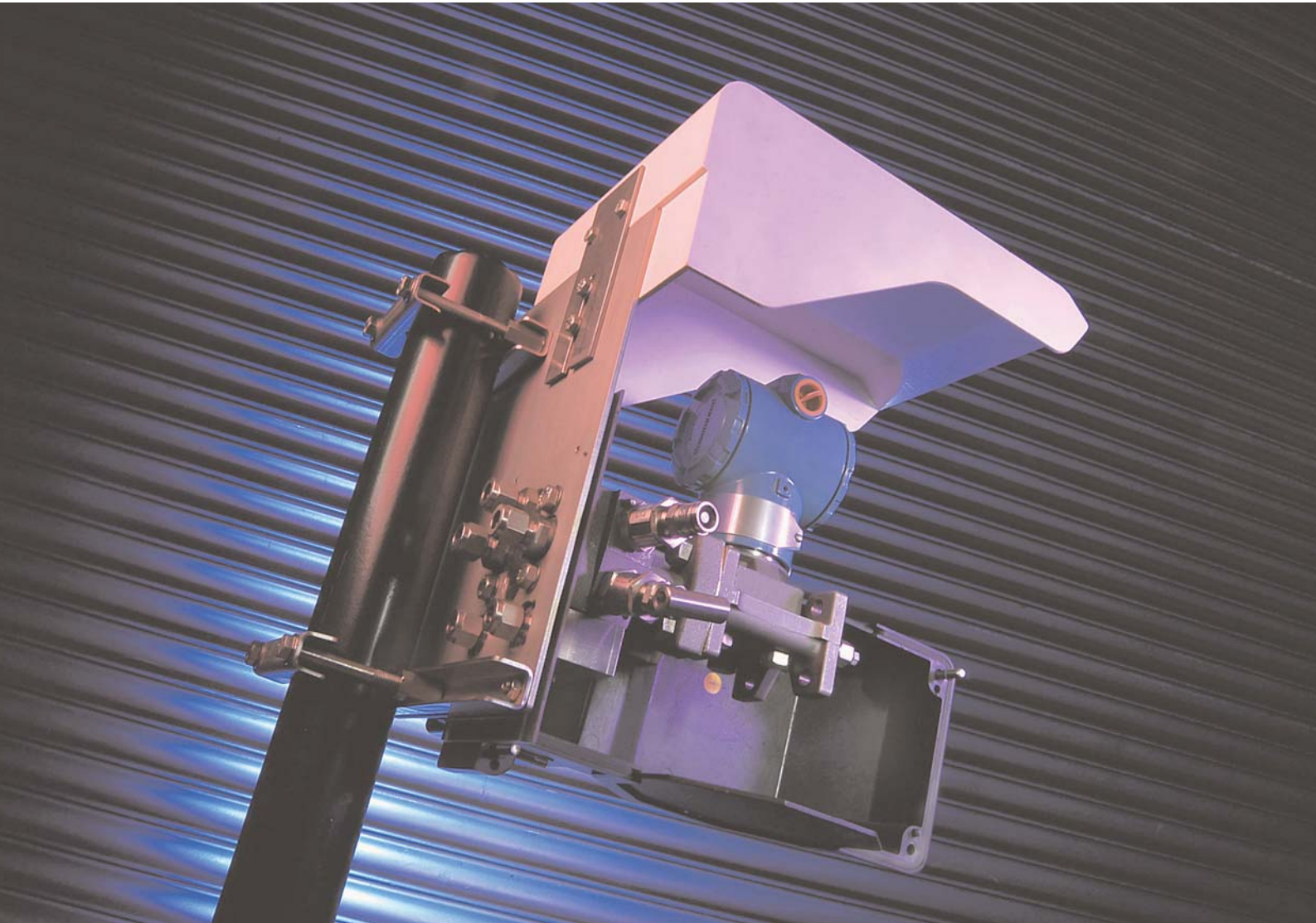


Instrument Mounting System



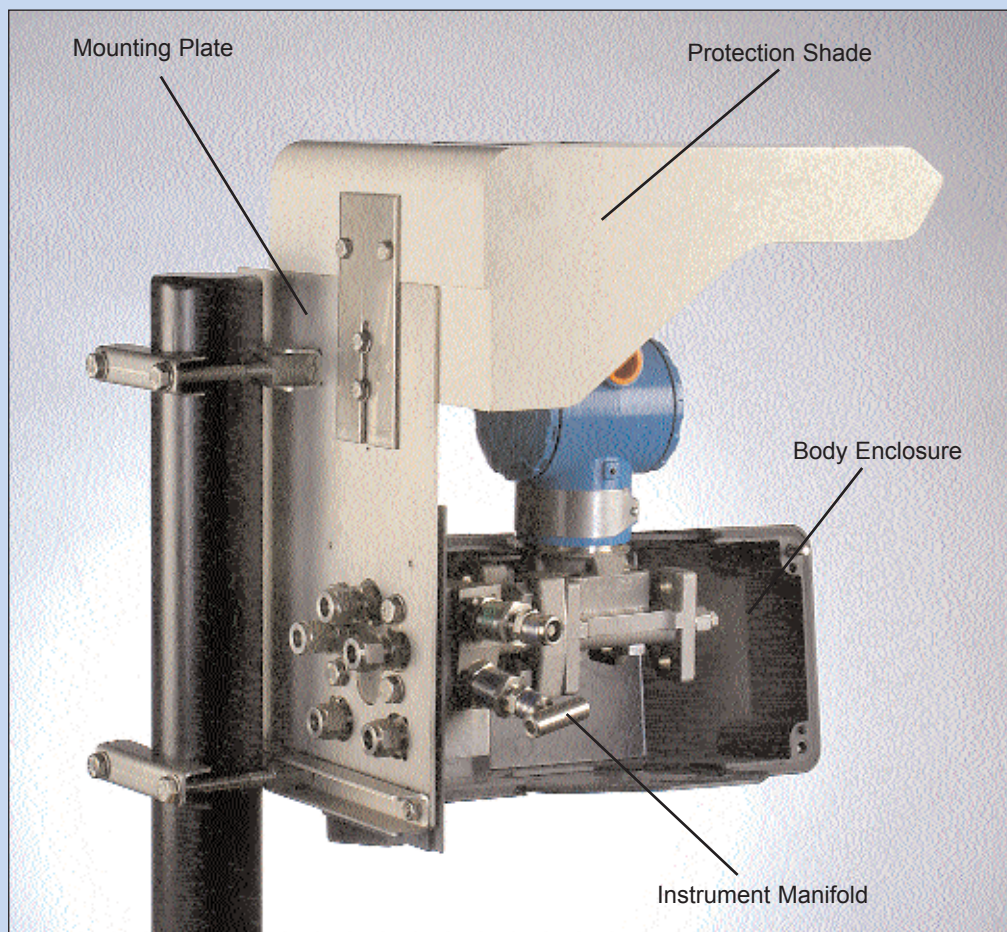
Instrument Mounting System

The Sabre Instrument Mounting System has been developed to satisfy the onerous requirements of today's oil, gas and petrochemical instrumentation installations.

Fully conforming to the relevant Shell specifications, the modular concept utilises a standard base plate that allows for easy factory pre-assembly, or alternative site assembly, of a variety of high integrity manifolds and accessories to accommodate pressure, differential pressure and other instruments.

The system's flexibility ensures that a wide range of instrumentation requirements can be accommodated whilst meeting the highest standards of safety and quality. Accessory options include seal pots, purge blocks, filling connectors and heaters, protective sunshades and GRP instrument body enclosures for severe environment service.

The Sabre System provides a total solution to all on-site mounting problems for instrument measurement loops.



Instrument Impulse Line Components

Item	Mesc no.	Model no.			Page
Manifolds - Differential Pressure					
047	60.98.56.205.1	MX10-2-BP-612-6HT	Type A - Double Isolate Equalise Vent Block	10mm OD	4
048	60.98.56.207.1	MX10-2-BP-612-6HT	Type A - Double Isolate Equalise Vent Block	3/8" OD	4
041	60.98.56.215.1	MX11-2-BP-612-6HT	Type B - Double Isolate Vent Block	10mm OD	4
042	60.98.56.217.1	MX11-2-BP-612-6HT	Type B - Double Isolate Vent Block	3/8" OD	4
044	60.98.56.225.1	MX12-2-BP-612-6HT	Type C - Single Isolate Vent Block	10mm OD	5
045	60.98.56.227.1	MX12-2-BP-612-6HT	Type C - Single Isolate Vent Block	3/8" OD	5
Manifolds - Pressure					
038	60.98.56.235.1	MX13-2-BP-612-6HT	Type D - Single Isolate Vent Block (DP model)	10mm OD	5
039	60.98.56.237.1	MX13-2-BP-612-6HT	Type D - Single Isolate Vent Block (DP model)	3/8" OD	5
050	60.98.56.305.1	MX26-2-BP-611-6HT	Type E - Isolate Vent Gauge Block	10mm OD - 1/2" NPT male	5
051	60.98.56.315.1	MX26-2-BP-611-6HT	Type F - Isolate Vent Gauge Block	10mm OD - 1/2" NPT female	5
052	60.98.56.317.1	MX26-2-BP-611-6HT	Type F - Isolate Vent Gauge Block	10mm OD - G1/2" female	5
053	60.98.56.325.1	MX26-2-BP-611-6HT	Type E - Isolate Vent Gauge Block	3/8" OD - 1/2" NPT male	5
054	60.98.56.335.1	MX26-2-BP-611-6HT	Type F - Isolate Vent Gauge Block	3/8" OD - 1/2" NPT female	5
055	60.98.56.337.1	MX26-2-BP-611-6HT	Type F - Isolate Vent Gauge Block	3/8" OD - G1/2" female	5
Gauge Blocks					
030	60.98.55.200.1	MX14-4LPR-R-612-6HT	Type G - Isolate Vent Gauge Block	1/2" NPT female	6
031	60.98.55.210.1	MX15-4HPR-R-612-6HT	Type G - Isolate Vent Gauge Block	1/2" NPT female	6
032	60.98.55.220.1	MX14-4LPR-R-612-6HT	Type G - Isolate Vent Gauge Block	G1/2" female	6
033	60.98.55.230.1	MX15-4HPR-R-612-6HT	Type G - Isolate Vent Gauge Block	G1/2" female	6
034	60.98.55.300.1	MX14-4LPR-R-612-6HT	Type S - Isolate Vent Gauge Block - Syphon	1/2" NPT female	6
035	60.98.55.310.1	MX15-4HPR-R-612-6HT	Type S - Isolate Vent Gauge Block - Syphon	1/2" NPT female	6
036	60.98.55.320.1	MX14-4LPR-R-612-6HT	Type S - Isolate Vent Gauge Block - Syphon	G1/2" female	6
037	60.98.55.330.1	MX15-4HPR-R-612-6HT	Type S - Isolate Vent Gauge Block - Syphon	G1/2" female	6
Ancillaries					
066	60.98.70.210.1	SPBX-2-BP-611-6HT	Type S - Single Purge Filter Block	10mm OD	7
051	60.98.70.220.1	DPBX-2-BP-611-6HT	Type D - Double Purge Filter Block	10mm OD	7
068	60.98.70.310.1	SPBX-2-BP-611-6HT	Type S - Single Purge Filter Block	3/8" OD	7
052	60.98.70.320.1	DPBX-2-BP-611-6HT	Type D - Double Purge Filter Block	3/8" OD	7
074	60.98.70.510.1	SPX-2-BP-611-6HG	Seal Pot	10mm OD	7
000	60.98.70.600.1	SPX-4-NT-611-6HG	Seal Pot	1/2" NPT female	7
076	60.98.70.610.1	SPX-2-BP-611-6HG	Seal Pot	3/8" OD	7
057	60.98.70.010.1	SHBX-2-BP-611-6	Manifold Steam Heating Block	10mm OD	8
060	60.98.70.050.1	EHC-1	Manifold Electrical Heater		8
061	60.98.70.110.1	SHBX-2-BP-611-6	Manifold Steam Heating Block	3/8" OD	8
081	60.98.90.106.1	FCX-2-BP-611-6V	Filling / Flushing Connector c/w Fitting	6mm OD	8
082	60.98.90.107.1	FCX-2-BP-611-6V	Filling / Flushing Connector c/w Fitting	1/4" OD	8
087	60.98.90.710.1	PON-611	Purge Orifice Nipple	10mm OD	8
090	60.98.90.810.1	PON-611	Purge Orifice Nipple	3/8" OD	8
095	60.98.91.205.1	SX-1	Protective shade		9
096	60.98.91.305.1	TBX-1	Instrument Body Enclosure		9
Accessories					
083	60.98.90.207.1	PPX-2-BP-611-6	Port Protector		8
084	60.98.90.217.1	PPX-2-NT-611-6	Port Protector		8
064	60.98.56.905.1	ATK-1	Anti Tamper Key - Short handle		9
000	00.00.00.000.0	MB-SPX-316	Mounting Bracket Seal pot		10
000	00.00.00.000.0	MP-FIA-316	Field Insulation Adaptor for Mounting Plate		10
Mounting Plates					
092	60.98.91.105.1	MPL-316 A1	Mounting system - L-shape S-37.813		10
092	60.98.91.110.1	MPR-316 A2	Mounting system - Rectangular S-37.815		10
093	60.98.91.118.1	MPR-316 B1	Mounting system - Rectangular S-37.814		10
093	60.98.91.120.1	MPR-316 B2	Mounting system - Rectangular S-37.816		10

Models are available in a variety of process and vent connections, G1/4" is generally accepted as standard. Compression fittings for process and vent are optional; size and make as specified by customer.

4-Valve Manifold

Double Isolate / Equalise / Vent Block
MX10 - 2 - BP - 612 - 6HT

Application:

For general liquid and gas measurement applications, using D.P. transmitters.

Operating Conditions:

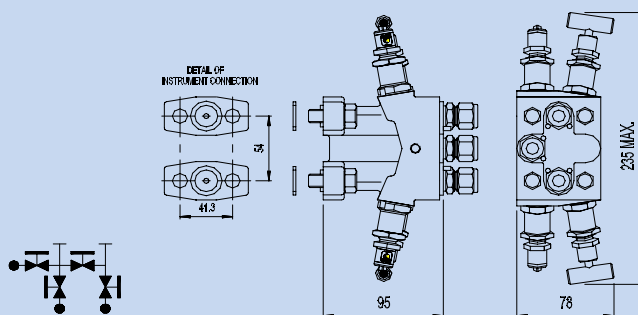
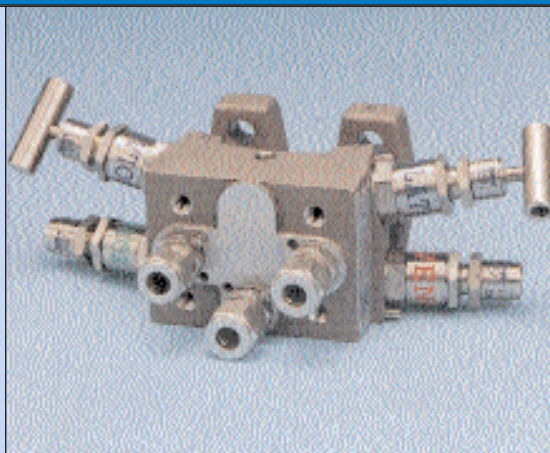
- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

Connections:

- Process Inlet and Vent port G $\frac{1}{4}$ " parallel thread with locking pin facility.
- $\frac{1}{4}$ " and $\frac{1}{2}$ " NPT connections are available.
- Instrument facing to DIN 19213 Form B3
- Instrument Seal Ring Material: PTFE

All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Isolate	Blue	Tee bar handle
Equalise	Green	Anti tamper
Vent	Red	Anti tamper



4-Valve Manifold

Double Isolate / Vent Block
MX11 - 2 - BP - 612 - 6H

Application:

For applications where process fluids must not be contaminated, using D.P. transmitters.

Operating Conditions:

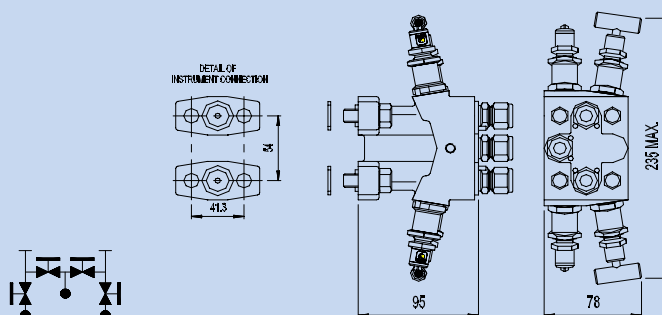
- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

Connections:

- Process Inlet and Vent port G $\frac{1}{4}$ " parallel thread with locking pin facility.
- $\frac{1}{4}$ " and $\frac{1}{2}$ " NPT connections are available.
- Instrument facing to DIN 19213 Form B3
- Instrument Seal Ring Material: PTFE

All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Isolate	Blue	Tee bar handle
Equalise	Green	Anti tamper
Vent	Red	Anti tamper



2-Valve Manifold

Single Isolate / Vent Block
MX12 - 2 - BP - 612 - 6HT

Application:

For low pressure applications and level measurement on Atmospheric tanks with differential pressure transmitters.

Operating Conditions:

- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

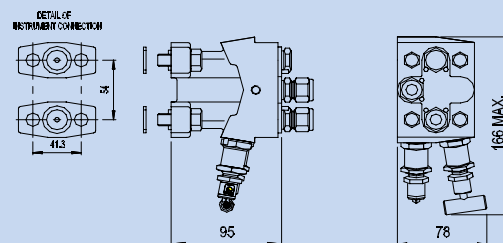
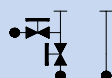
Connections:

- Process Inlet and Vent port G $\frac{1}{4}$ " parallel thread with locking pin facility.
- $\frac{1}{4}$ " and $\frac{1}{2}$ " NPT connections are available.
- Instrument facing to DIN 19213 Form B3
- Instrument Seal Ring Material: PTFE



All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Isolate	Blue	Tee bar handle
Equalise	Green	Anti tamper
Vent	Red	Anti tamper



2-Valve Manifold

Single Isolate / Vent Block
MX13 - 2 - BP - 612 - 6HT

Application:

For static pressure measurement with D.P. style absolute and gauge pressure transmitters.

Operating Conditions:

- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

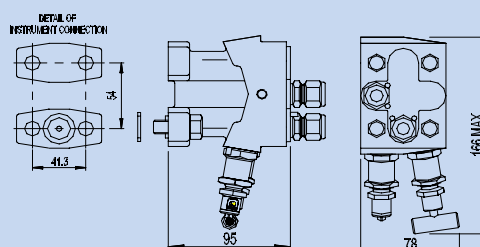
Connections:

- Process Inlet and Vent Port G $\frac{1}{4}$ " parallel thread with locking pin facility.
- $\frac{1}{4}$ " and $\frac{1}{2}$ " NPT connections are available.
- Instrument facing to DIN 19213 Form B1
- Instrument Seal Ring Material: PTFE



All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Isolate	Blue	Tee bar handle
Vent	Red	Anti tamper



Sabre Manifolds / Gauge Blocks

suitable for screwed style instrumentation

2-Valve Manifold

Single Isolate / Vent Block
MX26 - 2 - BP - 611 - 6HT

Application:

For remote mounting of absolute and gauge pressure transmitters, pressure switches and gauges with threaded connections. The design enables mounting via standard mounting brackets shown on page 10.

Operating Conditions:

- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

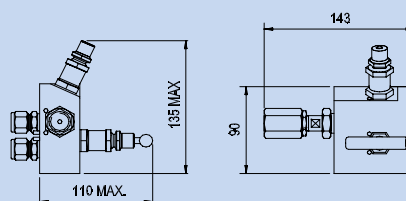
Connections:

- Process Inlet and Vent Port G $\frac{1}{4}$ " parallel thread with locking pin facility.
- $\frac{1}{4}$ " and $\frac{1}{2}$ " NPT connections are available.
- Blanking flange instrument facing to DIN 19213 Form B1
- Instrument Seal Ring Material: PTFE
- Filling connector available on request.



All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Isolate	Blue	Tee bar handle
Vent	Red	Anti tamper



2-Valve Isolate / Vent Block

MX14 - 4LPR - R - 316 - 6HT
MX15 - 4HPR - R - 316 - 6HT

Application:

For direct and close mounting to the flange connection of process isolating valves on horizontal and vertical pipe lines.

Operating Conditions:

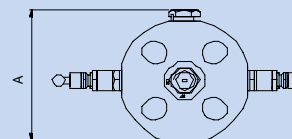
- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

Connections:

- Process side suitable for flange connections to ANSI B16.5
- Instrument Seal Ring Material: PTFE
- Nominal size DN 15. NPS $\frac{1}{2}$ ". RF smooth finish flange rating 150/300/600 # Code LPR (Model MX14).
- Nominal size DN 15. NPS $\frac{1}{2}$ ". RF smooth finish flange rating 900/1500/2500 # Code HPR (Model MX15).
- Instrument connection provided with 360° rotatable instrument adaptor, Male or Female. Also available with integral syphon.
- Vent port G $\frac{1}{4}$ " parallel thread with locking pin facility.
- $\frac{1}{4}$ " and $\frac{1}{2}$ " NPT connections are available.

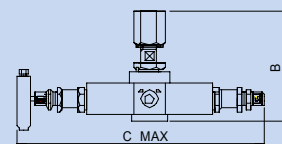


Dimension	MX14	MX15
A	101	141
B	117	117
C	225	265



All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Isolate	Blue	Tee bar handle
Vent	Red	Anti tamper



Single Purge Filter Block

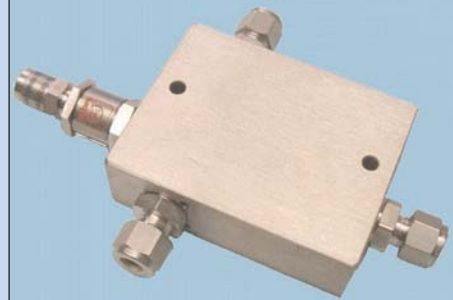
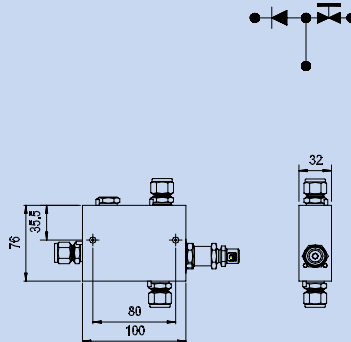
SPBX - 2 - BP - 611 - 6HT

Application:

For single pressure measurement requiring purge to protect instrument and impulse lines against corrosive fluids and gases.

General:

Compact design with vent valve, integral filter - 750 microns and spring loaded check valve to prevent back flow. Suitable for direct mounting to instrument impulse lines.



Double Purge Filter Block

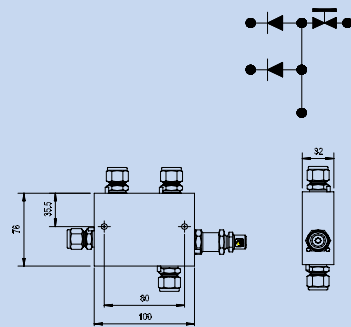
DPBX - 2 - BP - 611 - 6HT

Application:

For differential pressure measurement requiring purge to protect instrument and impulse lines against corrosive fluids and gases.

General:

Compact design with vent valve, integral filter - 750 microns and spring loaded check valves to prevent back-flow. Suitable for direct mounting to instrument impulse lines.



Connections:

- Purge inlet G1/4"
- 1/4" and 1/2" NPT connections are available.
- Purge outlet 10mm (3/8") outside diameter
- Tube compression fitting vent connection G1/4".

Operating Conditions:

- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Vent	Red	Anti tamper

Seal Pot with Vent Valve

SPX - 2 - BP - 611 - 6HG

Application:

For services requiring open static seals such as steam, corrosive or dirty processes.

General:

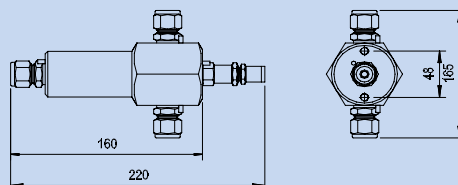
- Suitable for instruments with low volume displacement at full range.
- Vent valve packing: graphoil
- Volume of liquid chamber: 50cc
- See page 10 for details of mounting plate.

Operating Conditions:

- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 450°C

Connections:

- Process connection G1/4"
- Instrument connection G1/4"
- 1/4" and 1/2" NPT connections are available.
- Vent connection G1/4"



All valve heads colour coded and labelled as follows:-

Valve head	Colour	Type
Vent	Red	Anti tamper

Filling/Flushing Connector

For direct mounting to transmitter flange faces
FCX - 2 - BP - 611 - 6V

Application:

For differential and pressure measurement with open static seals for services where the filling connector can be used as a filling/flushing device to fill or flush transmitter cavities or impulse lines.

General:

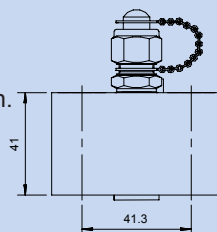
Compact design with integral spring loaded check valve to prevent back flow and tube fitting with retained cap and chain.

Operating Conditions:

- Maximum working pressure: 413 Bar at 38°C
- Maximum working temperature: 200°C

Connections:

- Instrument facing to DIN 19213, Form B3.
- Inlet connection: 6mm (1/4") outside diameter tube fitting.



Manifold Steam Tracing Block

SHBX - 2 - BP - 611 - 6

Application:

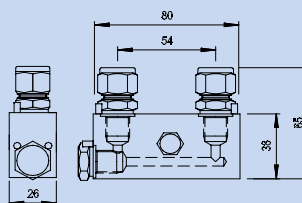
For use where heating of manifold and transmitter body is required for the measurement of viscous fluids, waxes, asphalt, polymers etc. Also for frost protection at low ambient temperatures.

General:

The steam heating block can be mounted direct on to the manifold body.

Operating Conditions:

- Maximum working pressure: 20 Bar at 220°C
- Maximum working temperature: 220°C



Manifold Electrical Heater

EHC - 1 / EHC - 2

Application:

For use where heating of manifold and transmitter body is required for the measurement of viscous fluids, waxes, asphalt, polymers etc. Also for frost protection at low ambient temperatures.

General:

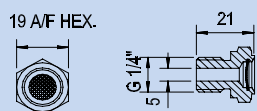
The electrically heated block can be directly attached on to the manifold body and can be supplied complete with a thermostat.

Port Protector

PPX - 2 - BP - 611 - 6

Application:

The port protector can be fitted into the instrument or manifold vent outlet as a protection against dirt, dust and insects.



Purge Orifice Nipple

PON - X - 316

Application: When both process streams and purge supply are at a relatively constant pressure, purge orifices can be used to maintain a constant purge flow.

General: The purge orifice nipple can be fitted directly into the tube compression fitting.

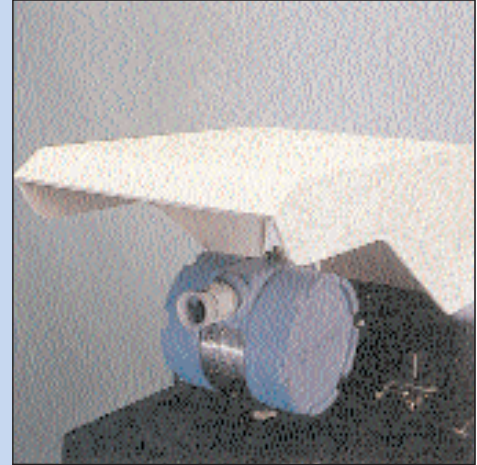
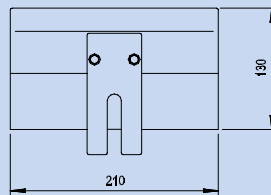
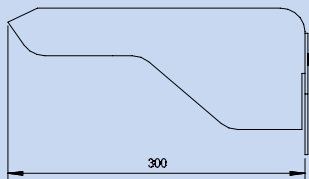
Model No:	PON-6-611	PON-10-611	PON-3/8"-611
Size (O/D):	6mm	10mm	3/8"

Protective Shade

SX - 1

Application:

To protect electronic instrumentation against adverse environmental conditions such as direct solar radiation or snow. Manufactured from flame retardant G.R.P. Easy quick installation on to LMP type mounting plate.

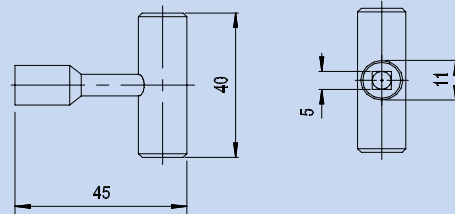


Anti-Tamper Key

ATK-1

Application:

A key can be supplied for use with Anti-Tamper valve heads, which are fitted to all vent and equalise valves. Designed to prevent unauthorised operation of valves.



Sabre Mounting Plates

for use with manifolds and ancillaries

Instrument Mounting Plates with Sunshade

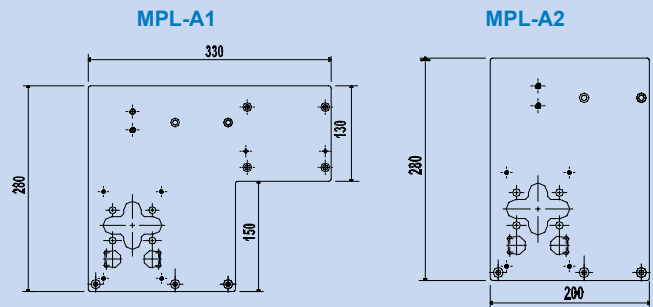
MPL - 316 A1
MPL - 316 A2

Application:

For simple and quick instrument hook up of the manifold, body enclosure, protection shade, test connection box or air filter regulator and nameplate. Can also be supplied complete with field insulation adaptor.

General:

Standard designs manufactured from ANSI 316 stainless steel for fixing to a 2" N.B. pipestand.



Instrument Mounting Plates without Sunshade

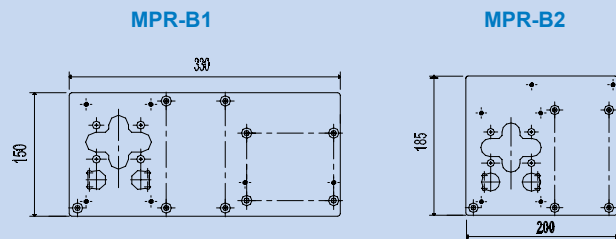
MPR - 316 B1
MPR - 316 B2

Application:

For simple and quick instrument hook up of the manifold, body enclosure, test connection box or air filter regulator and nameplate. Can also be supplied complete with field insulation adaptor.

General:

Standard designs manufactured from ANSI 316 stainless steel for fixing to a 2" N.B. pipestand.

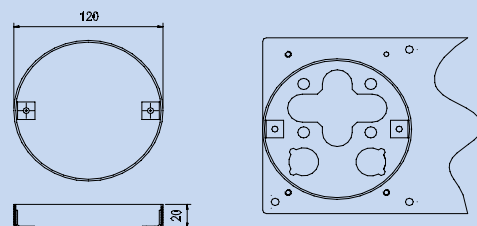


Field Insulation Adaptor

MP - FIA - 316

Application:

For neat termination of piping insulation at mounting plate interface.

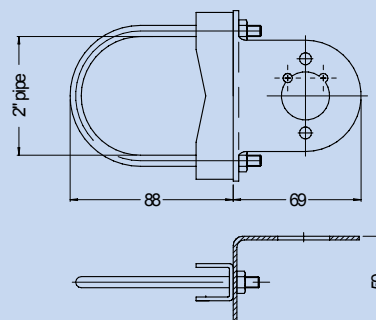


Instrument Mounting Bracket

MB - SPX - 316

Application:

Designed for simple and easy mounting of the Seal Pot.



Head Unit Features Sabre

1. Austenitic stainless steel one piece handle

A rugged, corrosion resistant, vibration proof handle which can easily be removed for gland maintenance or panel mounting.

2. Effective Thread Seal (integral with gland follower)

The most effective dust barrier/lubricant containment seal on any instrument valve. Fully integral with gland follower and will not degrade in any service condition as material is compatible, with other valve components (i.e. standard PTFE, graphite in high temperature versions).

3. Unique NIFLOR coated stem threads

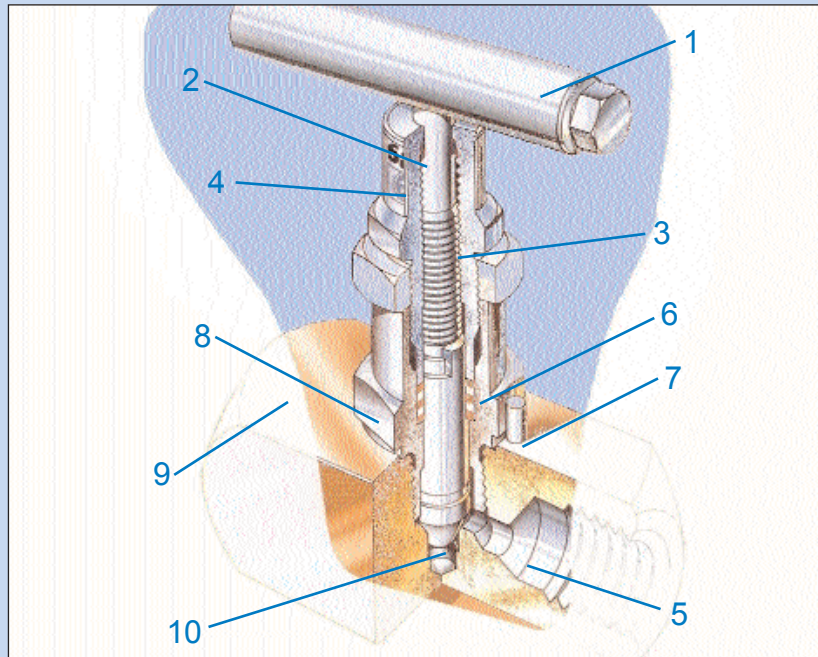
Actuating threads are not only rolled for increased strength and form, but also uniquely coated with a nickel based PTFE coating which protects the thread from wear and 'galling' and assists lubrication. This is replaced by a dry film graphite based lubricant for high temperature applications. These coatings combined with the specially designed packing bush significantly reduce the actuating torque during both opening and closing cycles. This in turn helps to reduce gland wear.

4. Head Unit service label

The head units are easily identified by means of a service identity label located around the top of the gland follower. These labels give the extreme working conditions for each head unit type combined with colour code to help identify the gland type. These labels are supplemented by head unit function labels on all manifold head units for easy identification. Unlike most instrument valves, this ensures all relevant performance parameters are maintained with the head unit at all times.

5. Pressure tested

Every valve & manifold is pressure tested to BS 6755:Part 1: 1986.



6. Packing Bush

This adjustable bush comprises a specially developed packing sandwich of PTFE/PEEK combined with the non-rotating stem and low actuating torque provides a near maintenance-free life. For high temperature applications a pure graphite bush is provided.

7. Bonnet locking pin

Manufactured in austenitic stainless steel, the bonnet locking pin interferes with the hexagon of the stuffing box to prevent accidental removal of the stuffing box. An optional bracket is available which prevents any attempt to remove the stuffing box from the body.

8. Metal to metal body to bonnet seal (DIN 3852)

A metal to metal body to stuffing box joint complies with the internationally recognised DIN 3852 standard. This ensures a leak proof seal above the maximum test pressures of the valve whilst decreasing the induced stresses so maintaining the safety factor within the valve design. The long engagement length of the stuffing box threads ensures a high joint failure strength verified by independent tests.

9. All wetted parts traceable

All metallic wetted parts in the valves construction are traceable to the original certification. This ensures compliance with the company's rigid Quality Assurance policy.

10. Hardened Stem for positive shut-off

On metal to metal valves, a hardened stainless steel (17/4PH) spindle (maximum hardness Rc33 to comply with the latest NACE specification) ensures a hardness differential of at least 12 points Rockwell C assuring positive bubble tight shut off on all applications. For applications where extra sealing ability or wear resistance is required, e.g. dirty gaseous service, the standard metal stem is coated with a molybdenum reinforced PTFE coating. The coating is totally regenerating along the length of the stem cone. This method also ensures a facility to shut the valve off if a process temperature in excess of the seat material is accidentally used. This fail safe facility does not apply to conventional soft seated valves. Also being fully integrated with the valve stem there is no danger of the soft seat being removed accidentally or by back-flow situations.



Sabre

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