DynaFluid

# Instrument Manifolds Valves and Fittings

PRODUCT CATALOGUE

# Manifold Valves

They are used to connect to pressure transmitters. Manifolds eliminates several parts used in conventional piping and hence reduces cost. They are very compact in design and hence reduce lot of space requirement.

They come in variety of types as shown below.

### Types of Manifold Valves based on number of valves

- Two Valve Manifolds
- Three Valve Manifolds
- Five Valve Manifolds

## Two Valve Manifolds

Two Valve Manifold is designed in a single block with screwed end connections for both process and instrument connections. Two Valve Manifolds are meant for used with Pressure Transmitters, Pressure Switches and Gauges

**Standard Process Connection: ½" NPT**
**Standard Instrument Connection: ½" NPT**
**Drain: ½" NPT**
**Moc: SS316, SS304 & Carbon Steel**
**Pressure Rating: Up to 10000 PSI**

## Three Valve Manifolds

Three Valve Manifold consists of two process isolation valves and a equalizer valve with separate connection in a compact block. They are designed for remote mounting away from differential pressure instruments and connected by tubes or impulse pipelines.

**Standard Process Connection: ½" NPT**
**Standard Instrument Connection: ½" NPT**
**Drain: ¼" NPT**
**Moc: SS316, SS304 & Carbon Steel**
**Pressure Rating: Up to 10000 PSI**

## Five Valve Manifolds

Five Valve Manifold are used with differential pressure instruments where drain valves are required on the instrument sides. They are used to flush the system and prevention of loss of expensive fluid in the pipe lines.

**Standard Process Connection: ½" NPT**
**Standard Instrument Connection: ½" NPT**
**Drain: ½" NPT**
**Moc: SS316, SS304 & Carbon Steel**
**Pressure Rating: Up to 10000 PSI**

# Manifold Valves

## Co Planar Type

Designed as a new series of process instrument manifold for particular transmitter models. The coplanar manifold when assembled to transmitter has the advantage of compact size with ease for operation in minimum space, thereby eliminating several components in integrating the manifold to the transmitter. The coplanar manifold has two isolating valves, one equalizer valve and two vent valves and two bottom test ports duly plugged.

## Types of Manifold Valves based on Mounting

## Separately Mounted Type

Manifold is designed in a single block with screwed end connections for both process and instrument connections. Two Valve Manifolds are meant for used with Pressure Transmitters, Pressure Switches and Gauges

## T Type Manifold

These are designed for direct mounting on DP Transmitters. The process connection is screwed type and instrument connection in Flange type.

## H Type Manifold

Manifolds are used for remote / direct mounting of Differential Pressure Instruments. For remote mounting two kidney shaped flanges are used for connecting tubes to manifold block.

# Needle Valves

Needle valves are used to stop or control the flow. Needle valves are made out of bar stock for operation with most fluid for up to 6000 PSI. As a standard PTFE seals are used but Grafoil sealing is available for high temperature.

They come in variety of end connections as shown below

# Instrument Fittings

Dynafluid has designed high quality leak proof instrument fittings with double ferrules for power, process, automation and instrumentation industries.

## Technical Specification

There are no available standard specification for double ferrule compression fittings. The following two standards which are applicable for Single compression fittings can also be used for double compression fittings.

- BS 4368 Part IV : 1984
- IS 10103 : 1982

**These standards cover the basic type test requirements for fittings as mentioned below.**

1) Burst Pressure Test
2) Static Vacuum Test
3) Proof Pressure Test
4) Dismantling and Reassembly Test
5) Impulse Vibration Test
6) Pipe End Pressure Ratings

# Instrument Fittings

### Stress values based on ASME B31.3 Code for process Piping

| Materials | Allowable stress values | | design Factor | Ultimate Tensile Strength | |
|---|---|---|---|---|---|
| | psig | bar | | Psig | Bar |
| SS316 | 20000 | 1378 | 3.75:1 | 75000 | 5170 |
| Brass | 10000 | 689 | 4.1 | 40000 | 2760 |
| Steel | 20000 | 1378 | 3.1 | 60000 | 4140 |

### Calculations based on ASME B31.3 code for Process Piping

| NPT / ISO | SS 316 and Carbon Steel | | | | | | Brass | |
|---|---|---|---|---|---|---|---|---|
| Pipe size | | | | | | | | |
| | Male | | Female | | Male | | Female | |
| | psig | bar | psig | bar | psig | bar | psig | bar |
| 1/16 | 11,000 | 760 | 6,700 | 460 | 5,500 | 380 | 3,300 | 230 |
| 1/8 | 10,000 | 690 | 6,500 | 440 | 5,000 | 340 | 3,200 | 220 |
| 1/4 | 8,000 | 550 | 6,600 | 450 | 4,000 | 270 | 3,300 | 220 |
| 3/8 | 7,800 | 540 | 5,300 | 360 | 3,900 | 270 | 2,600 | 180 |
| 1/2 | 7,700 | 530 | 4,900 | 330 | 3,800 | 260 | 2,400 | 160 |
| 3/4 | 7,300 | 500 | 4,600 | 320 | 3,600 | 250 | 2,300 | 160 |
| 1 | 5,300 | 370 | 4,400 | 300 | 2,600 | 180 | 2,200 | 150 |
| 1 1/4 | 6,000 | 410 | 5,000 | 350 | 3,000 | 200 | 2,500 | 170 |
| 1 1/2 | 5,000 | 340 | 4,600 | 310 | 2,500 | 170 | 2,300 | 150 |
| 2 | 3,900 | 270 | 3,900 | 270 | 1,900 | 130 | 1,900 | 130 |

# Tubing Selection

Selection of proper tubing, their handling and installation is very essential for use of Dynafluid fittings. Proper selection Tubes based on the material, hardness and wall thickness is very essential.

**Stainless Steel tubing:**
304 or 316 stainless steel tubing cold drawn seamless properly annealed to ASTM A 269 or ASTM A 213 or equivalent based on the ultimate tensile strength of 75,000 PSI and suitable for temp 20°C to 100°C should be selected. The hardness of the tubes should normally be around 80-85 RB and preferably this should be in the range of 75-80 RB. Tubes should be suitable for bending and should be free from surface defects.

**Carbon Steel tubing:**
Soft annealed seamless carbon steel tubing to ASTM A 179 or equivalent based on ultimate tensile strength of 47,000 PSI and suitable for temp 20°C to 100°C. The hardness of the tubes should normally be around 72 RB and Tubes should be suitable for bending and should be free from surface defects.

**Copper tubing:**
Soft annealed seamless copper tubing to ASTM B 75 or equivalent based on ultimate tensile strength of 30,000 PSI and Suitable for temp 20°C to 100°C. The hardness of the tubes should normally be around 45 to 50 RB

# Connectors

## Male Connector

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 25mm OD

**Thread Connection:** 1/8" to 1"

**Thread type:** NPT, BSP, BSPT

## Female Connector

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 25mm OD

**Thread Connection:** 1/8" to 1"

**Thread type:** NPT, BSP, BSPT

## Union

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 25mm OD

## Bulk Head Union

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 25mm OD

## Elbow

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 25mm OD

## Bulk Head Female Connector

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 25mm OD

**Thread Connection:** 1/8" to 1/2"

## Bulk Head Male Connector

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 1/4mm OD to 1/2mm OD

**Thread Connection:** 1/4" to 1/2"

## Union Cross

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 16mm OD

## Female Elbow

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 16mm OD

**Thread Connection:** 1/4" to 1/2"

## Male Elbow

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 25mm OD

**Thread Connection:** 1/4" to 1"

# Connectors

## Union Tee

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 25mm OD

**Thread Connection:** 1/4" to 1"

## Male Run Tee

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 16mm OD

**Thread Connection:** 1/4" to 1/2"

## Male Branch Tee

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 16mm OD

**Thread Connection:** 1/4" to 1"

## Nut

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 16mm OD

**Thread Connection:** 1/4" to 1"

## Ferrules

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 25mm OD

**Thread Connection:** 1/4" to 1"

## Male Adaptor

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 25mm OD

**Thread Connection:** 1/4" to 1"

## Female Adaptor

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 6mm OD to 25mm OD

**Thread Connection:** 1/4" to 1"

## Tube End Closure

**Material:** CS, SS304, SS316, Brass

**Tube Connection:** 4mm OD to 25mm OD

## Reducing Union

**Material:** CS, SS304, SS316, Brass

**Tube Connection one siden:** 6 mm OD to 25 mm OD

**Tube Connection other side:** 4 mm OD to 20 mm OD

# Air Header

Air Headers replaces many unit valve assemblies, which would normally be operating from one source. The Air Headers are suitable for use with a variety of outlet take-off valves. The inlet-connection can be flange or screw able.

A drain-valve is possible at the manifold exit. The manifolds can be supplied with a bracket / U clamp for wall mounting.

## Specification for Air Headers:

**M.O.C :** SS316 / SS304 / CS

**SIZE :** 11/2" / 2" - SCH40 / SCH80

**INLET :** ANSI B 16.5 , 150# RF 1" NB Flange / 1" NPT (f) 3 PIECE UNION

**DISTRIBUTION PORTS :** Size - ¼" / ½" , Ports - 6 / 8 / 10 / 12 / 16

**OUTLET :** ½" NPT (F) , SS316 / SS304 BALL VALVE WITH ½" NPT (M) PLUG

- For CS Air Headers distribution ports are provided with ¼" Brass Needle valves
- For SS316 / 304 Air Headers distribution ports are provided with ¼" SS 316 / 304 Needle / Ball valves.
- For mounting purpose ' U ' clamp will be provided.
- All NPT Threads will be as per ANSI B 2.1. & Socket Weld will be as per ANSI B 16.11

**Note**:- Air headers can be fabricated as per your requirement of M.O.C & size.


**DynaFluid Valves And Flow Controls Pvt. Ltd.**

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