Window

Safety glass as standard

Dial

Aluminium - white with black scale markings

Pointer

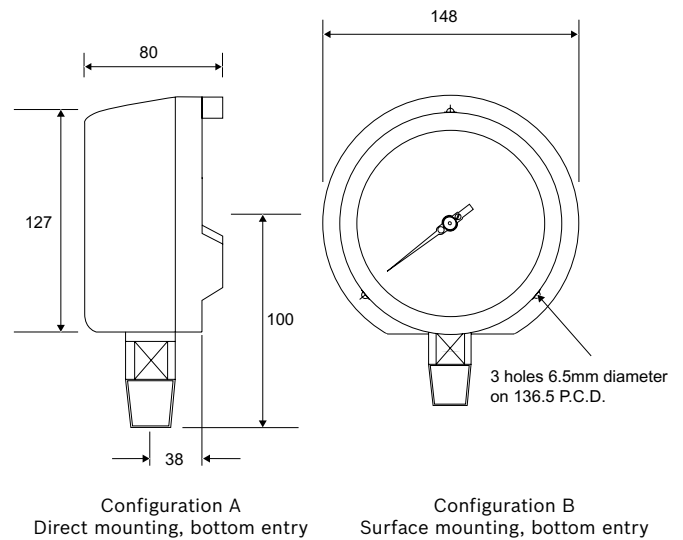
Aluminium, black finish, micrometer adjustable

Accuracy

Class 0.5 to EN837 (dry) Class 1 to EN837 (filled)

Weight

1.0 Kg (Dry) 1.5 Kg (Filled)



All dimensions are in mm. Drawings are for illustration purposes only

Absolute Barometrically Independant Pressure Gauge

These gauges are sealed to prevent changes in the prevailing barometric pressure affecting the calibration.

Case & Bezel

100 mm (4") nominal diameter Brass case (hot stamping), brass screw on bezel, black enamelled finish

Pressure Element

Stainless steel capsule

Mounting

Direct

Connections

3/8" BSP coned as standard. 1/4" NPT also available.

Window

High quality toughened glass.

Dial

Aluminium alloy - white with black scale markings

Pointer

Knife edged pointer, steel, black finish

Movement

Specially designed sensitive brass movement.

Accuracy

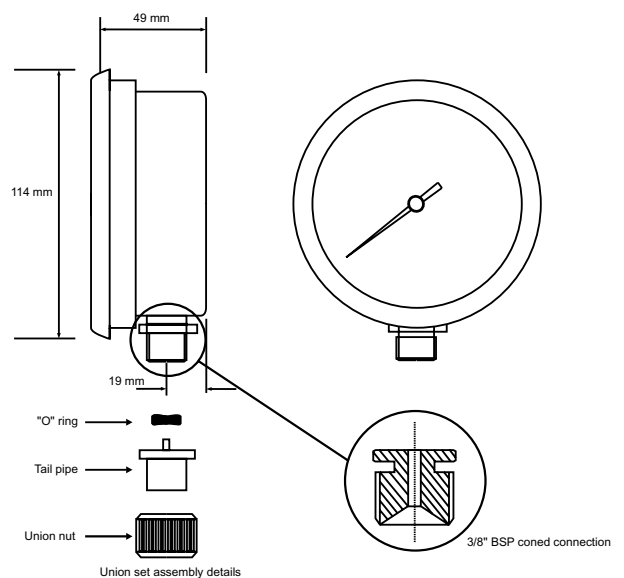
1.5% FSD

Weight

1.2 Kg

Standard Ranges & Part Numbers

Range	Part Number
0 to 20 TORR / 25 mbar	BI-349
0 to 40 TORR / 50 mbar	BI-350
0 to 100 TORR / 130 mbar	BI-351
0 to 760 TORR / 1000 mbar	BI-352
Barometric Union Set	BI-1413



All dimensions are in mm. Drawings are for illustration purposes only

*optional surface mounting kits are available on request

SPGA Aluminium Cased Safety Pattern Pressure Gauge

- Available in 63mm, 100mm, 150mm, 200mm, 250mm and 300mm dial sizes
- Full safety pattern to EN837
- Class 1 Accuracy to EN837
- Available to Defence Standard 66/2 latest issue

Used predominantly in power generation, marine and defence applications, these solid front, safety pattern pressure gauge form the basis of the Rototherm range of gauges manufactured to Defence Standard 66-2.

SPGA gauges are also available as Class 0.25 accuracy test gauges with 150mm, 200 mm, 250mm and 300mm dial sizes.



Specifications

Case & Bezel

Aluminium with integral baffle between the dial and the bourdon tube. Brass bezel (Defence Standard only) Rear blow-out disc fitted in the gauge case back. Defence Standard gauges are supplied painted to Admiralty standards

Mountings

Direct, surface or panel mounting

Element

Non ferrous, 316 stainless steel or Monel 400

Maximum Range

Vacuum through 1000 Bar - higher ranges available on request. Maximum pressure for 63 mm gauges is 400 Bar

Connections

See below for standard connection sizes

Window

Safety glass (Perspex standard on Defence Standard)

Dial

Aluminium - white with black scale markings

Pointer

Aluminium, black finish

Movement

Stainless steel

Accuracy

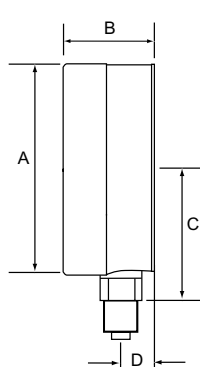
Class 1 to EN837

Fixing Dimensions

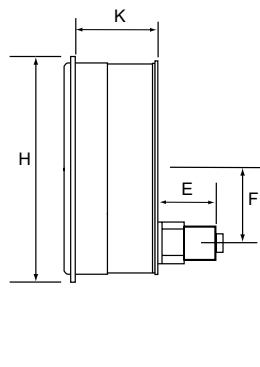
Standard Connections

Dial Size (mm)	Mounting		
	Direct & Surface		Panel (all ranges)
	Up to 60 bar	Above 60 bar	
63	1/4" BSP/NPT	1/4" BSP/NPT	1/4" BSP/NPT
100, 150 & 200	3/8" BSP	1/2" BSP/NPT	3/8" BSP
250 & 300	1/2" BSP/NPT	1/2" BSP/NPT	3/8" BSP

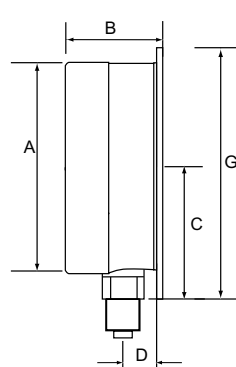
Dial Size	Hole	Surface Mounting		Panel Mounting	
		P.C.D.	Panel Cut out	Flange Dia. Max	P.C.D.
63	M4	76	70	90	78
100	M5	116	112	134	121
150	M5	168	165	188	175
200	M5	221	215	240	225
250	M6	273	270	305	285
300	M6	325	330	370	345



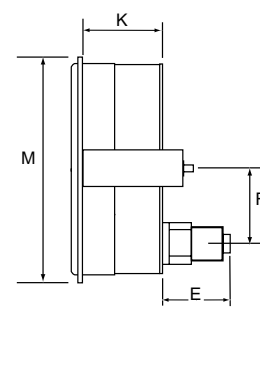
Configuration A
Fig.501S
Direct mounting, bottom entry



Configuration F
Fig.508S
Panel front flange mounting, back entry



Configuration B
Fig.504
Surface mounting, bottom entry



Configuration U/V
Fig.508S/C
Panel clamp mounting, back entry

All dimensions are in mm. Drawings are for illustration purposes only

Model / Nominal Size	A	B	C	D	E	F	G	H	K	M
SPGA63 (63mm)	68	42	46	17	29	22	89	89	38	89
SPGA100 (100mm)	102	49	65	20	30	35	127	133	41	133
SPGA150 (150mm)	159	56	102	19	38	54	181	187	57	187
SPGA200 (200mm)	205	53	124	22	38	54	235	232	52	238
SPGA250 (250mm)*	256	60	152	24	38	54	292	305	52	305
SPGA300 (300mm)	307	60	178	24	38	54	343	368	52	368

Test Gauges

- Available in 150mm, 200mm, 250mm and 300mm dial sizes
- Choice of case style - Aluminium, DMC (150mm) and stainless steel (150mm)
- Full safety pattern to EN837
- Class 0.25 Accuracy to EN837
- Supplied with factory calibration certificate (traceable to National Standards)

The Rototherm range of precision test gauges offers a choice of case materials and dial sizes. Each gauge is hand built to the highest standards and is supplied with a mirror dial, knife edged pointer and factory calibration certificate as standard.

As well as high accuracy analogue gauges, Rototherm is able to offer the DigiGauge Digital Pressure Gauge with 0.2% full scale accuracy - see page 17 for full product details.



Specifications & Dimensions

Pressure Element

Bourdon tube: stainless steel

Mountings

Direct, surface or panel mounting

Connections

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

Maximum Range

Vacuum through 1000 Bar - higher ranges available on request.

Please refer to standard pressure ranges page 20.

Dial

Aluminium - white with black scale markings - mirror dial for antiparallax readings.

Window

Safety glass as standard or perspex if required

Pointer

Aluminium knife edge black finish

Movement

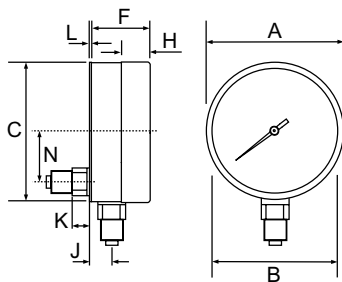
Stainless steel

Accuracy

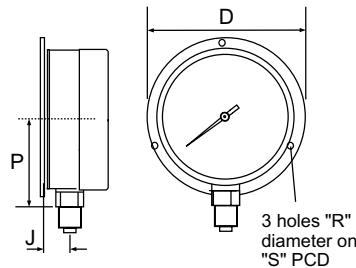
The error in pressure indication on either increasing or decreasing pressure at any point on the scale is not greater than 0.25% of the maximum scale value.

Certification

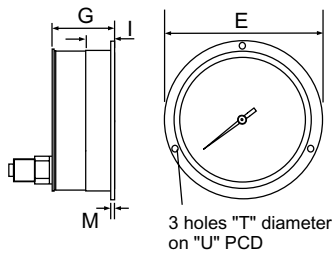
A factory certificate of calibration is issued with all test gauges as standard



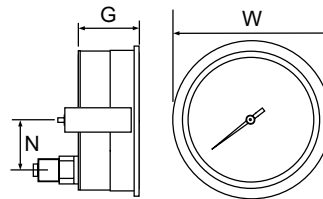
501T Vertical Entry, Direct Mounted
506T Bottom Back Entry, Direct Mounted



504T Vertical Entry, Surface Mounted



508T Bottom Back Entry, Panel Mounted



508CT Bottom Back Entry, Panel Mounted Clamp Fixing

Panel Hole = "X" diameter

Nominal Dial Size	Case Material	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	W	X
150mm	AL	159	146	162	181	187	56	57	37	30	19	22	5	3	54	97	5.4	168	5.5	175	171	165
150mm	DMC	see page 6 for dimensions (Model DMC150)																				
150mm	SS	see page 4 for dimensions (Model SPG150)																				
200mm	AL	205	192	203	233	241	56	58	29	33	23	22	6	4	54	124	5.2	221	5.5	225	226	215
250mm	AL	256	244	254	292	305	59	61	29	33	19	22	6	8	54	152	7.2	273	6.5	286	283	270
300mm	AL	305	293	308	343	268	67	69	33	34	21	22	5	4	54	178	7.1	325	6.5	346	356	330

Pressure Gauge Accessories

Electrical Contact Heads

To provide alarm or control functions, 100 and 150mm nominal dial instruments can be specified with electrical contact heads mounted in a clear plastic window which replaces the standard one. The set point can be adjusted to any position on the scale with a removable key. Single and dual contacts systems are available.

Electrical contact heads provide a repeatable switching point, but the absolute accuracy tolerance of the instrument is approximately doubled by the contacts.

Contact Rating

Standard contact head assemblies: 250V, switching capacity 10W, 18VA, maximum current 0.7A.

For details of ratings - please see contact head data sheet.

Indoor use, ambient temperature -10/70°C, free from vibration

Application

100 and 150mm nominal dial size instruments

Electrical contact heads are available on models SPG, RPG, DMC and SPGA



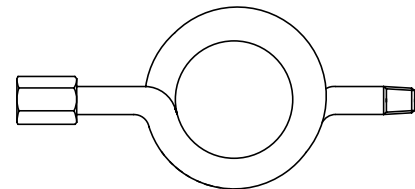
Picture is for illustration only - actual contact arrangement may differ

System	Operation	Typical Application
A	Break on rise	Pressure control
B	Make in rise	Over pressure alarm
C	2 contacts to break on rise	Pressure controls plus alarm
D	2 contacts to make on rise	Alarm and trip
E	Break on rise and make on rise	Pressure control plus alarm

Syphons

Syphons 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.

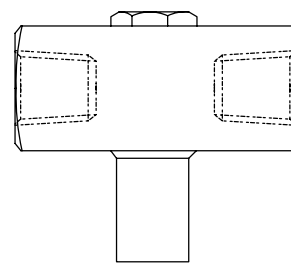


Typical Pig-Tail Syphon

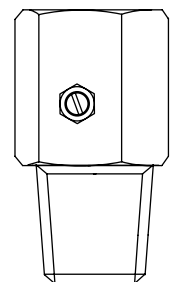
Over-range Protectors & Snubbers

The adjustable over-range protector is used as a safety device against occurring over-pressures exceeding the measuring range of the pressure gauge. On reaching the adjusted pressure, the valve closes automatically and consequently blocks the flow to the pressure measuring element. After a decrease of pressure by about 25% below the closing pressure, the valve opens again.

Gauge snubbers should be used when a pressure gauge is subjected to rapid pressure fluctuations or pulsation. Such a device reduces pressure impact, slows the speed and range of pointer movement and prolongs the life of the gauge.



Typical Over-range Protector

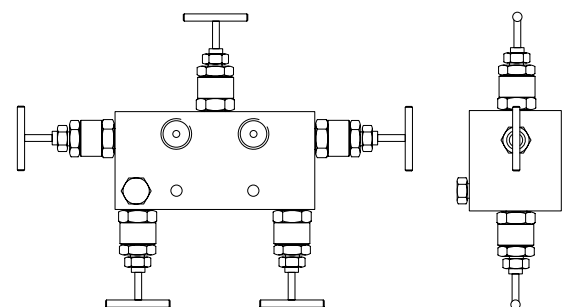


Typical Gauge Snubber

Needle Valves & Manifolds

British Rototherm has expanded its' process control instrumentation portfolio by introducing a complementary range of valves and manifolds. Ideal for use in conjunction with Rototherm pressure gauges, these robust accessories are the perfect solution for even the most demanding applications.

- Needle Valves
- 2 Valve Manifold
- In-line 2 Valve Manifold
- Direct Mount 2 Valve Manifold
- Remote Mount 3 Valve Manifold
- Direct Mount 3 Valve Manifold
- Remote Mount 5 Valve Manifold
- Direct Mount 5 Valve Manifold



Typical 5 valve manifold

These drawings are for illustration only and are not to scale.

DSU Diaphragm Seal Units

The fitting of a diaphragm seal unit to a pressure gauge is recommended where the medium to be measured is highly viscous or contains suspended solids or is potentially corrosive to the Bourdon Tube. Seal units are normally connected directly to the gauge, but connection may be made by flexible capillary, which makes them ideal for remote pressure indication. Flexible capillary can be used to facilitate the fitting of a gauge in a surface or panel mounting location. Maximum capillary length is 5 metres.

Pressure is transmitted from the diaphragm seal unit to the bourdon tube by a suitable filling medium, the selection of which will ensure compatibility with the process and process temperature. Where it is known that the instrument will be used on processes subject to extremes of temperature, the temperature at the tapping point should be advised at the time of ordering.

Diaphragm seal units can be fitted to Rototherm gauge types: SPG, RPG, DMC, SPGA and Turret gauges.

Diaphragm Seal Arrangements

Type A - Welded Construction

Type A seals are of fully welded construction and are hence most suited to applications that do not involve viscous fluids, suspended solids or crystallising liquids.

- Maximum Working Pressures** 5000 psi
- Process Connections** Male screwed 3/8", 1/2" BSP, 1/2" BSPT, 1/2" NPT, 1" BSP and 1" BSPT. Other screwed connections on request.
- Diaphragm Materials** Stainless steel - standard, Monel, Hastelloy and Tantalum
PTFE coatings are available on most models
- Materials of Construction** All 316 stainless steel construction



Type B - Bolted Construction

Type B seals are of a bolted construction with the diaphragm welded to the top section enabling the seal to be easily disassembled and are particularly suited for applications in which periodic cleaning of the seal may be required.

- Maximum Working Pressures** 3000 psi
- Process Connections** Male screwed 3/8", 1/2" BSP, 1/2" BSPT, 1/2" NPT, 1" BSP and 1" BSPT. Other screwed connections on request.
- Diaphragm Materials** Stainless steel - standard, Monel, Hastelloy and Tantalum
PTFE coatings are available on most models
- Materials of Construction** 316 stainless steel tops - bases are available in 316 stainless steel, PTFE lined, Monel and Hastelloy - others are available on request.



Type C - Welded Diaphragm Bolted to Flange Construction

Type C seals use similar construction to the Type B, but are flange mounted and are most suitable for viscous product applications. Type C seals require a flange with a nominal bore of at least 2"; for applications requiring smaller bore flanges please refer to details on Rototherm extended flange seals Types 4 and 6 - see page 12

- Maximum Working Pressures** Refer to flange maximum pressure rating table
- Process Connections** Flange mounted seals - see table
- Diaphragm Materials** Stainless steel - standard, Monel, Hastelloy and Tantalum
PTFE coatings are available on most models
- Materials of Construction** 316 stainless steel tops - bases are available in 316 stainless steel, PTFE lined, Monel and Hastelloy - others are available on request.



Flange Rating & Sizes

Flanges to ANSI B16.5

Flange Size	Rating					
2"	150	300	600	900	1500	2500
2.5"	150	300	600	900	1500	2500
3"	150	300	600	900	1500	2500
3.5"	150	300	600	900		
4"	150	300	600	900	1500	2500

Flanges to BS4504

Flange Size	Rating		
DN40		PN10	PN16
DN50	PN6	PN10	PN16

Flanges to BS10

Flange Size	Rating			
2"	Table D	Table E	Table F	Table H

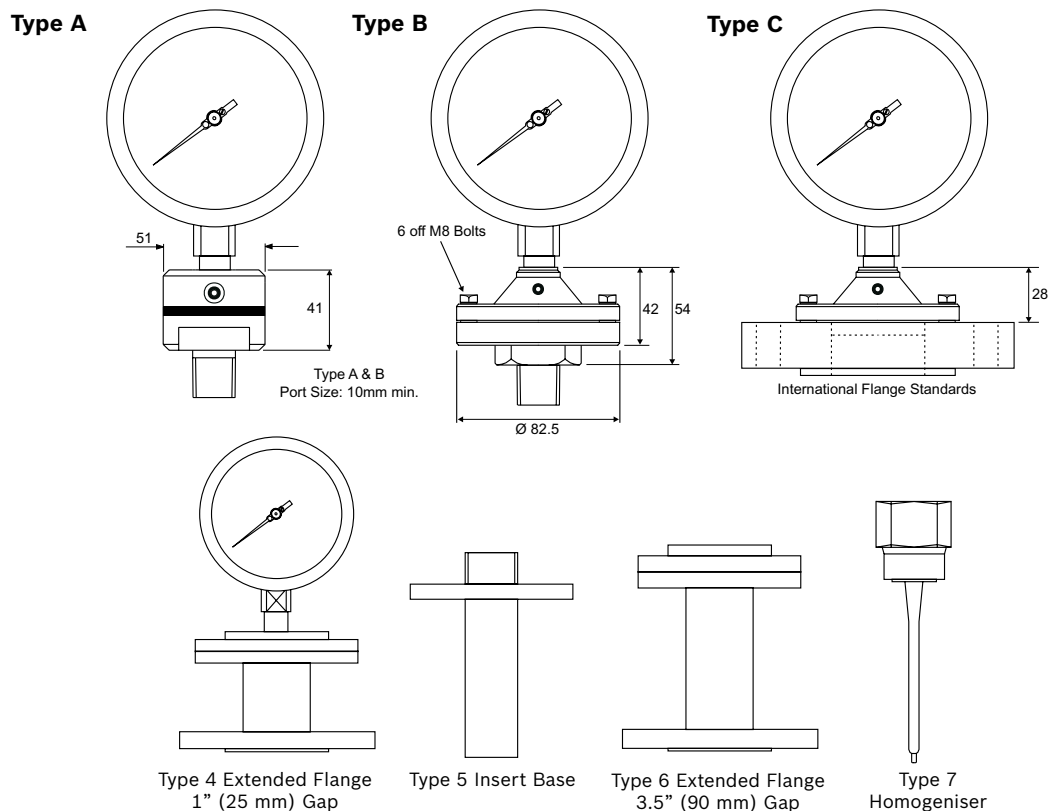


Please see pages 22 for Diaphragm Seal Unit ordering information

Filling Fluids Available

Filling Fluid	Process Temperatures	Recommended Usage
Mineral Oil (Diala DX) Standard filling	-40 to +120°C	Standard applications NOT suitable for food
Lockheed	-20 to +35°C	As above
Galdon DO5	-20 to +150°C	Most higher than ambient applications
Glycerine / Water	0 to +30°C	Food systems
silicone 200/100	-20 to +160°C	Higher temperatures NOT suitable for food
Silicone 704	+80 to +300°C	As above
Fluorolube FS5	0 to +250°C	Higher temperature applications

Diaphragm Seal Arrangements



Schaffer Pressure Gauges

Schaffer gauges are designed for measuring the pressure or vacuum of substances avoiding the use of bourdon tube instruments. These gauges particularly suit applications where corrosive products or liquids containing suspended solids are present. The measuring element is a steel diaphragm, connected via a rod and ball joint to an adjustable movement.

These gauges should not be used on pressures over 25 bar or on pulsating processes - for these applications diaphragm seal gauges should be used.

Case & Bezel

Black DMC or stainless steel.

Pressure Element

Diaphragm, 316 stainless steel for vacuum and pressure ranges up to 2.5 bar. EN56D steel for pressures 0 to 4 bar up to 25 bar.

Diaphragm Protection

Stainless steel (4 to 25 bar), PTFE, Tantalum, Monel 400, Hastelloy "C" and Silver

Connections

Screwed male, female or flanged.

Accuracy

1.5% of scale to BS EN837-3

Standard Pressure Ranges

See page 22.



Differential Pressure Gauges (light to medium duty)

Rotherm’s quality differential pressure gauges are designed to measure the difference in pressure between two points in a system and show it on a single dial gauge. A magnetic movement senses the differential pressure. The gauge has separate pressure and indicating chambers.

These diaphragm instruments can indicate small values of differential pressure even when used at high line pressures. They provide instantaneous and continuous information regarding system conditions helping in eliminating premature servicing of equipment, avoid unscheduled down time of costly processes and can detect abnormal system conditions.

Gauges can be supplied with reed switches to initiate alarms, activate other equipment or to shut the system down. Two switches are used when high and low limits are desired. Gauge-switch models provide the user with both gauge readout and switch operation.

Applications

Monitor filter conditions, set filter by-pass, or initiate filter cleaning cycle. Determine obstructions in process lines. Check condition of pumps, heat exchangers and other processing equipment. Adjust flow rates in piping systems. Monitor liquid levels in storage tanks.



Clockwise from top: 300DGC, 200DGR flush mounted, 200DPG, 200DGR with optional switch.






Operating Principle

High and low pressures are separated by a sensor assembly consisting of a magnet, piston or diaphragm and a range spring. The difference in pressure causes the sensor assembly to move in proportion to the change against a range spring.

A rotary magnet, located in a separate body cavity and isolated from the acting pressures, is rotated by magnetic coupling as per the linear movement of the sensor assembly. A pointer attached to the rotary magnet indicates differential pressure on the dial.

Reed switches are located adjacent to the pressure chamber and are activated by the magnetic field of the sensor assembly.

Light to Medium Duty Differential Pressure Gauges - Range Overview

Model	Case Material	Mounting	Nominal Dial Sizes (mm)	Body Material / Wetted Parts	Connections*	Standard Ranges**	Maximum Static Pressure	Switch Option
 200DPG	Stainless Steel	Direct Surface Panel 2" pipe	50, 63, 80, 100, 115, 150	Aluminium 316 St Steel Brass	1/4" BSP or NPT female*	0 - 0.25 to 0 - 10 bar	200 bar	SPST or SPDT - one or two
 200DGR	Stainless Steel	Direct Surface Panel 2" pipe	50, 63, 80, 100, 115, 150	Aluminium 316 St Steel Brass	1/4" BSP or NPT female*	0 - 0.25 to 0 - 7 bar	200 bar	SPST or SPDT - one or two
 300DGC	Stainless Steel	Direct Surface Panel 2" pipe	50, 63, 80, 100, 115, 150	Aluminium 316 St Steel Brass	1/4" BSP or NPT female*	0 - 0.075 to 0 - 4 bar	100 bar	SPST or SPDT - one or two
 400DGC	Stainless Steel	Direct Surface Panel 2" pipe	50, 80, 100, 115, 150	Aluminium 316 St Steel	1/4" BSP or NPT female*	0 - 25 to 0 - 600 mmH2O	35 bar	SPST or SPDT - one or two
 600DGC	Stainless Steel	Direct Surface Panel 2" pipe	112	Engineering Polymer	1/8" NPT female*	0 - 15 to 1000 mmH2O	2.4 bar	SPST or SPDT - one or two

*other connection sizes are available via suitable adaptors

**standard accuracy = ±2% FSD (Ascending)

Differential Pressure Gauges (medium to heavy duty)

A range of economically priced 100mm and 150mm nominal size differential pressure gauges ideally suited to most medium to heavy duty industrial applications where accuracy and durability is required.

A choice of mounting options enables simple installation - either direct mounting to the process, in a panel, surface mounting on a wall or with a vertical or horizontal pipe mounting.

DP3 Range - Standard Differential Pressure Range (maximum static pressure)	
0 to 25 mbar (25 bar)	0 to 1.6 bar (100 bar*)
0 to 40 mbar (25 bar)	0 to 2.5 bar (100 bar*)
0 to 60 mbar (25 bar)	0 to 4 bar (100 bar*)
0 to 100 mbar (25 bar)	0 to 6 bar (100 bar*)
0 to 160 mbar (100 bar*)	0 to 10 bar (100 bar*)
0 to 250 mbar (100 bar*)	0 to 16 bar (100 bar*)
0 to 400 mbar (100 bar*)	0 to 25 bar (100 bar*)
0 to 600 mbar (100 bar*)	

* 200 & 400 bar maximum static pressure options






DP362 Differential Pressure Gauge

DP360, DP370 and DP362 instruments are available with electrical contact head options and can be fitted with diaphragm seal units (see page 11).

The DP range of differential pressure gauges is also available with a wide range of options including Monel 400 and Hastelloy C276 wetted parts, oxygen cleaning Monel and liquid filled cases. 3 valve and 5 valve integral manifolds are also available.

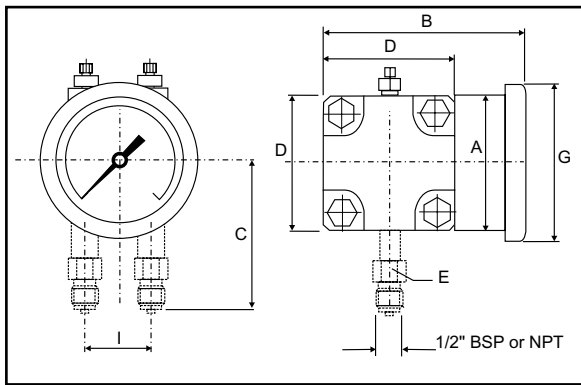
Medium to Heavy Duty Differential Pressure Gauges - Range Overview

Model	Case Material	Mounting	Nominal Dial Sizes (mm)	Wetted Parts	Connections*	Standard Pressure Ranges**	Maximum Static Pressure
 DP360	AISI 304 Stainless Steel (316 option)	Direct Surface Panel 2" pipe	100 or 150	AISI 316 stainless steel (NACE option) Monel 400	1/4" NPT female 1/2" BSP male 1/2" NPT male	0 to 160 mbar to 0 to 25 bar	100 bar (200 bar option)
 DP370	AISI 304 Stainless Steel (316 option)	Direct Surface Panel 2" pipe	100 or 150	AISI 316 stainless steel (NACE option) Monel 400	1/4" NPT female 1/2" BSP male 1/2" NPT male	0 to 25 mbar to 0 to 100 mbar	25 bar
 DP362	AISI 304 Stainless Steel (316 option)	Direct Surface Panel 2" pipe	100 or 150	AISI 316 stainless steel (NACE option) Monel 400	1/4" NPT female 1/2" BSP male 1/2" NPT male	0 to 160 mbar to 0 to 25 bar	200 bar (400 bar option)

*other connection sizes are available

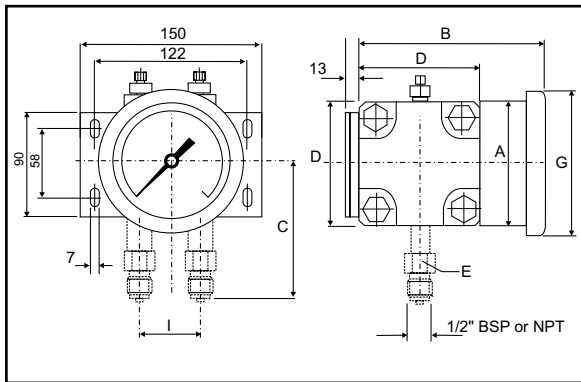
**standard accuracy = $\pm 1.6\%$ FSD (option for $\pm 1.0\%$ FSD)

DP3 Differential Pressure Gauges (dimensions)



Model DP3 Direct Mounting

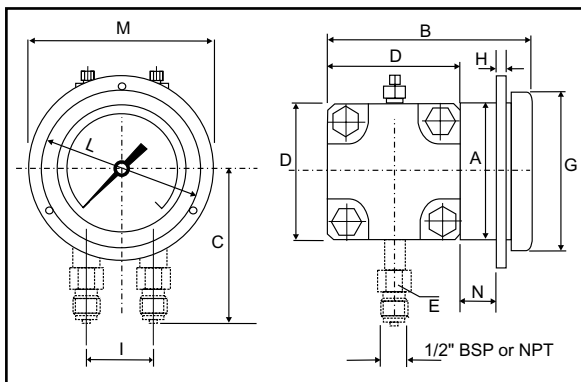
Model	Dial Size	A	B	C	D	E	G	I
DP360	100	103	150	112	100	22	118	54
	150	150	150	112	100	22	166	54
DP362	100	103	150	112	100	22	118	54
	150	150	150	112	100	22	118	54
DP370	100	103	200	137	150	22	166	54
	150	150	200	137	150	22	166	54



Model DP3 Surface Mounting

Back flange mounting with fixing holes

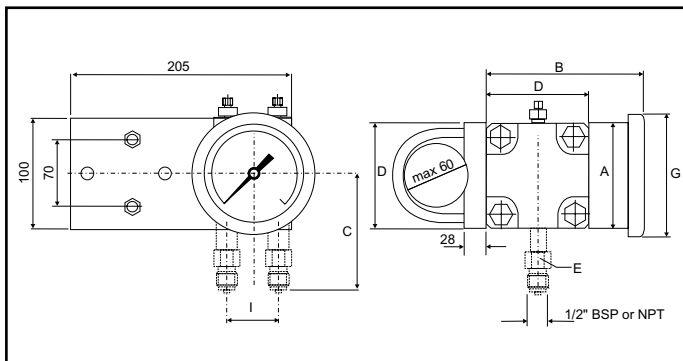
Model	Dial Size	A	B	C	D	E	G	I
DP360	100	103	150	112	100	22	118	54
	150	150	150	112	100	22	166	54
DP362	100	103	150	112	100	22	118	54
	150	150	150	112	100	22	166	54
DP370	100	103	200	137	150	22	118	54
	150	150	200	137	150	22	166	54



Model DP3 Panel Mounting

Back panel flush mounting with 3 fixing holes

Model	Dial Size	A	B	C	D	E	G	H	I	L	M	N
DP360	100	103	150	112	100	22	118	7	54	126	140	27
	150	150	150	112	100	22	166	7	54	178	192	27
DP362	100	103	150	112	100	22	118	7	54	126	140	27
	150	150	150	112	100	22	166	7	54	178	192	27
DP370	100	103	200	137	150	22	118	7	54	126	140	27
	150	150	200	137	150	22	166	7	54	178	192	27



Model DP3 Pipe Mounting

Horizontal or vertical 2" pipe mounting with AISI 304 stainless steel support

Model	Dial Size	A	B	C	D	E	G	I
DP360	100	103	150	112	100	22	118	54
	150	150	150	112	100	22	166	54
DP362	100	103	150	112	100	22	118	54
	150	150	150	112	100	22	166	54
DP370	100	103	200	137	150	22	118	54
	150	150	200	137	150	22	166	54

All dimensions are in mm. Drawings are for illustration purposes only



Please see pages 21 and 22 for Differential Pressure Gauge ordering information

PTx Pressure Transmitters

- **Stainless steel construction**
- **Pressure ranges up to 400 bar**
- **DIN43650 plug for easy installation**
- **Choice of process connections**

The Rototherm range of pressure transmitters provide a standardised 4-20mA output signal by utilising a ceramic diaphragm strain gauge mounted with an amplifier in a stainless steel housing.

The DIN43650 connector plugs into the transmitter, eliminating the need for soldering thus making field interchangeability an easy operation.

Temperature compensated sensors are fitted as standard to automatically correct zero and span drift.

PTx Pressure Transmitters can be supplied with hygienic fittings for food applications or with diaphragm seals for use on corrosive, viscous or crystallising fluids (see page 11).



Specifications

Supply Voltage

8.5 to 36 V DC

Output Current

Operating 4 to 20 mA
Limits 2.5 to 30 mA

Materials

Pressure Block Stainless steel
Case Stainless steel
Wetted Parts Stainless steel
Alumina Ceramic
Fluorocarbon

Electrical Connection

DIN 43650 Type A

Pressure Connections

1/4" BSP/NPT or 1/2" BSP/NPT male thread

Temperature Range

Storage -25 to +105°C
Operating -10 to +85°C

Protection

IP67

Weight

235g

Insulation Test

>100 Mohm 500 V DC

Temperature Coefficient

Zero : ±0.04% FS/°C Span : ±0.04% FS/°C

Linearity / Hysteresis / Repeatability

±0.2

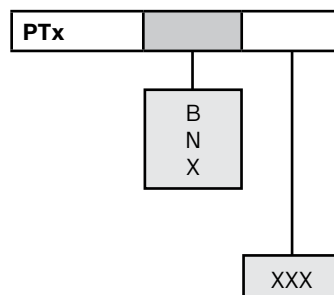
PTx Standard Pressure Ranges

Pressure Range	Burst Pressure
-1 to +1 bar	4 bar
0 to 1 bar	4 bar
0 to 2 bar	5 bar
0 to 2.5 bar	6.25 bar
0 to 6 bar	10 bar
0 to 10 bar	25 bar
0 to 16 bar	40 bar
0 to 20 bar	50 bar

Pressure Range	Burst Pressure
0 to 25 bar	62.5 bar
0 to 40 bar	100 bar
0 to 50 bar	125 bar
0 to 60 bar	150 bar
0 to 100 bar	175 bar
0 to 200 bar	280 bar
0 to 250 bar	400 bar
0 to 400 bar	700 bar

PTx Ordering Codes

PTx Pressure Transmitter



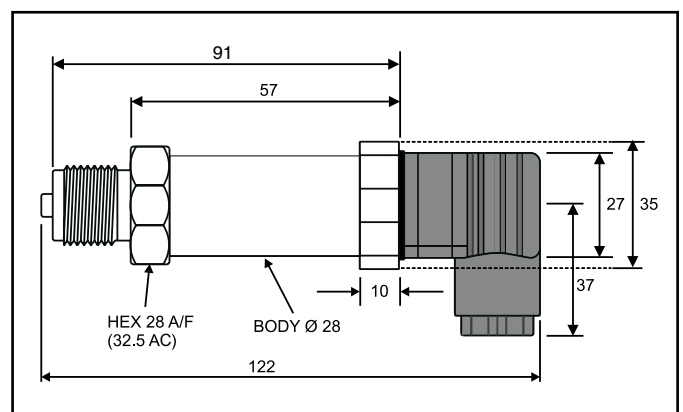
Connection

1/4" BSP male
1/4" NPT male
Other
(please state requirement)

Pressure Range

Enter pressure range

PTx Dimensions



All dimensions are in mm. Drawings are for illustration purposes only

DigiGauge Digital Pressure Gauge & Transmitters

- High Accuracy $\pm 0.2\%$ full scale
- Stainless steel IP67 case
- Long battery life - 1 year continuous operation from 2 AA cells
- Wide selection of pressure ranges from vacuum to 400 bar
- 4 to 20mA output option available
- Intrinsically safe versions available
- Supplied with calibration certificate traceable to National Standards
- Available with MAX and MIN pressure readings



High accuracy and a 4 digit display enables the DigiGauge to be used as a digital standard test gauge, replacing less accurate, sometimes fragile analogue test gauges. Factory calibration certificates traceable to National Standards are provided and UKAS calibration certificates can be supplied if required.

Covering a wide range of test and measurement applications with pressure ranges available from vacuum to 400 bar, DigiGauge can be supplied with hygienic fittings for food applications or with diaphragm seals for use on corrosive, viscous or crystallising fluids (see page 11).

All standard DigiGauge's are calibrated in a controlled environment at $20^{\circ}\text{C} \pm 3^{\circ}\text{C}$. Temperature compensated sensors are fitted as standard to automatically correct zero and span drift.

All versions of DigiGauge can also be specified with a MAXIMUM and MINIMUM pressure logging option.

Specifications

Case

100mm / 4" diameter 304 stainless steel case and bezel

Process Connection

1/4" NPT or 1/4" BSP - other sizes are available on request

Protection

IP67 / NEMA 4X

Display

4 digit LCD with 12.7mm / 1/2" high characters

Display Update Rate

0.5 seconds or 2 seconds user selectable

Sensor

Alumina ceramic (Al₂O₃) diaphragm strain gauge

Over pressure

Maximum pressure applied to be < 1.25 x full scale

Compensated Range

-10 to 60°C (14 to 140°F)

Wetted Parts

316 stainless steel, Fluorocarbon and ceramic

Temperature Limits

Storage : -20 to 85°C (-4 to 185°F)

Ambient operating : -20 to 70°C (-4 to 158°F)

Internal Case : -10 to 60°C (14 to 140°F)

Pressure Medium: -20 to 100°C (-4 to 212°F)

Power Source

(3V DC battery), 2 x 1.5V "AA" alkaline cells

Battery Life

12 months continuous operation at 2 second update.

Low Power Warning*

Display will alternate between reading & "BATT"

Accuracy

See range table below

Weight

900g

*Not applicable to DigiGauge TX

Standard Pressure Ranges

Bar Range	Resolution	PSI Range	Resolution	Accuracy*
-1 to +1 bar	1 mbar	-15 to +15 psi	0.01 psi	$\pm 0.25\%$ fs
0 to 1 bar	1 mbar	0 to 15 psi	0.01 psi	$\pm 0.25\%$ fs
0 to 2 bar	1 mbar	0 to 30 psi	0.01 psi	$\pm 0.2\%$ fs
0 to 2.5 bar	1 mbar	0 to 60 psi	0.01 psi	$\pm 0.2\%$ fs
0 to 6 bar	1 mbar	0 to 90 psi	0.01 psi	$\pm 0.2\%$ fs
0 to 10 bar	10 mbar	0 to 150 psi	0.1 psi	$\pm 0.2\%$ fs
0 to 16 bar	10 mbar	0 to 275 psi	0.1 psi	$\pm 0.2\%$ fs
0 to 20 bar	10 mbar	0 to 300 psi	0.1 psi	$\pm 0.2\%$ fs
0 to 25 bar	10 mbar	0 to 375 psi	0.1 psi	$\pm 0.2\%$ fs
0 to 40 bar	10 mbar	0 to 600 psi	1 psi	$\pm 0.2\%$ fs
0 to 50 bar	10 mbar	0 to 750 psi	1 psi	$\pm 0.2\%$ fs
0 to 60 bar	10 mbar	0 to 900 psi	1 psi	$\pm 0.2\%$ fs
0 to 100 bar	100 mbar	0 to 1500 psi	1 psi	$\pm 0.2\%$ fs
0 to 200 bar	100 mbar	0 to 3000 psi	1 psi	$\pm 0.2\%$ fs
0 to 250 bar	100 mbar	0 to 3750 psi	1 psi	$\pm 0.25\%$ fs
0 to 400 bar	100 mbar	0 to 6000 psi	1 psi	$\pm 0.25\%$ fs

*Note: Accuracy includes non linearity + hysteresis + repeatability Temperature coefficient of zero and span < 0.02% FS/°C

DigiGauge Versions

DigiGauge Tx



For applications that require both local indication and a 4/20mA transmitted signal to a remote control or monitoring system the DigiGauge Tx is the ideal instrument. The DigiGauge Tx operates as a conventional loop-powered 4/20mA two wire transmitter and can accept excitation voltages between 12V and 32V DC. The 4/20mA output can be set to operate across 100% of the instrument span or can be user configured, in set up mode, to operate across a limited range, minimum being 10% of instrument span.

Additionally, custom factory set configurations can be provided. Pressure ranges, accuracy and general specifications are as per the standard Rototherm DigiGauge. DigiGauge Tx is supplied with a 2 metre lead terminating in a 3 pole M8 connector.

DigiGauge i.s.



For use in hazardous areas, as found in oil and gas processing, chemical and pharmaceutical plants, tankers and storage vessels, an intrinsically safe version of the DigiGauge is available.

Certified as intrinsically safe, by BASEEFA to the very latest ATEX standards, the DigiGauge i.s. is approved to EEx ia IIC T4(-20°C<Ta<60°C) certification and is designated as equipment Group II Category I Intrinsically Safe Apparatus.



The Rototherm DigiGauge i.s. is covered by ATEX certificate BAS99 ATEX 1004X.

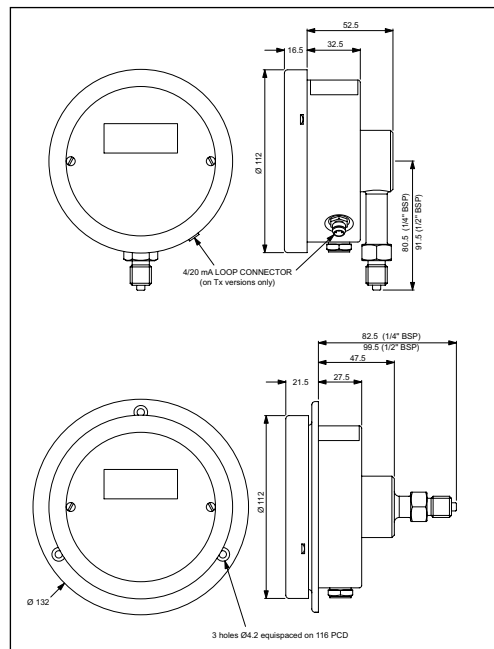
Ranges, accuracy and general specifications are as per the standard DigiGauge.

DigiGauge Ordering Codes

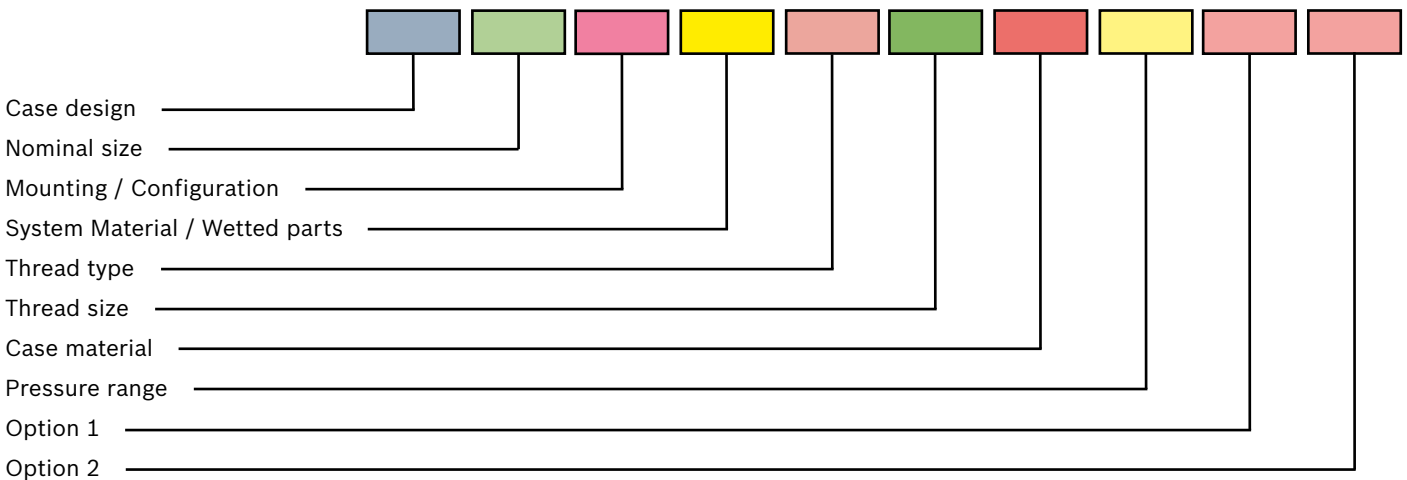
Standard Version	DG1					
Intrinsically Safe	DG1 IS					
Transmitter	DG1 Tx					

<p>Mounting Direct vertical Direct back Panel Surface</p> <p>Connection 1/4" BSP male 1/4" NPT male Other (please state requirement)</p> <p>Pressure Range Enter pressure range</p> <p>MAX and MIN Pressure Readings Required Not Required</p> <p>Certification Factory Calibration Certificate (supplied as standard) UKAS Calibration Certificate</p>	<div style="border: 1px solid black; padding: 5px; width: 40px; margin: 0 auto;">V B P S</div> <div style="border: 1px solid black; padding: 5px; width: 40px; margin: 0 auto;">B N X</div> <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto; text-align: center;">XXX</div> <div style="border: 1px solid black; padding: 5px; width: 40px; margin: 0 auto; text-align: center;">1 2</div> <div style="border: 1px solid black; padding: 5px; width: 40px; margin: 0 auto; text-align: center;">1 2</div>
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DigiGauge Dimensions



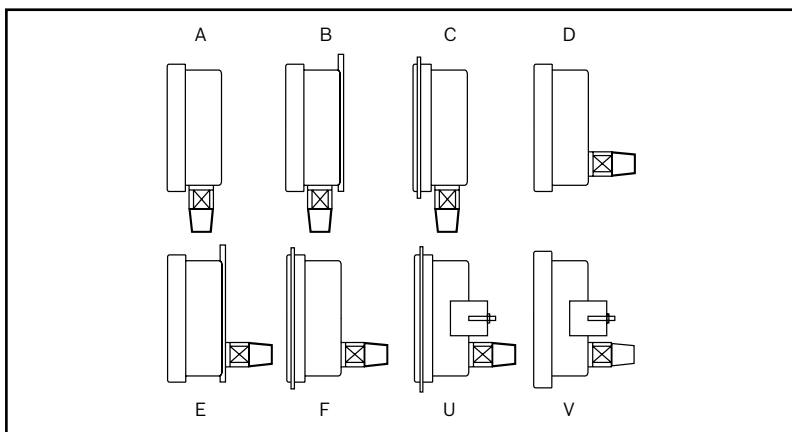
Process Pressure Gauge Ordering Information



1. Case type & nominal size

Case Code	Case & Bezel Material	Size Code	Nominal Size mm (inch)	Available Configuration
SPG	304 stainless steel	100	100 (4)	A B C D F U
	316 stainless steel option (S1)	150	150 (6)	
RPG	304 stainless steel	63	63 (2.5)	A B C D E F V
	316 stainless steel option (S1)	100	100 (4)	
		150	150 (6)	
RCG	304 stainless steel	100	100 (4)	A B C D E F V
	316 stainless steel option (S1)	150	150 (6)	
DMC	Dough Moulded Compound	100	100 (4)	A B D V* (150mm dial only)
		150	150 (6)	
Turret	Phenolic (black plastic)	115	115 (4.5)	A B
SPGA	Aluminium case, brass bezel	63	63 (2.5)	A B C D E F U
		100	100 (4)	
		150	150 (6)	
		250*	250 (10)	
		300	300 (12)	
SPGBS	Mild steel, painted black	200	200 (8)	A B
		250	150 (10)	

2. Gauge configuration



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

3a. Bourdon tube system material

System Code	Socket / Block Material	Bourdon Tube Material
BB	Brass	Bronze
BS	Brass	316 Stainless steel
MM	Monel 400*	Monel 400*
SS	316 Stainless steel	316 Stainless steel
NS	Ni Span C	316 Stainless steel

* to NACE MR-01-75

3b. Capsule system material

System Code	Socket / Block Material	Capsule Material
BB	Brass	Beryllium copper
SS	316 Stainless steel	316 Stainless steel

Some materials may not be available for all gauge models. Please refer to individual gauge specifications, or alternatively contact Rototherm sales.

4. Thread type & size

Thread Type (first number)	Thread Size (second number)
0 = NPT	1 = 1/8"
1 = BSP	2 = 1/4"
2 = BSPT	3 = 3/8"
3 = API	4 = 1/2"

5. Case material

Q	Standard case (see case Type and Size)
S	Stainless steel case (where not standard)
S1	316 Stainless steel case - when available as an option

Example order code

SPG	100	A	SS	1	4	Q	0-10bar	G	N
-----	-----	---	----	---	---	---	---------	---	---

- Model SPG safety pattern pressure gauge
- 100mm nominal dial size
- direct, bottom entry
- 316 stainless steel socket and bourdon tube
- 1/2" BSP male process connection
- 304 stainless steel case
- pressure range 0 to 10 bar
- glycerine fill option

6. Standard pressure ranges

Below is a list of standard pressure ranges that are available. gauges may be ordered with dual scales. Other units and non-standard ranges are available on request.

Imperial	Metric
3 to 15 psi receiver	0.2 to 1 bar
0 to 10" Wg	0 to 25 mbar
0 to 16" Wg	0 to 40 mbar
0 to 24" Wg	0 to 60 mbar
0 to 30" Wg	0 to 75 mbar
0 to 40" Wg	0 to 100 mbar
0 to 60" Wg	0 to 150 mbar
0 to 100" Wg	0 to 250 mbar
0 to 160" Wg	0 to 400 mbar
0 to 200" Wg	0 to 500 mbar
0 to 300" Wg	0 to 700 mbar
0 to 400" Wg	0 to 1000 mbar
0 to 30" Hg vacuum	0 to -1 bar vacuum
30" Hg to 15 psi	-1 to +1.5 bar
30" Hg to 30 psi	-1 to +3 bar
30" Hg to 60 psi	-1 to +5 bar
30" Hg to 100 psi	-1 to +9 bar

Equivalent units available include:

"Wg, "Hg, cm Wg, cm Hg, kg/cm², kPa and MPa.
Some ranges may not be available for all gauge models. Please refer to individual specification sheets or contact Rototherm sales.

Imperial	Metric
0 to 10 psi	0 to 600 mbar
0 to 15 psi	0 to 1 bar
0 to 25 psi	0 to 1.6 bar
0 to 30 psi	0 to 2.5 bar
0 to 60 psi	0 to 4 bar
0 to 100 psi	0 to 6 bar
	0 to 7 bar
0 to 120 psi	
0 to 160 psi	0 to 10 bar
0 to 200 psi	0 to 16 bar
0 to 300 psi	0 to 20 bar
0 to 400 psi	0 to 25 bar
0 to 600 psi	0 to 40 bar
0 to 800 psi	0 to 60 bar
0 to 1000 psi	0 to 70 bar
0 to 1600 psi	0 to 100 bar
0 to 2000 psi	0 to 160 bar
0 to 3000 psi	0 to 250 bar
0 to 4000 psi	
0 to 6000 psi	0 to 400 bar
0 to 10000 psi	0 to 600 bar
0 to 15000 psi	
0 to 16000 psi	0 to 1000 bar

7. Options

No option = NN, one option = selected letter then N, Two options = list from below alpha-numerically.

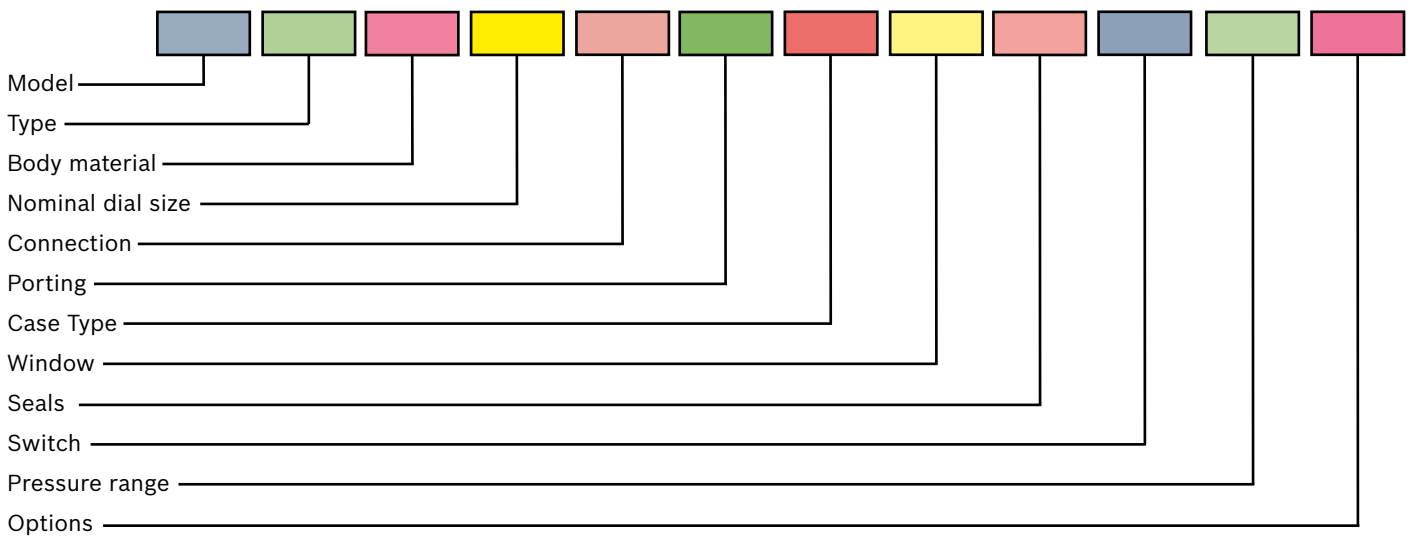
N	No option	O	Oxygen cleaned
X	Special instruction - please state	P	Perspex window
C	Customer drawing or specification	R	Internal Restrictor fitted
D	Defence Standard 66/2	S	Internal stops
E	Electrical Contact Head	T	Drag pointer
G	Glycerine filled	V	Low magnetic permeability
H	0.5% accuracy	W	Test gauge (0.25% accuracy)
J	Red setting pointer	Y	Damped Movement
L	No aluminium (for underground use)	Z	Wetted parts to NACE MR-01-75

Some options may not be available for all gauge models. Please refer to individual gauge specifications, or contact Rototherm sales.

Pressure Conversion Chart

	psi	In Wg	kg/cm ²	m Wg	In Hg.	mm Hg	cm Hg	bar	mbar	kPa
psi	1	27.72	0.07	0.7	2.04	51.88	5.19	0.69	68.95	6.9
In Wg	0.0361	1	0.0025	0.03	0.07	1.87	1.09	0.0025	2.49	0.25
kg/cm²	14.23	394.41	1	10.02	29.05	737.96	73.8	0.98	980.66	98.07
m Wg	1.42	39.37	0.1	1	2.91	73.8	7.38	0.098	98.07	9.81
In Hg	0.49	13.58	0.03	0.35	1	25.4	2.54	0.034	33.75	3.38
mm Hg	0.02	0.53	0.0014	0.01	0.04	1	0.1	0.001	1.33	0.13
cm Hg	0.193	5.34	0.14	0.14	0.39	10	1	0.01	13.29	1.33
bar	14.5	402.16	1.02	10.21	29.63	752.47	75.25	1	1000	100
mbar	0.01	0.4	0.001	0.01	0.03	0.75	0.08	0.001	1	0.1
kPa	0.15	4.02	0.01	0.102	0.3	7.53	0.75	0.01	10	1

Differential Pressure Gauge Ordering Information



1. Model

200 DPG	200 DGR	300 DGC
400 DGC	600 DGC	

2. Type

G	Gauge	S	Switch	GS	Gauge + Switch
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3. Body Material

A	Aluminium	B	Brass
S	316 stainless steel	M	Monel
EP	Engineering Polymer (600DGC only)		

4. Dial Size

2.0	50mm (2.0")	4.0	100mm (4.0")
2.5	63mm (2.5")	4.5	115mm (4.5")
3.5	80mm (3.5")	6.0	150mm (6.0")

5. Connection

4N	1/4" NPT (F) (standard)	4B	1/4" BSP (F)	
ZZ	Other via adaptors		8N	1/8" NPT (F) (600DGC)

6. Porting

1	In-line (standard)	4	Bottom & vent
2	Rear / back	5	In-line & vent
3	Bottom	6	In-line & bottom

7. Case Type

SS	304 stainless steel (standard)	SF	304 stainless steel (with flange)
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8. Window

F	Glass (standard)	A	Acrylic
T	Toughened glass		

9. Seals

B	Buna-N (standard)	V	Viton®
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10. Switch

0			
1	1 x SPST (DIN plug)	4A	2 x SPST (built in relay)
2	1 x SPST (terminal strip)	5	1 x SPDT (DIN plug)
2A	1 x SPST (built in relay)	6	1 x SPDT (terminal strip)
3	2 x SPST (DIN plug)	7	2 x SPDT (2 x DIN plug)
4	2 x SPST (terminal strip)	8	2 x SPDT (terminal strip)

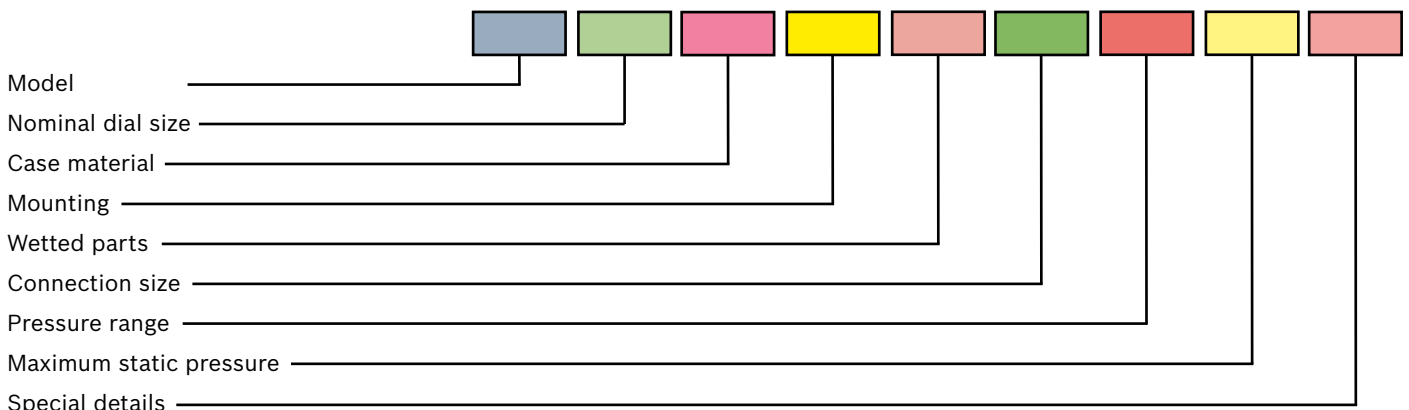
11. Pressure Range

Enter standard pressure range - see page 13

12. Options

0	None	B	Red follow pointer
A	Glycerine filled	D	Dual scale

DP3 Differential Pressure Gauge Ordering Information



1. Model

DP360	DP370	DP362
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2. Nominal dial size

100	100mm (4.0")	150	150mm (6.0")
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3. Case material

304	304 stainless steel (standard)	316	316 stainless steel
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4. Mounting

A	Direct	C	Panel with 3 hole fixing
B	Surface with clamp	D	2" pipe mounting

5. Wetted parts

SS	316L stainless steel	SSN	316L stainless steel to NACE standard
MM	Monel 400	XX	Other - state requirement

6. Connection size

4N	1/4" NPT (F) (standard)	4B	1/4" BSP (F)
ZZ	Other via adaptors	8N	1/8" NPT (F) (600DGC)

7. Pressure Range

Enter standard pressure range - see page 14

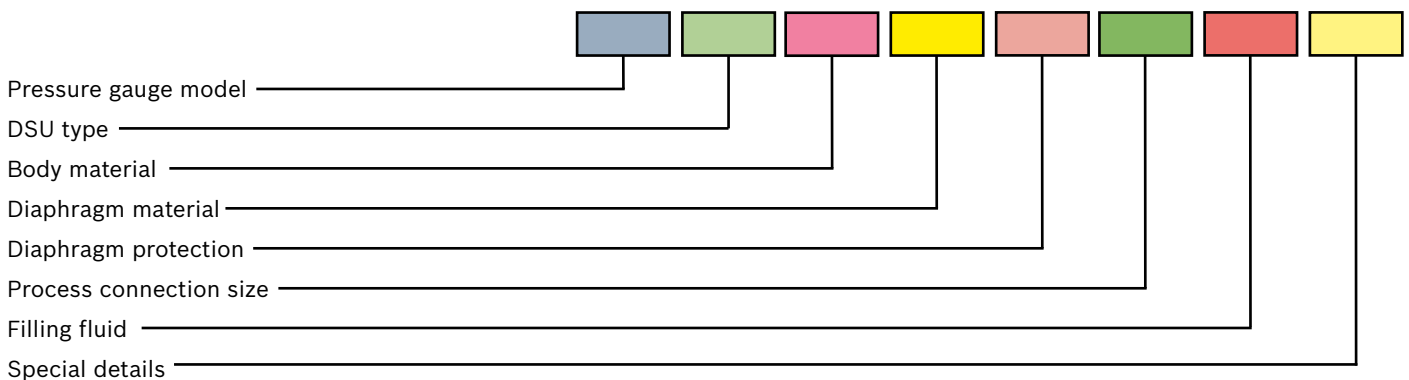
8. Maximum static pressure

25	25 bar	200	200 bar (DP360 option)
100	100 bar	400	400 bar (DP362 option)

9. Options

0	None	O2	Dual scale
S	Glycerine filled	DSU	Diaphragm seal unit
M	Maximum pointer	ECH	Electrical contact head
SG	Safety glass window		

Diaphragm Seal Unit (DSU) Ordering Information



1. Model

Enter pressure gauge model code

2. DSU type

A	Welded Construction	B	Bolted construction
C	Welded diaphragm bolted to flange	XX	Other - state requirement

3. Body material

316	316 stainless steel	XX	Other - state requirement
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4. Diaphragm material

316	316 stainless steel	XX	Other - state requirement
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5. Diaphragm protection

0	None	XX	Other - state requirement
PTFE	PTFE		

6. Process connection

XX	Screwed - enter thread size & type	XX	Flange - enter flange size & rating
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7. Filling fluid

Enter filling fluid - see page 12

8. Special details

Enter special details

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British Rototherm and Thermocouple Instruments products are manufactured in its modern factory located in the South Wales region of the United Kingdom. Sited on 6 acres of land at Kenfig Industrial Estate, the company operates from a modern 6,030 square metre (65,000 square feet) factory.

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