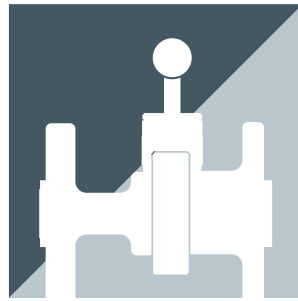
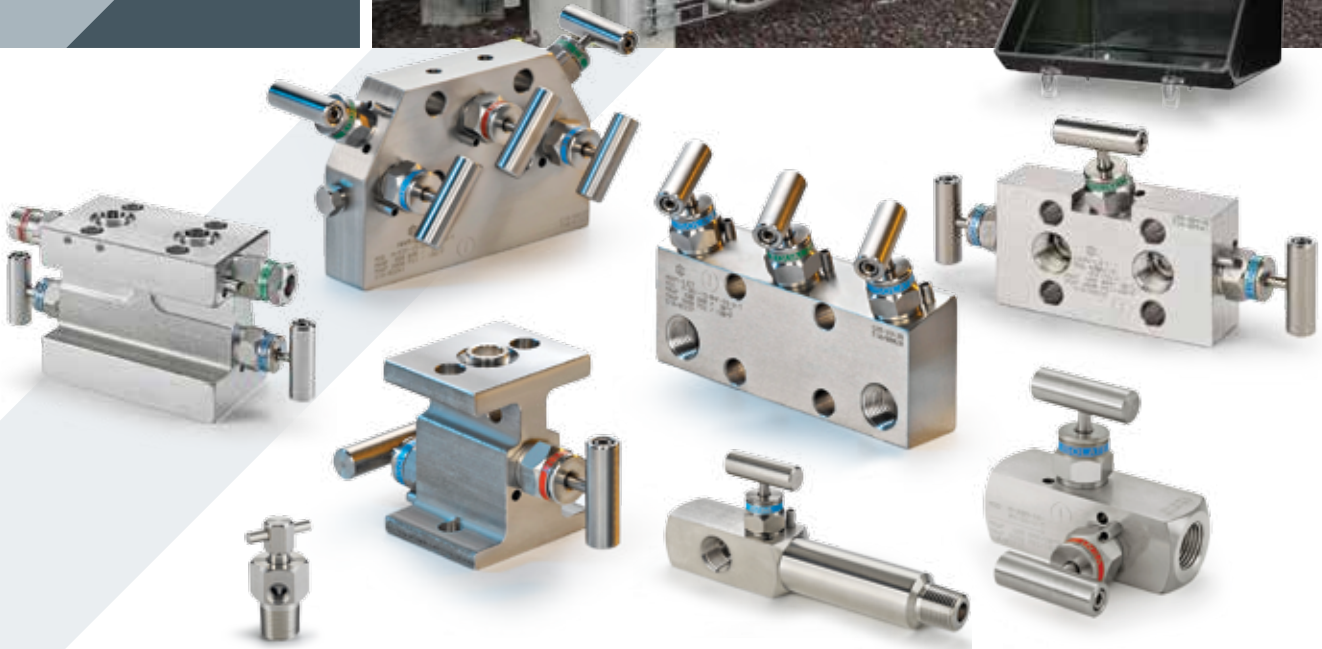


**ASTAVA**  
**HAM-LET** **ASTAVA**  
MANIFOLDS | INSTRUMENT ENCLOSURES



**1|2|3|4|5**  
WAY MANIFOLDS

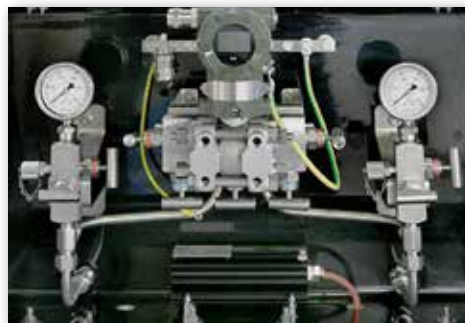


## OVERVIEW

HAM-LET ASTAVA offers a broad line of 1,2,3,4,5 instrument manifolds, all are available in a wide range of materials and are fully compatible with the requirements of the Oil & Gas, Petro-Chemical and Chemical industries.

Beside this standard range of products, HAM-LET ASTAVA has over 3,500 different types of valves and manifolds available.

HAM-LET ASTAVA draws from a strong engineering heritage, as well as seasoned business management, we offer a broad range of products – valves and manifolds suitable for gas and liquid services - as well as full-service solutions, that include custom engineering, design and manufacture of Instrument enclosures, modular mounting systems, hook-ups and interlocking solutions for critical conditions and temperatures.



As a customer-focused company, HAM-LET ASTAVA provides high-quality products and engineering solutions that address our customers' business and technical requirements.

For the HAM-LET ASTAVA line, we can offer scalability to design:

- Choice of materials from AISI 316 to special alloy solutions for highly toxic areas
- Connections, Pressure and Temperature ratings varieties
- Bonnet assemblies offer different stem, seal and material selections
- Option for standard packing, O-Ring sealing and fugitive emissions bonnets
- Extensive range of valve configurations and flow schemes
- Fully equipped instrument enclosures

With over 50 years of designing and manufacturing reliable products and solutions, HAM-LET ASTAVA has acquired an outstanding reputation for quality and customer service. We are always inspired by the need to evolve and stay ahead of the ever changing marketplace.



# MANIFOLD FEATURES AND BENEFITS

The following unique features of the HAM-LET ASTAVA Line of Instrument Manifolds enable tailoring our high-quality products to the exact requirement of the customer and application:

## NACE MR-01-75

All Manifolds comply to NACE MR-01-75 as standard.

## FULL TRACEABILITY

All products are fully traceable to its components.

## WIDE VARIETY OF SEALING MATERIALS

PTFE; Grafoil®; Fluorocarbon FKM; NBR; EPDM; Silicon; perfluorelastomer – provides wide coverage of applications.

## CERAMIC STEM BALL TIP $\text{Al}_2\text{O}_3$

Superior hardness prevents deformation of the sealing tip and wear, significantly increasing the lifetime of the product for isolation purposes.



## BONNET SELECTIONS

### O-ring stem-seal bonnet

1. No packing adjustment
2. Extremely low operating torque
3. Compact design
4. Long life cycle
5. Sealing below stem thread
6. Metal-to-Metal bonnet option

### Packing stem-seal bonnet

1. Wide chemical compatibility range
2. High temperature option (Grafoil®)
3. Low operating torque
4. Sealing below stem thread

## STEM MATERIAL

### ST. ST. 316 Ti with chromium carbide diffusion coating

1. Long life cycle
2. Prevent galling

## Features

- Blowout-proof stem
- Integrated back seat on stem for a secondary seal in the fully opened position
- Safety stop pin – prevents the bonnet from detaching the body due to vibration
- Stem seals below stem threads
- A choice of O-ring materials
- Oxygen clean per ASTM G-93 as an option
- 100% Factory Tested Compliance with MSS-SP-99
- Direct mount flange design per IEC61518 / DIN19213 (MAWP 6000 psig)
- Working pressure range up to 690 bar (10,000 psig)
- Working Temperature range up to 550°C (1022°F)

# BONNET AND STEM CONCEPT

**The special sealing design applied in all HAM-LET ASTAVA Instrument Manifolds features a non-rotating ceramic ball tip.**

The chemical composition of a ceramic ball tip is superior in hardness and functionality to a metal ball tip, eliminating sealing tip deformation and significantly increasing the life time of the product.

The stem threads are rolled and an integrated back seat design is applied to the packing type of bonnet. Applying a Stainless Steel 316 Ti stem with a chromium carbide diffusion coating results in maximum operation cycles and minimal risk of stem galling. Both packing and O-ring bonnets are designed with sealing below stem threads for maximum protection of the stem threads.

For maximum safety, the bonnet design prevents stem blowout, and a locking pin prevents unintentional disassembling of the bonnet.

**HAM-LET'S VALVE BONNETS HAVE COLOR CODED RING LABELS FOR SERVICE IDENTIFICATION:**



**Red:**  
Vent Valves

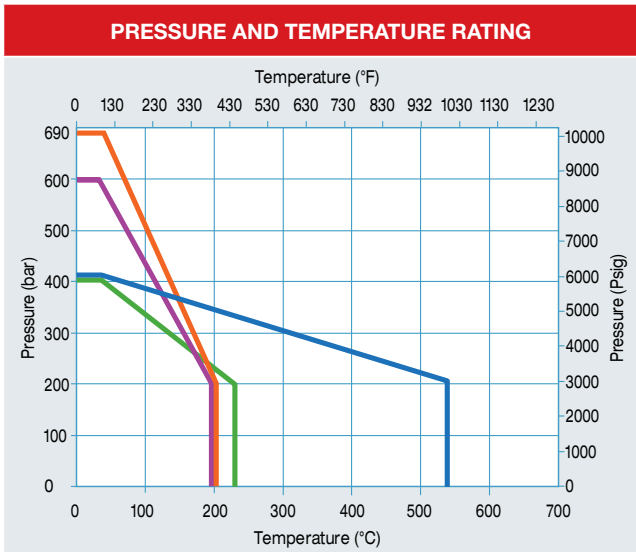


**Blue:**  
Isolate Valves



**Green:**  
Equalize Valves

For severe-service applications, HAM-LET ASTAVA Manifolds can be configured with a metal-to-metal seal below the bonnet thread. A dust-ring is attached to the bonnet thread or tack-weld on the locking pin for extreme vibrating conditions.



|                  |                      |                        |
|------------------|----------------------|------------------------|
| Packing Material | Grafoil®             | Down to -60°C (-76°F)  |
|                  | PTFE                 | Down to -60°C (-76°F)  |
| O-Ring Material  | Fluorocarbon FKM     | Down to -20°C (-4°F)   |
|                  | NBR                  | Down to -34°C (-29°F)  |
|                  | Perfluor             | Down to -40°C (-40°F)  |
|                  | EPDM                 | Down to -45°C (-49°F)  |
|                  | 10,000 psi (690 bar) | Available upon request |



## HANDLE OPTIONS

The standard handle of the HAM-LET ASTAVA Line of Instrument Manifolds is a Stainless Steel T-bar. For high pressure applications of 10,000 psi (690 bar) an extended T-bar or hand wheel can be applied. Anti-tamper bonnet and key\* lock options assure that the manifold is operated by qualified personnel only.

\*Not included in order of Anti-Tampered bonnet manifold. This key should be separately ordered.

## CLEANING

All HAM-LET instrument manifolds are cleaned in accordance with ASTAVA cleaning procedure WIQ-016. Oxygen clean is available in accordance with ASTM G-93.

## TESTING

All HAM-LET instrument manifolds are factory tested with Nitrogen at 800 psig (55 bar) based on MSS-SP-99. Seats have a maximum allowable leak rate of 0.1 std cm<sup>3</sup> /min. The Hydrostatic and Helium leak test is available upon request.

# MATERIAL OF CONSTRUCTION

Packing Bonnet

O-ring Bonnet

Metal-to-Metal Bonnet

Bottom metal seal protects bonnet's threads from the fluid. For fugitive emissions applications

Packing Bonnet

O-ring Bonnet

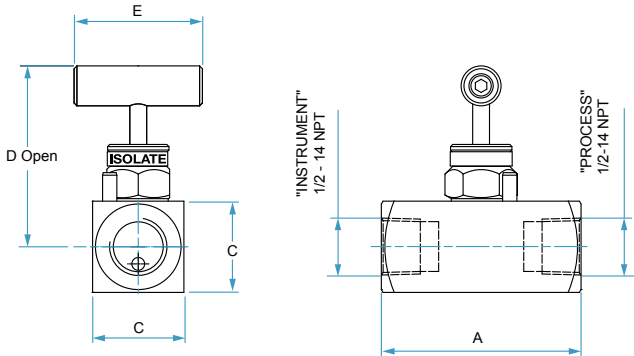
Metal-to-Metal Bonnet

| No | Part           | Qty. | Material                                     | Qty. | Material                                     | Qty. | Material                                     |
|----|----------------|------|----------------------------------------------|------|----------------------------------------------|------|----------------------------------------------|
| 1  | Set Screw      | 1    | St.St. 304                                   | 1    | St.St. 304                                   | 1    | St.St. 304                                   |
| 2  | Bar Handle     | 1    | St.St. 316L                                  | 1    | St.St. 316L                                  | 1    | St.St. 316L                                  |
| 3  | Gland          | 1    | St.St. 316L                                  | -    | -                                            | -    | -                                            |
| 4  | Locking Nut    | 1    | St.St. 316L                                  | -    | -                                            | -    | -                                            |
| 5A | Pressure ring  | 1    | St.St. 316L                                  | -    | -                                            | -    | -                                            |
| 5B | Back-up ring   | -    | -                                            | 2    | Virgin PTFE                                  | 2    | Virgin PTFE                                  |
| 6A | Stem Packing   | 1    | Virgin PTFE                                  | -    | -                                            | -    | -                                            |
| 6B | Stem O-ring    | -    | -                                            | 1    | Fluorocarbon FKM                             | 1    | Fluorocarbon FKM                             |
| 7  | Bonnet         | 1    | St.St. 316L                                  | 1    | St.St. 316L                                  | 1    | St.St. 316L                                  |
| 8  | Stem           | 1    | St.St. 316Ti Chrome-Carbide diffusion coated | 1    | St.St. 316Ti Chrome-Carbide diffusion coated | 1    | St.St. 316Ti Chrome-Carbide diffusion coated |
| 9  | Ball           | 1    | Ceramic (Al <sub>2</sub> O <sub>3</sub> )    | 1    | Ceramic (Al <sub>2</sub> O <sub>3</sub> )    | 1    | Ceramic (Al <sub>2</sub> O <sub>3</sub> )    |
| 10 | Dust Protector | -    | -                                            | -    | -                                            | 1    | Fluorocarbon FKM                             |

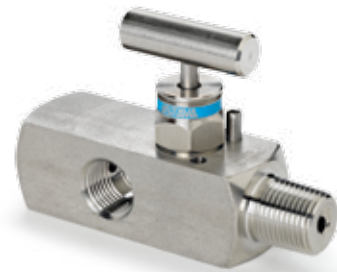
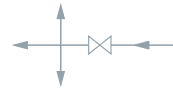
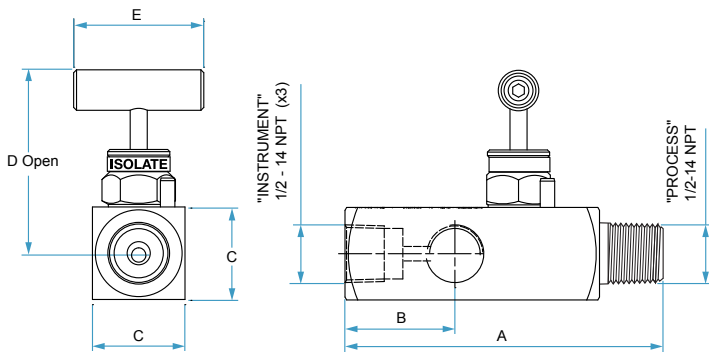
STANDARD CONFIGURATION DIMENSIONS  
1 WAY MANIFOLDS

| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |      |      |      |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|------|------|------|------|------|------|------|------|
|                       |                |            |              |                              | A          |      | B    |      | C    |      | D    |      | E    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   |
| Remote Mount          | 1/2" FNPT      | 1/2" FNPT  | -            | M-10S-10-8N-SS-V-T           | 70.0       | 2.76 | -    | -    | 32.0 | 1.26 | 63.0 | 2.48 | 45.0 | 1.77 |
|                       | 1/2" FNPT      | 1/2" FNPT  | -            | M-10S-10-8N-SS-T-T           | 70.0       | 2.76 | -    | -    | 32.0 | 1.26 | 79.0 | 3.11 | 50.0 | 1.97 |
|                       | 1/2" MNPT      | 1/2" FNPT  | 1/2" FNPT    | M-11S-85-8N-SS-V-T           | 110.0      | 4.33 | 38.0 | 1.50 | 32.0 | 1.26 | 63.0 | 2.48 | 45.0 | 1.77 |
|                       | 1/2" MNPT      | 1/2" FNPT  | 1/2" FNPT    | M-11S-85-8N-SS-T-T           | 110.0      | 4.33 | 38.0 | 1.50 | 32.0 | 1.26 | 79.0 | 3.11 | 50.0 | 1.97 |

NEEDLE VALVE  
M-10S-10-8N-SS-V-T



MULTIPORT VALVE  
M-11S-85-8N-SS-V-T



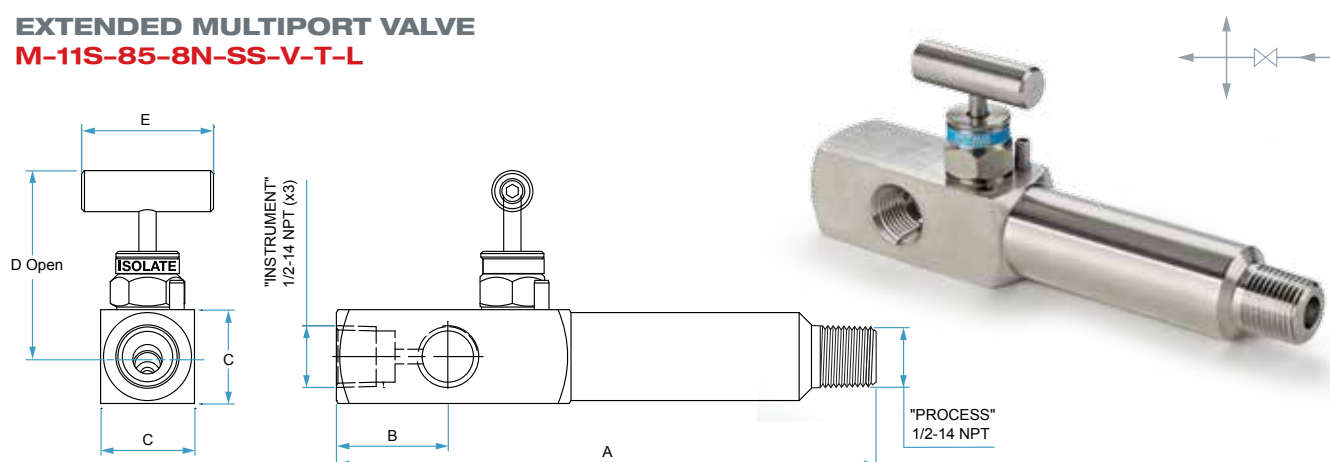
# STANDARD CONFIGURATION DIMENSIONS

## 1 WAY MANIFOLDS

| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |      |      |      |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|------|------|------|------|------|------|------|------|
|                       |                |            |              |                              | A          |      | B    |      | C    |      | D    |      | E    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   |
| Remote Mount          | 1/2" MNPT      | 1/2" FNPT  | 1/2" FNPT    | M-11S-85-8N-SS-V-T-L         | 184.0      | 7.24 | 38.0 | 1.50 | 32.0 | 1.26 | 63.0 | 2.48 | 45.0 | 1.77 |
|                       | 1/2" MNPT      | 1/2" FNPT  | 1/2" FNPT    | M-11S-85-8N-SS-T-T-L         | 184.0      | 7.24 | 38.0 | 1.50 | 32.0 | 1.26 | 79.0 | 3.11 | 50.0 | 1.97 |
|                       | 1/2" MNPT      | 1/2" FNPT  | 1/4" FNPT    | M-12M-85-8N-SS-V-T-P         | 100.0      | 3.54 | 30.0 | 1.18 | 32.0 | 1.26 | 63.0 | 2.48 | 45.0 | 1.77 |
|                       | 1/2" MNPT      | 1/2" FNPT  | 1/4" FNPT    | M-12M-85-8N-SS-T-T-P         | 100.0      | 3.54 | 30.0 | 1.18 | 32.0 | 1.26 | 79.0 | 3.11 | 50.0 | 1.97 |

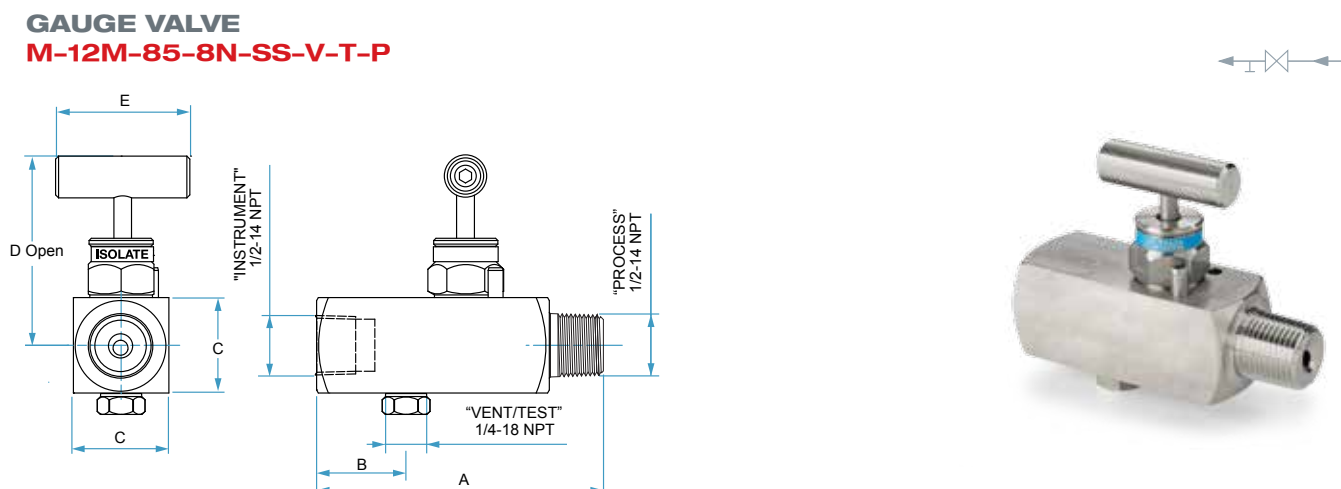
## EXTENDED MULTIPORT VALVE

### M-11S-85-8N-SS-V-T-L



## GAUGE VALVE

### M-12M-85-8N-SS-V-T-P



# ORDERING INFORMATION

## 1 WAY MANIFOLDS

| M-1           |                | 0 S            |                          | 10                  |                          | 8               |               | N       |                   | SS     |                           | T |  | LD |  | OC |  |
|---------------|----------------|----------------|--------------------------|---------------------|--------------------------|-----------------|---------------|---------|-------------------|--------|---------------------------|---|--|----|--|----|--|
| Family        |                | End Connection |                          | Type End Connection |                          | Body Material   |               | Packing |                   | Option |                           |   |  |    |  |    |  |
| M-1           | 1 Way Manifold | 00             | Female Integral Let-Lok® | N                   | NPT                      | SS              | SS 316        | T       | PTFE              | OC     | Oxygen Clean              |   |  |    |  |    |  |
| Flow Scheme   |                | 10             | Female to Female         | G                   | BSPP                     | M               | Alloy 400     | G       | Grafoil®          | HYD    | Hydrostatic pressure test |   |  |    |  |    |  |
|               | 0S             | 80             | Male to Male             | R                   | BSPT                     | D               | Duplex 1.4462 | V       | Fluorocarbon FKM  | K      | 10,000 psi (690 bar)      |   |  |    |  |    |  |
|               | 1S             | 85             | Male to Female           | L                   | Female integral Let-Lok® | HC              | Alloy C-276   | EP      | EPDM              | L      | Extended Inlet            |   |  |    |  |    |  |
|               | 2M             | 75             | Female to Male           |                     |                          | T               | Titanium      | BU      | NBR               | B      | Bleed valve               |   |  |    |  |    |  |
| (See table A) |                | Size           |                          |                     |                          | SD              | SuperDuplex   | KZ      | Perfluorelastomer | P      | Blind plug                |   |  |    |  |    |  |
|               |                | 4              | 1/4"                     |                     |                          | A6              | Alloy 625     | Handle  |                   |        |                           |   |  |    |  |    |  |
|               |                | 6              | 3/8"                     |                     |                          | A8              | Alloy 825     |         |                   | T      | T bar                     |   |  |    |  |    |  |
|               |                | 8              | 1/2"                     |                     |                          | AT Anti Tamper* |               |         |                   |        |                           |   |  |    |  |    |  |
|               |                |                |                          |                     |                          |                 |               |         |                   | LD     | Locking device*           |   |  |    |  |    |  |

\* Key should be separately ordered

TABLE A: FLOW SCHEMATIC AND VALVE POSITION

| Designator | Flow Schematic | Sketch |
|------------|----------------|--------|
| 0S         |                |        |
| 1S         |                |        |
| 2M         |                |        |

### Warning!

The system designer and user have the sole responsibility for selecting products suitable for their special application requirements, ensuring their safe and trouble-free installation, operation, and maintenance. Application details, material compatibility and product ratings should all be considered for each selected product. Improper selection, installation or use of products can cause property damage or personal injury.

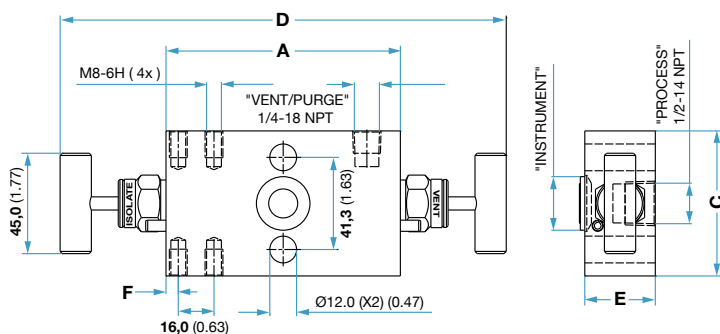
## STANDARD CONFIGURATION DIMENSIONS

### 2 WAY DIRECT MOUNT

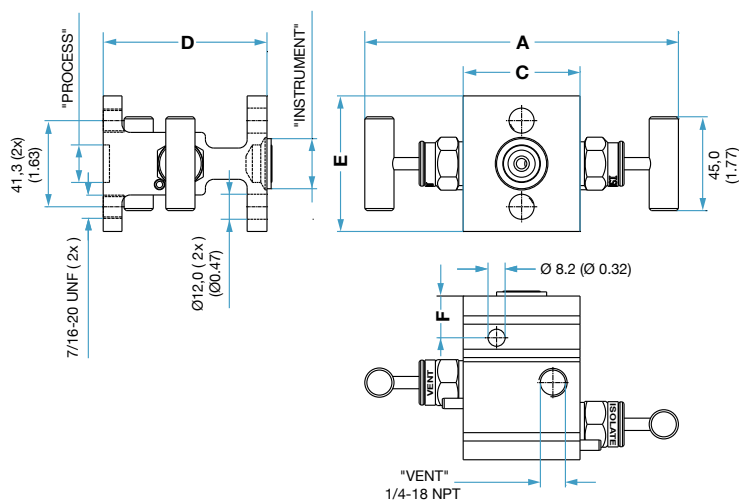
| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |    |    |      |      |     |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|----|----|------|------|-----|------|------|------|------|------|
|                       |                |            |              |                              | A          |      | B  |    | C    |      | D   |      | E    |      | F    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm | in | mm   | in   | mm  | in   | mm   | in   | mm   | in   |
| Direct Mount          | 1/2" FNPT      | *Flange    | 1/4" FNPT    | M-20S-15-8NF-SS-V-T          | 85         | 3.35 | -  | -  | 65.0 | 2.56 | 182 | 7.17 | 32.0 | 1.26 | 5.0  | 0.20 |
|                       | *Flange        | *Flange    | 1/4" FNPT    | M-20H-90-FF-SS-V-T           | 153        | 6.02 | -  | -  | 56.0 | 2.20 | 78  | 3.07 | 65.0 | 2.56 | 20.0 | 0.79 |

\* Flange Standard per IEC 61518-A

### M-20S-15-8NF-SS-V-T



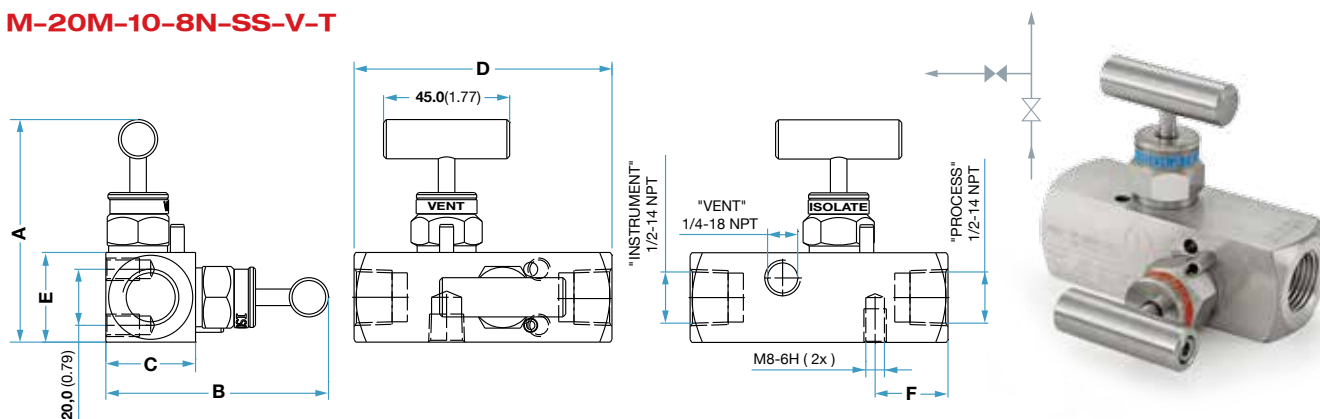
### M-20H-90-FF-SS-V-T



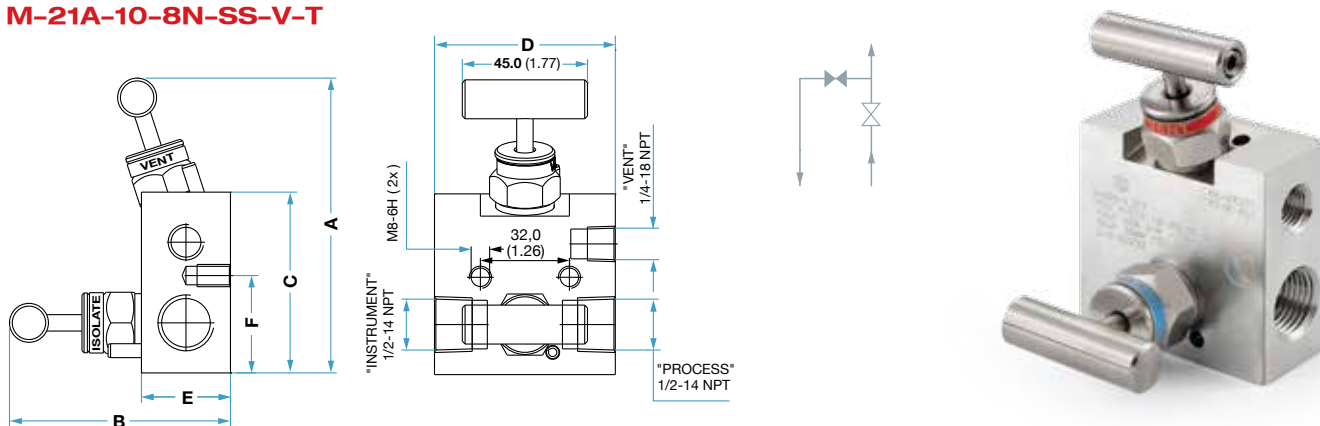
## STANDARD CONFIGURATION DIMENSIONS 2 WAY REMOTE MOUNT

| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |      |      |      |      |      |      |    |      |    |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|------|------|------|------|------|------|----|------|----|------|
|                       |                |            |              |                              | A          |      | B    |      | C    |      | D    |      | E  |      | F  |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm   | in   | mm   | in   | mm   | in   | mm | in   | mm | in   |
| Remote Mount          | 1/2" FNPT      | 1/2" FNPT  | 1/4" FNPT    | M-20M-10-8N-SS-V-T           | 79         | 3.11 | 79.0 | 3.11 | 32.0 | 1.26 | 92.0 | 3.62 | 32 | 1.26 | 26 | 1.02 |
|                       | 1/2" FNPT      | 1/2" FNPT  | 1/4" FNPT    | M-21A-10-8N-SS-V-T           | 107        | 4.21 | 79.4 | 3.13 | 65.0 | 2.56 | 65.0 | 2.56 | 32 | 1.26 | 35 | 1.38 |
|                       | 1/2" FNPT      | 1/2" FNPT  | 1/4" FNPT    | M-21S-10-8N-SS-V-T           | 156        | 6.14 | -    | -    | 65.0 | 2.56 | 59.0 | 2.32 | 32 | 1.26 | 18 | 0.71 |

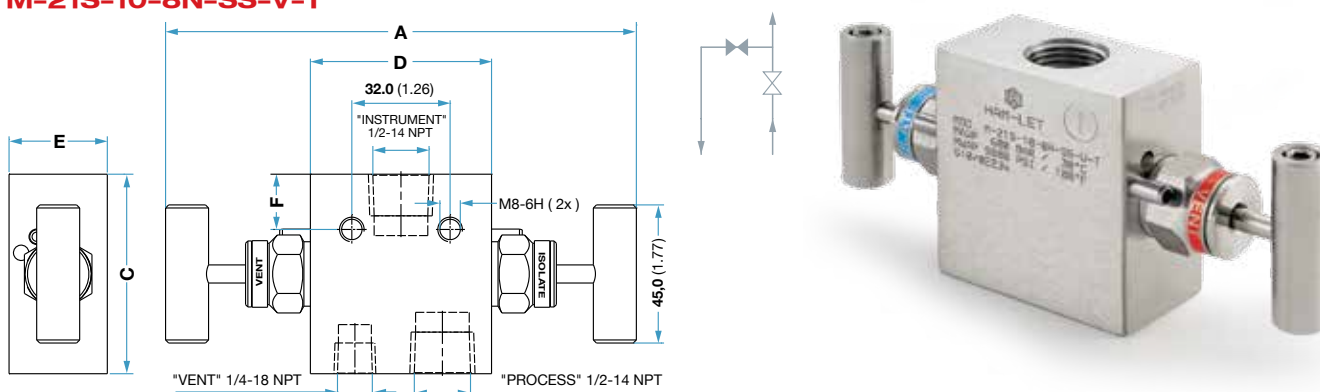
### M-20M-10-8N-SS-V-T



### M-21A-10-8N-SS-V-T



### M-21S-10-8N-SS-V-T



# ORDERING INFORMATION

## 2 WAY MANIFOLDS

| M-2           |                 | 0 M                  |                          | 10                                |                          | 8             |               | N                                  |                   | SS     |                           | T |  | LD |  | OC |  |
|---------------|-----------------|----------------------|--------------------------|-----------------------------------|--------------------------|---------------|---------------|------------------------------------|-------------------|--------|---------------------------|---|--|----|--|----|--|
| Family        |                 | End Connection       |                          | Type End Connection               |                          | Body Material |               | Packing                            |                   | Option |                           |   |  |    |  |    |  |
| M-2           | 2 Way Manifold  | 00                   | Female integral Let-Lok* | FF                                | Flange*                  | SS            | SS 316        | T                                  | PTFE              | OC     | Oxygen Clean              |   |  |    |  |    |  |
| Flow Scheme   | 0M Angle Square | 10                   | Female to Female         | N                                 | NPT                      | M             | Alloy 400     | G                                  | Grafoil®          | HYD    | Hydrostatic pressure test |   |  |    |  |    |  |
|               |                 | 80                   | Male to Male*            | G                                 | BSPP                     | D             | Duplex 1.4462 | V                                  | Fluorocarbon FKM  | K      | 10,000 psi (690 bar)      |   |  |    |  |    |  |
|               |                 | 85                   | Male to Female*          | R                                 | BSPT                     | HC            | Alloy C-276   | EP                                 | EPDM              | V      | Vent port 1/2"            |   |  |    |  |    |  |
|               |                 | 15                   | Female to Flange         | NF                                | NPT to Flange*           | T             | Titanium      | BU                                 | NBR               | B      | Bleed valve               |   |  |    |  |    |  |
|               |                 | 90                   | Flange to Flange         | RF                                | BSPT to Flange*          | SD            | SuperDuplex   | KZ                                 | Perfluorelastomer | P      | Blind plug                |   |  |    |  |    |  |
|               |                 | Size                 |                          | GF                                | BSPP to Flange*          | Handle        |               | * Key should be separately ordered |                   |        |                           |   |  |    |  |    |  |
| 0I            | In-line         | 4                    | 1/4"                     | L                                 | Female integral Let-Lok* |               |               |                                    |                   |        |                           |   |  |    |  |    |  |
| 0H            | H-Type          | 6                    | 3/8"                     | * Flange Standard per IEC 61518-A |                          |               |               |                                    |                   |        |                           |   |  |    |  |    |  |
| 0S            | Straight        | 8                    | 1/2"                     |                                   |                          |               |               |                                    |                   |        |                           |   |  |    |  |    |  |
| 1S            | Straight        | * M-20M & M-20I Only |                          | * Flange Standard per IEC 61518-A |                          | Handle        |               | * Key should be separately ordered |                   |        |                           |   |  |    |  |    |  |
| 1A            | Angle Flat      |                      |                          |                                   |                          |               |               |                                    |                   |        |                           |   |  |    |  |    |  |
| (See table A) |                 |                      |                          |                                   |                          |               |               |                                    |                   |        |                           |   |  |    |  |    |  |

TABLE A: FLOW SCHEMATIC AND VALVE POSITION

| Designator | Flow Schematic | Sketch |
|------------|----------------|--------|
| 0M         |                |        |
| 0I         |                |        |
| 0H         |                |        |
| 0S         |                |        |
| 1S         |                |        |
| 1A         |                |        |

### Warning!

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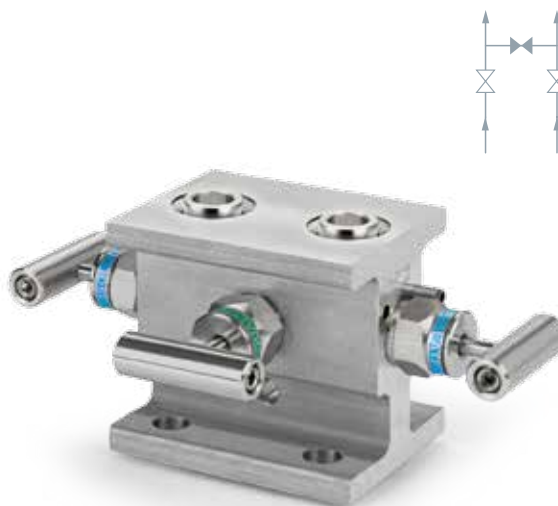
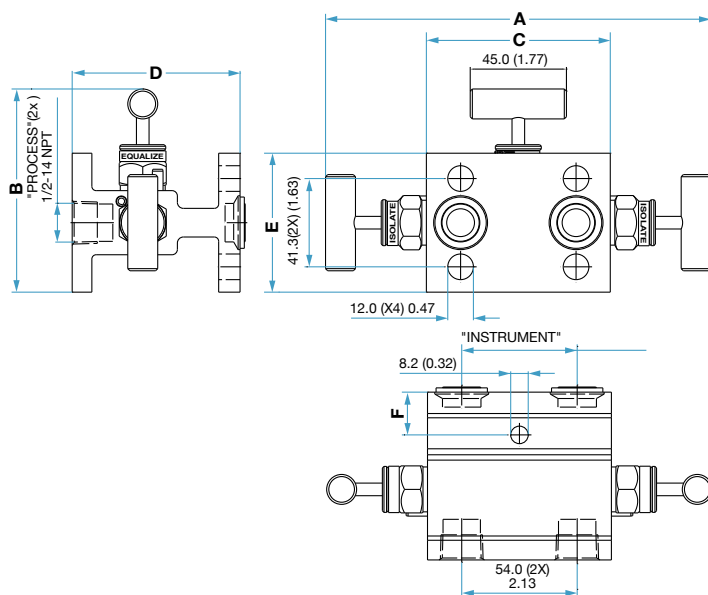
## STANDARD CONFIGURATION DIMENSIONS

### 3 WAY DIRECT MOUNT

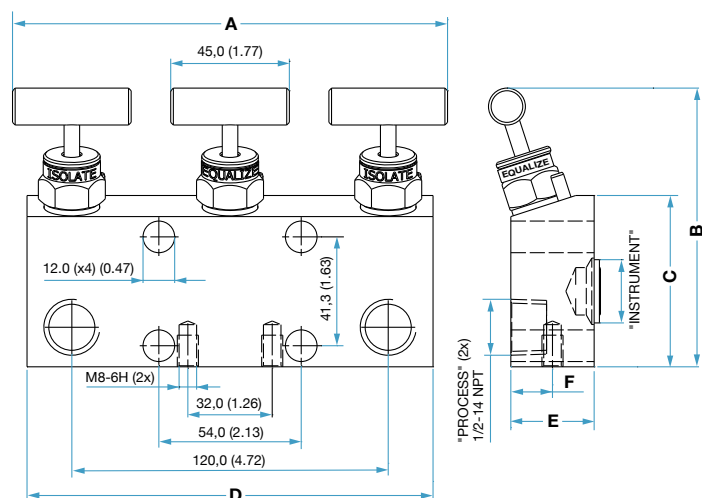
| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |       |      |      |      |       |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|-------|------|------|------|-------|------|------|------|------|------|
|                       |                |            |              |                              | A          |      | B     |      | C    |      | D     |      | E    |      | F    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm    | in   | mm   | in   | mm    | in   | mm   | in   | mm   | in   |
| Direct Mount          | 1/2" FNPT      | *Flange    | -            | M-30H-15-8NF-SS-V-T          | 181.0      | 7.13 | 95.0  | 3.74 | 86.0 | 3.39 | 79.0  | 3.11 | 66.0 | 2.60 | 20.0 | 0.79 |
|                       | 1/2" FNPT      | *Flange    | -            | M-30I-15-8NF-SS-V-T          | 161.0      | 6.34 | 107.0 | 4.21 | 65.0 | 2.56 | 150.0 | 5.91 | 32.0 | 1.26 | 16.0 | 0.63 |

### M-30H-15-8NF-SS-V-T

\* Flange Standard per IEC 61518-A



### M-30I-15-8NF-SS-V-T



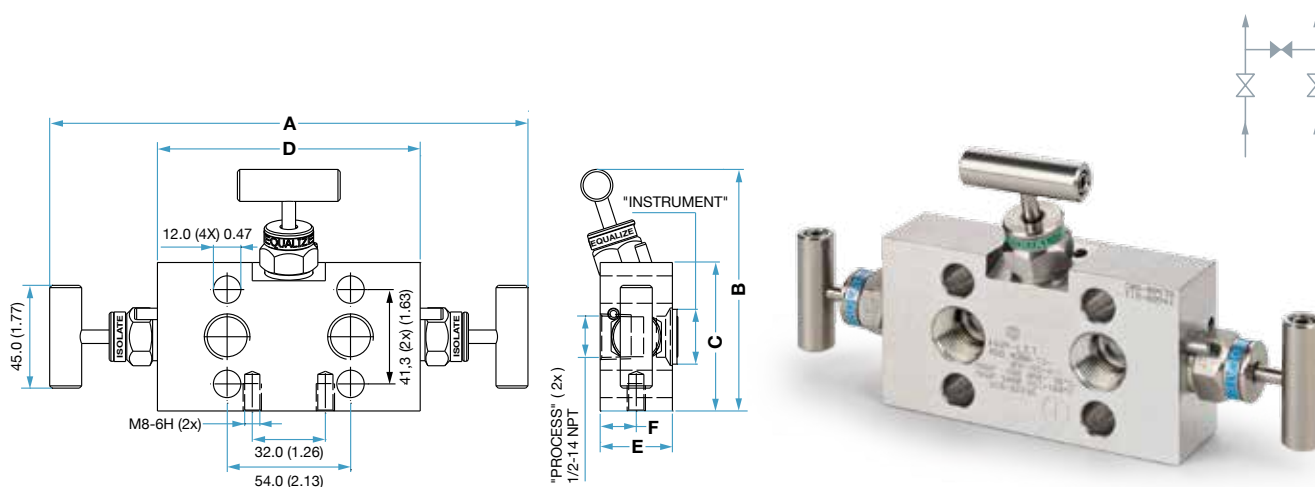
## STANDARD CONFIGURATION DIMENSIONS

### 3 WAY DIRECT MOUNT

| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |       |      |      |      |       |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|-------|------|------|------|-------|------|------|------|------|------|
|                       |                |            |              |                              | A          |      | B     |      | C    |      | D     |      | E    |      | F    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm    | in   | mm   | in   | mm    | in   | mm   | in   | mm   | in   |
| Direct Mount          | 1/2" FNPT      | *Flange    | -            | M-30A-15-8NF-SS-V-T          | 210.0      | 8.27 | 106.0 | 4.17 | 65.0 | 2.56 | 115.0 | 4.53 | 32.0 | 1.26 | 16.0 | 0.63 |
|                       | *Flange        | *Flange    | -            | M-30H-90-FF-SS-V-T           | 181.0      | 7.13 | 95.0  | 3.74 | 86.0 | 3.39 | 79.0  | 3.11 | 66.0 | 2.60 | -    | -    |

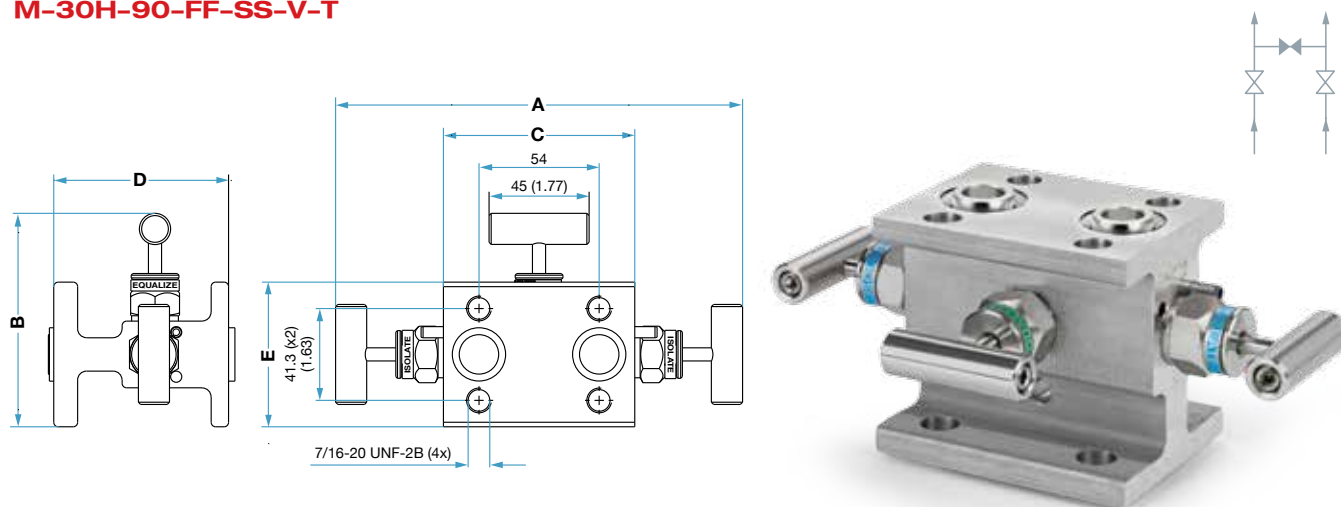
\* Flange Standard per IEC 61518-A

### M-30A-15-8NF-SS-V-T



\* Optimal vent / test ports

### M-30H-90-FF-SS-V-T

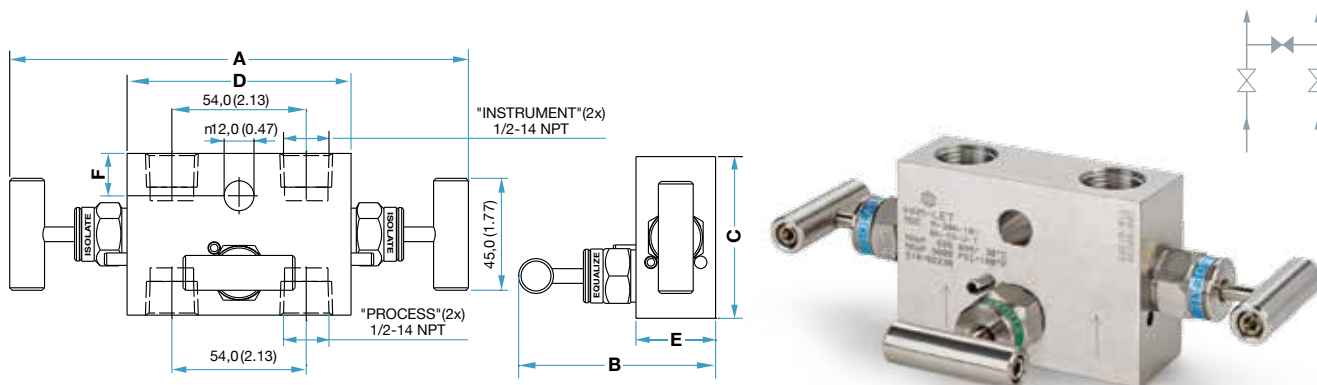


## STANDARD CONFIGURATION DIMENSIONS

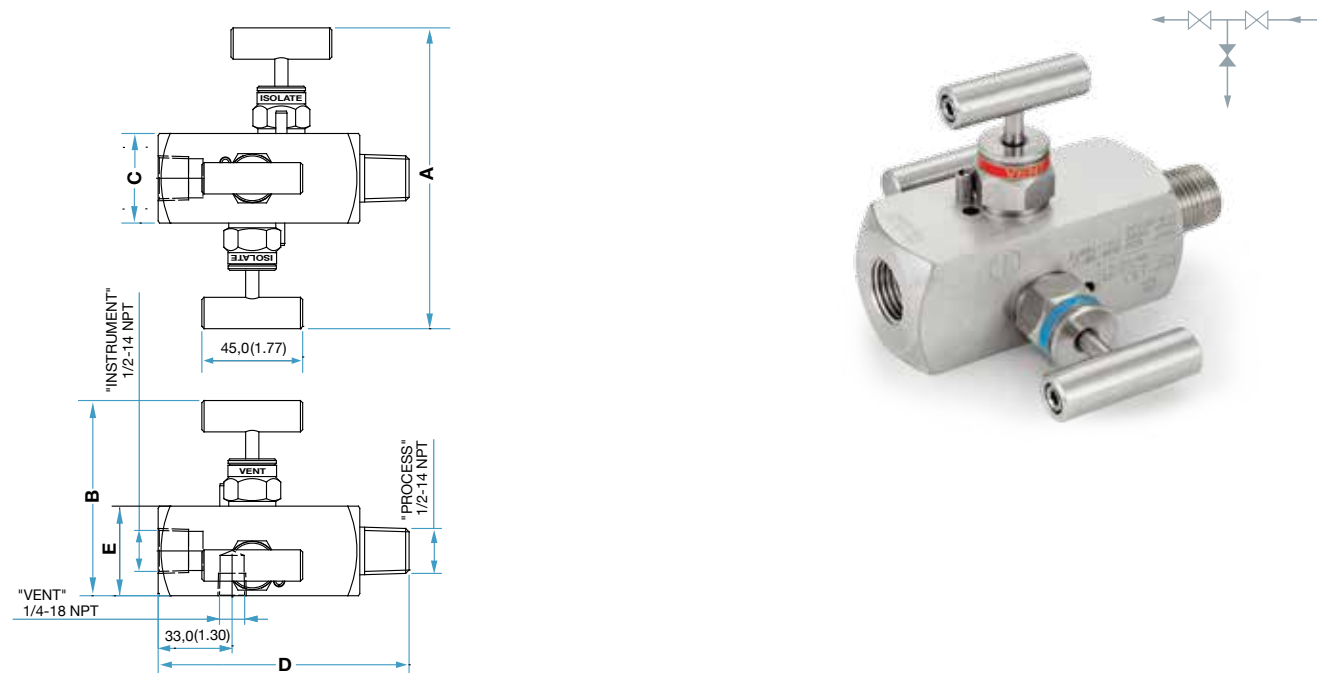
### 3 WAY REMOTE MOUNT

| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |      |      |      |      |       |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|------|------|------|------|-------|------|------|------|------|------|
|                       |                |            |              |                              | A          |      | B    |      | C    |      | D     |      | E    |      | F    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm   | in   | mm   | in   | mm    | in   | mm   | in   | mm   | in   |
| Remote Mount          | 1/2" FNPT      | 1/2" FNPT  | -            | M30S-10-8N-SS-V-T            | 185.0      | 7.28 | 79.0 | 3.11 | 65.0 | 2.56 | 90.0  | 3.54 | 32.0 | 1.26 | 17.0 | 0.67 |
|                       | 1/2" MNPT      | 1/2" FNPT  | 1/4" FNPT    | M32M-85-8N-SS-V-T            | 135.0      | 5.31 | 87.0 | 3.43 | 40.0 | 1.57 | 112.0 | 4.41 | 40.0 | 1.57 | -    | -    |

### M-30S-10-8N-SS-V-T



### M-32M-85-8N-SS-V-T-K



# ORDERING INFORMATION

## 3 WAY MANIFOLDS

| M-3          |                | 0S               |                | -                        |                 | 10                  |         | -             |               | 8      |                   | N       |                 | -                         |        | SS           |  | - |  | T |  | - |  | LD |  | - |  | OC |  |
|--------------|----------------|------------------|----------------|--------------------------|-----------------|---------------------|---------|---------------|---------------|--------|-------------------|---------|-----------------|---------------------------|--------|--------------|--|---|--|---|--|---|--|----|--|---|--|----|--|
| Family       |                |                  | End Connection |                          |                 | Type End Connection |         |               | Body Material |        |                   | Packing |                 |                           | Option |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
| M-3          | 3 Way Manifold |                  | 00             | Female integral Let-Lok® |                 | FF                  | Flange* |               | SS            | SS 316 |                   | T       | PTFE            |                           | OC     | Oxygen Clean |  |   |  |   |  |   |  |    |  |   |  |    |  |
| Flow Scheme  | 10             | Female to Female |                | N                        | NPT             |                     | M       | Alloy 400     |               | G      | Grafoil®          |         | HYD             | Hydrostatic pressure test |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              | 80             | Male to Male*    |                | G                        | BSPP            |                     | D       | Duplex 1.4462 |               | V      | Fluorocarbon FKM  |         | K               | 10,000 psi (690 bar)      |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              | 85             | Male to Female*  |                | R                        | BSPT            |                     | HC      | Alloy C-276   |               | EP     | EPDM              |         | V               | Vent port 1/2"            |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              | 15             | Female to Flange |                | NF                       | NPT to Flange*  |                     | T       | Titanium      |               | BU     | NBR               |         | P               | Blind plug                |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              | 90             | Flange to Flange |                | RF                       | BSPT to Flange* |                     | SD      | SuperDuplex   |               | KZ     | Perfluorelastomer |         | Handle          |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
| * M-32M Only |                | GF               |                | BSPP to Flange*          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                | L                |                | Female integral Let-Lok® |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                | 4                |                | 1/4"                     |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                | 6                |                | 3/8"                     |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                | 8                |                | 1/2"                     |                 |                     |         |               |               |        |                   | T       | T bar           |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   | AT      | Anti Tamper*    |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   | LD      | Locking device* |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |
|              |                |                  |                |                          |                 |                     |         |               |               |        |                   |         |                 |                           |        |              |  |   |  |   |  |   |  |    |  |   |  |    |  |

\* M-32M Only

\* Flange Standard per IEC 61518-A

\* Key should be separately ordered

TABLE A: FLOW SCHEMATIC AND VALVE POSITION

| Designator | Flow Schematic | Valves Position | Sketch |
|------------|----------------|-----------------|--------|
| 0S         |                | S               |        |
| 0H         |                | H               |        |
| 0I         |                | I               |        |
| 0A         |                | A               |        |
| 1I         |                | I               |        |
| 2M         |                | M               |        |

### Warning!

The system designer and user have the sole responsibility for selecting products suitable for their special application requirements, ensuring their safe and trouble-free installation, operation, and maintenance. Application details, material compatibility and product ratings should all be considered for each selected product. Improper selection, installation or use of products can cause property damage or personal injury.

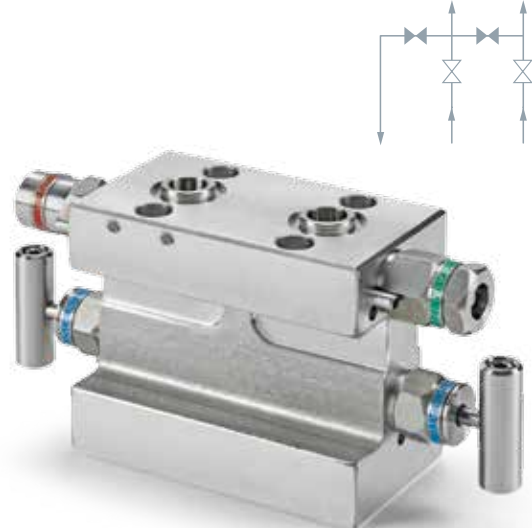
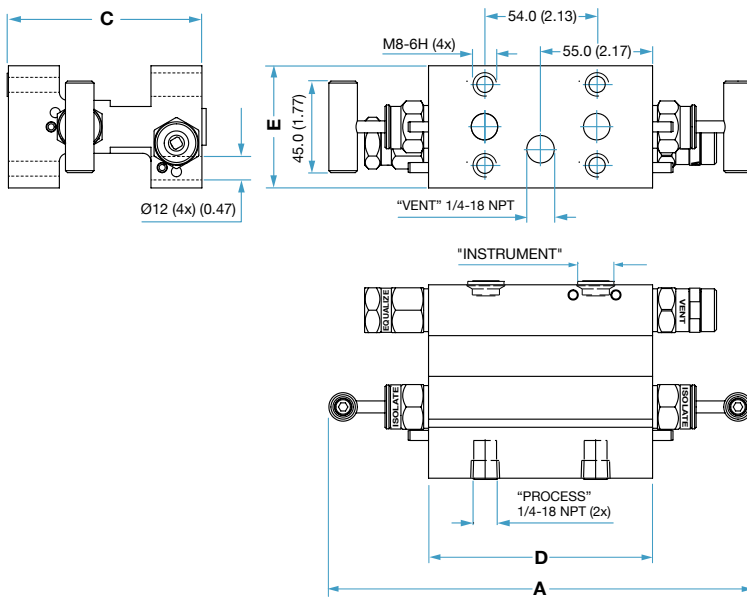
## STANDARD CONFIGURATION DIMENSIONS 4 WAY REMOTE MOUNT

4  
WAY MANIFOLDS

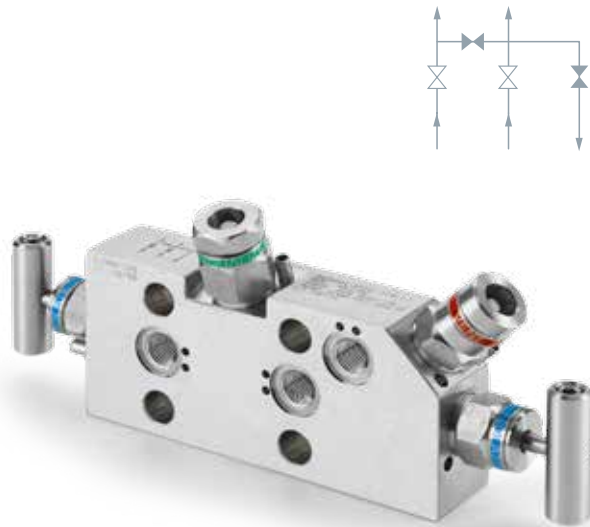
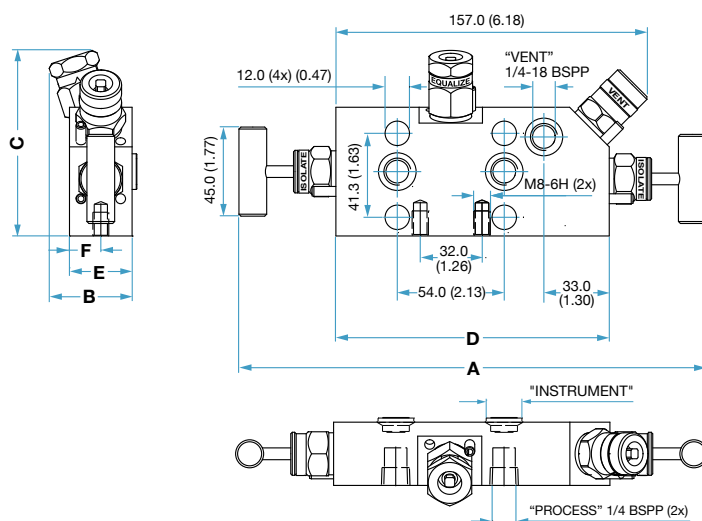
| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |      |      |      |      |       |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|------|------|------|------|-------|------|------|------|------|------|
|                       |                |            |              |                              | A          |      | B    |      | C    |      | D     |      | E    |      | F    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm   | in   | mm   | in   | mm    | in   | mm   | in   | mm   | in   |
| Direct Mount          | 1/4" FNPT      | *Flange    | 1/4" FNPT    | M-40H-15-4NF-SS-V-AT         | 208.0      | 8.18 | -    | -    | 95.0 | 3.74 | 110.0 | 4.33 | 60.0 | 2.36 | -    | -    |
|                       | 1/4" BSPP      | *Flange    | 1/4" BSPP    | M-40T-15-4GF-SS-V-AT         | 236.0      | 6.29 | 42.0 | 1.65 | 94.0 | 3.69 | 138.0 | 5.43 | 32.0 | 1.24 | 16.0 | 0.63 |

\* Flange Standard per IEC 61518-A

### M-40H-15-4NF-SS-V-AT



### M-40T-15-4GF-SS-V-AT



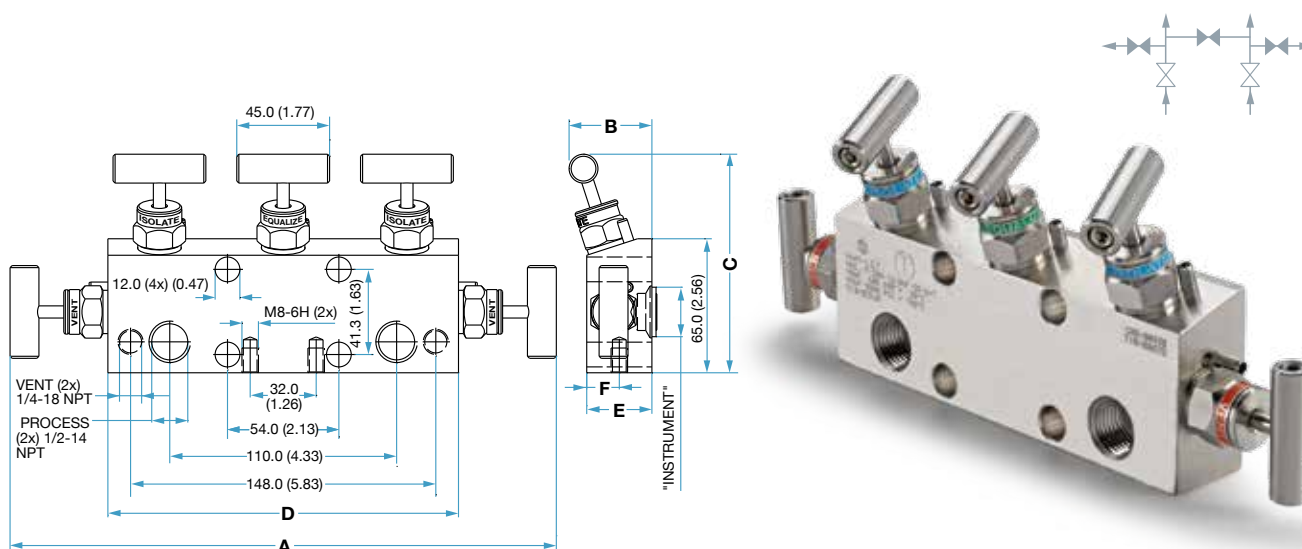
# STANDARD CONFIGURATION DIMENSIONS

## 5 WAY DIRECT MOUNT

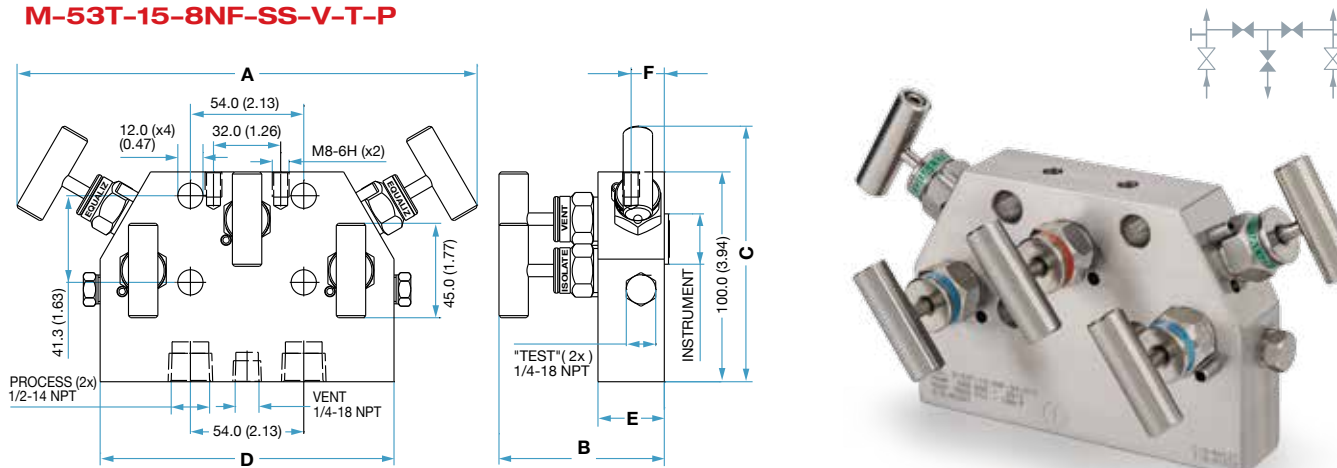
| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |       |      |      |       |      |       |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|-------|------|------|-------|------|-------|------|------|------|------|------|
|                       |                |            |              |                              | A          |       | B    |      | C     |      | D     |      | E    |      | F    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in    | mm   | in   | mm    | in   | mm    | in   | mm   | in   | mm   | in   |
| Direct Mount          | 1/2" FNPT      | *Flange    | 1/4" FNPT    | M-50A-15-8NF-SS-V-T          | 265.0      | 10.43 | 41.0 | 1.61 | 106.0 | 4.17 | 170.0 | 6.69 | 32.0 | 1.26 | 16.0 | 0.63 |
|                       | 1/2" FNPT      | *Flange    | 1/4" FNPT    | M-53T-15-8NF-SS-V-T          | 220.0      | 8.66  | 79.0 | 3.11 | 122.0 | 4.80 | 140.0 | 5.51 | 32.0 | 1.26 | 16.0 | 0.63 |

\* Flange Standard per IEC 61518-A

### M-50A-15-8NF-SS-V-T



### M-53T-15-8NF-SS-V-T-P

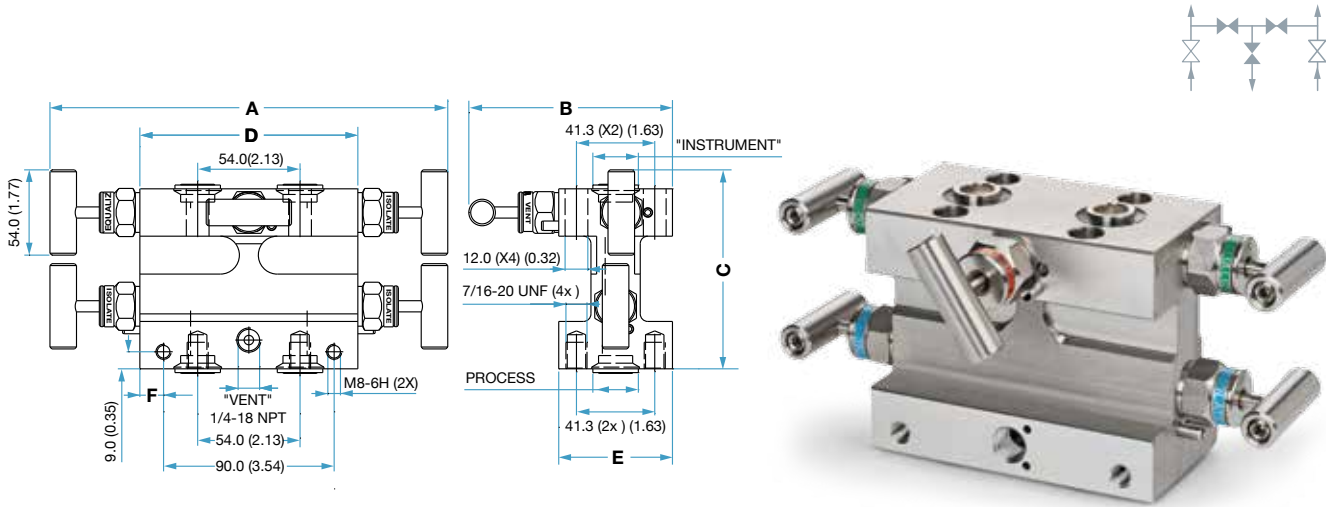


STANDARD CONFIGURATION DIMENSIONS  
5 WAY DIRECT MOUNT

| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |      |       |      |       |      |       |      |      |      |      |     |
|-----------------------|----------------|------------|--------------|------------------------------|------------|------|-------|------|-------|------|-------|------|------|------|------|-----|
|                       |                |            |              |                              | A          |      | B     |      | C     |      | D     |      | E    |      | F    |     |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in   | mm    | in   | mm    | in   | mm    | in   | mm   | in   | mm   | in  |
| Direct Mount          | *Flange        | *Flange    | 1/4" FNPT    | M-54H-90-FF-SS-V-T           | 210.0      | 8.27 | 108.0 | 4.25 | 105.0 | 4.13 | 115.0 | 4.53 | 60.0 | 2.36 | 12.5 | 049 |

M-54H-90-FF-SS-V-T

\* Flange Standard per IEC 61518-A

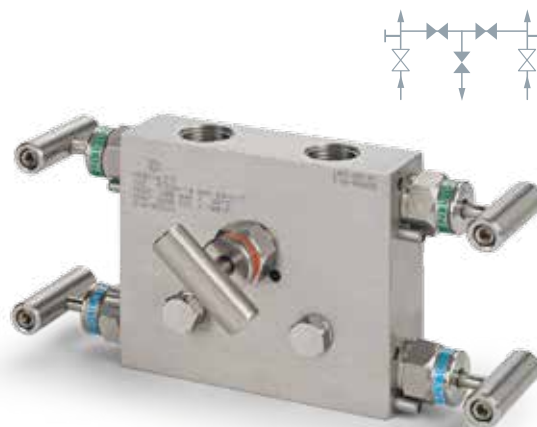
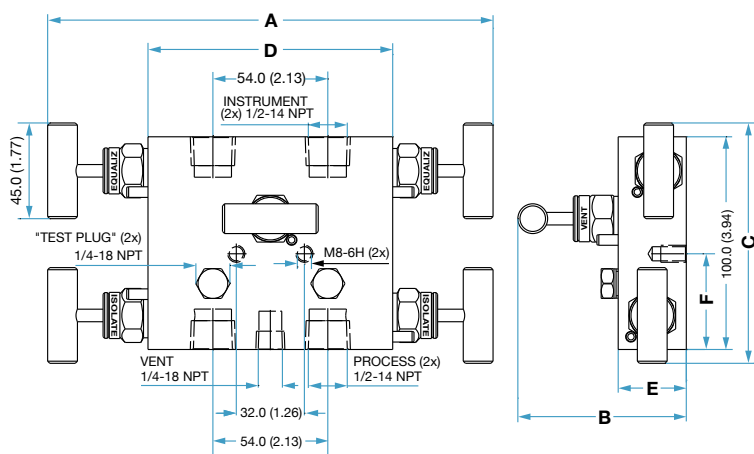


## STANDARD CONFIGURATION DIMENSIONS

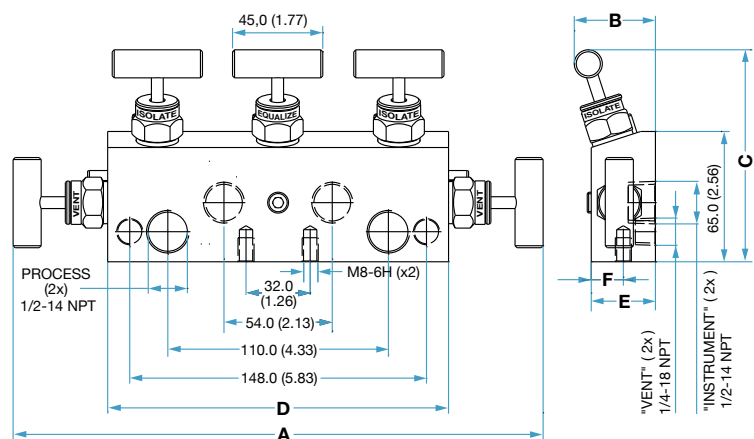
### 5 WAY REMOTE MOUNT

| Instrument Mount Type | End Connection |            |              | HAM-LET Ordering Description | Dimensions |       |      |      |       |      |       |      |      |      |      |      |
|-----------------------|----------------|------------|--------------|------------------------------|------------|-------|------|------|-------|------|-------|------|------|------|------|------|
|                       |                |            |              |                              | A          |       | B    |      | C     |      | D     |      | E    |      | F    |      |
|                       | Process        | Instrument | Vent / Bleed |                              | mm         | in    | mm   | in   | mm    | in   | mm    | in   | mm   | in   | mm   | in   |
| Remote Mount          | 1/2" FNPT      | 1/2" FNPT  | 1/4" FNPT    | M-53S-10-8N-SS-V-T           | 210.0      | 8.27  | 80.0 | 3.15 | 113.0 | 4.45 | 115.0 | 4.53 | 32.0 | 1.26 | 45.0 | 1.77 |
|                       | 1/2" FNPT      | 1/2" FNPT  | 1/4" FNPT    | M-50A-10-8N-SS-V-T           | 265.0      | 10.43 | 41.0 | 1.61 | 106.0 | 4.17 | 170.0 | 6.69 | 32.0 | 1.26 | 16.0 | 0.63 |

### M-53S-10-8N-SS-V-T-P



### M-50A-10-8N-SS-V-T



**ORDERING INFORMATION**  
**5 WAY MANIFOLDS**

| M-5         |                | 0 A            |                  | 10                  |                          | 8             |               | N       |                   | SS     |                           | T |  | LD |  | OC |  |
|-------------|----------------|----------------|------------------|---------------------|--------------------------|---------------|---------------|---------|-------------------|--------|---------------------------|---|--|----|--|----|--|
| Family      |                | End Connection |                  | Type End Connection |                          | Body Material |               | Packing |                   | Option |                           |   |  |    |  |    |  |
| M-5         | 5 Way Manifold | 10             | Female to Female | FF                  | Flange*                  | SS            | SS 316        | T       | PTFE              | OC     | Oxygen Clean              |   |  |    |  |    |  |
|             |                | 15             | Female to Flange | N                   | NPT                      | M             | Alloy 400     | G       | Grafoil®          | HYD    | Hydrostatic pressure test |   |  |    |  |    |  |
|             |                | 90             | Flange to Flange | G                   | BSPP                     | D             | Duplex 1.4462 | V       | Fluorocarbon FKM  | K      | 10,000 psi (690 bar)      |   |  |    |  |    |  |
| Flow Scheme |                | Size           |                  | R                   | BSPT                     | HC            | Alloy C-276   | EP      | EPDM              | V      | Vent port 1/2"            |   |  |    |  |    |  |
| 0A          | Angle Flat     | 4              | 1/4"             | NF                  | NPT to Flange*           | T             | Titanium      | BU      | NBR               | P      | Blind plug                |   |  |    |  |    |  |
| 1A          | Angle Flat     | 6              | 3/8"             | RF                  | BSPT to Flange*          | SD            | SuperDuplex   | KZ      | Perfluorelastomer |        |                           |   |  |    |  |    |  |
| 2T          | Taper          | 8              | 1/2"             | GF                  | BSPP to Flange*          |               |               |         |                   |        |                           |   |  |    |  |    |  |
| 3T          | Taper          |                |                  | L                   | Female integral Let-Lok* |               |               |         |                   |        |                           |   |  |    |  |    |  |
| 3S          | Straight       |                |                  |                     |                          |               |               |         |                   |        |                           |   |  |    |  |    |  |
| 4H          | H- Type        |                |                  |                     |                          |               |               |         |                   |        |                           |   |  |    |  |    |  |
| 4A          | Angle Flat     |                |                  |                     |                          |               |               |         |                   |        |                           |   |  |    |  |    |  |

\* Flange Standard per IEC 61518-A

**TABLE A: FLOW SCHEMATIC AND VALVE POSITION**

\* Flange Standard per IEC 61518-A

**TABLE A: FLOW SCHEMATIC AND VALVE POSITION**

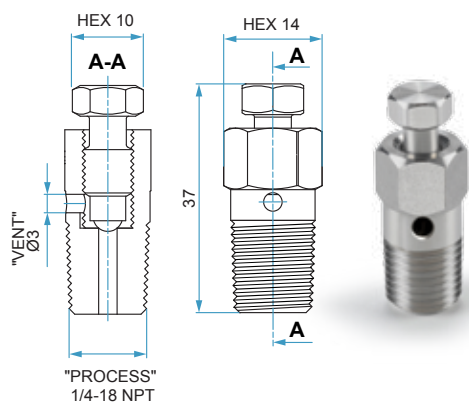
| Designator | Flow Schematic | Sketch |
|------------|----------------|--------|
| 0A         |                |        |
| 1A         |                |        |
| 2T         |                |        |
| 3T         |                |        |
| 3S         |                |        |
| 4H         |                |        |
| 4A         |                |        |
| 4I         |                |        |

\* Key should be separately ordered

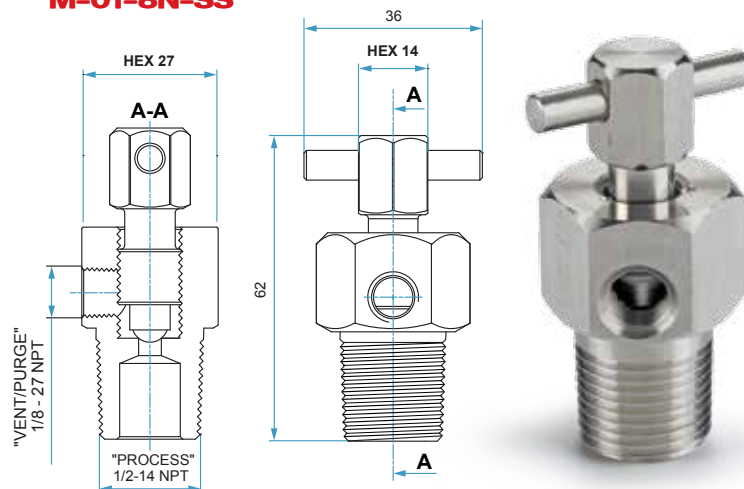
**Warning!**  
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## BLEED VALVE

### 1/4" MNPT M-01-4N-SS

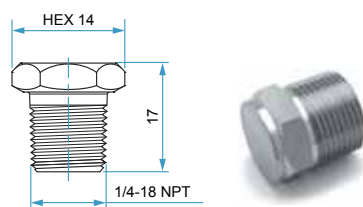


### 1/2" MNPT M-01-8N-SS

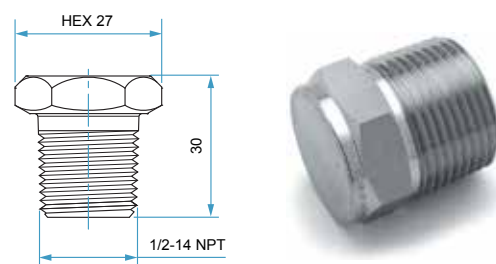


## BLIND PLUG

### 1/4" MNPT M-02-4N-SS

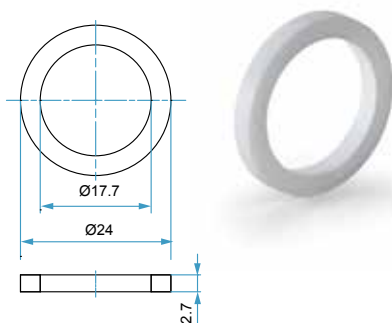


### 1/2" MNPT M-02-8N-SS



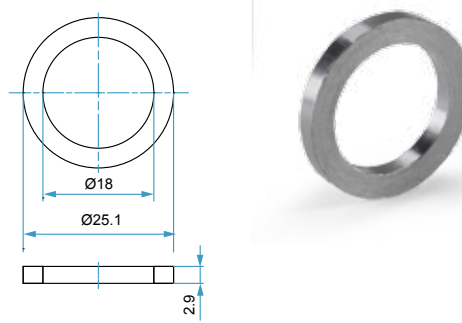
## MOUNTING GASKET IEC 61518-A

### PTFE M-03-GK-IECA-T



Kit contains: 2 Gaskets

### GRAFOIL® M-03-GK-IECA-G

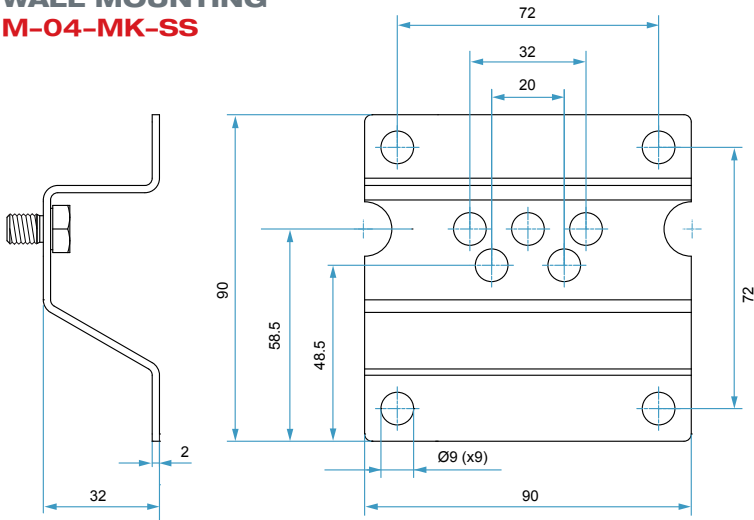


Kit contains: 2 Gaskets

# MOUNTING BRACKET - AISI 316



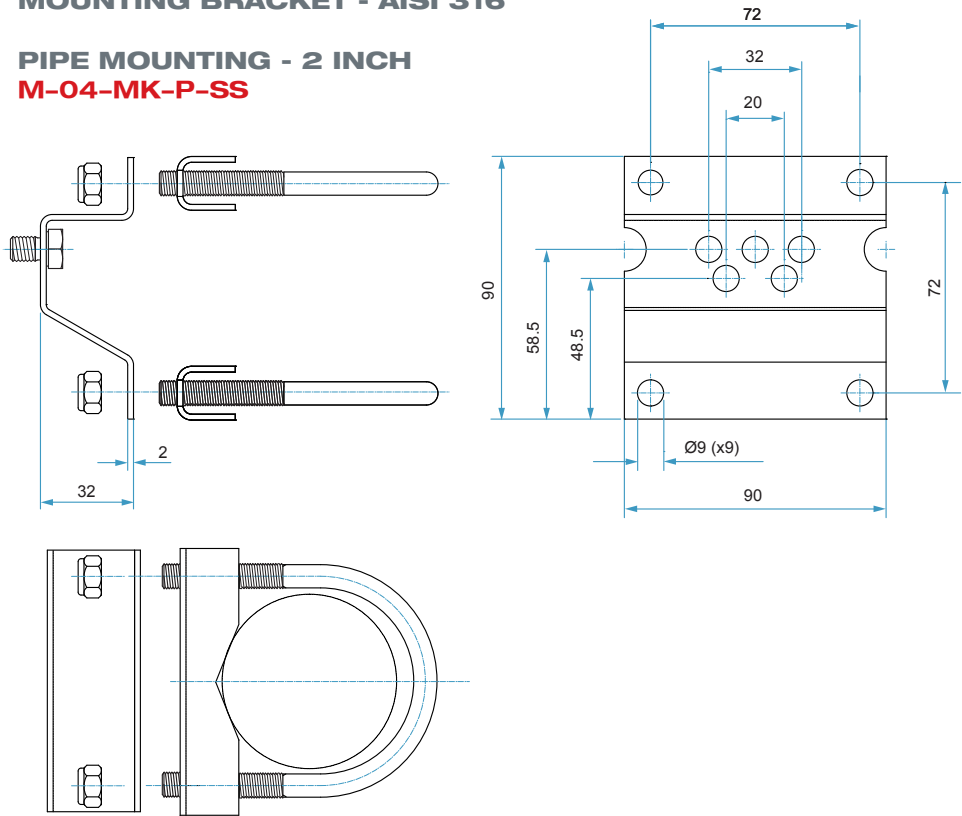
## WALL MOUNTING M-04-MK-SS



**Kit contains:** Bracket, 2x Bolts M8X12.  
Upon order, please make sure that the Manifold is suitable for bracket mounting.

# MOUNTING BRACKET - AISI 316

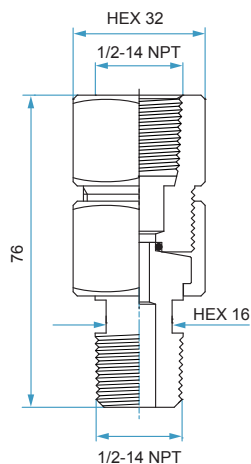
## PIPE MOUNTING - 2 INCH M-04-MK-P-SS



**Kit contains:** Bracket, 2x Bolts M8X12, 2x Tie rod, 2x Tie rod brackets, 4x Snapnut M8.  
Upon order, please make sure that the Manifold is suitable for bracket mounting.

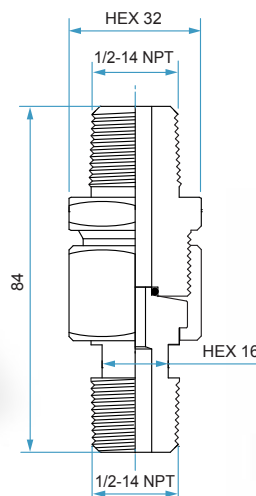
## GAUGE CONNECTOR

### 360° POSITIONING MALE TO FEMALE M-05-85-8N-SS-V



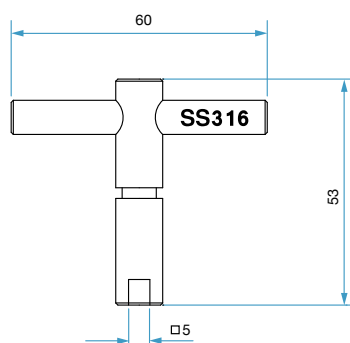
(Fluorocarbon FKM O-ring)

### 360° POSITIONING MALE TO MALE M-05-80-8N-SS-V



## ANTI TAMPER KEY

### 5 MM M-06-KEY-5MM-SS



Not included in order of Anti-Tampered bonnet manifold.  
This key should be separately ordered.

© Grafoil – TM UCAR Carbon Company Inc.

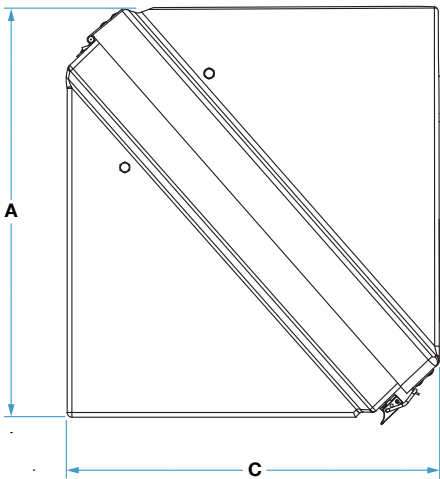
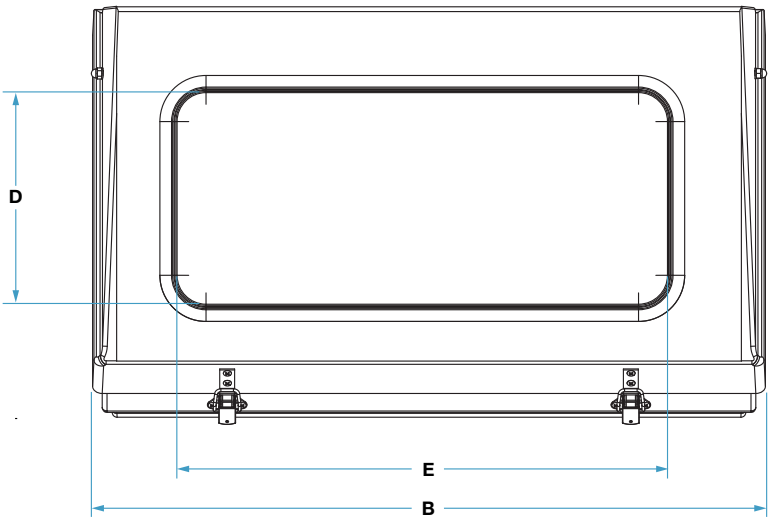
**STANDARD CONFIGURATION DIMENSIONS**  
**INSTRUMENT ENCLOSURES**

**Technical Specification:**

- Body material: Glass Reinforced Polyester (GRP)
- Toggle clamps, hinges material: Stainless Steel 316
- Sealing: Polychloroprene (CR) closed cell sealing
- Surface resistance: Anti static, EN 50014 compliance (<1.10 9 Ohm)
- Flame retardant: DIN 4102 Class B2
- Ingress protection: IP 65

| Type | Material / Color | Weight (Kg) | Enclosure Dimensions (mm) |     |     | Safety Glass Window Dimensions (mm) |     |     |
|------|------------------|-------------|---------------------------|-----|-----|-------------------------------------|-----|-----|
|      |                  |             | A                         | B   | C   | Type                                | D   | E   |
| 4    | GRP Black        | 19          | 500                       | 500 | 650 | R                                   | 290 | 290 |
| 5    | GRP Black        | 14          | 550                       | 500 | 500 | R                                   | 290 | 290 |
| 6    | GRP Black        | 14          | 430                       | 700 | 390 | L                                   | 210 | 500 |
| 7    | GRP Black        | 9           | 430                       | 430 | 390 | S                                   | 210 | 210 |
| 8    | GRP Blue         | 8           | 400                       | 375 | 400 | S                                   | 210 | 210 |
| 9    | GRP Black        | 20          | 530                       | 700 | 390 | L                                   | 210 | 500 |
| 10   | GRP Black        | 19          | 530                       | 430 | 390 | S                                   | 210 | 210 |

For other colors, please contact your local HAM-LET representative.



## EQUIPPED INSTRUMENT ENCLOSURES

### 1 Body options:

- Full body GRP enclosures
- Half body GRP enclosures
- Full body AISI 316 enclosures

### 2 Heating options

- Steam heater
- Electrical space heater (Black anodized aluminum, AISI 316)
- Electrical block heater (Black anodized aluminum, AISI 316)
- Thermostat (Black anodized aluminum)

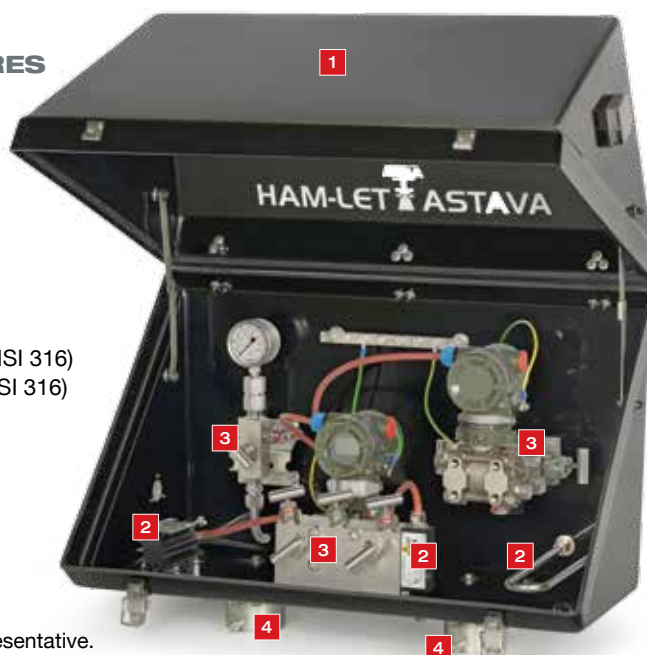
### 3 Manifolds:

- According to customer application

### 4 Mounting accessories:

- According to ordering information

For mounting accessories, heating options, junction boxes and accessories, please contact your local HAM-LET representative.



## OPTIONAL

## ORDERING INFORMATION INSTRUMENT ENCLOSURES

| Family       |             | WINDOW (HxW) |                               | INSULATION |                               | SPECIAL LAY OUT |                                                | MOUNTING ACCESSORIES |                                                                             |
|--------------|-------------|--------------|-------------------------------|------------|-------------------------------|-----------------|------------------------------------------------|----------------------|-----------------------------------------------------------------------------|
| HA           | Enclosure   | N            | Blind enclosure               | N          | No Insulation                 | Blank           | No option                                      | 00                   | no options                                                                  |
| SIZE (HxWxD) |             | S            | Safety glass window (210x210) | I          | Insulation 20 mm polyurethane | C               | 4x Clasps stainless steel for removable toplid | 01                   | 2" mounting bracket outside in galv. carbon steel (HA7,8,10)                |
| 4            | 500x500x650 | L            | Safety glass window (210x500) |            |                               |                 |                                                | 02                   | 2" mounting bracket outside in AISI 316 (HA7,8,10)                          |
| 5            | 550x500x500 | R            | Safety glass window (290x290) |            |                               |                 |                                                | 04                   | 2" mounting brackets on backside of cabinet in AISI 316                     |
| 6            | 430x700x390 | T            | Safety glass window (310x540) |            |                               |                 |                                                | 05                   | 2" mounting bracket outside in AISI 316 large support plate (HA4, HA5)      |
| 7            | 430x430x390 |              |                               |            |                               |                 |                                                | 21                   | 2x 2" mounting bracket outside in galv. carbon steel (C-C can be specified) |
| 8            | 400x375x400 |              |                               |            |                               |                 |                                                | 22                   | 2x 2" mounting bracket outside in AISI 316 (C-C can be specified)           |
| 9            | 530x700x390 |              |                               |            |                               |                 |                                                | A                    | 2" pipe 300mm with two pairs of rails inside carbon steel                   |
| 10           | 530x430x390 |              |                               |            |                               |                 |                                                | B                    | 2x 2" Pipe 300mm with two pairs of rails inside carbon steel                |
|              |             |              |                               |            |                               |                 |                                                | D                    | 2" pipe AISI 316 inside cabinet 300 mm                                      |
|              |             |              |                               |            |                               |                 |                                                | E                    | 2" pipe Galv. Carbon steel inside cabinet 300 mm                            |
|              |             |              |                               |            |                               |                 |                                                | F                    | 2x 2" pipe AISI 316 inside cabinet 300 mm                                   |

### Warning!

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HAM-LET ASTAVA Manifolds, Rev.04, January 2014

