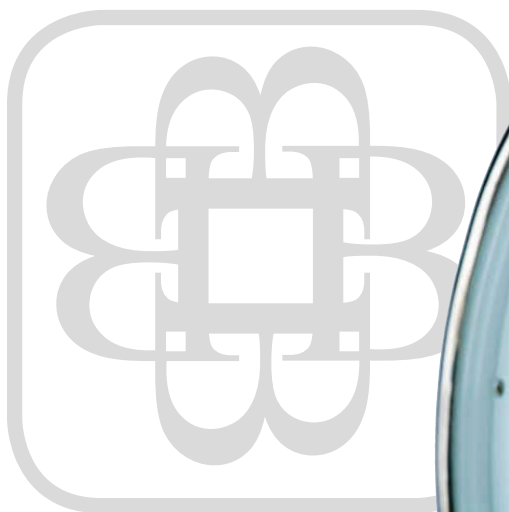


Made in Britain



Pressure Gauges | Digital Pressure Indicators
Digital Tank Gauges | Chemical Seals
Thermometers | Pressure Gauges
Transmitters | Switches and Contacts | Accessories
Calibration Services | Training Courses

A global supplier of quality
instrumentation with a clear customer
focus through production efficiency for
total customer satisfaction



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EXCLUSIVE AGENT:



中華五金有限公司

CHUNG WAH METAL CO., LTD.

63mm PROCESS GAUGE

The Classic 726 range of Pressure Gauges are designed to meet the high demands of the process industry as well as diverse range of applications.

From harsh corrosive chemical applications to general engineering uses, the Classic 726 combines a high specification with a very cost effective price.

The standard unit incorporates 316 stainless steel wetted parts that are housed within a liquid fillable 316 stainless steel case. Standard units are available as dual scale bar and psi but custom scales can be supplied.

Available in direct, surface or flush mounting variants, the 726 can be configured to suit any individual application. In addition, Budenberg can supply a full range of Syphons, Snubbers, Gauge Savers, Manifolds, Diaphragm Seals etc Seals etc.

**Size**

63mm (2.5")

Mounting

Direct, Surface, Flush or direct with rear connection

Case & Bezel

One-piece open front case in 316 Stainless Steel with a safety blow out plug in the top of the unit. The bezel is in polished 316 stainless steel with a bayonet locking mechanism.

Scale Ranges

0 to 1 bar to 0 to 1700 bar or equivalent units of pressure / vacuum are available. Stock units are dual scale bar / psi

Pressure Element

≤80 Bar – 316 Stainless Steel Bourdon Tube
≥81 Bar - 316 Stainless Steel Coil

Overload

Units withstands overload pressure up to 130% of FSD

Pressure Connection

1/4" BSP as standard, Option: 1/8" BSP, 1/4" NPT

Accuracy Class

CL:1 1.0% of FSD as defined in EN837-1

Temperature

Operating: -40 to +60 °C
Storage: -40 up to +100 °C

Options: for lower or higher operating temperatures, please contact our Sales Office

Temperature Effect

+/- 0.4% per 10 °C

Dial

White Anodised Aluminium marked in black finish
Dual scale bar/psi is standard but custom dials are available

Pointer

Black Aluminium Pointer

Movement

Stainless Steel Construction

Filling

The case can be supplied filled with glycerine or silicon oil or can be filled at site

Window

Toughened Safety Glass

Environmental Rating

IP65 as defined in EN 60 529

Traceability

All instruments are individually calibrated
A Certificate of Conformity is Supplied Free of Charge

Safety

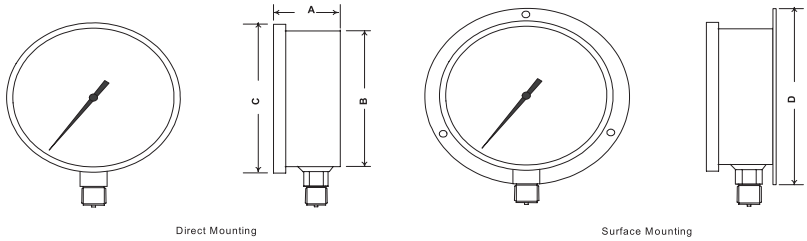
All units are manufactured to comply with EN 837-1 specification and other regulatory standards including PED.

Installation instructions

Refer to EN 837-2

Dimensions

Model : 726



Type	A	B	C	D	Hole Diam	PCD	Weight
63mm Direct Mount (Bottom)	34mm	65mm	65mm				170g
63mm Surface Mount (Bottom)	37mm	65mm	65mm	86mm	3.6mm	72-75mm	170g
63mm Direct Mount (Rear)	27mm	65mm	65mm				170g
63mm Flush Mount (Rear)	27mm	65mm	65mm				170g

Standard Stock units - 100 mm, Dual Scale bar / psi

Stock No	Range	Connection	Stock No	Range	Connection
73601.01/2N	0 - 1.0 bar	1/2" NPT m	73601.03/8	0 - 1.0 bar	3/8" BSP m
73601.61/2N	0 - 1.6 bar	1/2" NPT m	73601.03/8	0 - 1.6 bar	3/8" BSP m
73602.51/2N	0 - 2.5 bar	1/2" NPT m	73601.03/8	0 - 2.5 bar	3/8" BSP m
73604.01/2N	0 - 4.0 bar	1/2" NPT m	73601.03/8	0 - 4.0 bar	3/8" BSP m
73606.01/2N	0 - 6.0 bar	1/2" NPT m	73601.03/8	0 - 6.0 bar	3/8" BSP m
736010.01/2N	0 - 10 bar	1/2" NPT m	73601.03/8	0 - 10 bar	3/8" BSP m
736016.01/2N	0 - 16 bar	1/2" NPT m	73601.03/8	0 - 16 bar	3/8" BSP m
736025.01/2N	0 - 25 bar	1/2" NPT m	73601.03/8	0 - 25 bar	3/8" BSP m
736040.01/2N	0 - 40 bar	1/2" NPT m	73601.03/8	0 - 40 bar	3/8" BSP m
736060.01/2N	0 - 60 bar	1/2" NPT m	73601.03/8	0 - 60 bar	3/8" BSP m

Accessories

Budenberg can supply a full range of gauge accessories and manifolds that include:

Externally Adjustable Snubber	-	See datasheet VAC 51
U' and Scroll syphons	-	See datasheet VAC 52
Overload Protection Valves	-	See datasheet VAC 53
Gauge Swivel Adaptors	-	See datasheet VAC 50
Needle Valves	-	See datasheet VAC 16 - 17
Ball Valves	-	See datasheet VAC 15
Block & Bleed Manifolds	-	See datasheet VAC 20
Diaphragm Seal units	-	See datasheets BUD 38 - 45

Please contact our Sales Office for any special requirements including units for operation on special services, higher temperature operation or customised dials.,

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Tel : +44 (0)844 372 8900. Fax : +44 (0)844 372 8925.
Email : sales@budenberg.co.uk Web: www.budenberginstruments.com



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Fax : +44 (0)161 777 7399

Web : www.budenberg.co.uk

Model: 736

The Classic range of Pressure Gauges has been designed to meet the high demands of the process industry.

From harsh corrosive chemical applications to general engineering uses, the Classic combines a high specification with a very cost effective price.

The standard unit incorporates 316 stainless steel wetted parts that are housed within a liquid fillable 316 stainless steel case. Standard units are available as dual scale bar and psi but custom scales can be supplied.

Available with a wide range of accessories including: Syphons, Snubbers, Gauge Savers, Manifolds, Diaphragm Seals etc ensures that Budenberg can provide you with the right product to suit any individual application or requirement.

Size

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

Mounting

Direct or Surface

Case & Bezel

One-piece open front case in 316 Stainless Steel with a safety blow out disc in the back. Polished Bezel with Bayonet Locking mechanism

Scale Ranges

0 to 1 bar to 0 to 1400 bar or equivalent units of pressure / vacuum are available

Pressure Element

≤80 Bar – 316 Stainless Steel Bourdon Tube

≥81 Bar – 316 Stainless Steel Coil

Overload

Units withstands overload pressure up to 130% of FSD
150% of FSD is optional. Please refer to our sales office

Pressure Connection

3/8", or 1/2" NPT

Accuracy Class

CL1 1.0% of FSD as defined in EN837-1

Temperature

Operating: -40 to +60 °C

Storage: -40 up to +100 °C

Options: for lower or higher operating temperatures, please contact our Sales Office

CLASSIC PROCESS GAUGE



Temperature Effect

Max 0.4% / 10K

Dial

White Anodised Aluminium marked in black finish
Dual scale bar / psi is standard but customised dials are available

Pointer

Black Aluminium Micrometer Adjustable Pointer

Movement

Stainless Steel Construction

Option : Case filling with glycerine or other fluids is available

Window

Toughened Safety Glass

Environmental Rating

IP67 as defined in EN 60 529

Traceability

All instruments are individually calibrated

A Certificate of Conformity is Supplied Free of Charge

Certification available

BS EN 10204 3.1B Material Certification

Point by Point Test Certificate

Safety

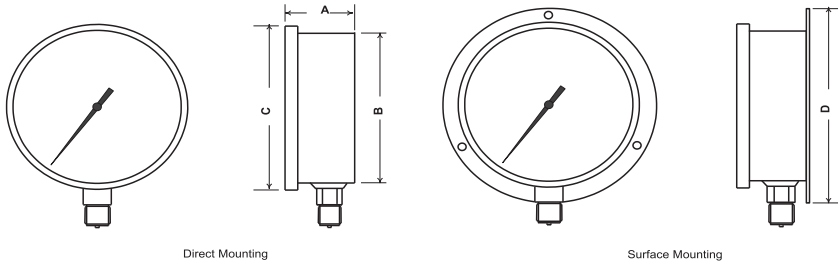
All units are manufactured to comply with EN 837-1 specification and other regulatory standards including PED.

Installation instructions

Refer to EN 837-2

Dimensions

Model : 736



Model No	A	B	C	D	Hole Diam	PCD	Weight
100mm 736 (Dry Case)	49	101	111	134	6.0	118	0.5 kg
100mm 736 (Filled Case)	49	101	111	134	6.0	118	0.9 kg
150mm 736 (Dry Case)	54	161	172	186	6.0	168	1.0 kg
150mm 736 (Filled Case)	54	161	172	186	6.0	168	1.9 kg

Standard Stock units - 100 mm, Dual Scale bar / psi

Stock No	Range	Connection	Stock No	Range	Connection
73601.01/2N	0 - 1.0 bar	1/2" NPT m	73601.03/8	0 - 1.0 bar	3/8" BSP m
73601.61/2N	0 - 1.6 bar	1/2" NPT m	73601.03/8	0 - 1.6 bar	3/8" BSP m
73602.51/2N	0 - 2.5 bar	1/2" NPT m	73601.03/8	0 - 2.5 bar	3/8" BSP m
73604.01/2N	0 - 4.0 bar	1/2" NPT m	73601.03/8	0 - 4.0 bar	3/8" BSP m
73606.01/2N	0 - 6.0 bar	1/2" NPT m	73601.03/8	0 - 6.0 bar	3/8" BSP m
736010.01/2N	0 - 10 bar	1/2" NPT m	73601.03/8	0 - 10 bar	3/8" BSP m
736016.01/2N	0 - 16 bar	1/2" NPT m	73601.03/8	0 - 16 bar	3/8" BSP m
736025.01/2N	0 - 25 bar	1/2" NPT m	73601.03/8	0 - 25 bar	3/8" BSP m
736040.01/2N	0 - 40 bar	1/2" NPT m	73601.03/8	0 - 40 bar	3/8" BSP m
736060.01/2N	0 - 60 bar	1/2" NPT m	73601.03/8	0 - 60 bar	3/8" BSP m

Accessories

Budenberg can supply a full range of gauge accessories and manifolds that include:

Externally Adjustable Snubber	-	See datasheet VAC 51
U' and Scroll syphons	-	See datasheet VAC 52
Overload Protection Valves	-	See datasheet VAC 53
Gauge Swivel Adaptors	-	See datasheet VAC 50
Needle Valves	-	See datasheet VAC 16 - 17
Ball Valves	-	See datasheet VAC 15
Block & Bleed Manifolds	-	See datasheet VAC 20
Diaphragm Seal units	-	See datasheets BUD 38 - 45

Please contact our Sales Office for any special requirements including units for operation on special services, higher temperature operation or customised dials.



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Web : www.budenberg.co.uk

Model: 966GP

An impressive technical specification and wide range of standard features make the PREMIUM the obvious choice for a wide range of process and engineering applications.

Embodying an all 316 Stainless Steel construction, the 966GP incorporates a solid baffle wall and blow out back for operator protection and standard features such as IP67 environmental protection, not normally available on comparative units.

An extensive choice of options can be fitted to any standard unit whilst fully customised units can be manufactured to suit any customer's requirements

Monel wetted parts, can be provided for customers who seek units to meet NACE-01-75 specification see 966MGP.

Size

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

Mounting

Direct, Surface and Flush

Case & Bezel

Rugged one-piece full Safety Pattern case to S3 standard with a solid baffle partition wall and full blow out back manufactured in 1.6mm thick, 316L stainless steel.

Scale Ranges

0 to 600 mbar to 0 to 1400 bar Pressure

Equivalent units of pressure / vacuum available

Single and dual scales are available

Pressure Element

≤80 Bar - 316 Stainless Steel Bourdon Tube

≥81 Bar - 316 Stainless Steel Coil

Overload

Units withstands overload pressure up to 130% of FSD
Overload & vacuum stops are fitted on the movement

Option: Mechanical overload clamps fitted internally to enable units to withstand up to 3x the max scale reading

Pressure Connection in 316 Stainless Steel

3/8", 1/2" BSP

1/2" NPT

Other connections available, contact our Sales Dept for details

Accuracy Class

CL:1 1.0% of FSD as defined in EN837-1

Option: 0.5% of FSD as defined in EN837-1

Temperature

Operating: -20 to +90 °C

Storage: -40 up to +100 °C

Options: for lower or higher operating temperatures, please contact our Sales Office

BOURDON TUBE PRESSURE GAUGE PREMIUM INDUSTRIAL SERVICE



Dial

White Anodised Aluminium marked in black finish

Single or dual scale

Pointer

Stainless steel coloured black

Options: Micrometer adjustable pointer

Movement

Stainless Steel Construction

Option: Viscous Damped movement to overcome the effects of minor pressure pulsations

Window

3mm Laminated Safety Glass (Standard)

Option: Acrylic Plastic Window

Environmental Rating

IP67 as defined in EN 60 529

Traceability

All instruments are individually calibrated and have an unique Serial Number printed on the dial. A Certificate of Conformity Traceable to National Standards is Supplied Free of Charge

Certification available

BS EN 10204 3.1B Material Certification

Point by Point Test Certificate

Safety

All units are manufactured to comply with EN 837-1, S3 specification and other regulatory standards including PED.

Installation instructions

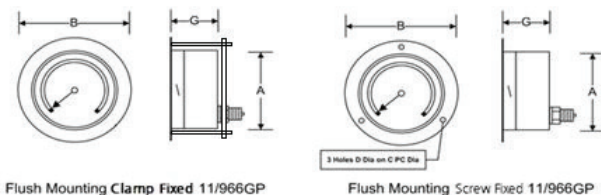
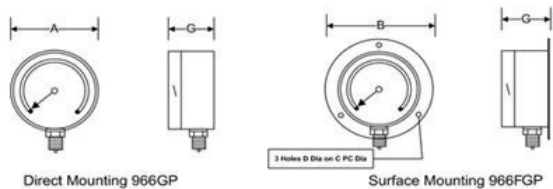
Refer to EN 837-2

Temperature Effect

Variation in indication caused by temperature shall not exceed $\pm 0.04 \times (t_2 - t_1)\%$ of the span where:

t1 is the reference ambient temperature in degrees Celsius

t2 is the ambient temperature in degrees Celsius



Model No	A	B	C	D	G	Weight
100mm 966 (Dry Case)	105mm	131mm	118mm	6mm	52mm	0.7kg
100mm 966 (Glycerine Filled)	105mm	131mm	118mm	6mm	52mm	1.1kg
150mm 966 (Dry Case)	162mm	183mm	168mm	6mm	53mm	1.34kg
150mm 966 (Glycerine Filled)	162mm	183mm	168mm	6mm	53mm	2.30kg

Options

Element : 316L Stainless Steel
 Accuracy : 0.5% of FSD as defined in EN837-1
 Window : Acrylic Plastic Window
 Pointer : Micrometer adjustable Model 270
 Dials : Special sectors, Logos etc.

Accessories

For high temperature applications such as steam, see our range of syphons and adaptors. – See separate Datasheet.

We can supply Needle, Ball or 2 Valve manifolds for the Model 966GP – See separate Datasheet.

The manifolds in addition to allowing the instrument to operate normally allows the following: -

- Checking of gauge zero at line pressure.
- Complete isolation of the instrument.
- De-pressurisation of the instrument or controlled purging.
- Damping of pressure pulsations and surges.
- Inline calibration, allows in situation calibration



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Web : www.budenberg.co.uk

Model: 5214

Our 0.25% accuracy Standard Test Gauge is undoubtedly recognised as a world leader for its accuracy and, of course, Budenberg Quality.

This gauge incorporates a base test gauge accuracy with to a maximum of 500 graduations where possible, along with a knife edged pointer and an anti-parallax mirror to help reduce the chance of human error. The Standard Test Gauge is an obvious choice when accuracy is paramount.

The standard test gauge meets all the requirements of EN837 and all units are supplied with a detailed calibration certificate with is traceable to National Standards. The gauge is also dust and splash proof to IP 54 standards.

Recalibration is simplified with the inclusion of a micrometer adjustable pointer as a standard feature.

Sizes

150mm, 200mm & 250mm dial diameter

Mounting

Direct, Surface Mounting is standard with a bottom connection. Flush Panel Mounting with clamp/three-hole fixing is also an option.

Case

LM6M Aluminium casting to BS1490 utilising a full Safety Pattern solid baffle wall with blow out back, finish to BS381C

Bezel

Direct / Surface mount - Stainless Steel 316L polished.
Flush mount - Die cast Aluminium finished in black.

Scale Ranges

0 to 600 mBar up to 0 to 1,600 Bar Pressure
0 to 10 psi and up to 25,000 psi
Equivalent units of Pressure / Vacuum Available
Dual Scale units or custom scales can be provided on request.

Pressure Element

Up to 70 Bar Beryllium Copper bourdon tube & Brass Chrome plated connection
From 71 Bar up to 600 Bar Beryllium Copper coil tube & Brass Chrome plated connection
From 601 Bar up to 2500 Bar Ni-Span C Coil & Stainless Steel connection
Option for Stainless Steel on request.

Overload

Units will withstand the following overload pressure conditions for a short period:

Max Scale Value	Over Pressure to be Applied
≤ 80 Bar	130% of Maximum Scale Value
≥ 81 Bar	115% of Maximum Scale Value

Pressure Connection

1/2" BSP or NPT on direct / surface mounting and
3/8" BSP or 1/4" NPT as Standard on Flush Mounting Units
Other connections including HF2 high pressure are available; contact our Sales Office for Details.

STANDARD TEST GAUGE ACCURACY 0.25%



Accuracy Class

0.25% of FSD as defined in EN837-1

Dial

White anodised Aluminium with Mirror Scale with Anti Parallax mirror scale for accurate reading.
Option: Dual scales or special dial markings are available

Pointer

Micrometer Adjustable, Knife-edge, Aluminium coloured Black

Movement

Non Ferrous with Glass Bearings for Improved Accuracy & Sensitivity

Environmental Rating

Dust Proof and Splash Proof to IP54

Temperature

Operating: -20 to +60 Degrees C
Storage: -40 up to +70 Degrees C
Options: For lower or higher operating temperatures, please contact our Sales Office.

Certification

All instruments are individually calibrated and have a unique Serial Number printed on the dial. A Certificate of Conformity traceable to National Standards is supplied free of charge.

Calibration

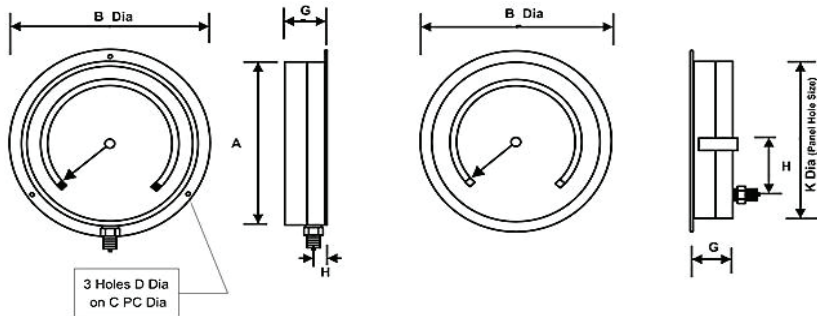
All units are individually calibrated to suit the test medium being used i.e. Gas or Liquid. It is important therefore to specify the medium at time of order

Safety

All units are manufactured to comply with EN 837-1, to S1 specification and other regulatory standards including P.E.D.

Dimensions

Model : 5214



Direct / Surface Mounting

Flush Mount - Clamp Fixing

Model No	A	B	C	D	G	H	K	Weight
150mm 5214FGP Surface Mounting	155mm	180mm	167mm	5.3mm	58mm	24mm		1 Kg
150mm 11/5214GP Flush Mounting	171mm				90mm	52mm	165mm	1 Kg
200mm 5214FGP Surface Mounting	207mm	235mm	221mm	5.3mm	61mm	24.4mm		2.3Kg
200mm 11/5214GP Flush Mounting	225mm				90mm	80mm	215mm	2 Kg
250mm 5214FGP Surface Mounting	259mm	290mm	273mm	6.4mm	66mm	20mm		2.9 Kg
250mm 11/5214GP Flush Mounting	283mm				90mm	80mm	270mm	2.3 Kg

Options

Oil free Test Gauges are available, the tubes and blocks of the Model 5214 are vapour de-greased before assembly and the strictest precautions are taken to see that no oil enters the tube during manufacture, the dial is marked "Use No Oil".

Cerification

We supply a point -by-point test certificate with every standard test gauge. A typical example is available on request. All units are manufactured to comply with EN837 to S1 specification and other regulatory standards to include P.E.D.

UKAS traceable certification available on request.

Pressure Medium

If a gauge is calibrated on air and subsequently used on liquid, the weight of the liquid in the tube will weight down the end of the tube and cause an accuracy error. This effect is significant with graduations up to and including 16 bar (250 psi) and so we must be advised on the medium for which the gauges will be used: liquid or air; the dials of the gauge will be marked accordingly.

Gauges with a vacuum scale or with a compound scale (pressure & vacuum) are calibrated on air. Gauges with graduations above 16 bar (250 psi) are usually calibrated on oil. Gauges graduated above 16 bar and not exceeding 40 bar (250 & 600psi) can be tested on air at customers' request.

Dial Markings

Maximum Graduation	20	25	30	40	50	60	80	100	120	150	160
Number of dial divisions (150mm dial)	200	250	300	200	250	300	160	200	240	300	160
Number of dial divisions (200 & 250mm dial)	400	500	300	400	500	300	400	500	240	300	320

Applications

Our Standard Test Gauges can be used for a number of applications including: -

- Calibration of pressure gauges, transducers and transmitters.
- Calibration of pneumatic controllers, valves etc.
- Measurement of pressure on test beds in Aero, hydraulic systems, diesel engine injection systems.
- Setting of pressure relief valves.
- Measurement of pore water pressure in soil mechanics laboratories.
- Efficiency testing of steam turbines in power stations, gas turbines and compressors.



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Model: 91/SE

The model 91/SE Schaffer Diaphragm gauges are designed for use on slurries, viscous or corrosive fluids that would normally attack or block standard bourdon tube gauges. 316 Stainless Steel full safety pattern case.

Implementing specialist materials for both the connection and diaphragm enable the Schaffer Diaphragm gauge to be configured for use on any gaseous or liquid media including suspended solids or powders. The direct drive from the diaphragm to the movement ensures a more positive indication of pressure than other models of tube gauges.

Offering a full range of screwed connection sizes and materials, Schaffer Diaphragm gauges can operate at pressure ranges as low as 30 mBar with the option to permit units to withstand a maximum pressure of 70 bar.

Size

150 mm (6")

Mounting

Direct and Surface

Option: Flush Mounting, contact Sales Department

Case & Bezel

Stainless Steel fully Safety Pattern, with solid wall and blow out back, with polished Stainless Steel bezel

Scale Ranges

0 to 30 mBar up to 25 bar Pressure / Compound ranges

Equivalent units of pressure / vacuum available

Single and dual scales are available

Option: Custom scales for special applications, i.e. tank contents

Overload

Units withstands overload pressure up to 125% of FSD

See reverse for table of maximum overloads for different diaphragm materials

Pressure Connection

3/8", 1/2" BSP, 1/2" NPT External as standard

Other connections available, contact our Sales Dept

Connection Material

316 Stainless Steel as standard

Options: Carbon Steel, Monel, Titanium, Hastelloy, Tantalum

Lining Options: PTFE, Halar, PDA

Diaphragm Material

Stainless Steel as standard

Options: Monel, Tantalum, Hastelloy, Silver or PTFE Protected

Other materials to suit application are available

Accuracy Class

1.0% of FSD as defined in EN837-1

1.5% of FSD if diaphragm is protected

SCHAFFER DIAPHRAGM GAUGE SCREWED CONNECTION



Dial

White Anodised Aluminium marked in black finish

Dual scales, bands and sectors are also available

Customisation with company Name & Logo

Pointer

Aluminium coloured black

Option: Micrometer adjustable pointer for Ranges ≥ 350 mBar

Movement

Brass Construction

Window

Laminated Safety Glass (Standard)

Option: Acrylic Plastic Window

Environmental Rating

IP65 as defined in EN 60 529

Traceability

All instruments are individually calibrated and have an unique

Serial Number printed on the dial. A Certificate of Conformity

Traceable to National Standards is Supplied Free of Charge

Certification available

BS EN 10204 3.1B Material Certification

Point by Point Test Certificate

Safety

All units are manufactured to comply with EN 837-3

specification and other regulatory standards including PED.

Installation Instructions

Refer to EN 837-2

Temperature

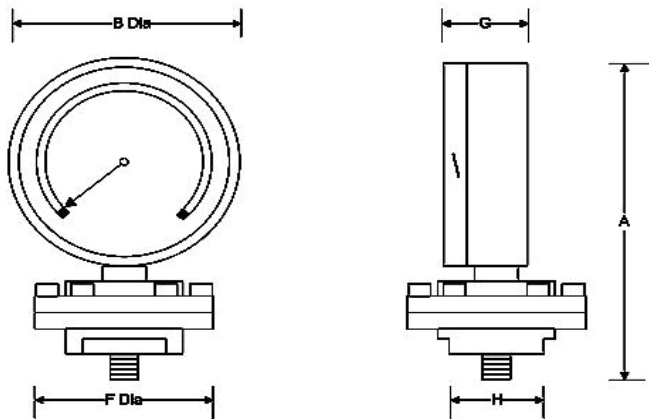
Operating: -10 to +60 °C

Storage: -40 up to +100 °C

For lower or higher operating temperatures, please contact our Sales Office

Dimensions

Model : 91/SE 150mm



Model No	A	B	F	G	H	Weight
150mm 91/SE	250mm	160mm	100mm	52mm	45mm	2.7 Kg

Diaphragm Material	Ranges	Max Overload
316 Stainless Steel	30 mBar	3 times Gauge Range
	50 mBar	3 times Gauge Range
17-7 Stainless steel	80 mBar	10 times Gauge Range
	100 mBar	10 times Gauge Range
13% Cr Stainless Steel	350 mBar	35 Bar
	3.5 Bar	70 Bar
	25 Bar	70 Bar

Diaphragm Protection

Tantalum, Hastelloy and Monel above 600 mBar (10 Psi)

316L Stainless Steel above 350mBar (5 Psi)

PTFE any pressure or Vacuum, but not on gases above 600 mBar (10 Psi)

Pulsations and vibrations

Where possible on applications where pulsations and vibration is present it is advisable to use a Diaphragm Seal

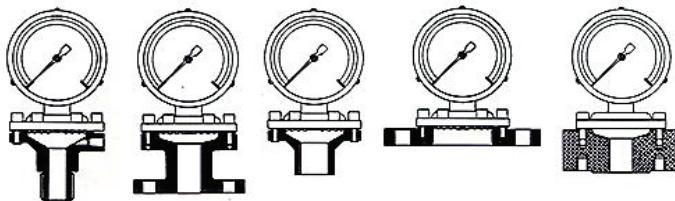
Options

Mounting : Surface & Flush mounting available

Window : Acrylic Plastic Window

Connections

Contact our Sales Department for various connections (See samples below)



Specifications and dimensions in this leaflet, are subject to change without prior notice.



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Diaphragm Seals

Experience and a heritage to instill confidence



Designed and Manufactured in the United Kingdom
To EN837-3

A Diaphragm or 'Chemical Seal' is a mechanical barrier that protects delicate instruments from harsh process fluids such as strong Acids, Alkalis and Slurries. All Chemical Seal units operate in an identical manner: the process medium acts upon a diaphragm the deflection of which is transmitted via the fill medium. This pressure is then displayed or transmitted. The style and materials of construction are carefully selected to withstand not only the process medium but also the maximum design pressure and temperature for each application.

For the sake of this overview, we have concentrated on the use of pressure gauges but 'Budenberg' chemical seal assemblies can be used with pressure transmitters, transducers and switches too.

Model 254 and 255

A flexible range of diaphragm seal Gauges with features for use in an extensive variety of applications throughout industry to include the most arduous process situations

Graduations

Budenberg Chemical Seal gauges are made with standard ranges from 1 to 600 bar (15 to 6,000 psi) and some specialised constructions graduated up to 700 bar (10,000psi). However, the maximum pressure may be governed by the pressure rating of the connection that is being used. . Please refer to separate data sheet covering the various connections available from Budenberg. Vacuum or compound scales are available with ranges up to 700mbar with an accuracy of $\pm 1\%$.

Temperature

Budenberg Diaphragm Seal Gauges are specified to operate at temperatures from -40 degrees C to 400 degrees C. This will depend on the fill medium that is being used. It is also possible to mount the assembly away from the process (remote mounting) using stainless steel capillary or an extended neck. The latter option is shown on page 4 and 5.

Connections

These are wide and varied and examples are illustrated on page three and four.

Connection Materials

All connections illustrated are available in Carbon Steel or 316 stainless steel. Other materials are available, however, based upon the process medium being used, including exotics. Carbon Steel connections (Types FN, FOT and FO) and type SE $\frac{1}{2}$ " BSP can be supplied with machined PTFE liners limited to 100 °C and to ranges up to 40 bar (600psi).

Electrical Contacts

Single and double electrical contacts are available for all gauges supplied with a chemical seal. See separate data sheet for details.

Standard Connections

Type SE:
Screwed up to 1". 316 stainless steel or some exotic materials available.
Type FO:
BS 10 Tables A-E 2 $\frac{1}{2}$ " carbon steel, carbon steel P.T.F.E lined,
Type 316 stainless steel.
ANSI 2" up to class 2500
BS4504 Type 316 stainless steel and other exotic materials available
Type SEU:
Screwed union 1/2" BSP or 1/2" NPT.

Diaphragms

For general use we recommend that diaphragms are made from Type 316 stainless steel or tantalum. Other materials can be offered to include Monel 400, Titanium and Hastelloy 'C' 276. Metal diaphragms are suitable for use up to 400C. For liquids (not gases) which corrode these metals we would recommend P.T.F.E diaphragms which are limited to 100C and to ranges up to 40 bar (600 psi). PTFE protected diaphragms also available.

Joints on Diaphragms

For graduations up to 40 bar (600psi) and for temperatures up to 200 °C, the seals above and below the diaphragm are made with P.T.F.E rings. For higher pressures or temperatures it will be necessary to offer 'metal-to-metal' joints.

Upper Flange Assembly

This made from Type 316 stainless steel with socket head screws: 6 for up to 40 bar and 12 for higher pressures

Filling Fluid

Syltherm is our standard filling fluid. This is suitable for temperatures from -40 °C to 200 °C. Silicone Oil (STD) is available for temperatures from -40 °C to 200 °C. Silicone Oil (HT) is suitable for temperatures from 0 °C to 300 °C. Glycerine or glycerine/water mixtures or medicinal paraffin are suitable when the gauges are to be used for food and drink manufacturing or processing. Inert Fluorine based fluids can be specified when a dangerous reaction could occur if the diaphragm were to be fractured and the filling fluid is likely to come into contact with the process medium such as oxygen or chlorine.

Pressure Pulsations

If these are likely then an internal snubber can be fitted in the sealed system to steady the pointer and prolong the life of the gauge. Viscous Damped movements are also available (see separate data sheet for further details).

Capillary

Stainless Steel capillary is available with nylon-reinforced P.V.C tubing as an option. This is suitable for seal temperatures up to 100 °C. Stainless steel capillary can be used when the risk of damage is present. It is able to withstand accidental knocks but, in some circumstances, it can also be supplied with a vinyl sheathing. This is sometimes required when the atmosphere into which the capillary has been installed can become dirty and corrosive. **Important:** The maximum capillary length from Budenberg is 30 metres for pressure applications and 10 metres for vacuum and compound applications.

The Indicator

This is normally a pressure gauge generally as described in other parts of this catalogue. To reduce costs, always try and match your application to the usual scales that are produced at Budenberg. Dial sizes are from 63mm through to 150mm. Budenberg Chemical Seal assemblies are also available as stand alone for use with pressure and vacuum transmitters as well as Differential pressure transmitters and pressure switches. Please refer to separate data sheets in this catalogue.

Accuracy

All Budenberg chemical seal gauges are manufactured to an accuracy of $\pm 1\%$ of scale. To maintain this in service, an adjustable pointer is used to compensate for small errors caused by a deviation in temperature changes and a difference in height between the gauge and the seal assembly. $\pm 1\%$ is standard but $\pm 0.5\%$ is also available.

Maintenance and filling

Budenberg diaphragm seal gauges are designed for easy economical maintenance. The model 254 (Clamped) can be stripped to component parts, cleaned and reassembled without the use of a vacuum pump. Spare diaphragms are a great deal less expensive than complete assemblies. Bleed screws can be fitted into the top flange assemblies ($\frac{1}{2}$ "NPT only) and the flanges are shaped to allow for any trapped air bubbles to escape.

Seals Only

As stated, we can offer seals without gauges so that our customers can fit them to transmitters, gauges or switches. These seals have the upper flange tapped $\frac{3}{4}$ " BSP or $\frac{1}{2}$ " NPT and they have a volumetric displacement of 0.5 ml.

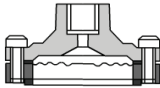
In general they can be fitted to bourdon tube operated pressure gauges and switches as well as to electronic transmitters but they are not suitable for switches operated by bellows or by diaphragms unless the size is the same as that is the unit or smaller.

Notes:

For specific details on the gauge or transmitter assemblies available please refer to the main body of this catalogue.

Connection Types - Clamped versions

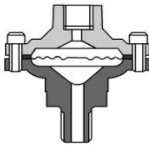
Budenberg manufacture a number of connection options and we are renowned for the quality of our seal assemblies - modified for critical applications. Our 'Field Serviceable' chemical seals provide the option for removal and cleaning of wetted parts and also for the replacement of diaphragms which, in the long term will radically reduce operating costs: it is far more cost effective to replace a diaphragm than a whole assembly whether connected to a gauge, transmitter or switch.



Type C

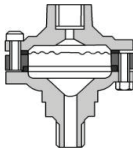
Clean-out

Six holes for 8mm bolts on 83.5 PDC



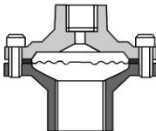
Type SE

Screwed external pipe threads up to 1" general use



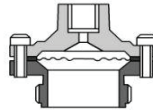
Type SEC

Screwed External Clean-out



Type SI

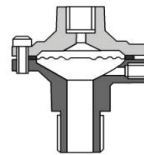
Screwed Internal pipe threads up to 1"



Type SEH

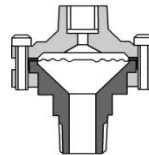
Screwed External Hygienic

To suit various couplings used in the food industry



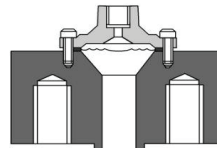
Type SEP

Screwed External with Purge



Type SER

Screwed External - used when rare expensive material is necessary e.g. Hastelloy

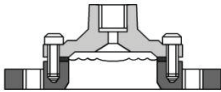


Type FT

Flange Tapped

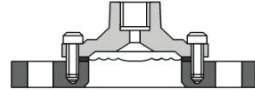
1/2" - 1 1/2" Nominal bores

Connection Types - Clamped versions continued



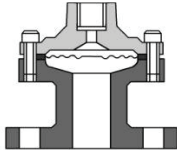
Type SOT

Flange Open Tapped for studs
BS. 1560 2" 150 (ANSI B16.5)
BS 10 2" Tables A-E



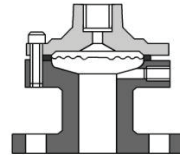
Type FO

Flanged Open for larger sizes than Type FOT



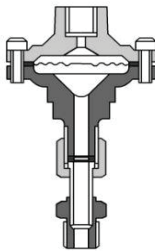
Type FN

Flange Necked
1/2" 1" and 1 1/2" Flanges



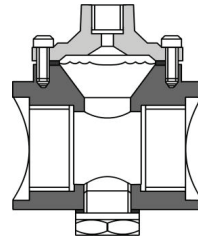
Type FNP

Flange Necked with Purge



Type SEU

Screwed External Union 1/2" BSP or 1/2" NPT.
Useful for distance reading diaphragm seal gauge.



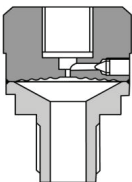
Type LS

Line Small. For insertion directly into small process lines - field serviceable.

Connection Types - Welded versions

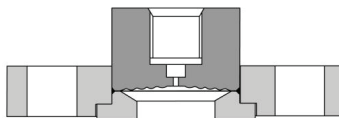
As well as 'Field Serviceable' - clamped seals, Budenberg also manufactures a 'welded' diaphragm version.

This provides a 'low cost' solution. It must be noted, however, that these versions cannot be repaired (diaphragm replacement) or cleaned in the field. Most the options for configuration that apply to the 'clamped' versions (as indicated above) also apply unless dissimilar metals are used for the top and bottom



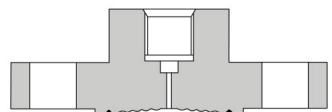
Type WSE

Welded Screwed External thread



Type WLF

Welded Loose flanged



Type WF

Welded Flush flanged assembly

Hygienic Diaphragm Seal Gauges

For dairy, brewing, pharmaceutical and food industries



Welded Seal

Budenberg weld a 316 stainless steel diaphragm to the stainless steel upper flange. This flange matches the coupling and enables the gauge to be taken off plant for cleaning. Crevice free construction reduces the risk of food traces being harboured and creating a health risk for food production.

Couplings

Hygienic diaphragm seal gauges can be supplied with up to 2" stainless steel nuts (IDF, ISS or RJT).

We are also able to offer cone joint, Homogeniser, Tri-Clover or Tri-clamp fittings ranging between 1 1/2", 2" and 3" nominal size.

Pressure Ranges

For this design, ranges are available from 0 - 1 to 0 - 16 bar (0 - 15psi to 0 - 300 psi). This is limited by the connection being used.

Gauges with other connection types are made with graduations up to 1000 bar (15,000 psi) for use on homogenisers.

Temperature

These gauges may be installed in systems working up to 100 °C. It can also withstand steam sterilisation of the system up to 140 °C

Filling Fluid

The sealed system is normally filled with a liquid that is compatible with the process fluid; medicinal paraffin and glycerine/water are most often chosen to avoid harmful contamination of the pressure medium in the event of a diaphragm becoming punctured.

An internal snubber may be fitted to dampen out any pressure pulsations.

When distance reading gauges are required, similar gauges are supplied with a length of stainless steel capillary between the seal and the gauge.

Gauge description.

Normally, these gauges are supplied with 100mm cases and a 316 stainless steel tube and movement. An acrylic plastic window and a paraffin filled system is also the norm. 63mm and 80mm cases are also available. The gauge case is supplied in 316 stainless steel but a DMC (plastic) case is also available for compatibility with some processes.

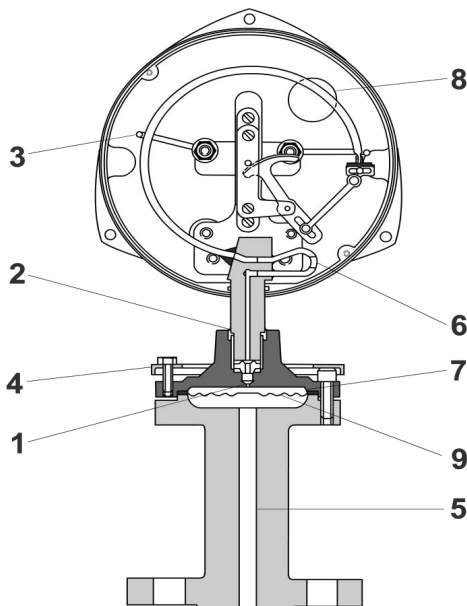
A 150mm dial can be supplied and, for severe applications, we offer viscous damped movements* and internal snubbers to reduce damage caused by vibration or pulsation.

Ultra-safe diaphragm seal gauges

For toxic service

The illustration shows a pressure gauge similar to the 254 described in this broad form. It incorporates certain safety features, however, that significantly reduce the risk of the process media escaping to atmosphere. Our specialised gauges - with these features - are used to measure the pressure of highly toxic materials e.g. liquid chlorine and vinyl chloride, both of which can kill or seriously harm plant operatives at very small levels of exposure.

These gauges are specially made for critical applications and part All gauges for toxic service are assembled and calibrated in a controlled ensuring the highest levels of cleanliness.



- 1 The small hole in the top flange ensures that if the filling liquid leaks off for any reason, the diaphragm seals over the hole and there is no escape of the process fluid (pressure medium).
- 2 The connection of the stainless steel gauge is welded to the upper flange to give an all welded unit. This prevents the this joint being unscrewed accidentally. The can also be locked to the upper flange.
- 3 Overload stops on the tube allow gauge to withstand 3x overpressure.
- 4 A plate with a sealed warning label deters removal of screws
- 5 Reduced bore on entry reduces the amount of toxic fluid released if the gauge has to be removed from plant before line is purged.
- 6 Capillary snubber welded into sealed system to reduce pulsations.
- 7 Diaphragm can be built to match upper-flange corrugations to allow the diaphragm to 'lock-off' against it in the event of an overpressure ensuring that the tube is not subjected to it.
- 8 Safety features such as 'blow out back' or discs, laminated safety glass and electrical contacts for use on hazardous areas can be fitted.
- 9 Gauges for toxic/hazardous process are often fitted with tantalum diaphragms and an inert fluorine based fill fluid.
- 10 The dials are marked with the pressure medium and process medium as well as any other special safety notes relating to the calibration medium to be used or the filling fluid between the diaphragm and tube assembly.

This is in accordance with EN 837.

* See separate data sheet



Budenberg



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Why Budenberg?

Budenberg speaks with the utmost confidence when they refer to their unrivalled history in the field of pressure and temperature gauges. There is no other company that can boast of over 160 years in both the design and manufacture of top quality instrumentation.

Budenberg pressure and temperature gauges are specified globally for use in some of the most hazardous and demanding areas across a wide spectrum of industries to include oil, gas, petrochemical, chemical processing, general manufacturing and original equipment production. A rich history in manufacturing is a virtue, but the quality and reliability of Budenberg products has ensured a brand loyalty that is also unrivalled.

As a 100% British Company, Budenberg has offices in the Middle East and India and sells globally via a network of approved distributors which are listed on our website under the contacts section. Budenberg has expertise in many areas of instrumentation as detailed below: -



Valves, Manifolds, Positioners, Chart Recorders, Transmitters, RTDs



Budenberg®

Details of all Budenberg's products and accessories can be found on our website

www.budenberg.co.uk

Broad form catalogues are also available from our approved distributors or from our sales department. Please contact us for further information or to arrange a meeting with one of our sales engineers/distributors.





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Model: BG100

DIGITAL GAUGE



The BG100 pressure gauge is a new micro-processor controlled digital pressure gauge which offer high precision, stability and functionality in a compact and robust solution package. The gauge is powered by long life internal Alkaline battery and offer an auto-power off function in order to preserve the battery life. The sensor technology combined with advance designed feature results in an high accurate yet affordable digital pressure gauge. Supply as stand-alone the BG100 offer an unbeatable cost effective solution for accurate process monitoring and control. A wide range of hand held pressure pump and kits are available to offer a complete testing solution for maintenance or calibration routine.

ADVANCE FEATURES

- Programmable filter from 0 to 99 for pulsing pressure readings
- Zero function for zero pressure correction
- Pressure bar graph in addition to the number indication, BG100 display pressure on a segment bar for quick estimation of the of the pressure between 0 and 100 % of F.S.
- Selectable pressure unit: mbar, bar, MPa, KG/CM2, psi
- Peak function
- RS232 interface (optional)

BG100-PC Pneumatic Test Kits

Combined vacuum/pneumatic kit for pressure testing, includes

- BG100-I Indicator, range to be selected up to 50 bar
- PGS-40-OEM pump
- PGS-BSP or PGS-NPT set of adaptor, set of seals
- Pressure hose with 1/4" BSP F adaptor (1 meter)
- Robust ABS transit case with custom foam



BG100-HC Hydraulic Test Kits

Hydraulic test kit for high pressure testing, includes

- BG100-I range to be selected up to 1000 bar
- PGS-700-OEM or PGS-1000-OEM pump
- PGS-BSP or PGS-NPT set of adaptor, set of seals
- HTH-1 000-1 high pressure hose, 1 meter
- PGS700-A-G14 adaptor for HTH-1 000 hose
- PGS700-TC robust ABS transit case with custom foam



TECHNICAL SPECIFICATION

Range code	Range	Resolution	Max over pressure
05G	-0.5 to 0.5 bar	0.0001	150% FS
1G	-850mbar to 1 bar	0.0001	150% FS
2.5G	-850mbar to 10 bar	0.0005	150% FS
5G	-850mbar to 2.5 bar	0.0005	150% FS
10G	-850mbar to 10 bar	0.001	150% FS
20G	-850mbar to 20 bar	0.002	150% FS
40G	-850mbar to 40 bar	0.005	150% FS
100G	0 to 100 bar	0.01	150% FS
250G	0 to 250 bar	0.02	150% FS
350G	0 to 350 bar	0.05	150% FS
700G	0 to 700 bar	0.05	150% FS
1KG	0 to 1000 bar	0.1	150% FS
1.5KG	0 to 1500 bar	0.2	150% FS
2KG	0 to 2000 bar	0.5	150% FS

Accuracy: 0.05 : 0.05% FS include linearity and hysteresis

Temperature range : 0 to 50°C

Temperature coefficient : 0.002 % rdg/°C

Calibrated temperature : 23 °C

Compensated temperature range : 0 to 50°C

Pressure media : all liquid and gas compatible with AISI 316 (non corrosive)

Wetted part : SS Inox 17-4 PH

Pressure unit : mbar, bar, KG/CM2, Kpa, psi

Pressure connection : 1/2" BSP male for all ranges

Storage temperature : -10 °C to 60°C

Display : graphic, custom LCD display, 16 mm height

Sealing : IP 65

Power supply : 2X AA size alkaline battery (1 year autonomy)

Physical : aluminium case, 86x85x44 (BG100 only)

Conformity : 89/336/CEE-93/68/CEE-72/23/CE, EN 61010(2001)-

EN61326-1-EN 61326/A1

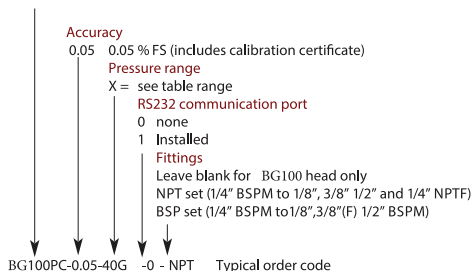
Warranty : 1 year (battery not included)

How to order your BG100 series:

BG100 - Pressure indicator only

BG100PC - BG100 Pneumatic pressure kit

BG100HC - BG100 Hydraulic pressure kit



Each instruments and kit is supplied with Alkaline battery and instruction manual.

Specifications and dimensions in this leaflet, are subject to change without prior notice.

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Old Mahaballipuram Road (OMRI),
Chennai - 600 096,
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Model: 180

Model 180 differential pressure gauges are manufactured with a stainless steel diaphragm as the measuring element, the strength of which depends on the differential pressure graduation. The element is isolated from the pressure by two Melinex diaphragms so that only clean oil fills the chamber in which the mechanism operates.

Melinex is a polyester film (polyethylene terephthalate) that is resistant to all petroleum refining industry fluids. Please consult our technical department to check suitability for other chemicals.

This instrument is generally used in applications where the system pressure is very much higher than differential range and can be used for measuring differential pressure in filters, strainers, coolers, pumps, natural gas strainers, orifice plates and venturi tubes.

Sizes

150mm & 200mm Dial diameter

Mounting

Surface Mounting – Model 180

Flush Mounting – Model 11/180

Pressure Connection

3/8" BSP internal as standard

Option : 1/2" BSP & 1/2" NPT external

Material : 316 Stainless Steel

Option : Nickel Aluminium Bronze for Marine duty

Pressure Element

Stainless Steel Diaphragm

Accuracy Class

180A & 180B - 1.5% of FSD

180AM & 180BM - 2% of FSD

Environmental Rating

IP55 as defined in EN 60 529

Temperature Utilization

Operating: -20 to +90 Degrees C

Storage: -40 up to + 100 Degrees C

Case

Brass machined casting, Grey finish

Flush mounting version has a black bezel

Window

3mm Glass, Acrylic or Laminated Glass

Safety

All gauges are manufactured in accordance with EN837-1

DIFFERENTIAL PRESSURE GAUGE MICROVAR DIAPHRAGM TYPE



Scale Ranges

180A Ranges 0 to 0.2 up to 25 Bar MWP 60 Bar

180AM Ranges 0 to 1 up to 25 Bar MWP 60 Bar

180B Ranges 0 to 0.4 up to 25 Bar MWP 140 Bar

180BM Ranges 0 to 1 up to 25 Bar MWP 70 Bar

Option: Central Zero Scales e.g. 1-0-1 Bar

Applications

Liquids use 180A or 180B

Gases use 180AM or 180BM (Not Oxygen)

Dial

White Anodised Aluminium marked in black

Dual scale, bands, sectors are also available

Customisation with Company Name & Logos

Equalising Valves

Budenberg recommends the use of needle type isolating

or equalising valves for use with this instrument, as quick

operating valves can cause harmful pressure surges.

Please ask our sales department for details of the full

range of Budenberg needle valves

Snubbers

If pressure surges or fluctuations cannot be eliminated we

can offer gauges with an internal snubber which gives a

delay of up to 20 seconds.

Traceability

All individually calibrated and have a unique serial number

Certificate of Conformity traceable to National Standards

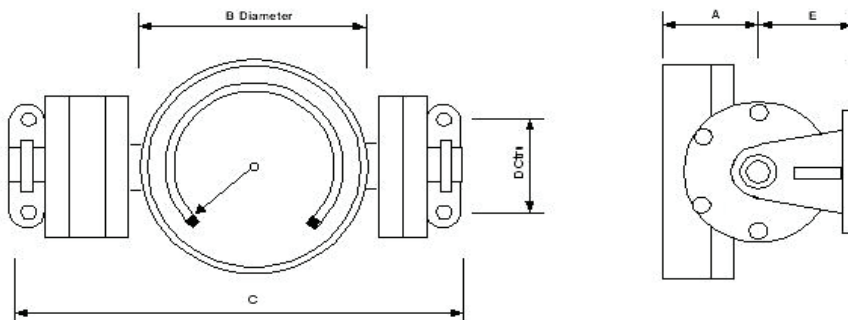
Certification Available

BS EN 10204 3.1B certification

Point by Point Test Certificate

Specification

Model : 180



Microvar Differential Model 180

* Shown above with Surface mounting trunnions

Model No 180	A	B	C	D	E	Weight
Microvar	70mm	155mm	290mm	65mm	75mm	9.5 Kg

Microvars for use on :-		Liquids		Gases (Not Oxygen)	
	Model	180A	180B	180AM	180BM
Minimum	Bar	0 to 0.2	0 to 0.4	0 to 1	0 to 1
Differential Range	Psi	0 to 3	0 to 5	0 to 15	0 to 15
Maximum	Bar	0 to 25	0 to 25	0 to 25	0 to 25
Differential Range	Psi	0 to 400	0 to 400	0 to 400	0 to 400
Maximum	Bar	60		60	70
Working Pressure	Psi	850		850	1000

Accessories

Electric Contacts.

Model 144 Magnetically assisted contacts can be fitted as Single or Double units – See Datasheet on Electric Contacts.
On Microvars if Make on Fall contacts are fitted, they are only adjustable over the bottom third of the scale.

Valves.

We can supply 3 or 5 Valve manifolds with our differentials – See separate Datasheet on 3 & 5 Valve manifolds.

The use of Needle Valves is recommended for equalising or isolating the 'Microvar Differential' since quick operating valves can cause harmful pressure surges.

If pressure surges or fluctuations cannot be eliminated we can offer an integral snubber that gives a controlled delay of up to 20 seconds.

The manifolds in addition to allowing the instrument to operate normally allows the following:-

- Checking of gauge zero at line pressure.
- Complete isolation of the instrument.
- De-pressurisation of the instrument or controlled purging.
- Damping of pressure pulsations and surges.



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Web : www.budenberg.co.uk

Model: 179F

The Model 179 Differential Pressure Gauge consists essentially of two opposing bourdon tubes, each having its own connection but operating a common pointer that shows the difference between the two pressures.

Used in applications that require an instrument to measure the difference between two pressures where the system pressure is up to 4x greater than the differential range.

The gauge is designed to withstand full working pressure, applied separately to either connection or together. The maximum working pressure should not be exceeded even temporarily, so the possibility of surging pressures should be considered when selecting the instrument. These instruments can also be supplied with a central zero scale if necessary, e.g. 1 to 0 to 1 bar (corresponding to a differential pressure range of 2 bar in the table below). Please contact our sales office regarding higher graduations.

Size

150 mm Dial Diameter

Mounting

Surface Mounting - Model 179F

Flush Mounting - Model 11/179

Case & Bezel

Die cast Aluminium, Grey finish to IP55

Scale Ranges

0 to 1 Bar up to 16 Bar Pressure

Equivalent units of pressure / vacuum available

Option: Central Zero Scales e.g. 1-0-1 bar

Pressure Element

Beryllium Copper Bourdon Tubes and Brass (Suffix BC)

316 St Steel Bourdon Tubes and 316 St Steel body (Suffix Z)

Monel Bourdon Tubes and Monel body (Suffix M)

Pressure Connection

3/8" BSP as Standard - 46mm Apart

Option: 1/4" NPT (API), and 1/2" NPT

Accuracy Class

1.5% of FSD as defined in EN837-1

Temperature

Operating: -20 to +90 Degrees C

Storage: -40 up to +100 Degrees C

Options: for lower or higher operating temperatures, please contact our Sales Office

DIFFERENTIAL PRESSURE GAUGE BOURDON TUBE TYPE



Dial

White anodised Aluminium with black scales

Option: Dual scales or special dial markings are available

Maximum Working Pressures

Differential Pressure (Bar)	Beryllium Copper Tube (Bar)	Stainless Steel Tube (Bar)
0 - 1	6	6
0 - 1.6	8	8
0 - 2	10	10
0 - 2.5	14	14
0 - 4	16	16
0 - 6	28	28
0 - 10	40	40
0 - 16	50	50

Traceability

All instruments are individually calibrated and have an unique Serial Number printed on the dial. A Certificate of conformity traceable to National Standards is supplied free of charge.

Certification available

BS EN 10204 3.1B Material Certification

Point by point Certificate

Safety

All units are manufactured to comply with EN 837-1 and other regulatory standards including P.E.D.

Installation Instructions

Refer to EN 837-2

Temperature Effect

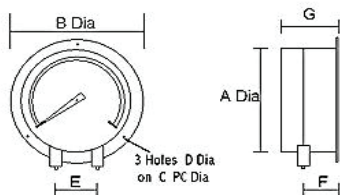
Variation in indication caused by temperature shall not exceed $\pm 0.04 \times (t_2 - t_1)\%$ of the span where:

t_1 is the reference ambient temperature in degrees Celsius

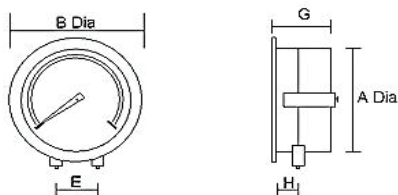
t_2 is the ambient temperature in degrees Celsius

Dimensions

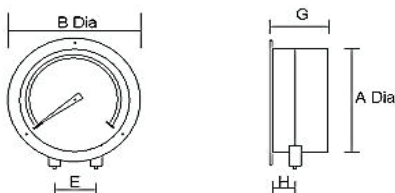
Model : 179F



Surface Mounting 179F



Flush Panel Mounting 11/179



3 Hole Front Mounting 11/179

Model No	Type of Mounting	A	B	C	D	E	F	G	H	Weight
179F	150mm Surface	155mm	180mm	164mm	6mm	48mm	40mm	80mm		1.7kg
11/179	150mm Flush Panel	155mm	172mm			48mm	40mm	80mm	39mm	1.7kg
11/179	150mm 3 Hole Fixing	155mm	172mm	164mm	6mm	48mm	40mm	80mm	39mm	1.7kg

Accessories

Electric Contacts

Model 144 Magnetically assisted contacts can be fitted as Single or Double units - See separate Datasheet on Electric Contacts.

Valves

We can supply 3 or 5 Valve manifolds with our differentials – See separate Datasheet on 3 & 5 Valve manifolds.

The manifolds in addition to allowing the instrument to operate normally allows the following: -

- Checking of gauge zero at line pressure.
- Complete isolation of the instrument.
- De-pressurisation of the instrument or controlled purging.
- Damping of pressure pulsations and surges.

Diaphragm Seals

The Model 179 type instruments may be fitted with distance reading diaphragm seals and capillaries, this allows use on hot viscous fluids, slurries and highly corrosive mediums. The maximum recommended lengths of capillary is 5 Metres.

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Budenberg



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Model: 95FG, 211FG

An impressive technical specification and wide range of standard features make this thermometer the obvious choice for a wide range of process and engineering applications.

Primarily designed for the harshest of environments the model NIS is especially suitable for places where the presence of Mercury is undesirable, such as the Food and Nuclear Industries
Gas Filled Thermometers are often used in Chemical and Allied Industries such as Offshore Oil & Gas industries where the atmosphere is corrosive, and severe due to weather.

Built to meet EN-837 the NIS is manufactured to compliment the Budenberg ranges of pressure gauges. We can also supply Gas filled and Bi-Metallic thermometers and are able to offer all types with Thermowells

Size

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

Mounting

Model 95FG & P95FG are Surface Mounting

Model 211G & 212G: are Flush mounting as illustrated.

Case & Bezel

Model 95FG & 211G: Duotone Grey metal finish

Model P95FG@ Grey DMC (Dough Moulded Compound)*

Model 212G:Stainless Steel

Scale Ranges

-60 to 700 deg C or -76 up to 1300 deg F

With a minimum range of 80 deg C

Single and dual scales are available

Bulb Material

Material : 316 Stainless Steel

Sizes: 3/4" BSP, others on request

Over-temperature

Units can be built to withstand significant over range temperatures on request.

Connection Sizes

3/4" BSP standard

1/2" or 1" BSP/NPT as an option

Connection Material

316 Stainless Steel

Accuracy Class

CL:1 1.0% of FSD as defined in EN837-1

Bulb Diameter

14.3mm or 10.3mm as standard

Material : Stainless Steel

Bulb Length

Varies with temperature range and diameter of dial.

GAS EXPANSION THERMOMETER NITROGEN IN STEEL



Dial

White Anodised Aluminium marked in black finish

Single or dual scale

Pointer

Stainless steel coloured black

Options: Set pointer available

Movement

316 Stainless Steel

Fitted with oil impregnated sintered bronze bushes

Bi-metallic temperature compensator.

Window

3mm Laminated Safety Glass (Standard)

Option: Acrylic Plastic Window

Environmental Rating

IP55

IP66 when specified with weatherproof cast iron case.

Traceability

All instruments are individually calibrated and have an unique Serial Number printed on the dial. A Certificate of Conformity Traceable to National Standards is Supplied Free of Charge Full Calibration certificates available at extra charge.

Safety

All units are manufactured to comply with EN 837-1, specification and other regulatory standards including PED.

Distance Reading options

Capillaries can be supplied in Stainless Steel

optionally with PVC or nylon

Capillary lengths of upto 45m can be specified.

Contacts and Switches

Gas Filled thermometers can be provided with:

Model 134 Reed Switches

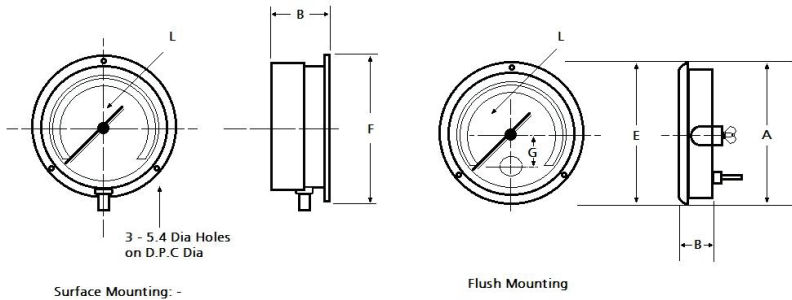
Model 144 Magnetic Assisted switches

Model 129 mercury switches

*150mm dial only

Dimensions

Model : 95FG, 211FG



Model No	A	B	E	F	G	L
100mm Surface Mount		51		127		184
100mm Flush Mount	112	51	117		35	184
150mm Surface Mount		55		179		286
150mm Flush Mount	165	55	171		52	286
44F Weatherproof		66.5		215		410

Options

Case : DMC or Weatherproof
Bulb Mat: Stainless Steel
Conn size: 1/2" or 1" BSP/NPT
Bulb dia: non standard sizes available
Switches: Single or dual Reed, Magnetic and Mercury
Pointer : Set pointer

Bulbs

As standard the NIS thermometer is supplied with a type A bulb of fixed insertion length
Other bulb types are available to suit your application:
AS - Sliding gland, captive element
AR - Sliding gland, removable element
AP - Plain bulb, for fixing to outside of pipes. Can be fitted with a saddle clamp
E - Insulated bulb for use with machine bearings
Bulkhead mounting bulbs and bendable necks are available on request.

Accessories

A wide range of thermowell styles and materials are available - See separate datasheet for details.

Model: 6N and 10N

The Model 6N Needle Valves have been designed to give higher strength and integrity to instrument needle valves. Budenberg have incorporated a dynamic multi-ring gland system in the needle valve, which when combined with the anti blow-out back seating stem, guarantees resistance to all operating processes and pressures.

Low operating torques and high cycle life feature strongly in this unique Budenberg design, giving a "Low Cost of Ownership".

Key Benefits are:

100% gas tight seal under all conditions.

- Over designed high strength adaptor threads combine with 'soft' parent metal bottom seal to give closure thread protection and ensures environmental safety
- Gland and stem leakage is a thing of the past due to the dynamic multi-ring gland system, combined with the anti blow-out back seating system
- Swaged self centering non-rotating stem tip in one material grade harder than the parent body material. This ensures a positive seat closure under all conditions.

Needle Valve Construction

Body Material

316 Stainless Steel to NACE as standard, other materials available

Standard Connection Sizes

1/4", 3/8", 1/2", 3/4" & 1" NPT Female x Female

1/4", 3/8", 1/2", 3/4" & 1" NPT Male x Female

Other thread sizes and types are available, please contact our sales office for details.

Standard Bore Sizes

6mm & optionally 8mm

Stem Packing

Multi stage 'dynamic' stem packing in PTFE / RPTFE to guarantee a gas tight seal under all conditions. Maximum Temperature of 240° C for PTFE packed units and 540° C for units packed with flexible graphite.

Conformity

Design conformity to ASME B31.1

Pressure & Temperature ratings as ANSI B 16.34 Class 2500

Fire safe option to BS 6755 pt2

Certification Available

BS EN 10204 3.1B & 3.2 Material Certification

PMI and NDT Test Certification

Full range of certification and testing to suit the user requirements.

NEEDLE VALVE - PROCESS INDUSTRY



Needle Valve Features

Self centring, non rotating stem point

Vibration proof handle with positive location and excess torque break feature

Fire safe design to BS 6755 Pt 2

Anti static, anti blow-out stem

Multi-stage 'dynamic' stem packing

True 'metal to metal' Body / Bonnet joint

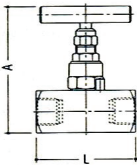
Mechanically locked Valve Bonnet to prevent accidental removal

Max cold working pressure of 6,000 psi (6N) and 10,000 psi (10N)

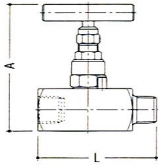
All options available, full range of materials, thread types and sizes

Your Company name and model type etched on Valve body
Vented models available

Single Isolating Valves



6 NF
Female x Female



6 NM
Male x Female

Single Isolating Valve		Female x Female		
Model No		L	A	Weight
6N4F4FS	1/4 " Female x 1/4 " Female	60mm	90mm	0.45kg
6N6F6FS	3/8 " Female x 3/8 " Female	66mm	90mm	0.55kg
6N8F8FS	1/2 " Female x 1/2 " Female	66mm	90mm	0.65kg
6N12F12FS	3/4 " Female x 3/4 " Female	74mm	90mm	0.65kg
6N16F16FS	1 " Female x 1 " Female	86mm	109mm	0.65kg

Single Isolating Valve		Male x Female		
Model No		L	A	Weight
6N4M4FS	1/4 " Male x 1/4 " Female	67mm	90mm	0.45kg
6N6M6FS	3/8 " Male x 3/8 " Female	92mm	90mm	0.55kg
6N8M8FS	1/2 " Male x 1/2 " Female	92mm	90mm	0.65kg
6N12M12FS	3/4 " Male x 3/4 " Female	98mm	97mm	0.65kg
6N16M16FS	1 " Male x 1 " Female	102mm	109mm	0.65kg

Options

10,000 Psi option available prefix by 10 i.e 10NF & Blanking / Vent Plug



Model: 62NRF

The 62NRF range of Two Valve Manifolds provide a low cost Block and Bleed function to any instrument installation or application.

Based around the Budenberg 6N Needle Valve technology the versatility of these manifolds enable isolation, calibration and venting within a single unit thereby eliminating potential leak paths. The 62NRF range includes a full range of configurations and connections allowing them to be used on a full range of instrumentation including Transmitters, Gauges, Switches etc.

All units incorporate the Budenberg 6N high temperature, high pressure valve head assembly that is suitable for pressures up to 10,000 psig and temperatures up to 450 Degree Celsius.

These lightweight compact units can be readily manufactured, modified or configured to suit any individual application or customer requirement.

2 VALVE INSTRUMENT MANIFOLD REMOTE MOUNTING VERSION



Basic Models

62NRF - Female process x Female instrument connections.

For Direct transmitter mounting versions see additional datasheets

Material of Construction

Standard material is 316 St St to NACE MR 01-75. Units can be manufactured in a range of wetted parts materials including Monel and Hastelloy

Standard Connection Sizes

1/2" NPT or BSPP Female process connection and female instrument connections, Vent connection is 1/4" NPT or BSPP Female.

Other thread sizes available, contact sales for further details

Operating Pressure

6,000 psig Cold Working Pressure designated 62NX

10,000 psig Cold Working Pressure designated 102NX

Operating Temperature

-20 to 240°C maximum for units fitted with PTFE stem packing

-20 to 450°C maximum for units fitted with Graphoil packing

For Cryogenic applications then a range of extended head versions are available

Dust Cap Identification

White Dust Cap indicates PTFE Stem Packing

Black Dust Cap indicates Graphoil Stem Packing

Fire safe

Designed and certified to BS 6755 Pt 2, API 10497, API 607

Needle Valve Features

Stem Packing

Fully adjustable, dynamically responsive, multi ring 'gland sandwich' in either PTFE or Graphoil to resist all operating and processes. Budenberg offer 100% gland integrity for the lifetime of every valve

Stem Tip

Self centring, non rotating stem tip provides a true metal to metal valve seat whereby the material of the stem tip is one grade harder than the body thus resisting overtightening, preventing wear and guaranteeing a 100% bubble tight seat closure, first time, every time

Anti static, anti blow-out stems

True metal to metal Body / Bonnet joints. Bonnets are assembled with a locking pin to prevent accidental removal

Pressure & Temperature ratings as ANSI B 16.34 Class 2500

T' Bar operator with torque break feature

Certification

Material Certification to EN 10204 3.1b inc Mill Certificates

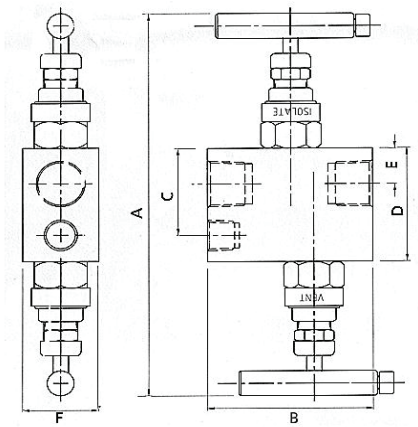
Pressure Test Certificate

CE Certificate of Conformity

Other testing / documentation / certification can be supplied dependant upon the contract / project requirements.

Dimensions

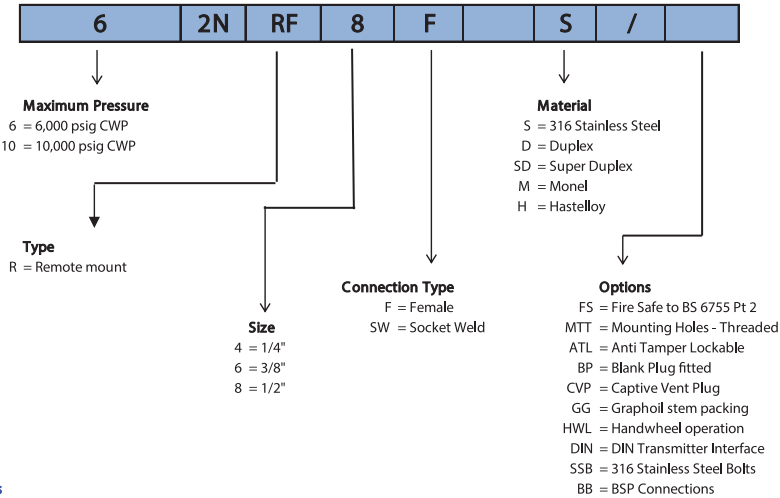
Model : 62NRF



Model	A	B	C	D	E	F	Weight
62NRF	172mm	70mm	39mm	50.8mm	15.9mm	31.8mm	1 Kg

Model Number

Process



Notes

- 1 Standard Screwed connections are NPT
- 2 For units on Cryogenic Service please contact our sales office
- 3 All wetted parts material conform to NACE MR 01-75 latest version
- 4 For details of mounting brackets and other accessories please see additional datasheets
- 5 For interfacing onto other Transmitter types or configurations, please contact our sales office
- 6 Multiple options can be specified if seperated by a forward slash symbol (/)



Model: 65NR

The 65NR range of Five Valve Manifolds are designed to be remotely connected on to industry standard Pressure, Flow or Level Transmitters with 54mm centres. These lightweight manifolds enable operation, isolation, equalisation and venting / calibration of the instrument within a single unit.

The 65NR range is based around the Budenberg Needle Valve technology that includes a full range of features and benefits to make it the ideal manifold for any close coupled Differential measurement application.

These lightweight and compact units can be readily configured or modified to suit any individual application or customer requirement although this datasheet illustrates the more popular configurations currently in use by our customers.

Basic Models

65NR - Female process x Female Instrument connection.

For direct mounting versions see additional datasheets

Valve Configuration

2 x Isolation, 2 x Vent, 1 x Equalisation

Other variations are available

Material of Construction

Standard material is 316 St St to NACE MR 01-75. Units can be manufactured in a range of wetted parts materials including Monel and Hastelloy

Standard Connection Sizes

1/4" & 1/2" NPT female connections to ANSI / ASME B1-20-1

1/4" & 1/2" BSP female connections to BS 2779

Other thread sizes available, contact sales for details

Operating Pressure

6,000 psig Cold Working Pressure designated 62Nx

10,000 psig Cold Working Pressure designated 102Nx

Operating Temperature

-20 to 240°C maximum for units fitted with PTFE stem packing

-20 to 450°C maximum for units fitted with Graphoil packing

For Cryogenic applications then a range of extended head versions are available

Dust Cap Identification

White dust cap indicates PTFE Stem Packing

Black dust cap indicates Graphoil Stem Packing

Fire safe

Designed and certified to BS 6755 Pt 2, API 10497, API 607

5 VALVE DIFFERENTIAL MANIFOLD REMOTE MOUNTING VERSION



Needle Valve Features

Stem Packing

Fully adjustable, dynamically responsive, multi ring 'gland sandwich' in either PTFE or Graphoil to resist all operating and process requirements. Budenberg offer 100% gland integrity for the lifetime of every valve

Stem Tip

Self centring, non rotating stem tip provides a true metal to metal valve seat whereby the material of the stem tip is one grade harder than the body thus resisting overtightening, preventing wear and guaranteeing a 100% bubble tight seat closure, first time, every time

Anti static, anti blow-out stems

True metal to metal Body / Bonnet joints. Bonnets are assembled with a locking pin to prevent accidental removal

Pressure & Temperature ratings as ANSI B 16.34 Class 2500

T' Bar operator with anti torque break feature

Adjustable multi stage stem packing in either PTFE or Graphoil

Certification

Material Certification to EN 10204 3.1b inc Mill Certificates

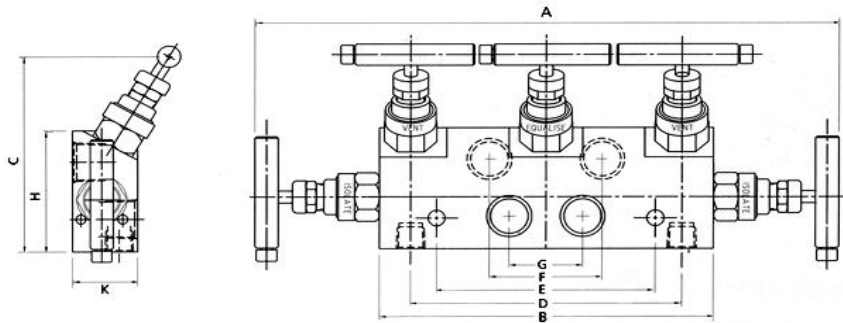
Pressure Test Certificate

CE Certificate of Conformity

Other testing / documentation / certification can be supplied dependant upon the contract / project requirements.

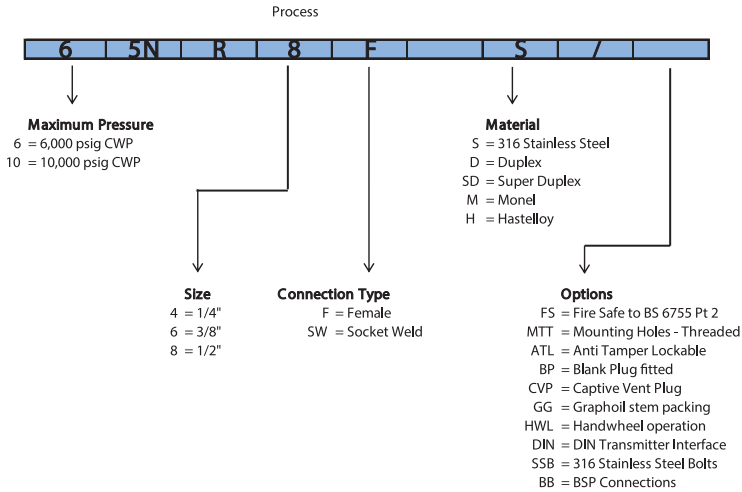
Dimensions

Model : 65NR



Model	A	B	C	D	E	F	G	H	K	Weight
65NR8	280mm	160mm	102mm	130mm	105mm	54mm	35mm	47mm	31.8mm	2.86 Kg

Model Number



Notes

- 1 Standard Screwed connections are NPT
- 2 For units on Cryogenic Service please contact our sales office
- 3 All wetted parts material conform to NACE MR 01-75 latest version
- 4 For details of mounting brackets and other accessories please see additional datasheets
- 5 For interfacing onto other Transmitter types or configurations, please contact our sales office
- 6 Multiple options can be specified if separated by a forward slash symbol (/)

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Model: ASN8M8F

ADJUSTABLE SNUBBER HIGH PRESSURE

The Budenberg Adjustable Snubber was designed to meet the demand for protection of instruments such as pressure gauges, where the applications have rapid pulsations or sudden hydraulic shock loading that can damage them.

The level of damping is by the adjustment of a needle valve that restricts the flow, and therefore protects the pressure gauge against pulsations.

This aids the reading of the fluctuating pressure, and helps to prolong the life of the instrument.

Mechanical and construction industries that use hydraulic pumps and presses are susceptible to pulsations, and the adjustable snubber offers a controllable solution for these applications.

A unique feature of this design is that the adjustment to the damping can be made after installation in the system.

Suitable for all media that is resistant to 316 Stainless Steel.



Material

Body – 316 Stainless Steel as standard Up to 120 Degrees Celsius
Other materials available on request.

Temperature

Up to 120 Degree Celcius

Testing

100% Pressure / Hydrostatically tested

Connection Size

½" NPT Male / Female

Adaptors available for other thread configurations

Traceability

Each valve is stamped with unique trace- code to enable us to trace back to the original mill certificate. Therefore when requested each batch can be supplied fully in accordance to EN 10204 3.1b

Pressure Ranges

400 Bar – As standard

Mounting

In-line

Options

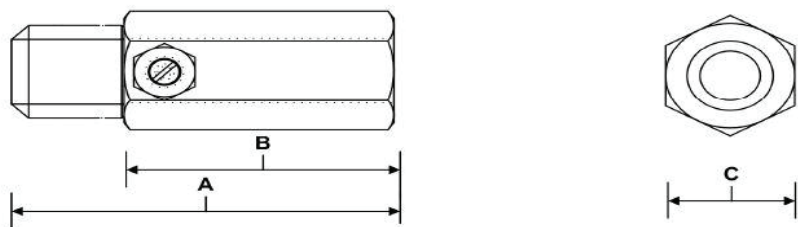
Customer names etched on the body, special designs undertaken, please contact or Sales Office.

NACE

Suitable for NACE MR01-75, and the Snubber body is stamped with this information.

Dimensions

Model : ASN8M8F



Stock & Model No	Size	A	B	C	Weight
6ASN88S/NA	1/2"NPT	64mm	45mm	28mm	0.24Kg
6ASN44S/NA	1/4"NPT	56mm	41mm	28mm	0.22Kg

Availability

Normally available Ex-Stock.

Accessories

Adaptors

We have a range of Parallel and Taper threaded adaptors to fit the Adjustable Snubber - See Adaptors Datasheets

Valves

We have a range of Needle and Ball Valves that are complimentary to the Adjustable Snubber - See Valve Datasheets

Specifications and dimenions in this leaflet, are subject to change without prior notice.



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Model: CMT SYPHONS

The Budenberg Syphons were designed to meet the demand for protection of instruments such as pressure gauges, where the applications have high temperatures that can cause damage or inaccurate readings due to elevated temperatures. They collect condensate from the high temperature media inside the syphon, which prevents direct contact with the pressure elements and dissipates the heat.

Upon installation the syphon is normally filled with the condensate liquid, in the case of steam, water is used. Suitable for all media that is resistant to 316 Stainless Steel.

Material

Body – 316 Stainless Steel as standard
Other materials available on request.

Connection Size

½" NPT Male / Male Testing
½" BSP Male / Male with locknut
3/8" NPT Male / Male
3/8" BSP Male / Male with locknut
Adaptors available for other thread configurations
trace back to the original mill certificate. Therefore when requested each batch can be supplied fully in accordance to EN 10204 3.1b

Pressure Ranges

Based upon 12" Syphon
Maximum Pressure up to 80 Bar up to 300 Deg C Maximum
Maximum Pressure up to 100 Bar up to 120 Deg C Maximum
Maximum Pressure up to 400 Bar up to 60 Deg C Maximum

PRESSURE GAUGE SYPHONS ACCESSORY



Temperature

Based on 12" Syphon
Maximum Temperature up to 300 Deg C up to Maximum 80 Bar
Maximum Temperature up to 120 Deg C up to Maximum 100 Bar
Maximum Temperature up to 60 Deg C up to Maximum 400 Bar

Testing

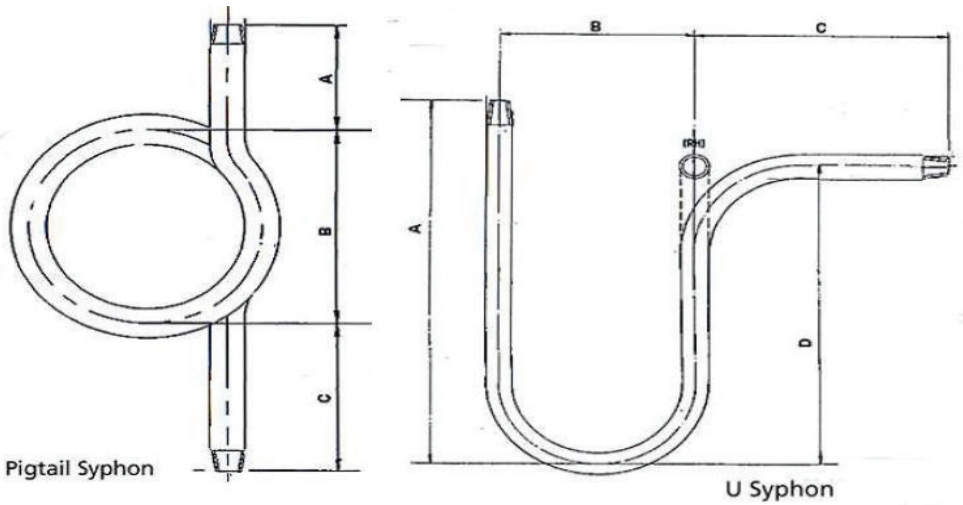
100% pressure hydrostatically tested

Traceability

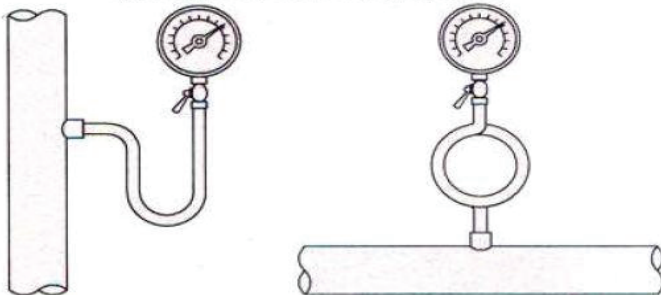
Each syphon is stamped with unique trace- code to enable us to trace back to the original mill certificate. Therefore when requested each batch can be supplied fully in accordance to Based on 1/2" Syphon EN 10204 3.1b

Options

Carbon Steel, and other connections, please contact Sales Office for advice.



Typical installations using Syphons.



Valves

It is advisable to put a Valve or Gauge Cock in the system to isolate the Pressure Gauge.

We have a range of Needle and Ball Valves that are complimentary to the Adjustable Snubber - See Valve Datasheets

We also have a more compact Pigtail Syphon available from Stock, see Datasheet VAC 053



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Web : www.budenberg.co.uk

Model: CSE

The CSE is a high integrity Diaphragm Seal Gauge designed to withstand the high pressures and temperatures normally associated with Chemical and Oil / Gas applications.

The CSE has a diaphragm clamped between the upper and lower chambers thereby optimising the use of exotic materials for the wetted parts.

A unique feature of the unit is the ability to set the diaphragm to 'lock off' at set pressures thereby protecting the unit from major overload conditions up to and including 400 Bar. This eliminates the need for expensive overload protection valves.

Available in a wide range of options including a choice of dial sizes, connections, materials, filling fluids and options to permit operation at temperatures in excess of 440 Degrees Celsius.

Applications

Designed for continuous operation on gases or liquids where the pressure element could be become corroded or clogged by the process media. Versions are available to withstand pressure pulsations, vibrations and operation at very high temperatures.

Dial Sizes

63mm, 100mm & 150mm are standard.

Pressure Gauges

See separate Pressure Gauge Datasheets for suitable gauges for use on diaphragm seals.

Accuracy Class

1.0% as EN837

Pressure Range

The welded seal units is available in a range of configurations dependant upon the required Dial Size and Operating pressure range as follows:

Dial Size Seal Diameter Min Range Max Range
63/100 / 150mm Gauge with 69 mm Seal 1 Bar to 400 Bar

Over range protection

All units will withstand 130% overload as standard up to 200 Bar. Optionally the diaphragm can be set to 'lock off' allowing the unit to withstand an overload up to the maximum pressure rating of the seal unit. This unique feature can be used to avoid the use and cost of additional overload protection valves.

Materials of Construction

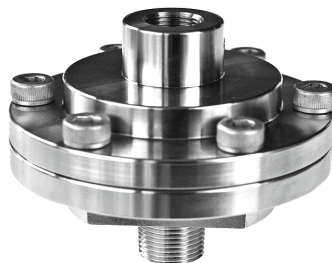
Due to the clamped construction, all materials including the diaphragm and connection can be the same material or a combination of several.

Standard - 316L Stainless Steel

Options (CSE-R) - Hastelloy C276, Titanium, tantalum or Monel 400. Teflon lined connection on BSP only.

Other materials available upon request

DIAPHRAGM SEAL CLAMPED SCREWED CONNECTION



Process connections

Model number C SE has male connections of:

1/4", 3/8", 1/2", 3/4", 1" BSP or NPT

Model number C SI has female connections of:

1/4", 3/8", 1/2", 3/4" BSP or NPT

Other connections are available

Filling Fluids

A wide range of filling fluids are available to suit most applications including high temperature and pharmaceutical applications.

Standard Options are Mineral Oil, Silicon HT Oil, Medicinal Paraffin, Glycerine, Syltherm XLT & 400.

Inert Fluorine based fluids can be specified for oxygen and chlorine applications as well as a range of FDA approved fluids for food and pharmaceutical applications.

Temperature

Normal process operating temperature range: -20 to +100 °C

Elevated temperature operation up to 450 °C can be achieved by the selection of an extended neck option and an associated high temperature filling fluid. See relevant datasheet.

Serial Number printed on the dial.

Pulsation Damper

The clamped design allows us to offer a snubber internally to dampen pulsations and beneficially protect the Pressure Gauge.

Certification

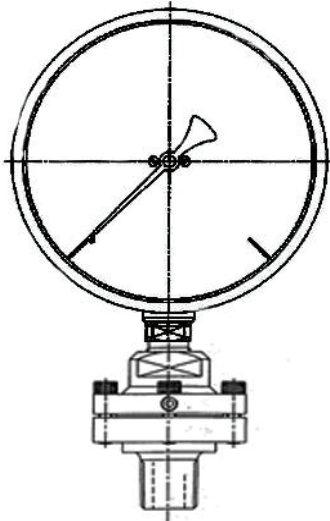
A Certificate of conformity traceable to National Standards is supplied free of charge.

Safety

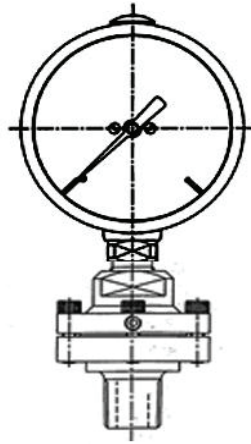
All units are manufactured to comply with EN 837-1 and other regulatory standards including P.E.D.

Dimensions

Model : CSE



CSE with 150mm Gauge



CSE with 100mm Gauge

CSE Large Dial Gauges 100 and 150mm Pressure Gauges
CSE-P Purge in lower chamber for cleaning and or venting.

Options

Vent Port (CSE-P)

Units can be supplied with an additional integral connection port for use as either as a vent / drain or connection of a transmitter or used for in-situ calibration purposes

Extended Neck

For use in elevated temperatures up to 300 °C we can dissipate the effect of heat from the Pressure Gauge by inserting an extended neck between the CSE and the pressure gauge.

Anti Tamper

Designed to prevent disassembly

Remote Mounting

St/steel capillary can be fitted between gauge and seal to protect instrument from heat or vibration

Fitting Transmitters

We have a range of standard and 'Smart' Transmitters that can be used in combination with the WSE and WSI or we can fit customers own free issue transmitters to most diaphragm seal units

Accessories

Valves and Adaptors

A full range of Needle and Ball Valves to fit the CSE - See separate Datasheets.

Specifications and dimensions in this leaflet, are subject to change without prior notice.

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DIAPHRAGM SEAL WELDED SCREWED CONNECTION



The WSE is a high integrity Diaphragm Seal Gauge designed to withstand the high pressures and temperatures normally associated with Chemical and Oil / Gas applications.

The WSE has an all welded construction thereby eliminating many potential leak paths and provides a screwed* process connection a range of sizes up to 1".

A unique feature of the unit is the ability to set the diaphragm to 'lock off' at set pressures thereby protecting the unit from major overload conditions up to and including 400 Bar. This eliminates the need for expensive overload protection valves.

Available in a wide range of options including a choice of dial sizes, connections, materials, filling fluids and options to permit operation at temperatures in excess of 440 Degrees Celsius.

Applications

Designed for continuous operation on gases or liquids where the pressure element could become corroded or clogged by the process media. Versions are available to withstand pressure pulsations, vibrations and operation at very high temperatures.

Dial Sizes

63mm, 100mm & 150mm are standard.

Pressure Gauges

See separate Pressure Gauge Datasheets for suitable gauges for use on diaphragm seals.

Accuracy Class

1.0% as EN837

Pressure Range

The welded seal units is available in a range of configurations dependant upon the required Dial Size and Operating pressure range as follows:

Dial Size Seal Diameter Min Range Max Range
63mm Gauge with 42 mm Seal 1 Bar to 400 Bar
100 / 150mm Gauge with 42 mm Seal 5 Bar to 400 Bar
100 / 150mm Gauge with 69 mm Seal 1 Bar to 400 Bar

Over range protection

All units will withstand 130% overload as standard up to 200 Bar. Optionally the diaphragm can be set to 'lock off' allowing the unit to withstand an overload up to the maximum pressure rating of the seal unit. This unique feature can be used to avoid the use and cost of additional overload protection valves.

Materials of Construction

Due to the welded construction, all materials including the diaphragm and connection are of the same material
Standard - 316L Stainless Steel
Options (WSE-R) - Hastelloy C276, Titanium or Monel 400.
Other materials available upon request



WSE-1

WSE-2

WSE-P

Process connections

Model number **WSE** has male connections of:

1/4", 3/8", 1/2", 3/4", 1" BSP or NPT

Model number **WSI** has female connections of:

1/4", 3/8", 1/2", 3/4" BSP or NPT

Other connections are available

Filling Fluids

A wide range of filling fluids are available to suit most applications including high temperature and pharmaceutical applications. Standard Options are Mineral Oil, Silicon HT Oil, Medicinal Paraffin, Glycerine, Syltherm XLT & 400.

Inert Fluorine based fluids can be specified for oxygen and chlorine applications as well as a range of FDA approved fluids for food and pharmaceutical applications.

Temperature

Normal process operating temperature range: -60 to +200 oC
Elevated temperature operation up to 450 oC can be achieved by the selection of an extended neck option and an associated high temperature filling fluid. See relevant datasheet.

Serial Number printed on the dial.
traceable to National Standards is supplied free of charge.

Certification

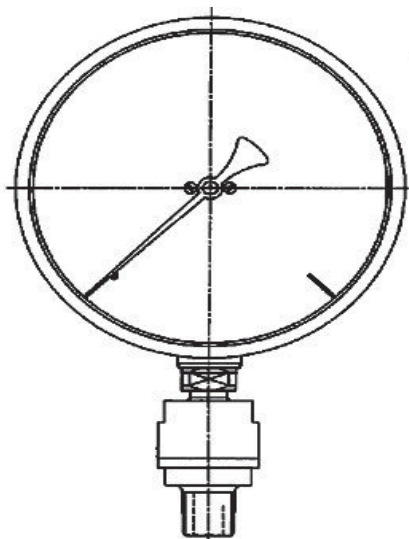
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Safety

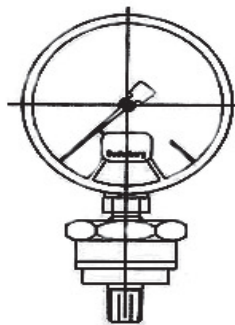
All units are manufactured to comply with EN 837-1 and other regulatory standards including P.E.D.

Design Note

WSE-R are of a round construction with 2 flats milled in the upper chamber for installation, whilst WSE have a Hexagon.



WSE-R with 150mm Gauge



WSE with 80mm Gauge

Options

- WSE-1** Small Dial Gauges 50 /63/ and 80mm Pressure Gauges
- WSE-2** Large Dial Gauges 100 and 150mm Pressure Gauges
- WSE-P** Purge in lower chamber for cleaning and or venting.
- WSE-R** Rare materials such as Hastelloy C276, Monel 400 & Titanium.

Vent Port (WSE-P)

Units can be supplied with an additional integral connection port for use as either as a vent / drain or connection of a transmitter or used for in-situ calibration purposes

Extended Neck

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Anti Tamper

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Accessories

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BUDENBERG

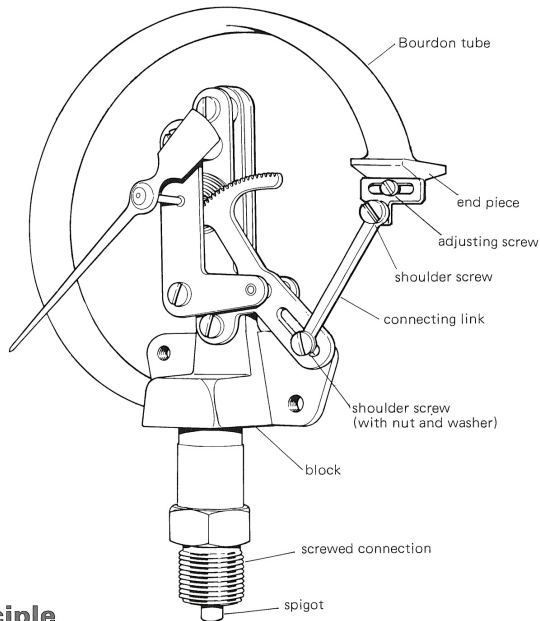
An introduction to pressure gauges

We claim for Budenberg gauges

- exceptionally high initial **accuracy**
- **accuracy** maintained longer in adverse conditions
- exceptional **wear resistance** — especially in conditions that fall short of the best
- unfailing **interchangeability** of all parts with consequent greater accuracy of fitting and ease of repair and recalibration
- **ease** of taking readings

Qualities are achieved by

- sound design and good engineering resulting from specialisation and unrivalled experience
- special machines and methods for giving accuracy in all machined parts
- precision machining of all movement components within own factories
- insistence on a high standard of workmanship at all stages of manufacture
- conscientious and rigorous final inspection

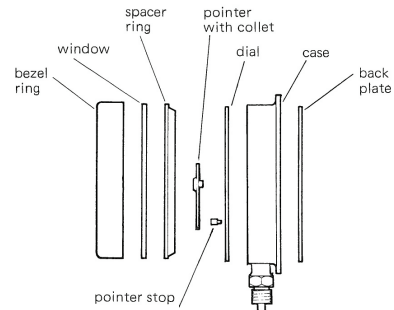


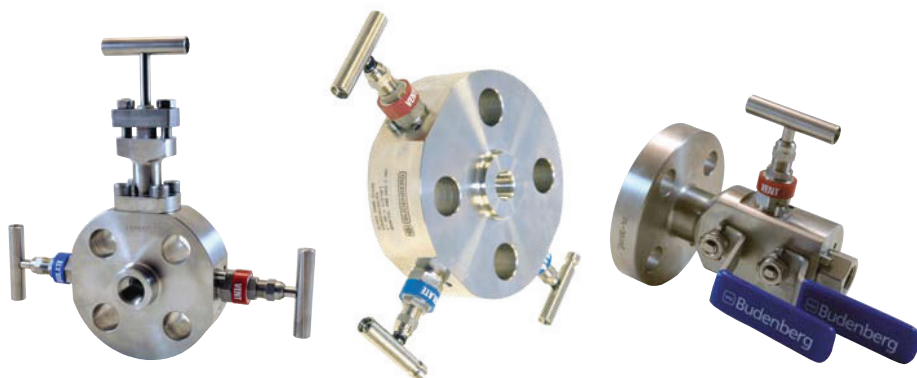
Bourdon principle

The pressure spring which actuates the mechanism is an elliptical section tube bent into an arc of a circle. One end is fitted into the block and the free end is sealed by an end piece.

When pressure enters the tube, the tube uncoils slightly and the free end lifts. The amount of deflection is directly proportional to the pressure applied.

This deflection is transmitted by the connecting link to a pivoted quadrant gear which meshes with a central pinion carrying the pointer. A hairspring on the pinion takes up the small amount of backlash in the gears and pivots.





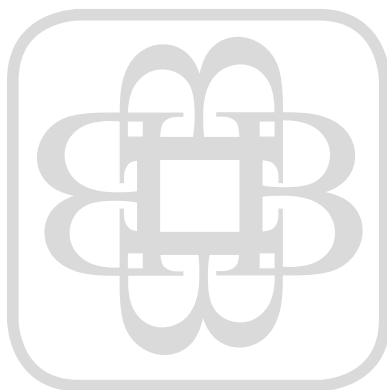
VAC Budenberg

Budenberg VAC Ltd are a sister company specialising in complex double block & bleed & mono flange assemblies. We offer modular designs for critical applications as well as standard instrumentation valves and manifolds. Contact **+44 (0) 161 777 7362**

EXCLUSIVE AGENT:



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Made in Britain

