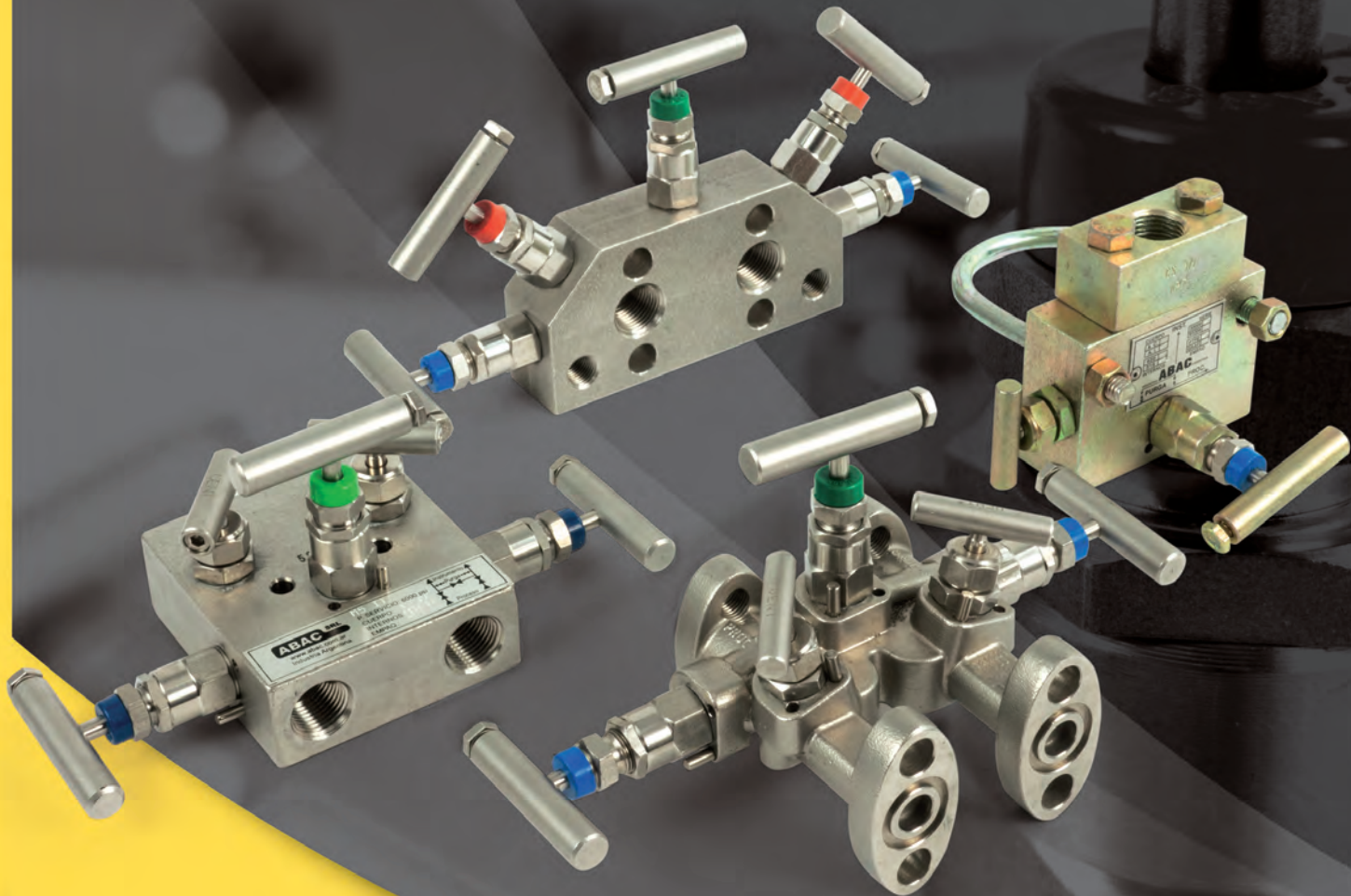


M800

# INSTRUMENT MANIFOLDS



**ABAC** SRL

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Reliable solutions for high requirement applications

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**Caution:** All technical data contained in this publication is valid at the time of its release, and **ABAC** reserves the right to modify them at any time without notice. This data offers options on products and/or systems to give more information to trained users with technical expertise. Due to the different operative conditions and applications of these products, it will be the designer's and/or user's responsibility to choose the appropriate model for its specific use, as well as to ensure correct mounting, operation and maintenance process.

## Introduction

## General Information

**ABAC** integral manifolds cover a wide field of applications through their different configurations. They combine all the operations in only one unit; reducing substantially the quantity of fittings involved, saving in this way mounting labor, limiting the leak risks and cutting acquisition and maintenance costs.

They are offered in 2-valve versions to be used in static pressure, in 3-valve versions for manometers or differential pressure instruments and in 5-valve versions for additional operations of purge or calibration.

### **ABAC manifolds main characteristics:**

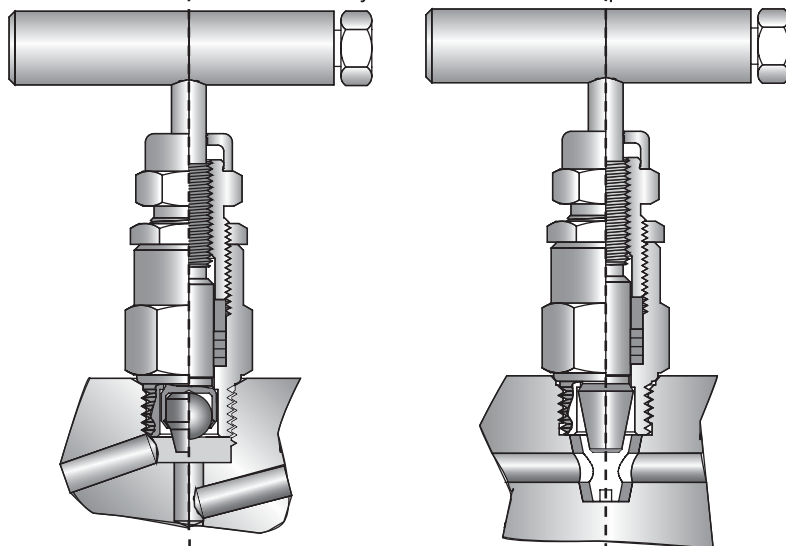
- Compact design which saves up space and reduces leak possibilities
- Rating 6000 psi @ 70 °F
- Chromium free, silver zinc plated treatment thickness 10/12 microns in carbon steel bodies
- Complete bulk material traceability
- 100 % tested in factory
- Cleaned for oxigen service, under request
- Material according to NACE MR-01-75, under request
- Wide variety of fittings and configurations

# Bonnet Design

- Threaded bonnets without joint ring and with latch against accidental unscrewing
- Stainless steel stems in all the cases
- Bonnets with blow out proof stem design which also isolates packing from process pressure
- Laminated and lubricated stem thread to avoid galling and to reduce operating torque

## BLOCK AND BY PASS BONNET

- Packing under stem thread which keeps it isolated from the process fluid. Adjustable in service.
- Plastic cap to retain lubricant and to prevent contaminant access. With different colours for their easy identification in each process



### Metal Seat Option

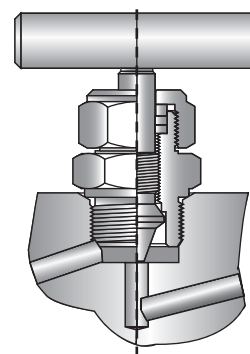
- Non rotating plug with different materials and shapes

### Soft Seat Option

- One-piece rotating stem and plug, conic type
- Direct flow way into the valve

## PURGE BONNET

- Needle stem with backseat, repackable under pressure.



# Specifications

## Pressure and Temperature Rating

Packing	Seat	Service Pressure @ 70°F		Maximum Temperature
		carbon steel mounting bolts	AISI 316 Stainless mounting bolt	
PTFE	Integral (Machined in body)	6000 psi	4500 psi	500°F
Graphoil	Integral (Machined in body)	6000 psi	4500 psi	930 °F
PTFE	Acetal	6000 psi (*)	4500 psi (*)	200°F
PTFE	Peek	6000 psi	4500 psi	400°F
Fluorelastomer with PTFE back up ring	Acetal	6000 psi (*)	4500 psi (*)	200°F

(\*) For M6GN model is 3000 psi

## Standard Materials

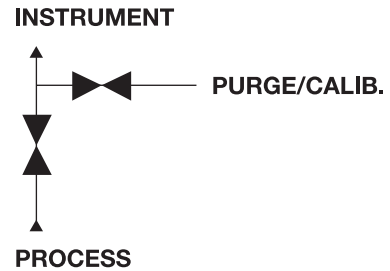
Version	Body	Bonnet	Stem	Stem tip	Mounting bolt	Seat	Packing and flange seal
Carbon Steel	Carbon Steel	SAE 1040	AISI 420	AISI 440 Ball	Carbon Steel Gr 5	Integral	PTFE/Grafoil
Stainless Steel	AISI 316/ CF8M	AISI 316	AISI 316	AISI 316	Carbon Steel Gr 5	Integral	PTFE/Grafoil
Stainless Steel	AISI 316/ CF8M	AISI 316	AISI 316	AISI 316	Carbon Steel Gr 5	Peek / Acetal	PTFE/ FKM
Nace	AISI 316/ CF8M	AISI 316	AISI 316	Monel	Carbon Steel Gr 5	Integral	PTFE/Grafoil

## Options

Optional	Add letter:	Example
Cleaned for oxygen use (only for stainless steel)	"OX"	M4-IT <b>OX</b>
For sour gas (only for stainless steel)	"SG"	M4R-IT <b>SG</b>
Blind plug in commanded vent	"PT"	M5-IT <b>PT</b>
Stem tip 17-4-PH	"V2"	M1 -IT <b>V2</b>
Stainless steel mounting bolts	"BI"	M4-CT <b>B5</b>
Coupling flange distance 56 ~ 59 mm	"DB"	M4R - IT <b>DB</b>

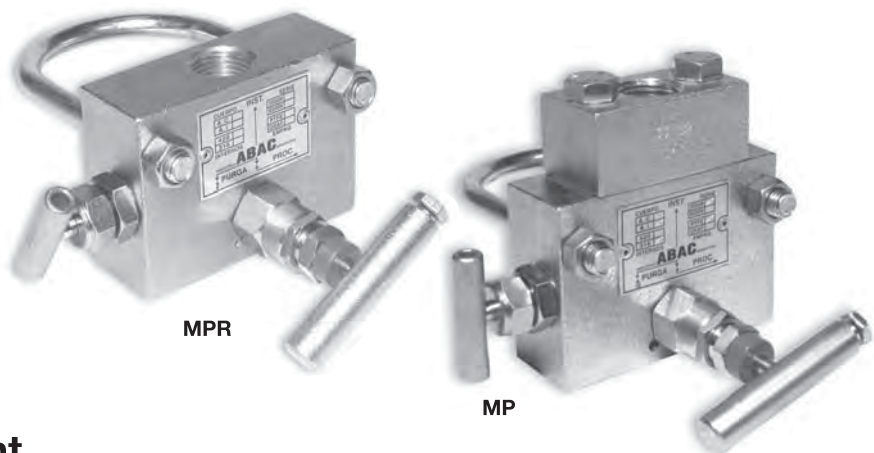
## 2-valve Manifolds

They provide the block and purge effects required in the installation of manometers, pressure switches and static pressure transmitters. In normal operation, the block valve remains opened, and the purge or equalization valve remains closed. In order to unmount the instrument and to verify the zero, you have to close the block valve and to depressurize with the purge. It is also possible to use the threaded purge outlet to enter a known signal, closing the blocking and to check, in this way, the mounted instrument without removing it.

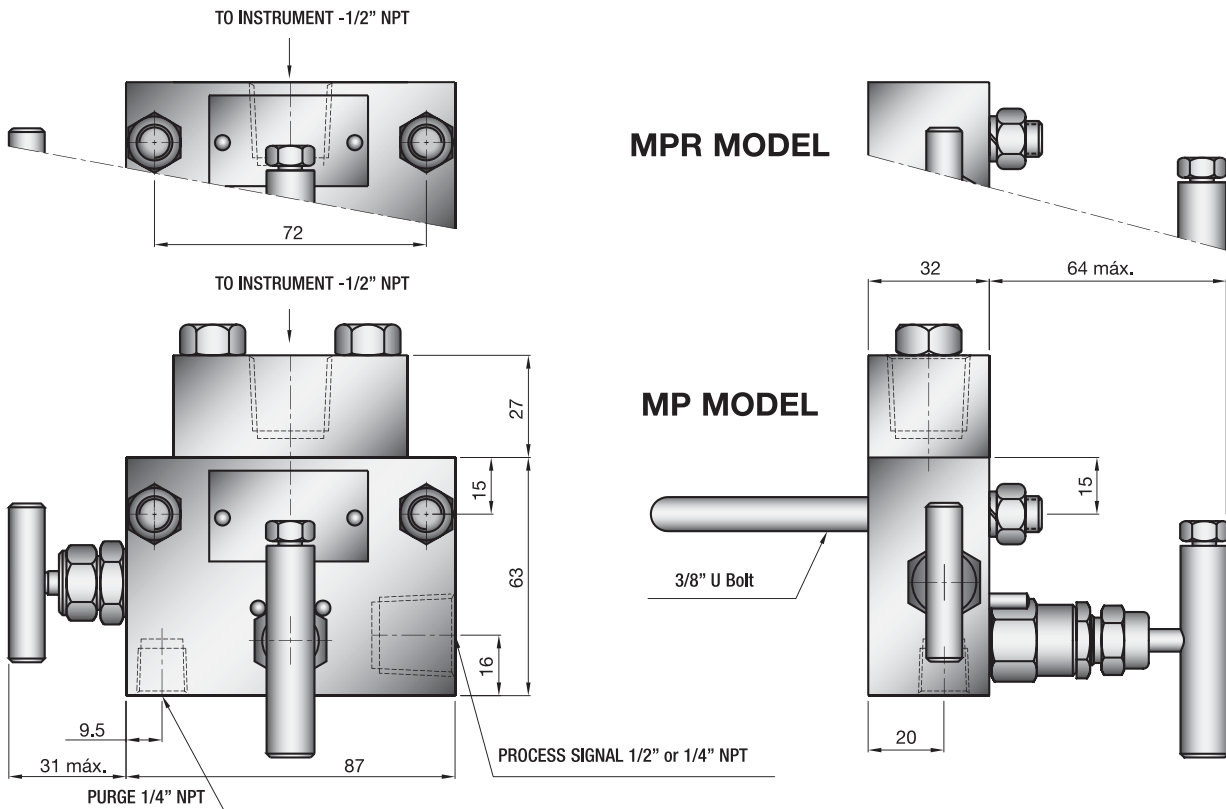


## MP/MPR 2-valve Manifold for Threaded Instruments

In the **MP** version, the instrument is screwed to a connector or coupling, which at the same time is fixed to the manifold body by means of bolts. This allows mounting or dismounting the instrument without the need to turn it. On the other hand, in the **MPR** model, the instrument or manometer is threaded directly into the manifold body. In both cases, the kit includes a 3/8 "U" for 2" pipe mounting. For direct mounting of the instrument in the pipe or process recipient, an integral V15 valve can be employed (See V800 Manual Valves catalog).



### Mounting Measurement



# Ordering Information

MPR - C G -

**Model** (connection to instrument)

MPR: 1/2" NPT threaded

MP: 1/2" NPT flange connector

Options (see page 3)

**Connection to process**

Empty : 1/2 NPT. Standard

25 : 1/4 NPT

**Packing**

T: PTFE

G: Graphoil

V: Fluorelastomer

**Seat**

Empty : Integral. Metal seat.

AD : Acetal | ot eat.

AE : Peek | ot eat.

**Material**

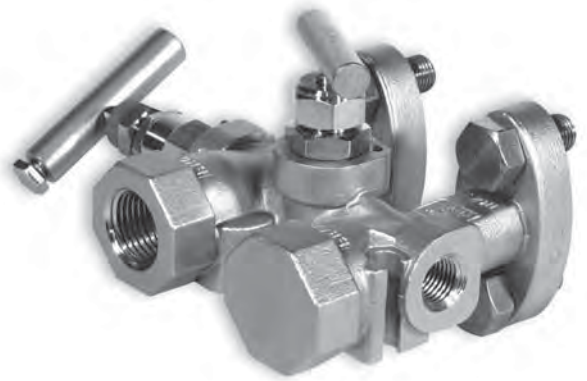
C: Carbon steel

I: Stainless steel

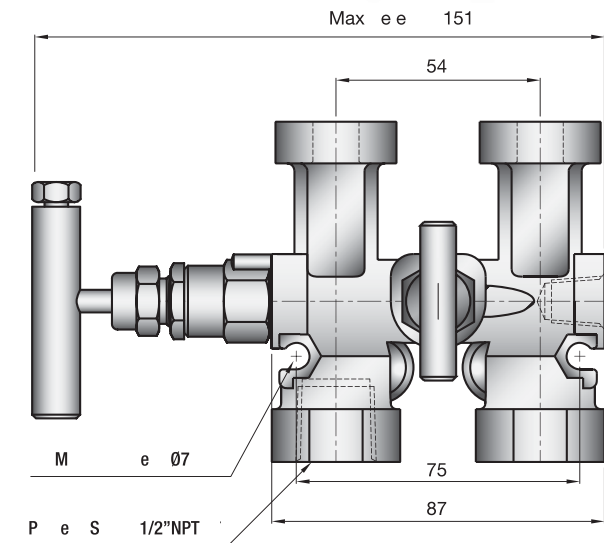
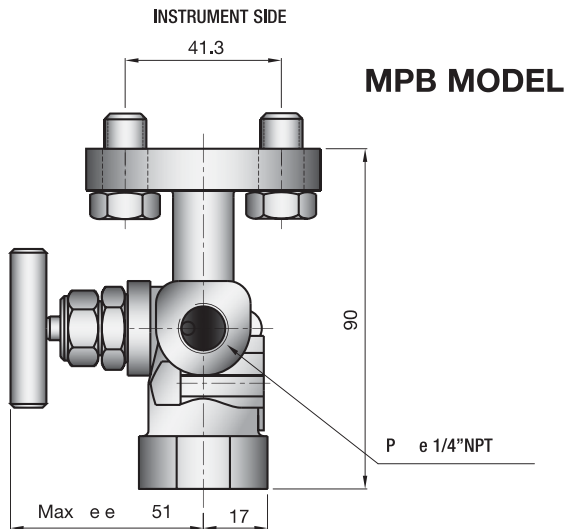
## MPB 2-valve Manifold for Flanged Instruments

The MPB is used in the d/p cell style static pressure transmitter mounting. In this flanged version, the instrument is fixed to one of the manifold faces by means of bolts, while on the process side there is a 1/2" NPT threaded connection.

It accepts the use of the SM bracket to be mounted on a 2" pipe (see page N° 12)



### Mounting Measurements



### Ordering Information

MPB - C G -

**Model**

Options (see page 3)

**Seat:**

Empty : Integral. Metal seat.

AD : Acetal | ot eat.

AE : Peek | ot eat.

**Packing**

T: PTFE

G: Graphoil

V: Fluorelastomer

**Material**

C: Carbon steel

I: Stainless steel

# 3- valve Manifolds

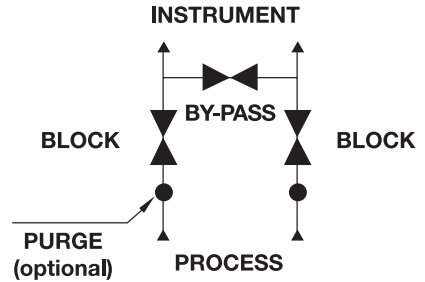
They combine two main block valves and an equalizer or by pass, necessary for the gauge and differential pressure transmitters mounting.

Normally the block valves are opened and the equalization valve is closed. In order to check the instrument zero, the by pass is opened and the downstream block is closed.

In this way the pressures at both sides of the instrument are leveled. To dismantle it, the other block has to be closed, making it possible to remove it. In order the instrument to be in use again and with the by pass opened, the two block valves have to be completely opened. Then the equalizer has to be closed establishing the  $\Delta p$  between the branches.

Optional purge ports on the process side are offered to purge the instrument "legs" or also to work with applications which need a continuous purging process.

They admit the use of brackets for its mounting on 2" pipestand. (see page 12)

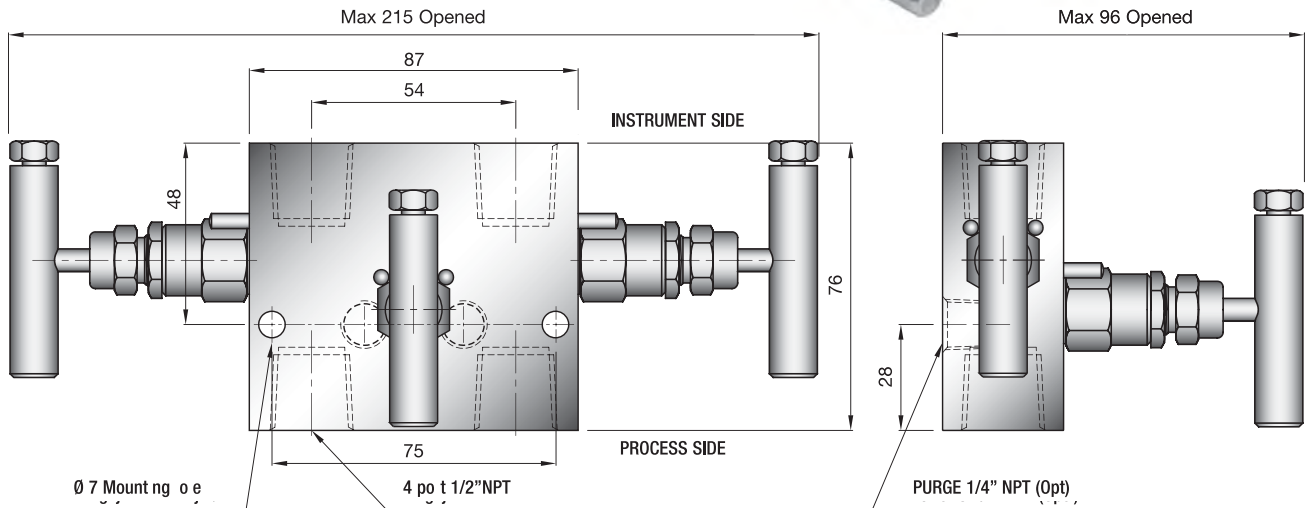


## M1 3 valve Manifold.Threaded Connections

General application manifold. Its threaded 1/2" NPT connections to process and instrument allow its installation in any convenient point between the process and the transmitter or gauge.



### Mounting measures



### Ordering Information

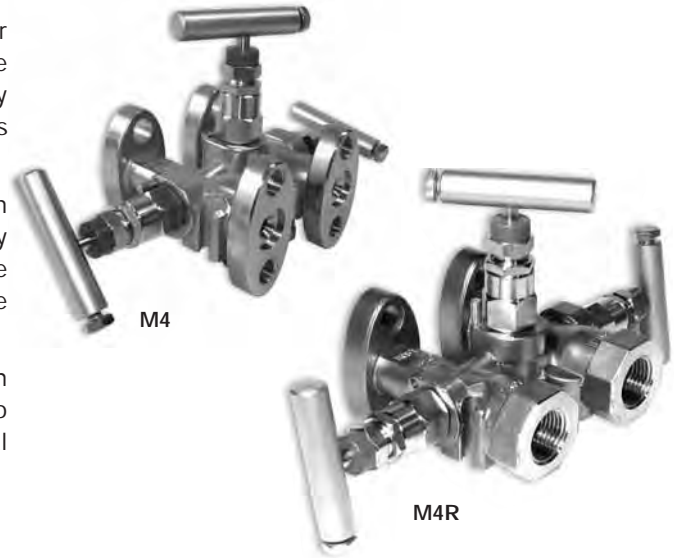
<b>M1</b>		<b>- P - C</b>	<b>G -</b>	
<b>Model</b>				<b>Other options (see page. 3)</b>
<b>Connections</b>				<b>Packing</b>
Empty	: 1/2 NPT, Standard			T: PTFE
25	: 1/4 NPT			G: Graphoil
<b>Seat</b>				V: Fluorelastomer
Empty	: Integral. Metal Seat.			<b>Material</b>
AD	: Acetal			C: Carbon steel
AE	: Peek			I: Stainless steel
<b>Optional purge ports</b>				
Intercalate letter P.				

# M4/M4R 3 Valve Manifold for Flanged Instruments

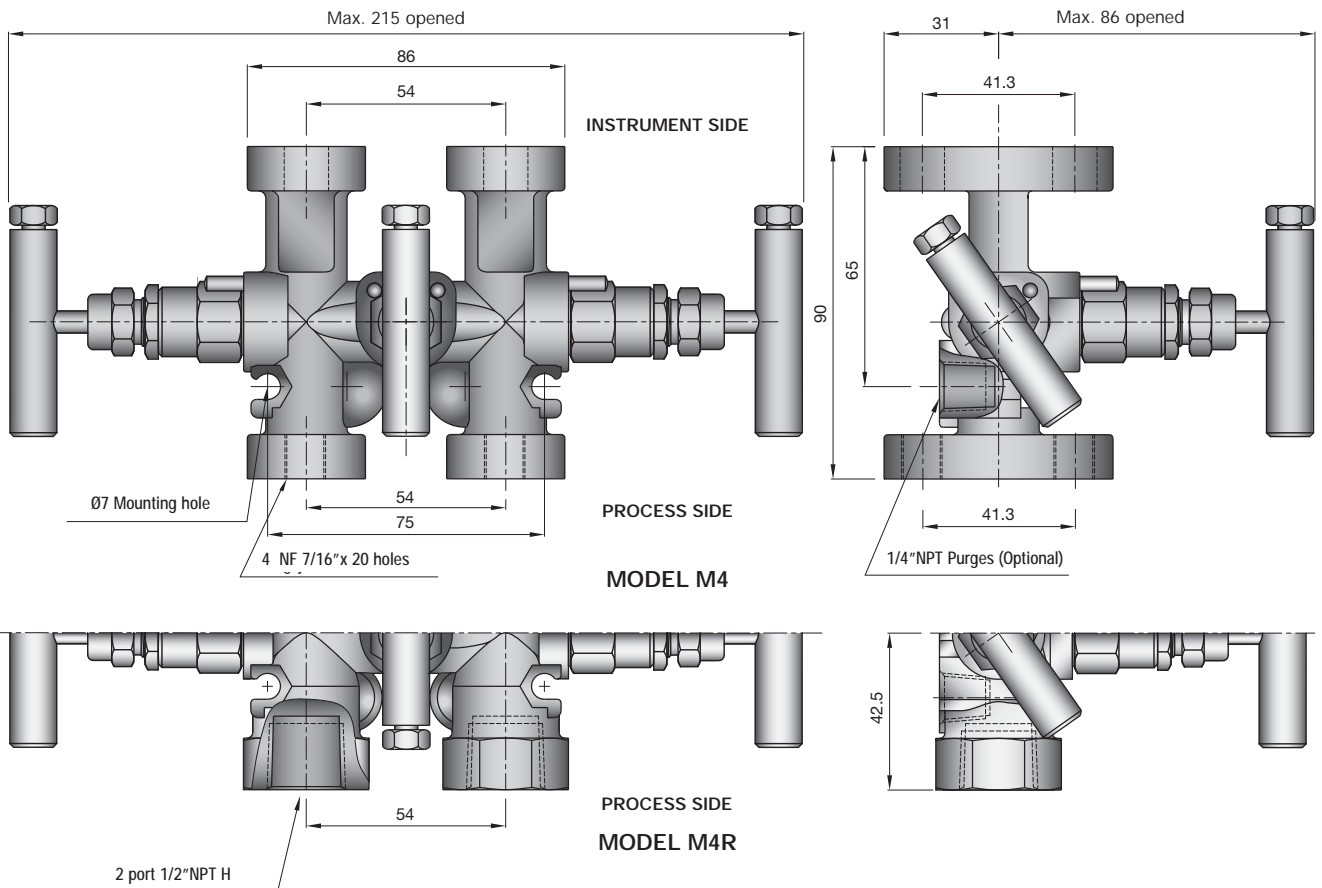
They are 3-valve manifolds designed for the flanged transmitter mounting with a distance between connections of 2 1/8". The instrument is directly fixed on the manifold flanged face by means of 4 NF 7/16" bolts. In this way a series of accessories is eliminated, reducing costs and leak possibilities.

The **M4** model is used when it is required a direct connection with an orifice plate, allowing the transmitter to be placed very close to the process pipe. In this case, the futbol flanges of the transmitter are mounted on the manifold flanged face to receive the process signal through a 1/2" pipe.

The **M4R** is used when it is not required a direct connection with the orifice plate. On the process side the manifold has two 1/2" NPT threaded connections to receive the signal through tubing and connector.



## Mounting measurements

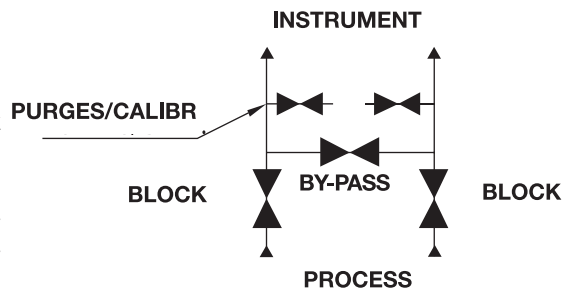


## Ordering Information

	<b>M4</b>	-	<b>P</b>	-	<b>C</b>	-	<b>G</b>	-	
<b>Model</b>									<b>Other options (see page 3)</b>
M4: Flange / Flange									
M4R: Flange / thread									
<b>Seat</b>									<b>Packing</b>
Empty : Integral. Metal seat.									T: PTFE
AD : Acetal									G: Graphoil
AE : Peek									V: Fluorelastomer
<b>Optional purge ports</b>									<b>Material</b>
Intercalate letter P									C: Carbon steel
									I: Stainless steel

# 5-Valve Manifolds

As the 3-valve manifolds, the 5-valve manifolds are used for the differential pressure instrument mounting. They have two block valves, one equalizer valve and, on the instrument side, they add two additional purge valves for vent or calibration. Therefore, they add other contrast/ calibration operations to the 3-valve operations, since a known signal can be entered through the purge connections (threaded), in order to check the mounted instrument without removing it. Or also to connect a test instrument on them to compare. They also allow to purge the instrument and the process (opening the blocks).



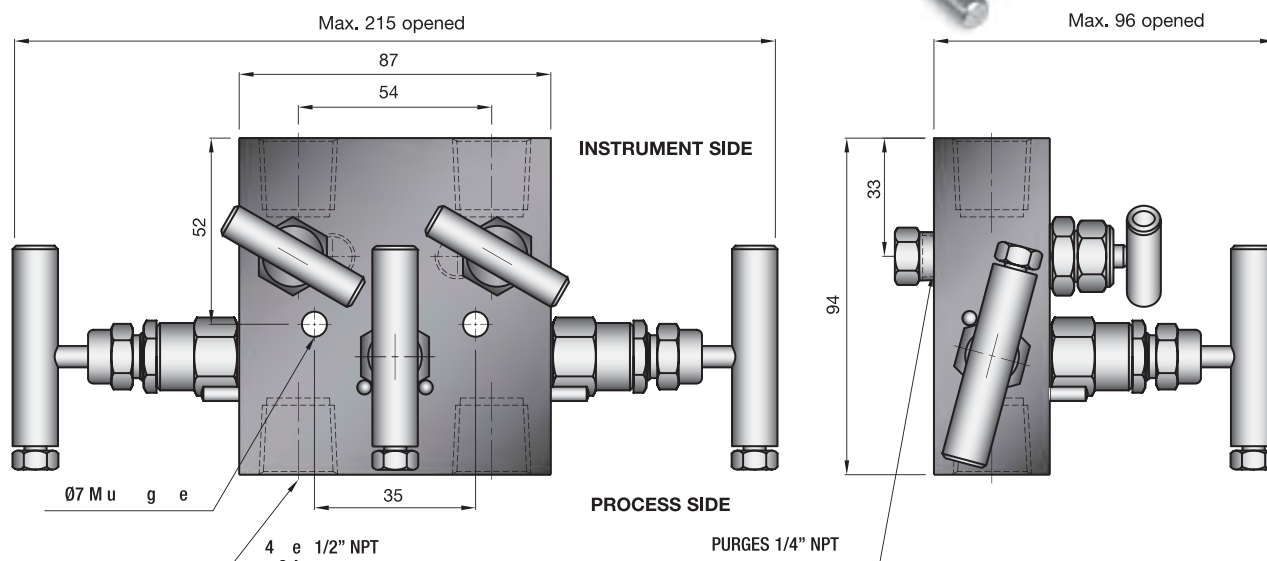
In gas flow measurements it is advisable to use the double equalizer valve version in order to assure the watertightness between the high and low pressure connections (see more details on model **M6** and **M6GN**, page 10 and 11)

## M5 5-Valve Manifold. Threaded connections

General application manifold designed for manometers and differential pressure transmitter remote mounting. Their 1/2" NPT threaded connections to process and instrument allow its installation in any convenient point between the process and the transmitter or manometer. It has threaded 1/4" NPT vent connections.



### Mounting Measures



### Ordering Information

<b>Model</b>	<b>M5</b>	<b>- C</b>	<b>G -</b>	<b>Options (see page 3)</b>
<b>Connections</b>				<b>Packing</b>
Empty	: 1/2 NPT. Standard			<b>T:</b> PTFE
25	: 1/4 NPT			<b>G:</b> Graphoil
<b>Seat</b>				<b>V:</b> Fluorelastomer
Empty	: Integral. Metal Seat.			<b>Material</b>
<b>AD</b>	: Acetal			<b>C:</b> Carbon Steel
<b>AE</b>	: Peek			<b>I:</b> Stainless Steel



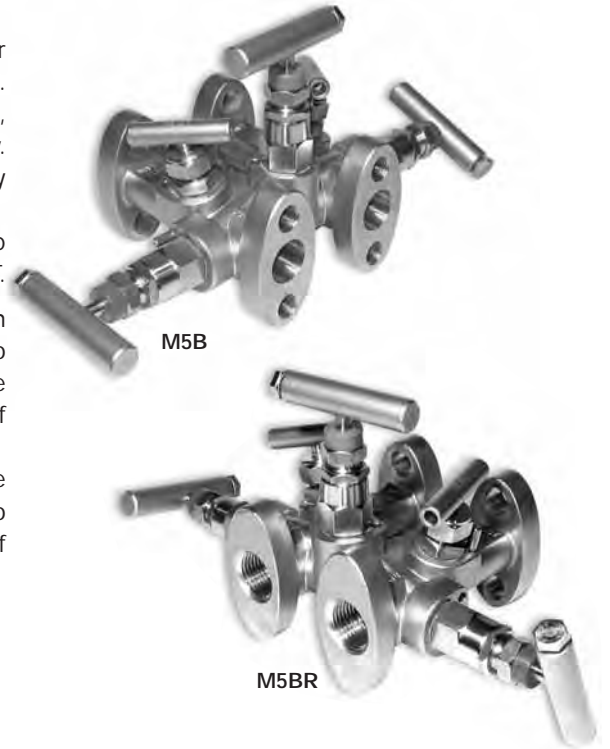
# M5B/M5BR 5-valve Manifold for Flanged Instruments

They are 5-valve manifolds designed for the flanged transmitter mounting with a 54 mm (2 1/8") distance between connections. Through a studied design all the effects of blocking, equalization, calibration and purging are combined in an investment casted body. The instrument is directly fixed on the manifold flanged face by means of 4 NF 7/16" bolts.

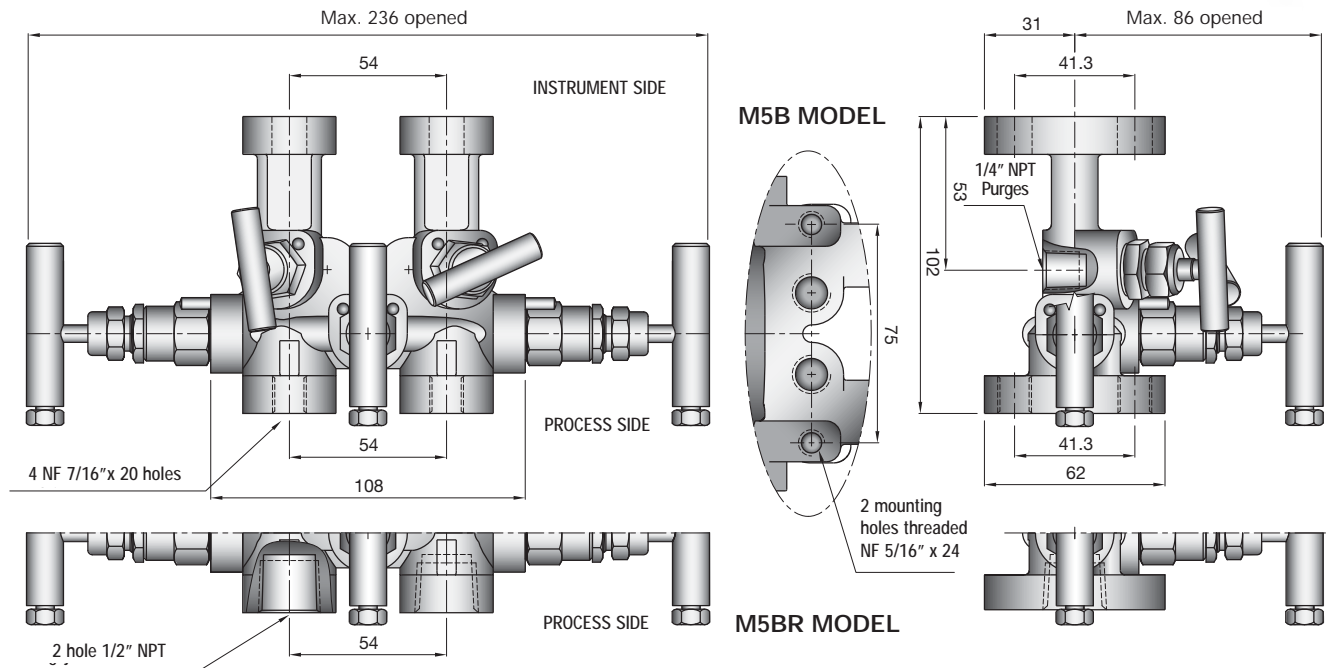
From the process side, flanged or threaded connections are set up according to the model. And the vent connections are threaded 1/4" NPT.

The **M5B** model is used when it is needed a direct connection with an orifice plate, allowing the transmitter to be placed very close to the process pipe. In this case the oval flanges of the transmitter are mounted on the other manifold flanged face to receive the signal of the process, by 1/2" pipe.

The **M5BR** model is used when a direct connection with an orifice plate is not needed. From the process side, the manifold brings two 1/2" NPT threaded connections to receive the signal by means of tubing and connector.



## Mounting Measures



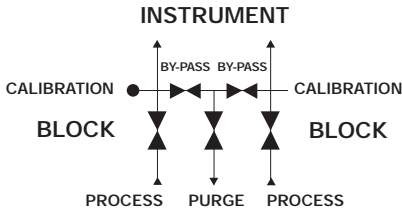
## Ordering Information

	<b>M5B</b>	-	<b>C</b>	-	<b>G</b>	-	
<b>Model</b>							<b>Options (see page 3)</b>
<b>M5B</b>	: Flange / Flange						
<b>M5BR</b>	: Flange / Thread						
<b>Seat</b>							<b>Packing</b>
<i>Empty</i>	: Integral. Metal Seat.						<b>T</b> : PTFE
<b>AD</b>	: Acetal						<b>G</b> : Graphoil
<b>AE</b>	: Peek						<b>V</b> : Fluorelastomer
							<b>Material</b>
							<b>C</b> : Carbon Steel
							<b>I</b> : Stainless Steel

# M6 Metering Manifold

It is a 5 valve manifold designed for applications where high precision flow measurements are needed.

It combines 2 main block valves, 2 equalizer valves and one purge valve. The two equalizer valves are used to avoid leakages between high and low pressure connections which would cause measurements errors



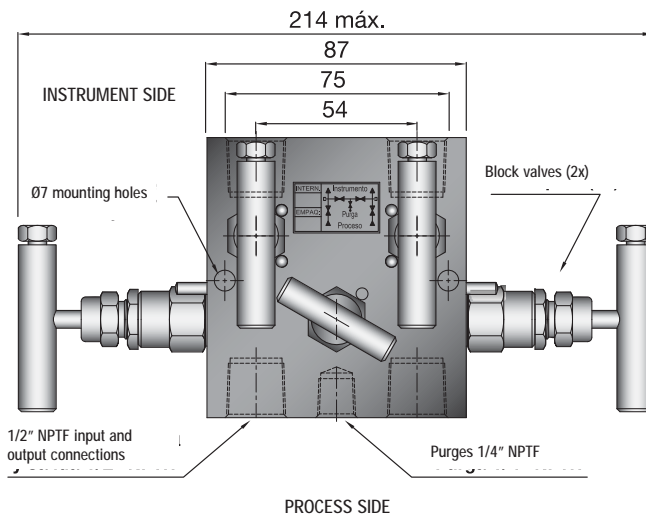
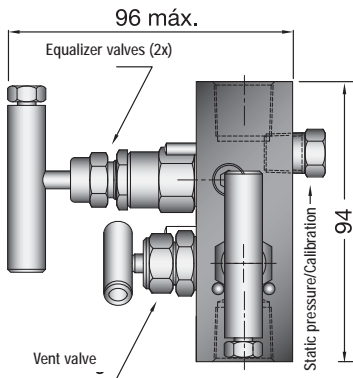
During normal operation the 2 block valves are opened, the 2 equalizer valves are closed and the purge one is opened in order to detect eventual leakages.

The transmitter is fixed directly to one face of the manifold. The field calibrations may be carried out without dismantling, since it has two 1/4" NPT test connections.

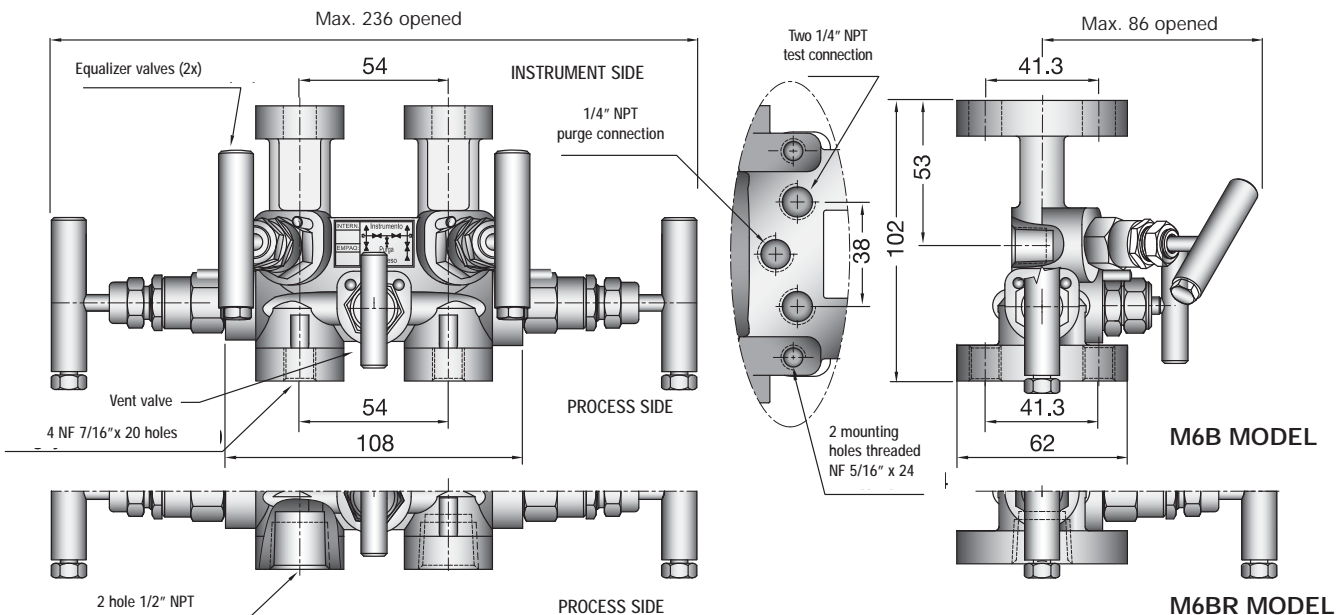
**Natural gas application:** The **M6GN** version has 3/8" orifice and soft seat. In this way it is possible to have bigger channels without diameter changes, to reduce pulsations in a gas line which may cause an error in the flow measurement as well as to assure a good drain where the wet gas and the hydrates are a problem.

## Mounting Measures

**M6 MODEL**  
Threaded connections



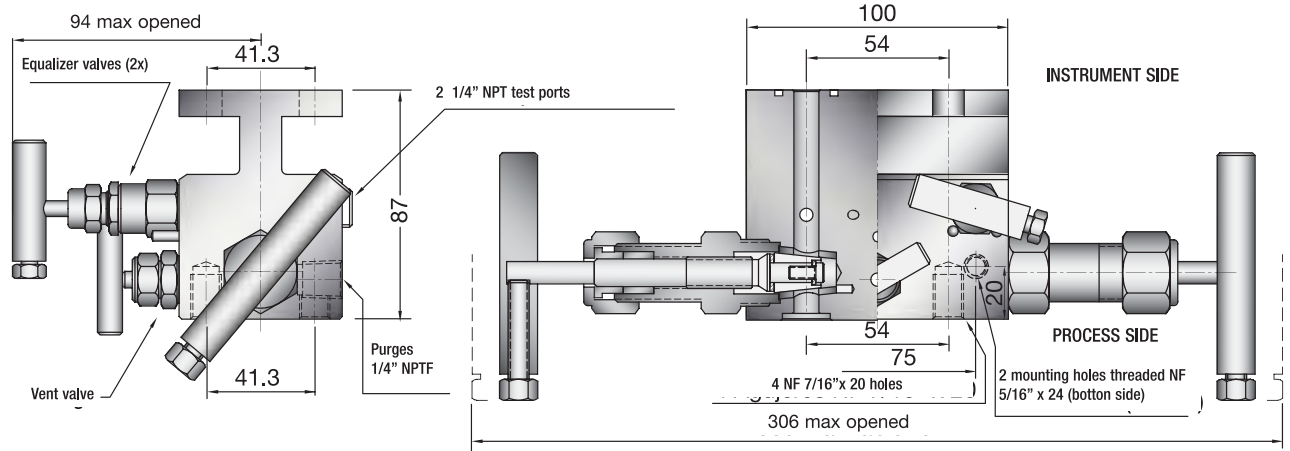
**M6B/BR MODEL**  
for flanged instruments



# Mounting Measures

## M6GN

Natural gas application



# Ordering Information

## M6BR - CG -

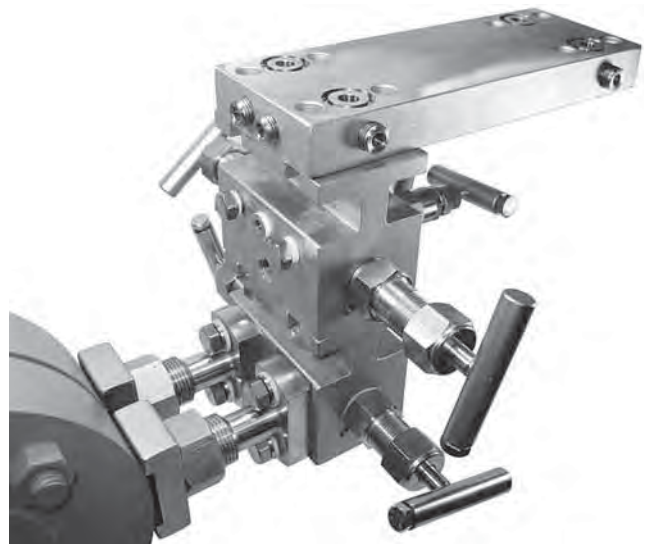
<b>Model</b>		<b>Options (see pag 3)</b>
M6	: threaded	
M6B	: flange / flange	
M6BR	: flange / thread	<b>Empaquetadura</b>
M6GN	: flange / flange 3/8" orifice	T: PTFE
		G: Graphoil
<b>Seat</b>		<b>Material</b>
(Empty) Integral	: Metal seat	C: Carbon steel
AD	: Acetal	I: Stainless steel
AE	: Peek   Soft seat	

# AMD Direct Mounting Accessories

Enhances the performance of M6 manifolds. It consists of an accessory system which allows the mounting of the transmitter directly on the primary element, eliminating long impulse lines. Its design provides full bore porting without diameter changes. With this you can achieve:

- An improvement in the transmitter performance against pulsating flows.
- A reduction in freezing, leakage problems etc. in the instrument connections.

The direct mounting system consists of the following basic elements:

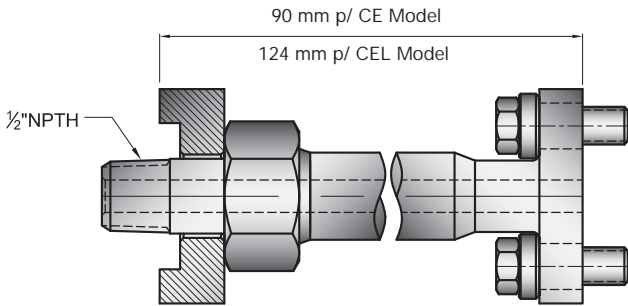


# CE Stabilized Connector

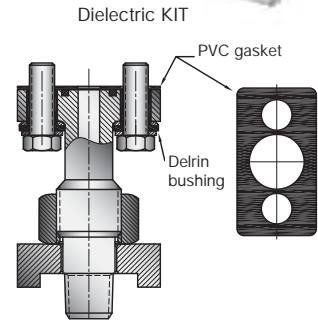
It gives a rigid connection of the manifold or adapter with the orifice plate, increasing considerably the flexion strength in the whole kit. It has a 3/8" orifice and it is totally made of AISI 316 stainless steel. The kit is completed with NF 7/16" mounting bolts and PTFE seals.



## Mounting Measures



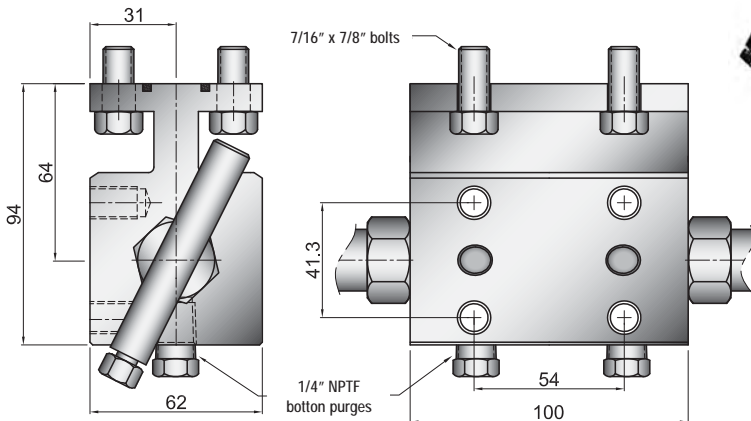
It is also available with a **KD dielectric kit**: dielectric isolation joint to avoid undesirable currents reaching the instrument and damaging it.



# AA Right Angle Mount

It is designed to provide a 90° change in the measuring line. It is supplied with 2 block valves. It has 3/8" orifice and two 1/4" NPT lower purge ports.

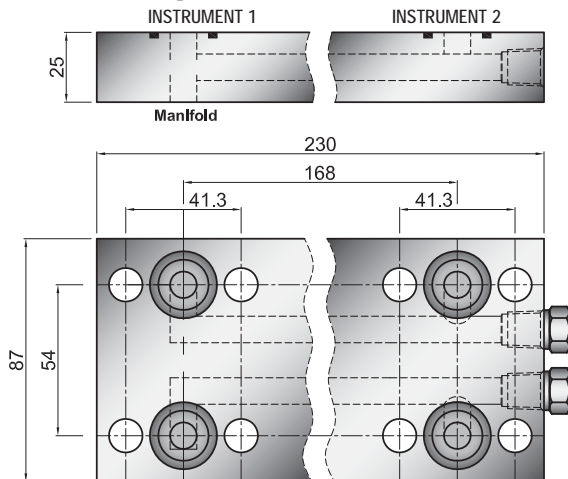
## Mounting Measures



# PAT Perpendicular Coplanar Adapter

It is designed to mount 2 differential pressure transmitters in bidirectional flow applications or when two measurement instruments are needed to custody transfer applications.

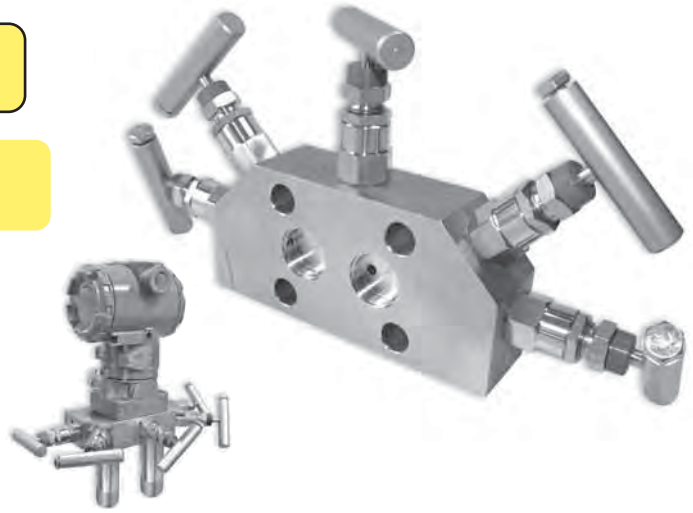
## Mounting Measures



# Special Manifolds

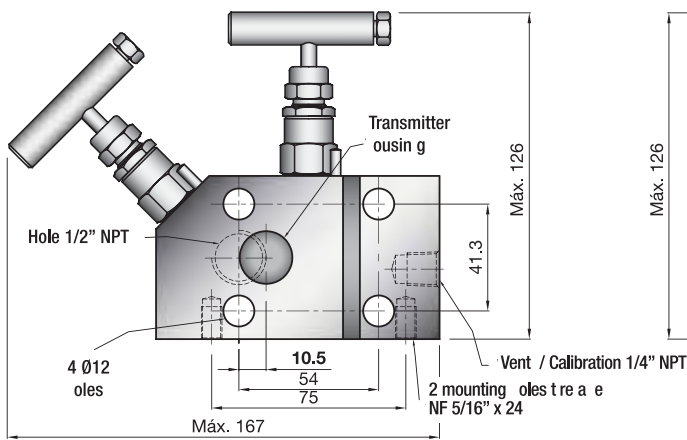
## MCP Flat Manifolds

They are compact manifolds, specially adapted for mounting transmitter with cameras on the same plane, like Coplanar™ or similar. The instrument is fixed directly on the manifold flanged face by means of 4 bolts. The connection to process is 1/2" NPT threaded. They are made of AISI 316 stainless steel and they are available in two, three and five valve versions.

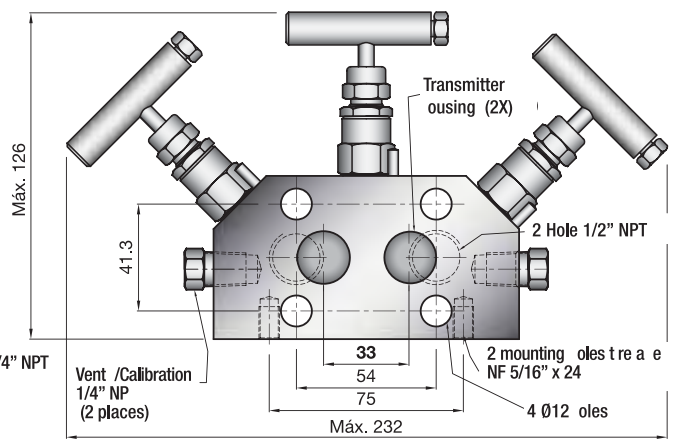


### Mounting measures

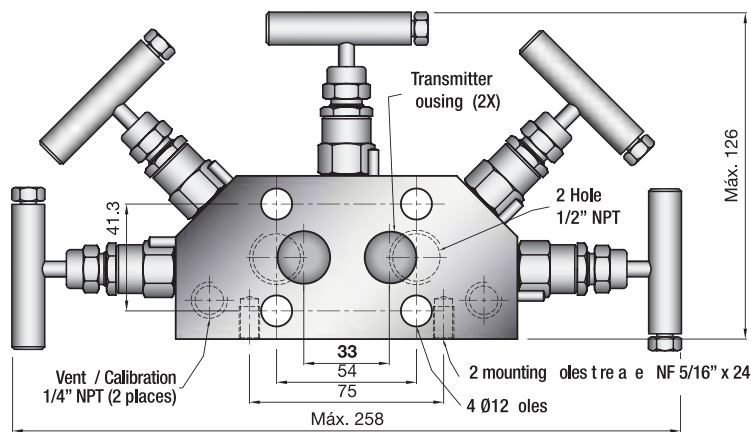
#### TWO VALVES



#### THREE VALVES



#### FIVE VALVES



### Ordering Information

**MCP 3 - I T -**

**Model** \_\_\_\_\_ **Options (see page 3)**

**Valves**  
 2 : 2 valves  
 3 : 3 valves  
 5 : 5 valves

**Packing**  
 T: PTFE  
 G: Graphoil  
 V: Fluorelastomer

**Seat**  
 Empty : Integral. Metal Seat.  
 AD : Acetal  
 AE : Peek

**Material**  
 I: Stainless Steel

## Accessories

### SM/SM1/SM2/SM1-C Manifold Brackets

The transmitter installation through integral manifolds can be optimized using **ABAC** brackets

These brackets fit any 2" pipestand, either horizontal or vertical

With this accessory ,the **flanged manifold** is supported instead of mounting the instrument;it gives the following advantages:

- It eliminates the risk of damages in the transmitter during the mounting, since at that moment you only install the manifold.
- It allows the piping construction without having the instruments.
- It reduces maintenance costs allowing a quick disconnection of the instrument.
- It can be used in manifolds with bottom purge ports.

With this accessory the threaded manifold remains firmly supported, avoiding in this way the fixing through the threaded input and output connections.



SM Model



SM1 Model

### Technical Information

Components	Material (*)
Support plate	Carbon steel
3/8" "U" bolts for 2" pipestand with washers and nuts	Carbon steel
Mounting screws	Alloy steel

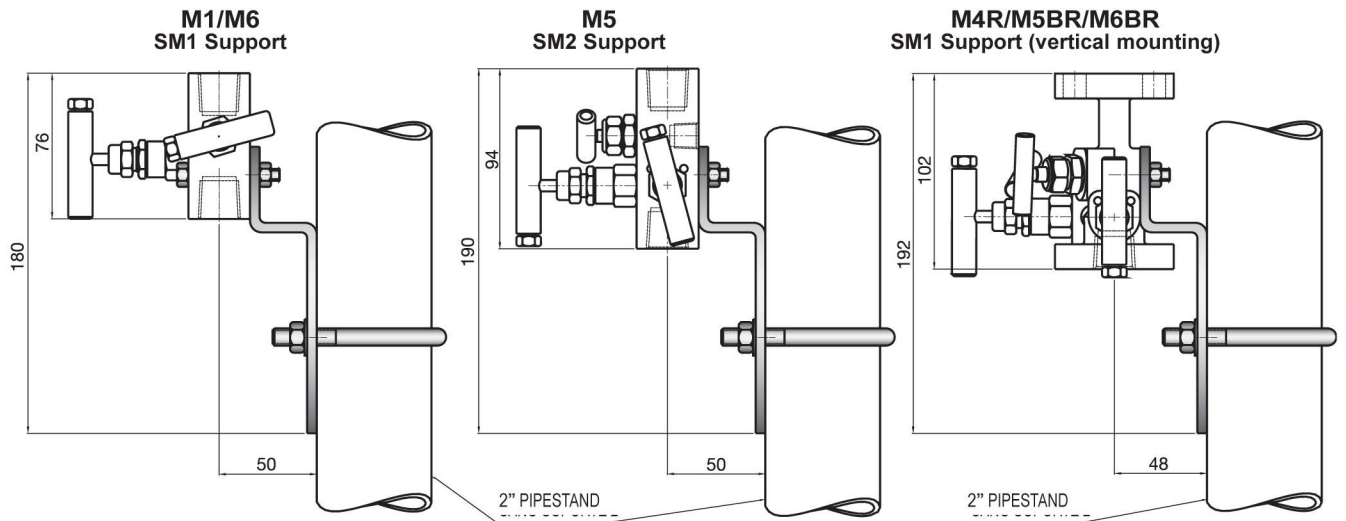
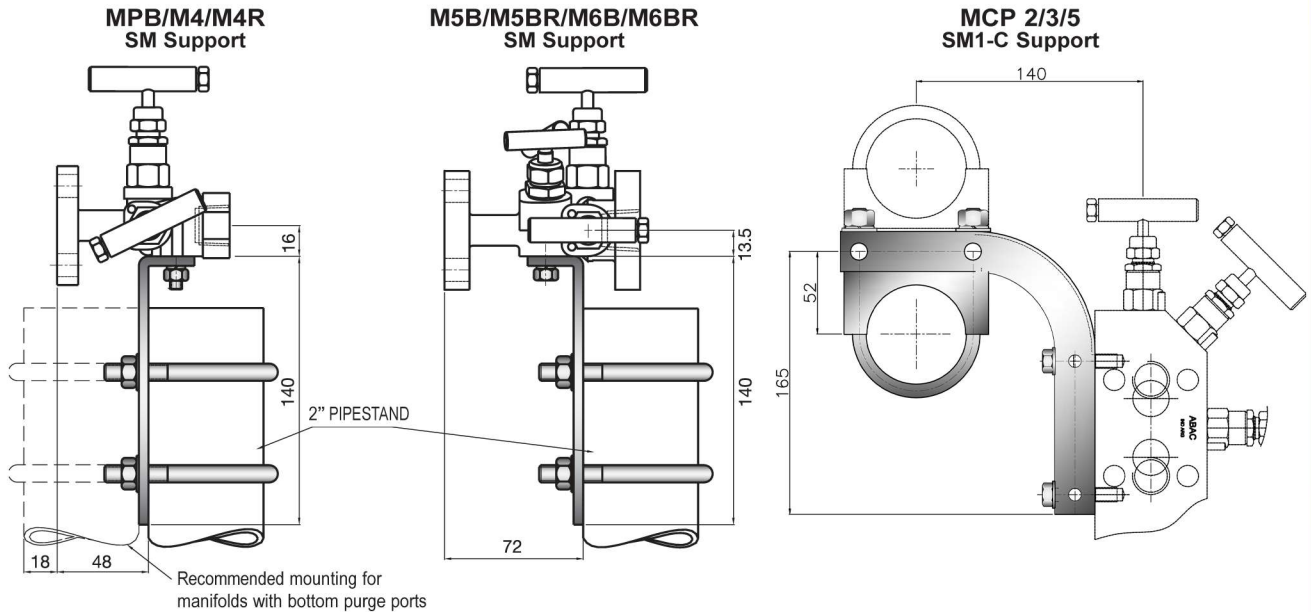
(\*) available in stainless steel, on request

Several support models are available according to the type of manifold and its orientation

	MPB	M1	M5	M6	M4	M4R	M5B	M5BR	M6B	M6BR	MCP
SM	X				X	X	X	X	X	X	
SM1		X		X		X(*)		X(*)		X(*)	
SM2			X								
SM1-C											X

(\*) Flanged vertical mounting

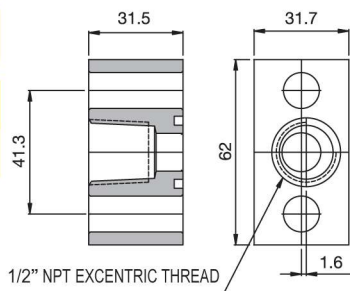
# Mounting Measures



## BR Flange

The **BR** flanges are used in direct mounting to its process connection. They are supplied in carbon or stainless steel.

	Model
Carbon steel flange	<b>BRC</b>
AISI 316 flange	<b>BRI</b>



Flange seal and mounting bolts are included



## ▣ La más completa línea de componentes para sistemas de presión, caudal y control de fluidos:

- Válvulas aguja
- Manifolds para instrumentos
- Componentes para control de fluidos
- Válvulas esféricas
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- Sistemas de aislación
- Componentes y sistemas de alta presión

## ▣ *The widest variety of pressure, flow and fluid control components:*

- *Needle valves*
- *Instrument manifolds*
- *Fluid control components*
- *Ball valves*
- *Tube and pipe fittings*
- *Thermic insulation systems*
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