

# General Specifications

## Manifolds With DPHarP EJA and EJX Pressure and Differential Transmitters

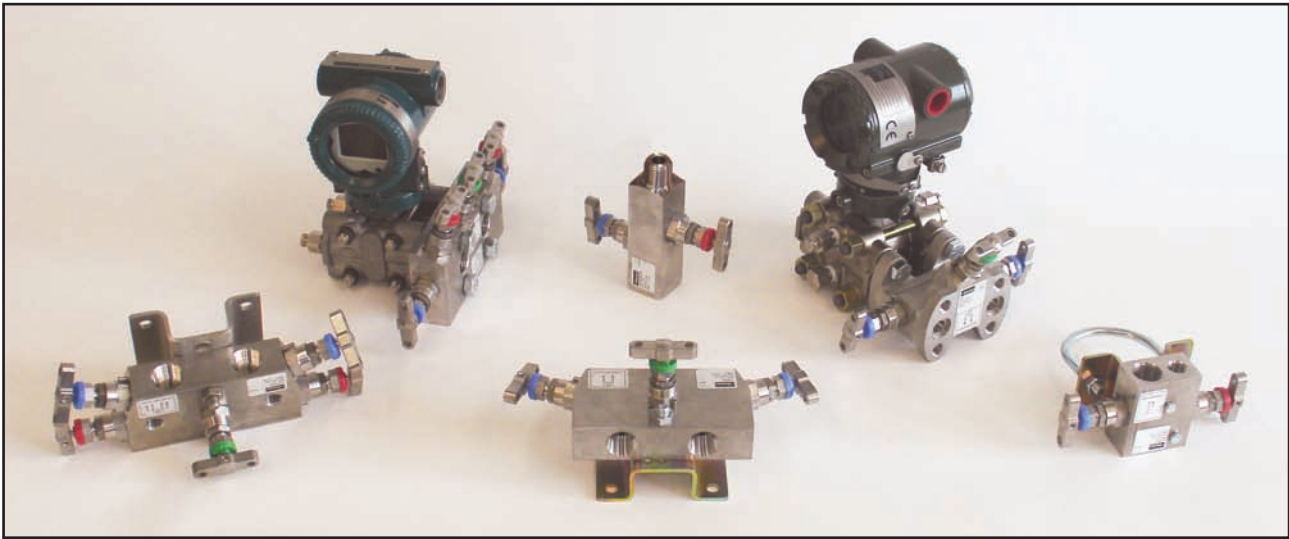
**DPHarP**

Yokogawa Europe bv has included Parker Hannifin manifolds in his DPHarP pressure and differential pressure transmitters portfolio to suit all types of installations, specifications and installations.

Enclosures (in Glass fibre Reinforced Polyester) suitable for one, two or three process instruments, with manifold and tubing

connections for pressure, flow, temperature or other common process variable instruments, and any accessories required, as electrical heating element (or steam heat tubing, are also available.

Contact your nearest Yokogawa office for quotations



| Model Code | Description  |
|------------|--|
| HBSN2FM    |  |
| HBSN2FF    | 2 valve Block and Bleed Manifold for DPHarP EJA/EJX 510A/530A series                   |
| HBSN2MM    |  |
| HBSN2MF    |  |
| HLS2V      | 2 valve Remote Mount Block and Bleed Manifold DPHarP EJA/EJX 510A/530A series          |
| HDS2HLH    | 2 valve Direct Mount Block and Bleed Manifold for DPHarP EJA/EJX 510A/530A series      |
| HDS3M      | 3 valve Direct Mount Block and Bleed Manifold for DPHarP EJA/EJX 310/430A series       |
| HDS5M      | 5 valve Direct Mount Block and Bleed Manifold for DPHarP EJA/EJX 110A/120A/130A series |
| HLS3M      | 3 valve Remote Mount Block and Bleed Manifold for DPHarP EJA/EJX 110A/120A/130A series |
| HLS5M      | 5 valve Remote Mount Block and Bleed Manifold for DPHarP EJA/EJX 110A/120A/130A series |

### Manifold Construction

- 316 Stainless Steel (code S)
- 4/16" UNF zinc plated carbon steel or stainless steel (/SSB option) bolts
- NACE compliant (/NC option)
- Oxygen clean service (/OXY option)
- Optional mounting brackets
- 3.1.b. material certificate always included
- Assembly of transmitter including 6 bar pressure test
- Other materials on request:
  - Monel (code M)
  - Duplex (code D1)
  - Super Duplex (code D2)
  - Hastelloy (code HC)
  - Carbon Steel (code C)
  - Titanium (code T)

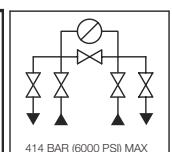
### Manifold Rating

- Direct mount manifolds are rated up to 6000 psig (414 barg)
- Remote mount manifolds are rated up to 6000 psig (414barg) and 10 000 psig (689 barg)

### Manifold Marking

- All manifold are permanently marked with line diagram showing manifold capability

316SS  
Part No: HDS5M  
PTFE: 260 Deg C (500 F) max.  
Model: A1.....1/2NPT/1/4NPT



## Functional Specifications (Common for DPHarp EJA and EJX Pressure Transmitters)

\*Refer to specific General Specification for Accuracy specifications

### Output:

Two wire 4 to 20mA DC output with digital communications, linear or square root programmable. BRAIN or HART FSK protocol are superimposed on the 4 to 20mA signal. Output limits conforming to NAMUR NE43 can be pre-set by option code C2 or C3. Digital Communication, via Foundation Fieldbus or Profibus PA protocol, is also available.

### Zero Adjustment Limits:

Zero can be fully elevated or suppressed, within the lower and upper range limits of the capsule.

### External Zero Adjustment:

External Zero is continuously adjustable with 0.01% incremental resolution of span. Re-range can be done locally using the digital indicator with range-setting switch.

### Ambient Temperature Limits:

(Optional features or approval codes may affect limits.)  
-40 to 85 °C (-40 to 185 °F)  
-30 to 80 °C (-22 to 176 °F) with LCD display.

### Process temperature Limits:

Dependent on seal type and fill fluid selection.

### Transmitter Capsule temperature Limits:

(Optional features or approval codes may affect limits.)  
-40 to 120 °C (-40 to 248 °F)

### Ambient Humidity Limits:

0 to 100% RH (EJX)  
5 to 100% RH (EJA)

### EMC Conformity Standard:

EN 61326, AS/NZS CISPR11

### Supply Voltage:

10.5 to 42 VDC for general use and flameproof type  
10.5 to 32 VDC for lightning protector (option code /A).  
10.5 to 30VDC for intrinsically safe, type n or non-incendive  
Minimum voltage limited at 16.6 VDC (EJX) and 16.4 VDC (EJA) for digital communication, BRAIN and HART

### Span and Range Limits:

#### DPHarp EJX110A Differential Pressure Transmitter

| Measurement Span/Range | kPa   | inH <sub>2</sub> O/(D1) | mbar/(D3)     | mmH <sub>2</sub> O/(D4)        |
|------------------------|-------|-------------------------|---------------|--------------------------------|
| L                      | Span  | 0.1 to 10               | 1 to 100      | 10 to 1000                     |
|                        | Range | -10 to 10               | -40 to 40     | -1000 to 1000                  |
| M                      | Span  | 0.5 to 100              | 2 to 400      | 5 to 10000                     |
|                        | Range | -100 to 100             | -400 to 400   | -10000 to 10000                |
| H                      | Span  | 2.5 to 500              | 10 to 2000    | 0.025 to 5 kgf/cm <sup>2</sup> |
|                        | Range | -500 to 500             | -2000 to 2000 | -5 to 5 kgf/cm <sup>2</sup>    |

#### DPHarp EJX910A Multivariable Transmitter

| Measurement Span/Range | kPa   | inH <sub>2</sub> O/(D1) | mbar/(D3)     | mmH <sub>2</sub> O/(D4)        |
|------------------------|-------|-------------------------|---------------|--------------------------------|
| L                      | Span  | 0.1 to 10               | 1 to 100      | 10 to 1000                     |
|                        | Range | -10 to 10               | -40 to 40     | -1000 to 1000                  |
| M                      | Span  | 0.5 to 100              | 2 to 400      | 5 to 10000                     |
|                        | Range | -100 to 100             | -400 to 400   | -10000 to 10000                |
| H                      | Span  | 2.5 to 500              | 10 to 2000    | 0.025 to 5 kgf/cm <sup>2</sup> |
|                        | Range | -500 to 500             | -2000 to 2000 | -5 to 5 kgf/cm <sup>2</sup>    |

GS 07R01Y01-E-E

#### DPHarp EJX430A Gauge Pressure Transmitter

| Measurement Span/Range | MPa   | psi (D1)        | bar/(D3)                        | kgf/cm <sup>2</sup> /(D4) |
|------------------------|-------|-----------------|---------------------------------|---------------------------|
| H                      | Span  | 2.5 to 500 kPa  | 10 to 2000 inH <sub>2</sub> O   | 0.025 to 5                |
|                        | Range | -100 to 500 kPa | -400 to 2000 inH <sub>2</sub> O | -1 to 5                   |
| A                      | Span  | 0.0175 to 3.5   | 2.5 to 500                      | 0.175 to 35               |
|                        | Range | -0.1 to 3.5     | -14.5 to 500                    | -1 to 35                  |
| B                      | Span  | 0.08 to 16      | 12 to 2300                      | 0.8 to 160                |
|                        | Range | -0.1 to 16      | -14.5 to 2300                   | -1 to 160                 |

#### DPHarp EJX510A, 530A Absolute or Gauge Pressure Transmitter

| Measurement Span/Range | MPa   | psi (D1)        | bar (D3)      | kgf/cm <sup>2</sup> (D4) |
|------------------------|-------|-----------------|---------------|--------------------------|
| A                      | Span  | 8 to 200 kPa    | 1.16 to 29    | 0.08 to 2                |
|                        | Range | -100 to 200 kPa | -14.5 to 29   | -1 to 2                  |
| B                      | Span  | 0.04 to 2       | 5.8 to 290    | 0.4 to 20                |
|                        | Range | -0.1 to 2       | -14.5 to 290  | -1 to 20                 |
| C                      | Span  | 0.2 to 10       | 29 to 1450    | 2 to 100                 |
|                        | Range | -0.1 to 10      | -14.5 to 1450 | -1 to 100                |
| D                      | Span  | 1 to 50         | 145 to 7200   | 10 to 500                |
|                        | Range | -0.1 to 50      | -14.5 to 7200 | -1 to 500                |

#### DPHarp EJA110A Differential Pressure Transmitter

| Measurement Span/Range | kPa   | inH <sub>2</sub> O/(D1) | mbar/(D3)       | mmH <sub>2</sub> O/(D4) |
|------------------------|-------|-------------------------|-----------------|-------------------------|
| L                      | Span  | 0.5 to 10               | 2 to 40         | 5 to 100                |
|                        | Range | -10 to 10               | -40 to 40       | -100 to 100             |
| M                      | Span  | 1 to 100                | 4 to 400        | 10 to 1000              |
|                        | Range | -100 to 100             | -400 to 400     | -1000 to 1000           |
| H                      | Span  | 5 to 500                | 20 to 2000      | 50 to 5000              |
|                        | Range | -500 to 500             | -2000 to 2000   | -5000 to 5000           |
| V <sup>1</sup>         | Span  | 0.14 to 14 MPa          | 20 to 2000 psi  | 1.4 to 140 bar          |
|                        | Range | -0.5 to 14 MPa          | -71 to 2000 psi | -5 to 140 bar           |

#### DPHarp EJA310A Absolute Pressure Transmitter

| Measurement Span and Range | MPa   | psi(D1)        | mbar/(D3)        | mmHg/(D4)     |
|----------------------------|-------|----------------|------------------|---------------|
| L                          | Span  | 0.67 to 10 kPa | 0.2 to 2.95 inHg | 6.7 to 100    |
|                            | Range | 0 to 10 kPa    | 0 to 2.95 inHg   | 0 to 100      |
| M                          | Span  | 1.3 to 130 kPa | 0.38 to 38 inHg  | 13 to 1300    |
|                            | Range | 0 to 130 kPa   | 0 to 38 inHg     | 0 to 1300     |
| A                          | Span  | 0.03 to 3      | 4.3 to 430       | 0.3 to 30 bar |
|                            | Range | 0 to 3         | 0 to 430         | 0 to 30 bar   |

#### DPHarp EJA430A Gauge Pressure Transmitter

| Measurement Span and Range | MPa   | psi (D1)   | bar (D3)    | kgf/cm <sup>2</sup> /(D4) |
|----------------------------|-------|------------|-------------|---------------------------|
| A                          | Span  | 0.03 to 3  | 4.3 to 430  | 0.3 to 30                 |
|                            | Range | -0.1 to 3  | -15 to 430  | -1 to 30                  |
| B                          | Span  | 0.14 to 14 | 20 to 2000  | 1.4 to 140                |
|                            | Range | -0.1 to 14 | -15 to 2000 | -1 to 140                 |

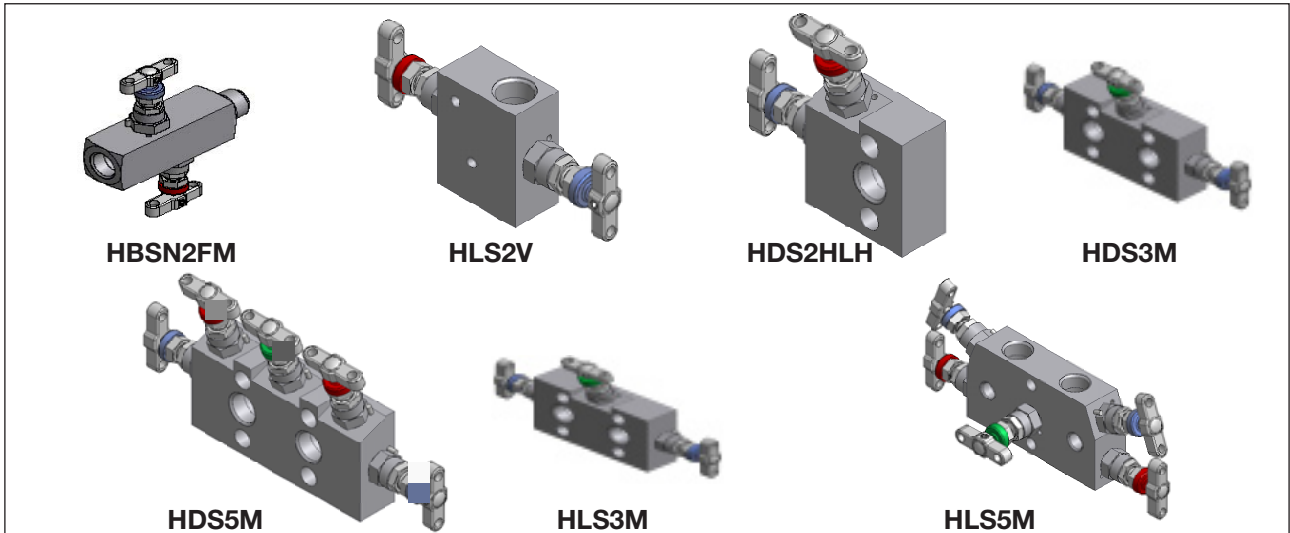
#### DPHarp EJA510A, 530A Absolute or Gauge Pressure Transmitter

| Measurement Span and Range | MPa   | psi (D1)      | bar (D3)     | kgf/cm <sup>2</sup> /(D4) |
|----------------------------|-------|---------------|--------------|---------------------------|
| A                          | Span  | 10 to 200 kPa | 1.45 to 29   | 0.1 to 2                  |
|                            | Range | 0 to 200 kPa  | 0 to 29      | 0 to 2                    |
| B                          | Span  | 0.1 to 2      | 14.5 to 290  | 1 to 20                   |
|                            | Range | 0 to 2        | 0 to 290     | 0 to 20                   |
| C                          | Span  | 0.5 to 10     | 72.5 to 1450 | 5 to 100                  |
|                            | Range | 0 to 10       | 0 to 1450    | 0 to 100                  |
| D                          | Span  | 5 to 50       | 720 to 7200  | 50 to 500                 |
|                            | Range | 0 to 50       | 0 to 7200    | 0 to 500                  |

For details, please refer to the following GS for each product:

|                  |                |                  |                |
|------------------|----------------|------------------|----------------|
| EJX110A          | GS01C25B01-01E | EJA130A          | GS01C21B03-00E |
| EJX910A          | GS01C25R01-01E | EJA310A          | GS01C21D01-00E |
| EJX430A          | GS01C25E01-01E | EJA430A          | GS01C21E01-00E |
| EJX510A, EJX530A | GS01C25F01-01E | EJA440A          | GS01C21E02-00E |
| EJA110A          | GS01C21B01-00E | EJA510A, EJA530A | GS01C21F01-00E |
| EJA120A          | GS01C21B03-00E |                  |                |

**Manifold product overview**

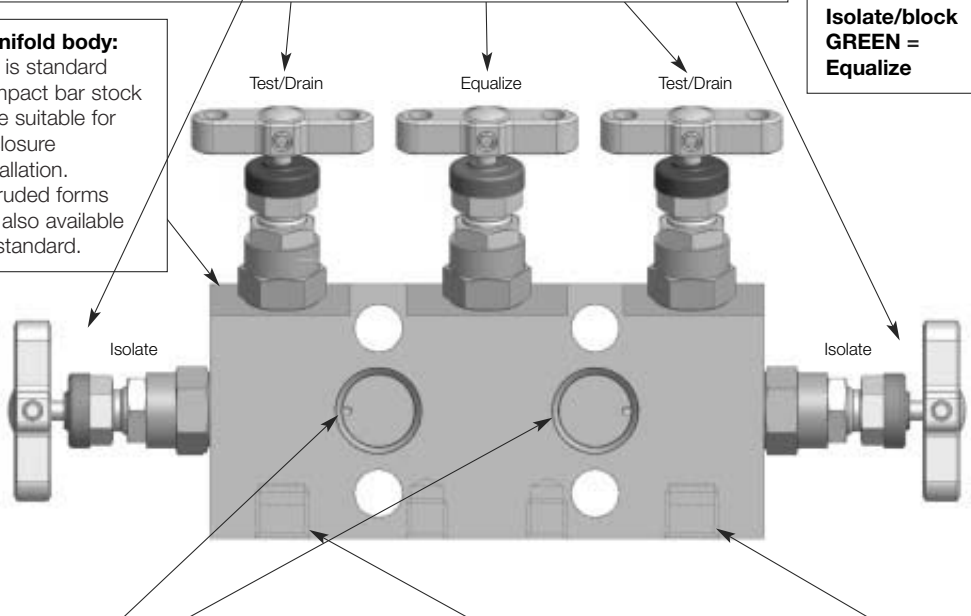


**Key features (example with a 5 valve manifold)**

**Bonnet assemblies:** are all functionally colour coded, 3 valve manifolds are provided with **2 IS** and **1 EQ**. 5 valve manifolds are provided with **2 IS, 2 DR** and **1 EQ** (as illustrated here). Alternatively 5 valve manifolds for custody transfer/fiscal metering are fitted with **2 IS, 1DR** and **2 EQ**. For extruded style manifold blocks straight through flow rising plug style valves can be fitted.

**Functional colour coding:**  
**RED = Drain/vent/test**  
**BLUE = Isolate/block**  
**GREEN = Equalize**

**Manifold body:** this is standard compact bar stock style suitable for enclosure installation. Extruded forms are also available as standard.

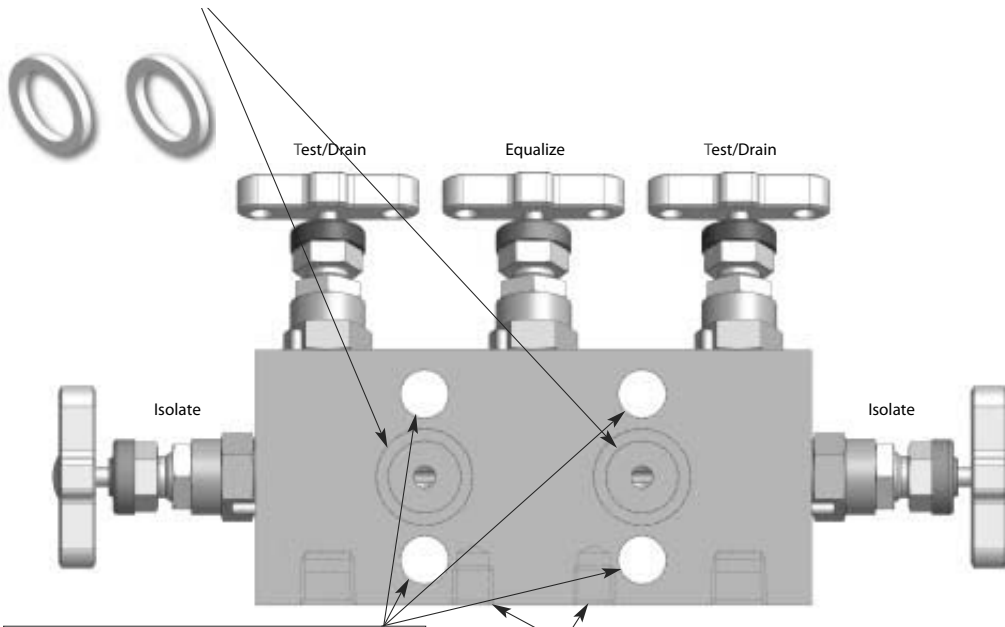


**Process inlet connections** positioned on front face 1/2" NPT female threads or kidney flange/oval/futbol are standard. Alternative thread forms, socket or butt weld and PTFree connections are available. Standard connections are on 2.125"/54mm.

**Drain/bleed connections** the position depends upon manifold design but are generally on the bottom face of the manifold. Other optional positions are available. On 3 valve manifold systems test and purge ports are optional choices.

**Instrument side, outlet, flange connections:** are standard for direct mount manifolds with machined grooves for PTFE seal rings. DIN sealing groove arrangement is also available on request. Remote style manifolds are provided as standard with 1/2" NPT female outlet connections (alternative thread forms etc. are available). Flanged outlets are positioned on 54mm/2.125" centres. (56/57mm centres are available on request).

**Pressure rating:**  
maximum standard rating  
6000psig (414 barg).  
Remote mount  
10,000psig (689 barg) are  
available



**Manifold to transmitter mounting:** all direct mount manifolds are provided with 4 off 7/16 UNF x 1.625" high tensile zinc plated carbon steel bolts. Bolt holes are standard on 54mm/2.125" centres. Optional St. St. bolts are available.

**Manifold base/bracket mounting:** all manifolds are provided with bracket mounting holes. This provides the user with the opportunity to bracket mount the instrument allowing installation to take place without the instrument and to give full mounting support in the event of Instrument removal.



**Material:** Products in this GS are standard in stainless steel but can also be produced in many other materials.

## Standard manifold globe style bonnet design



### 1.

Positive handle retention design featuring broached square engagement positioned by thread locked grub screw

### 2. "T" bar

Ergonomically designed for ease of operation  
Anti-tamper and lockable devices can be supplied for on site retro-fit

### 3. Dust Cap

This has a dual purpose, preventing air born debris from contaminating the operating spindle thread and providing colour coded functional identification  
Isolate (BLUE) Bleed/test (RED)

### 4. Gland packing adjuster

For maximum packing stability and performance, simple and easily adjustable for gland wear compensation

### 5. Gland adjuster lock nut

A secure anti vibration locking mechanism to prevent inadvertent gland adjuster loosening

### 6. Valve Bonnet

Standard construction for maximum pressure rating with replaceable bonnet sealing washer arrangement

### 7. Anti blowout spindle

Designed for low torque operation with high quality micro mirror stem finish for positive gland sealing

### 8. Thrust Bush

Anti rotational adjuster bush ensures uniform packing compression, maximising pressure tight sealing and limiting cold flow passages

### 9. Gland packing (adjustable)

Chevron style dual piece gland packing to provide maximum sealing area contact with minimum gland adjustment

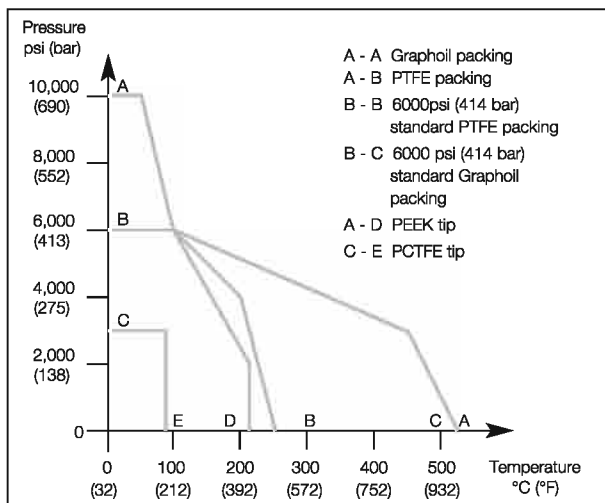
### 10. Bonnet/body washer

Annealed sealing washer to ensure complete atmospheric leakage and allowing on site retrofit of bonnets with 100% re-sealing assurance

### 11. Spindle tip

Self centering, non-rotational tip gives successive positive bubble tight shut off assuring the user of leakage free performance and downstream functional safety

## Pressure vs temperature



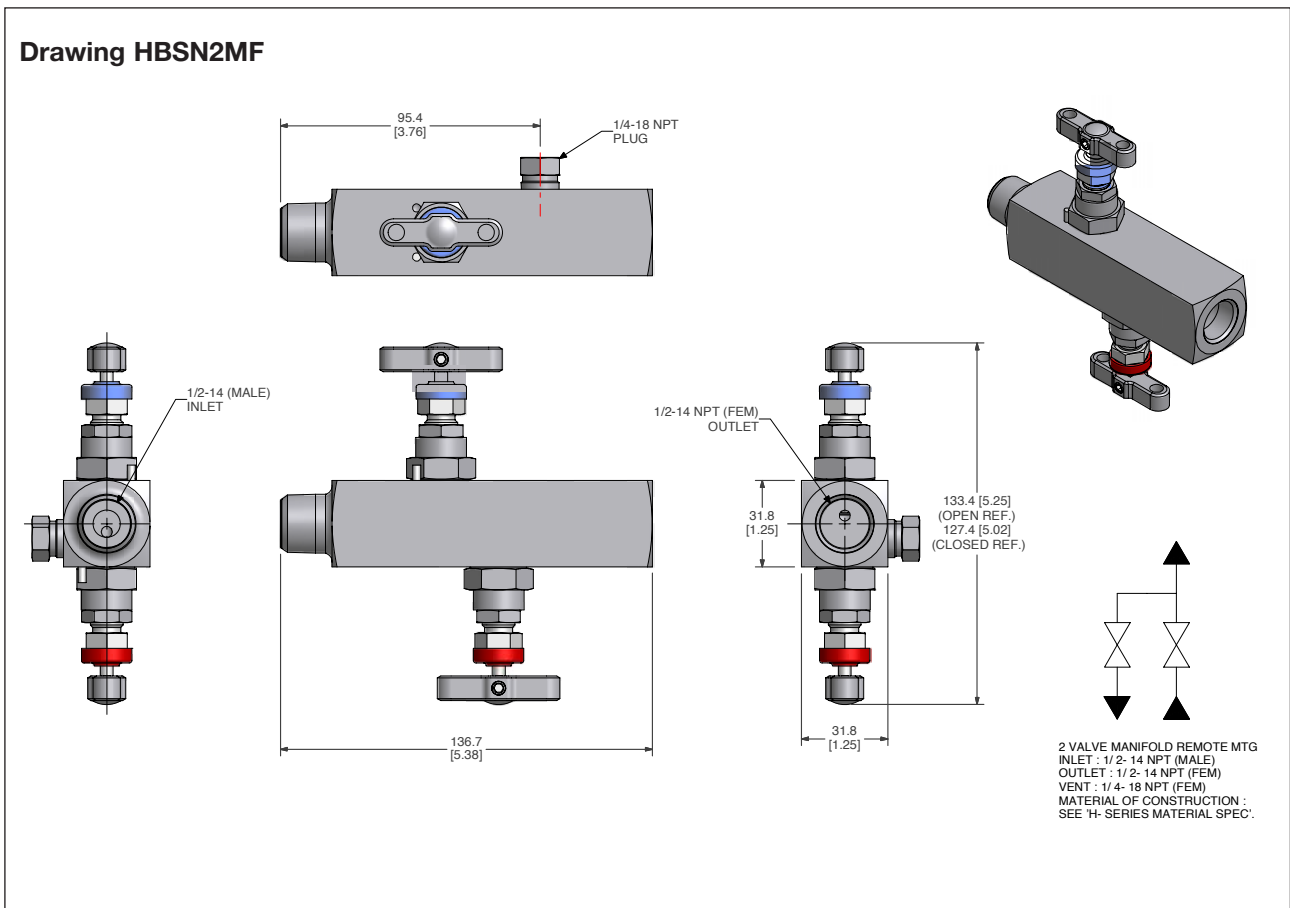
## Specification

- Height closed (standard and HP) = 47mm (1.85") Height open (standard and HP) = 50.3mm (2.00")
- Number of turns open/close - 3.5
- Stainless steel construction
- Maximum standard pressure up to 6,000 psig (414 barg)
- Maximum optional pressure (limited to HP suffix see page 12 & 19) up to 10,000 psig (689 barg)
- Temperature rating -54C to +538C (-65F to +1000F)
- PTFE standard gland packing (Graphoil optional)
- Maximum temperature PTFE 260C (500F)
- Maximum temperature Graphoil 538C (1000F)

**2 valve Manifold Block and Bleed HBSN2 for DPHarb EJA/EJX 510A/530A series**

**Model and Suffix codes HBSN2** □ □

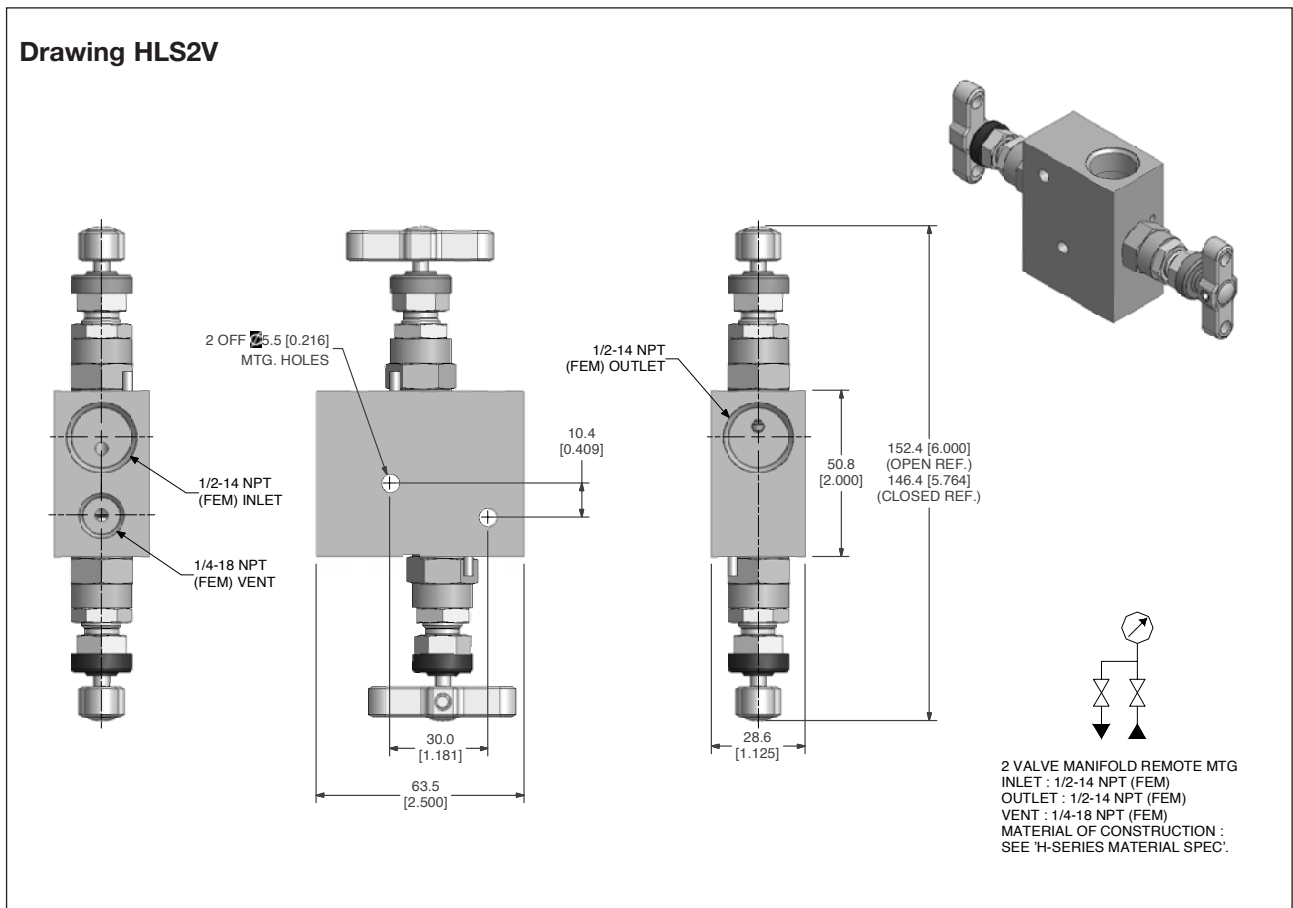
| Model          | Suffixcode | Description  |
|----------------|------------|--|
| <b>HBSN2</b>   |            | Instrument Block and Bleed Manifold for DPHarb EJA/EJX 510A/530A series  |
| <b>Options</b> | <b>FM</b>  | HBSNVS28F8M4FHPP Manifold type<br>2 valves 316SS 1/2"NPT F inlet (select EJA/X500 1/2"NPT M) 1/2" NPT M outlet |
|                | <b>FF</b>  | HBSNVS28F8F4FHPP Manifold type<br>2 valves 316SS 1/2"NPT F inlet (select EJA/X500 1/2"NPT M) 1/2" NPT F outlet |
|                | <b>MF</b>  | HBSNVS28M8F4FHPP Manifold type<br>2 valves 316SS 1/2"NPT M inlet (select EJA/X500 1/2"NPT F) 1/2" NPT F outlet |
|                | <b>MM</b>  | HBSNVS28M8M4FHPP Manifold type<br>2 valves 316SS 1/2"NPT M inlet (select EJA/X500 1/2"NPT F) 1/2" NPT M outlet |
| <b>Options</b> | /NC        | Sour Gas Service   |
|                | /PP        | Plugged Vent Port  |
|                | /MOUNTTF   | Assembly on Transmitter (free issue) with Teflon   |
|                | /MOUNTLOC  | Assembly on Transmitter (free issue) with Loctite  |
|                | /T         | Tested at 6 bar (dry air) during 1 min.  |



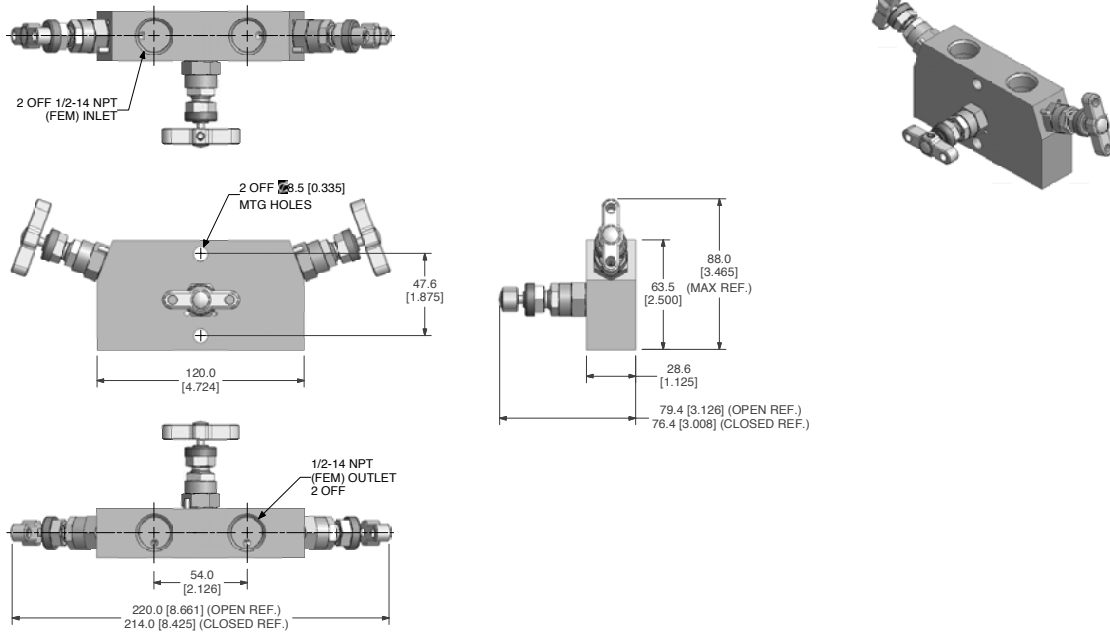
**Manifold Remote Mount for DPHarp EJA/EJX series**

**Model and Suffix codes HLS** □ □

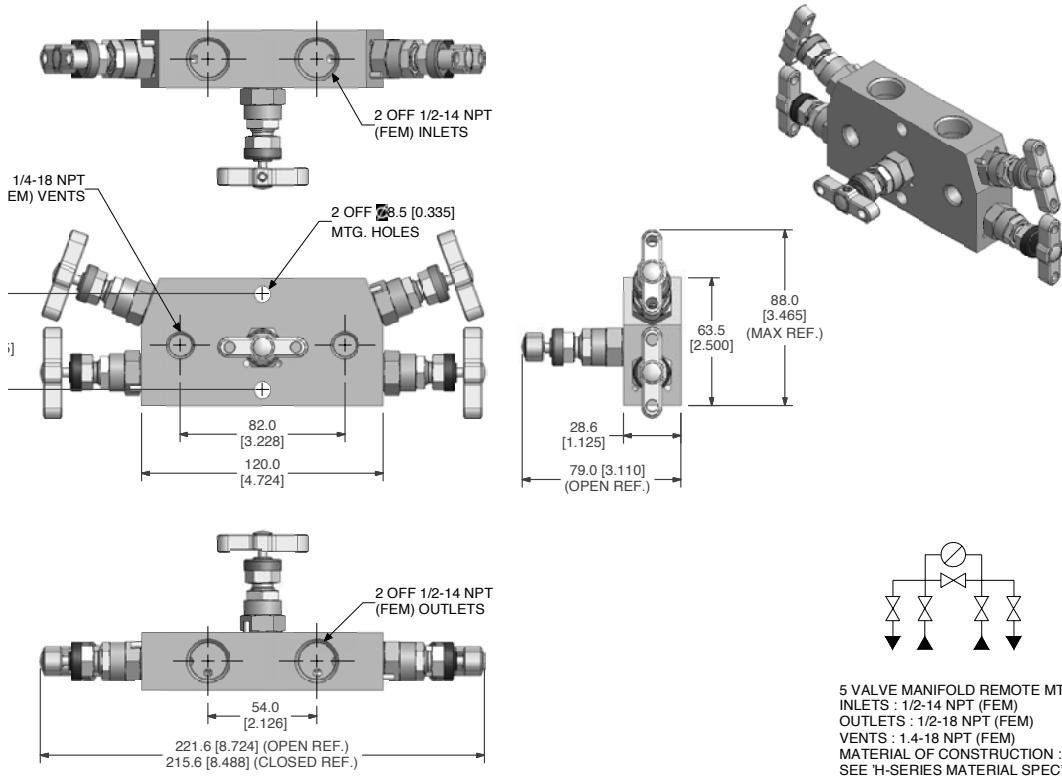
| Model      | Suffix Codes           | Description   |
|------------|------------------------|---|
| <b>HLS</b> |                        | <b>Manifold Remote Mount for DPHarp EJA/EJX series</b>  |
| Options    |                        |   |
| 2V         |                        | <b>2 valves 316SS for DPHarp EJA/EJX510A - 530A</b>     |
| 3M         |                        | <b>3 valves 316SS for DPHarp EJA/EJX110A - 130A</b>     |
| 5M         |                        | <b>5 valves 316SS for DPHarp EJA/EJX110A - 130A</b>     |
|            | /NC                    | Sour Gas Service  |
|            | /MTG (always included) | Tapped Mounting Holes                                   |
|            | /BRKC                  | Carbon steel Mounting Bracket                           |
|            | /BRKS                  | Stainless steel Mounting Bracket                        |
|            | /SSB                   | Stainless steel Mounting Bolts                          |
|            | /OXY                   | Oxygen clean service                                    |
|            | /PP                    | Plugged Vent Port (for HLS2V manifold)                  |
|            | /MOUNTTF               | Assembly on EJA/EJX510A - 530A Transmitter with Teflon  |
|            | /MOUNTLOC              | Assembly on EJA/EJX510A - 530A Transmitter with Loctite |
|            | /T                     | Tested at 6 bar (dry air) during 1 min.                 |



**Drawing HLS3M**



**Drawing HLS5M**

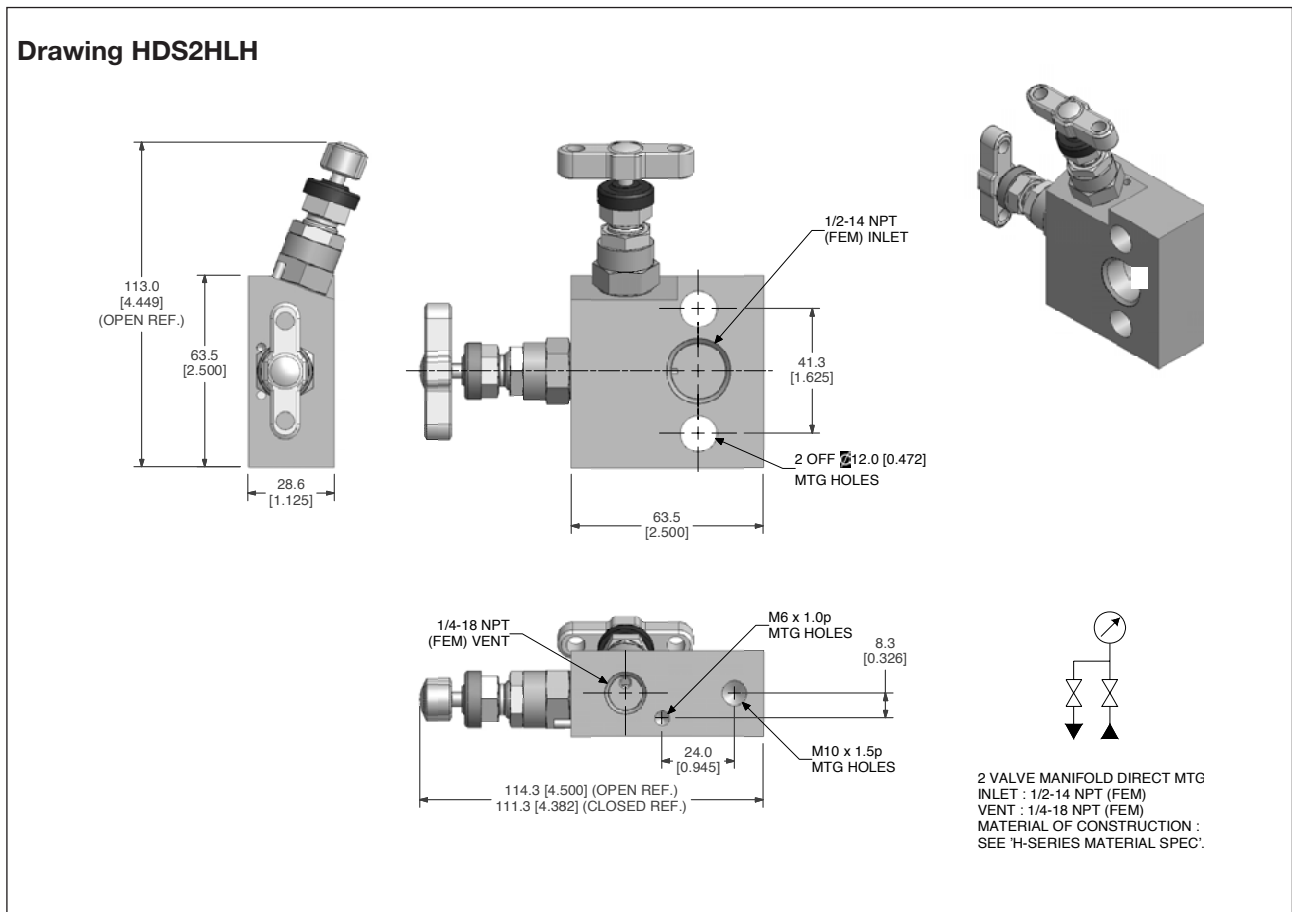




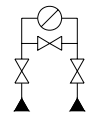
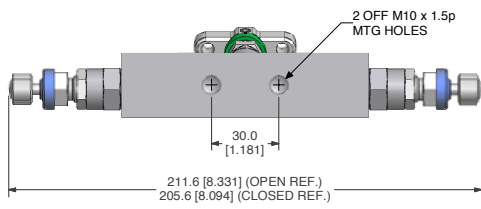
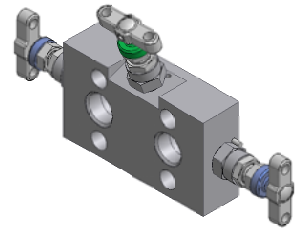
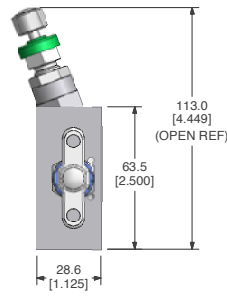
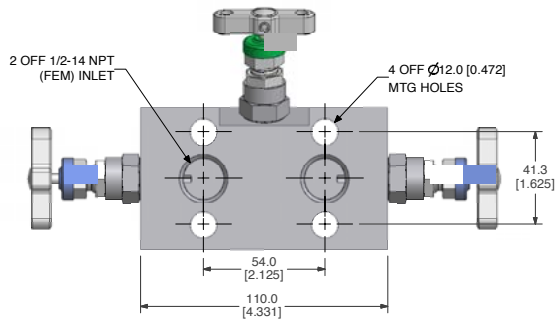
**Manifold Direct Mount for DPHarp EJA/EJX series**

**Model and Suffix codes HDS** □ □

| Model            | Suffix Codes   | Description   |
|------------------|--|---|
| <b>HDS</b>       |  | <b>Manifold Direct Mount for DPHarp EJA/EJX100 series</b>   |
| 2HLH<br>3M<br>5M |  | <b>2 valves 316SS for DPHarp EJA/EJX 310A - 430A</b><br><b>3 valves 316SS for DPHarp EJA/EJX 110A - 130A</b><br><b>5 valves 316SS for DPHarp EJA/EJX 110A - 130A</b>  |
| Options          | /NC<br>/MTG (always included)<br>/BRKC<br>/BRKS<br>/SSB<br>/MOUNT<br>/T<br>/OXY<br>/PP | Sour Gas Service<br>Tapped Mounting Holes<br>Carbon steel Mounting Bracket<br>Stainless steel Mounting Bracket<br>STSTL Mounting Bolts<br>Manifold Assembly - free issue EJA/EJX<br>Tested at 6 bar (dry air) during 1 min.<br>Oxygen clean service<br>Plugged Vent Port (for HDS2HLH manifold) |

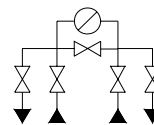
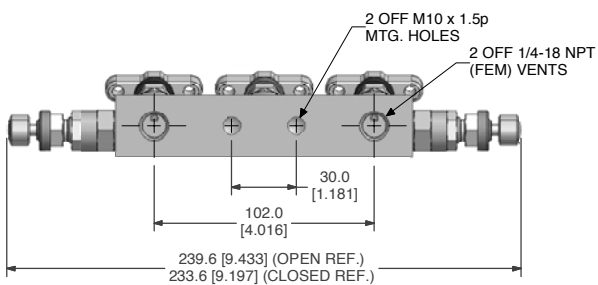
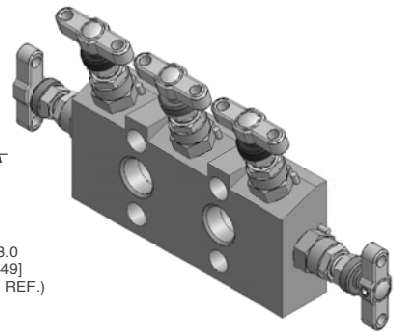
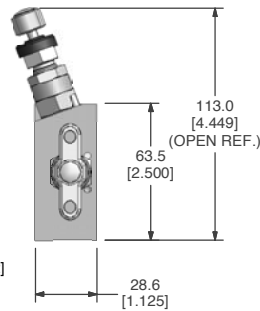
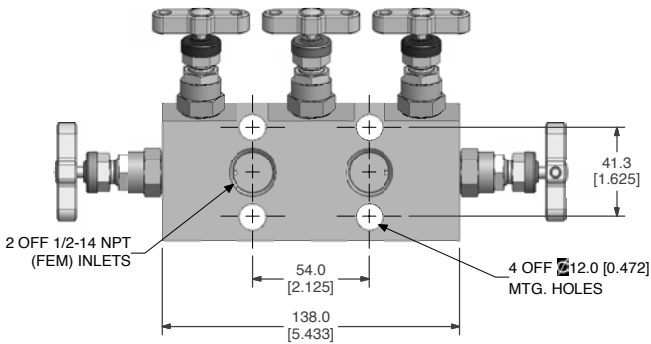


**Drawing HDS3M**



3 VALVE MANIFOLD DIRECT MTG.  
 INLETS : 1/2-14 NPT (FEM)  
 MATERIAL OF CONSTRUCTION :  
 SEE 'H-SERIES MATERIAL SPEC'.

**Drawing HDS5M**



5 VALVE MANIFOLD DIRECT MTG  
 INLETS : 1/2-14 NPT (FEM)  
 VENTS : 1/4-18 NPT (FEM)  
 MATERIAL OF CONSTRUCTION :  
 SEE 'H-SERIES MATERIAL SPEC'.

**Manifold bracket support**

**Purpose**

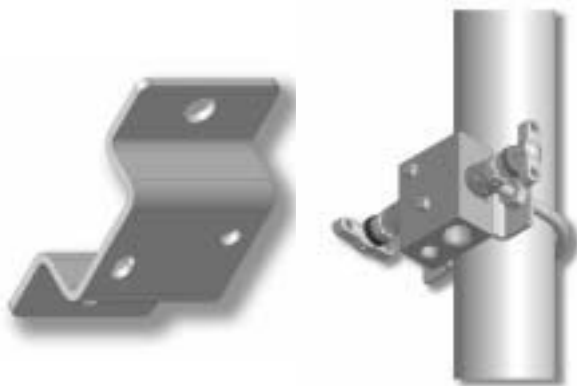
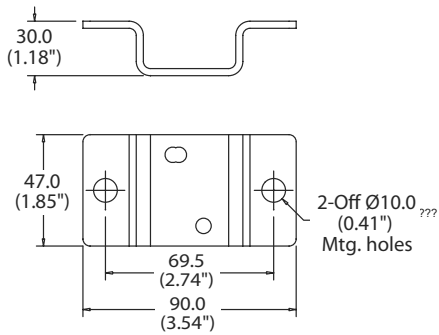
It is essential to fully support impulse/pressure measurement tubing lines, manifolds and instruments. All manifolds are designed to accommodate bracket mounting and support, a full range of brackets with additional U bolts are available.

Brackets are designed for panel and wall mounting and give full clearance for ease of handle operation. They are also suitable for vertical and horizontal positioning on 2" pipe-stand.

Brackets are produced from 4mm thick carbon steel plate to provide maximum rigidity and support. For full corrosion protection the brackets are shot blasted and zinc sprayed. Stainless Steel bracket are available in selecting Brks.

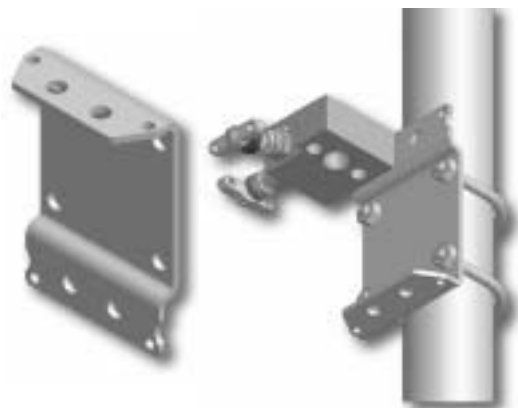
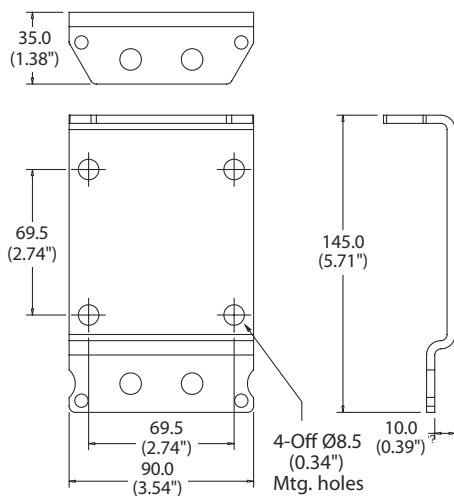
**Mounting bracket for HLS2V model**

Simple to install bracket for horizontal/vertical 2" standpipe, wall, panel or base mounting, bracket stand-off prevents handle obstruction.



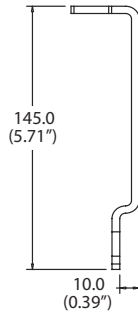
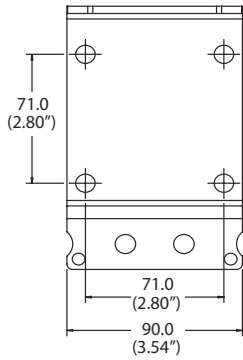
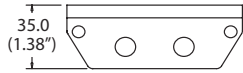
**Mounting bracket for HDS2HLH model**

Universal manifold mounting bracket suitable for all direct mount manifolds. This bracket design enables horizontal or vertical instrument positioning.

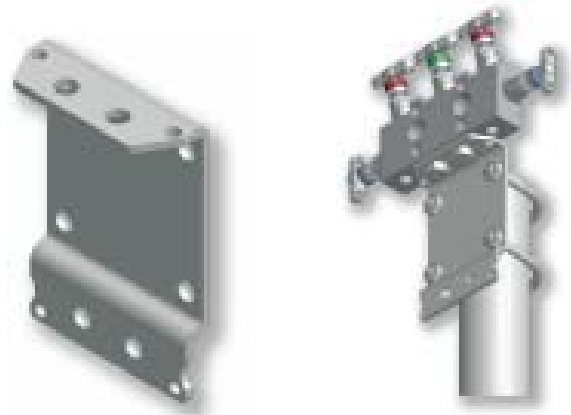


### Mounting bracket for HDS3M and HDS5M models

Simple to install bracket on horizontal or vertical 2" standpipe. Designed for horizontal or vertical mounting of manifold giving total installation flexibility.

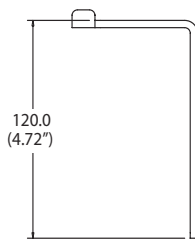
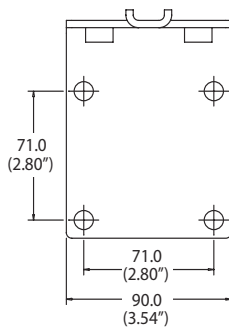
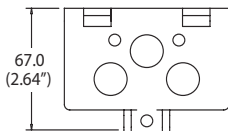


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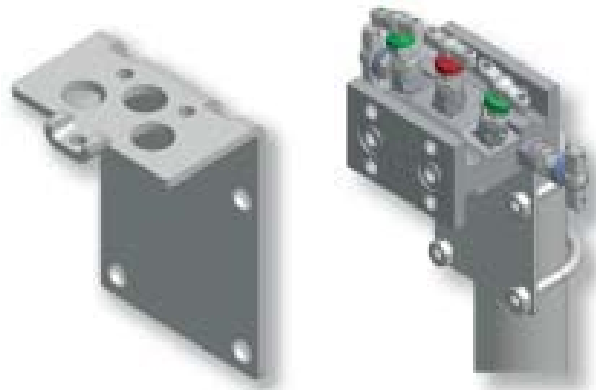


### Mounting bracket for HLS3M and HLS5M models

Universal manifold mounting bracket suitable for all remote mount manifolds. This bracket allows 90 degree positioning enabling total installation flexibility and prevents handle obstruction. Can be wall, standpipe or base mounted.



**BKT4CS**



**YOKOGAWA EUROPE B.V.**  
 Databankweg 20  
 3821 AL AMERSFOORT  
 The Netherlands  
 Tel. +31-33-4641 611  
 Fax +31-33-4641 610  
 www.yokogawa.com/eu

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