

# HAM-LET HIGH PRESSURE

UP TO 60,000 PSI





# HAM-LET HIGH PRESSURE

Ham-Let Group, a worldwide company, has produced high quality fittings, valves, and instrumentation solutions since its establishment in 1950.

Our company standard of research and development, paired with our topnotch engineers has put us at the forefront of development.

We have developed (HHP) line in order to fulfill the rapidly increasing demand for high pressure valves, fittings, tubes and accessories.

The HHP products support the industry standard elevated pressures gas and liquid systems with working pressures of 10,000psi up to 150,000 psi, with tube sizes of 1/16" to 1-1/2" in various industries like Oil & Gas, chemical and petrochemical, laboratories and research, water-jet cleaning and water-jet cutting.

HHP line can be provided in high tensile strength stainless steel and we consistently develop a variety of exotic materials and for sour gas applications.

As with all Ham-Let products, the HHP line is backed by Ham-Let's commitment to the highest quality-control standards and skilled craftsmanship.

HHP offering of a complete range of high quality High-Pressure components:

- High Pressure Valves
- High Pressure Fittings
- High Pressure Tubes
- Tooling and Accessories for high pressure gas and fluid system assembling.

Our HHP products are based on ASME B31.1 and B31.3 formal design

# HIGH PRESSURE UP TO 60,000 PSI SERVICE

## Fitting and tubing with cone-and-thread connection up to 60,000 PSI

- HHP high pressure line provide wide range of fittings including coupling, elbow, tee and cross with cone and thread connection to pressure rating up to 60,000 PSI and for 1/4", 3/8", 9/16" O.D sizes.
- All fittings body material is from high tensile 316 stainless steel.
- All fittings supplied with glands and sleeves.

High-pressure connections having an elastic metal-to-metal sealing. A complete connection consists of four parts: a high-pressure tube, a collar, a gland and a female part (fitting, valve or adapter). The tube has a cone point of 58° which is pressed in the 60° cone of the counterpart.

For pressure higher than 7000 bar (100,000 psi) a flat cone sealing is used.

The high-pressure tube with a male cone of 170° fits a 180° flat. The gland and the collar are identical to the 58°/60° connection. A bleed hole prevents pressure build-up behind the gland in case of a leak.

Ham-Let offers a complete range of fittings and adapters for high pressure applications, specially designed to match the performance of our valves and tubing.

We can supply fittings and adapters for virtually any configuration of systems designed for handling fluids and gases at extreme pressures and temperatures.

All fittings and adapters are marked with Ham-Let logo, ordering code, material specification, pressure rating for which they can be used and material batch number (refers to DIN 3.1.B material certificate).

On request most fittings and adapters are available to NACE MR0175 / ISO 15156 for sour gas service.

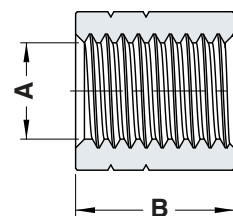
For pressures up to 7000 bar (100,000 psi) fitting and adapter bodies are made of cold drawn stainless steel, type DIN 1.4404 (AISI 316L); for higher pressures bodies are made of specially treated stainless steel 17-4 PH.

The glands are made of stainless steel, type DIN 1.4305 (AISI 303F) and the collars are made of DIN 1.4122.



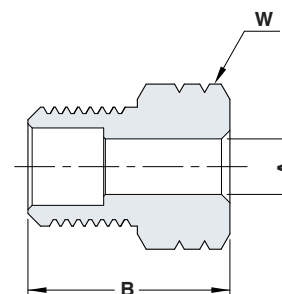
## HIGH PRESSURE FITTINGS AND COMPONENTS

### Collar



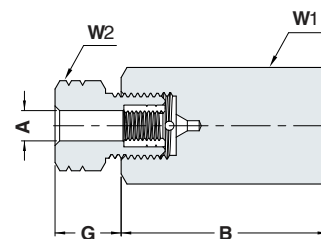
| Ordering Information                         | A<br>TUBE O.D. |       | B    |       |
|----------------------------------------------|----------------|-------|------|-------|
|                                              | inch           | mm    | inch | mm    |
| <b>High pressure: 60,000 psi (4,200 bar)</b> |                |       |      |       |
| HHPFS60-S-HF4                                | 1/4            | 6.35  | 0.35 | 9.00  |
| HHPFS60-S-HF6                                | 3/8            | 9.53  | 0.49 | 12.50 |
| HHPFS60-S-HF9                                | 9/16           | 14.29 | 0.87 | 22.00 |

### Gland



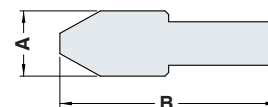
| Ordering Information                         | A<br>TUBE O.D. |       | B    |       | W<br>Hex Flat |
|----------------------------------------------|----------------|-------|------|-------|---------------|
|                                              | inch           | mm    | inch | mm    | inch          |
| <b>High pressure: 60,000 psi (4,200 bar)</b> |                |       |      |       |               |
| HHPFS60-G-HF4                                | 1/4            | 6.35  | 0.94 | 24.00 | 11/16         |
| HHPFS60-G-HF6                                | 3/8            | 9.53  | 1.06 | 27.00 | 7/8           |
| HHPFS60-G-HF9                                | 9/16           | 14.29 | 1.26 | 32.00 | 1-5/16        |

## HIGH PRESSURE FITTINGS AND COMPONENTS



### Cap

| Ordering Information                         | A<br>TUBE O.D. |       | B    |       | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|----------------------------------------------|----------------|-------|------|-------|------|-------|----------------|----------------|
|                                              | inch           | mm    | inch | mm    | inch | mm    | inch           | inch           |
| <b>High pressure: 60,000 psi (4,200 bar)</b> |                |       |      |       |      |       |                |                |
| HHPFS60-C-HF4                                | 1/4            | 6.35  | 1.77 | 45.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS60-C-HF6                                | 3/8            | 9.53  | 1.97 | 50.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS60-C-HF9                                | 9/16           | 14.29 | 2.20 | 56.00 | 0.82 | 20.92 | 1-1/2          | 1-5/16         |

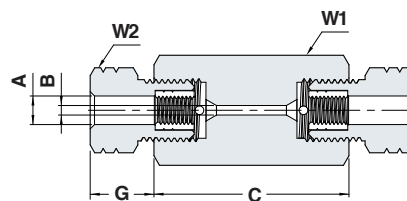


### Plug

| Ordering Information                          | A<br>TUBE O.D. |       | B    |       |
|-----------------------------------------------|----------------|-------|------|-------|
|                                               | inch           | mm    | inch | mm    |
| <b>High pressure: 100,000 psi (6,800 bar)</b> |                |       |      |       |
| HHPFS60-P-HM4                                 | 1/4            | 6.35  | 1.18 | 30.00 |
| HHPFS60-P-HM6                                 | 3/8            | 9.53  | 1.42 | 36.00 |
| HHPFS60-P-HM9                                 | 9/16           | 14.29 | 1.61 | 41.00 |

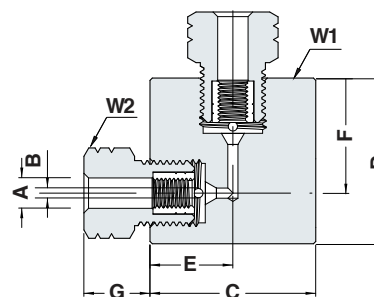


## HIGH PRESSURE FITTINGS AND COMPONENTS



### Straight Coupling

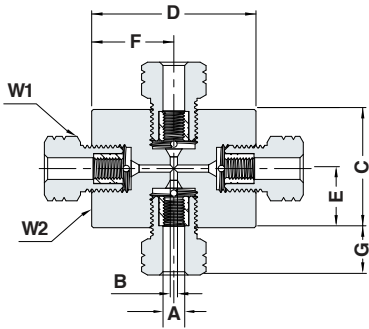
| Ordering Information                         | A<br>TUBE O.D. |       | B    |      | C    |       | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|----------------------------------------------|----------------|-------|------|------|------|-------|------|-------|----------------|----------------|
|                                              | inch           | mm    | inch | mm   | inch | mm    | inch | mm    | inch           | inch           |
| <b>High pressure: 30,000 psi (2,100 bar)</b> |                |       |      |      |      |       |      |       |                |                |
| HHPFS30-A-HF6                                | 3/8            | 9.53  | 0.20 | 5.00 | 1.97 | 50.00 | 0.64 | 16.21 | 1-1/16         | 15/16          |
| HHPFS30-A-HF9                                | 9/16           | 14.29 | 0.31 | 8.00 | 2.20 | 56.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| <b>High pressure: 60,000 psi (4,200 bar)</b> |                |       |      |      |      |       |      |       |                |                |
| HHPFS60-A-HF4                                | 1/4            | 6.35  | 0.09 | 2.20 | 1.77 | 45.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS60-A-HF6                                | 3/8            | 9.53  | 0.14 | 3.50 | 1.97 | 50.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS60-A-HF9                                | 9/16           | 14.29 | 0.20 | 5.00 | 2.20 | 56.00 | 0.82 | 20.92 | 1-1/2          | 1-5/16         |



### Elbow

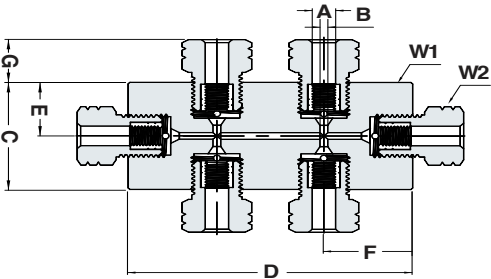
| Ordering Information                         | A<br>TUBE O.D. |       | B    |      | C    |       | D    |       | E    |       | F    |       | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|----------------------------------------------|----------------|-------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|----------------|----------------|
|                                              | inch           | mm    | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch           | inch           |
| <b>High pressure: 30,000 psi (2,100 bar)</b> |                |       |      |      |      |       |      |       |      |       |      |       |      |       |                |                |
| HHPFS30-L-HF6                                | 3/8            | 9.53  | 0.20 | 5.00 | 1.73 | 44.00 | 1.73 | 44.00 | 0.87 | 22.00 | 1.18 | 30.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS30-L-HF9                                | 9/16           | 14.29 | 0.31 | 8.00 | 2.52 | 64.00 | 2.28 | 58.00 | 1.26 | 32.00 | 1.50 | 38.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| <b>High pressure: 60,000 psi (4,200 bar)</b> |                |       |      |      |      |       |      |       |      |       |      |       |      |       |                |                |
| HHPFS60-L-HF4                                | 1/4            | 6.35  | 0.09 | 2.20 | 1.42 | 36.00 | 1.42 | 36.00 | 0.71 | 18.00 | 0.98 | 25.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS60-L-HF6                                | 3/8            | 9.53  | 0.14 | 3.50 | 1.73 | 44.00 | 1.73 | 44.00 | 0.87 | 22.00 | 1.18 | 30.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS60-L-HF9                                | 9/16           | 14.29 | 0.20 | 5.00 | 2.52 | 64.00 | 2.28 | 58.00 | 1.26 | 32.00 | 1.50 | 38.00 | 0.82 | 20.92 | 1-1/2          | 1-5/16         |

# HIGH PRESSURE FITTINGS AND COMPONENTS



## Cross

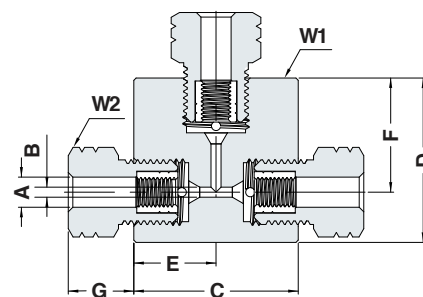
| Ordering Information                  | A<br>TUBE O.D. |       | B    |      | C    |       | D    |       | E    |       | F    |       | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|---------------------------------------|----------------|-------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|----------------|----------------|
|                                       | inch           | mm    | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch           | inch           |
| High pressure: 30,000 psi (2,100 bar) |                |       |      |      |      |       |      |       |      |       |      |       |      |       |                |                |
| HHPFS30-X-HF6                         | 3/8            | 9.53  | 0.20 | 5.00 | 1.73 | 44.00 | 2.76 | 70.00 | 0.87 | 22.00 | 1.18 | 30.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS30-X-HF9                         | 9/16           | 14.29 | 0.31 | 8.00 | 2.52 | 64.00 | 2.99 | 76.00 | 1.26 | 32.00 | 1.50 | 38.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| High pressure: 60,000 psi (4,200 bar) |                |       |      |      |      |       |      |       |      |       |      |       |      |       |                |                |
| HHPFS60-X-HF4                         | 1/4            | 6.35  | 0.09 | 2.20 | 1.42 | 36.00 | 1.97 | 50.00 | 0.71 | 18.00 | 0.98 | 25.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS60-X-HF6                         | 3/8            | 9.53  | 0.14 | 3.50 | 1.73 | 44.00 | 2.76 | 70.00 | 0.87 | 22.00 | 1.18 | 30.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS60-X-HF9                         | 9/16           | 14.29 | 0.20 | 5.00 | 2.52 | 64.00 | 2.99 | 76.00 | 1.26 | 32.00 | 1.50 | 38.00 | 0.82 | 20.92 | 1-1/2          | 1-5/16         |



## Double Cross

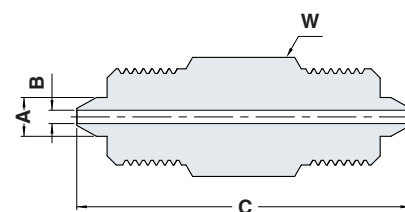
| Ordering Information                  | A<br>TUBE O.D. |      | B    |      | C    |       | D    |       | E    |       | F    |       | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|---------------------------------------|----------------|------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|----------------|----------------|
|                                       | inch           | mm   | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch           | inch           |
| High pressure: 60,000 psi (4,200 bar) |                |      |      |      |      |       |      |       |      |       |      |       |      |       |                |                |
| HHPFS60-DX-HF4                        | 1/4            | 6.35 | 0.09 | 2.20 | 1.42 | 36.00 | 3.15 | 80.00 | 0.71 | 18.00 | 0.98 | 25.00 | 0.59 | 15.09 | 7/8            | 11/16          |

## HIGH PRESSURE FITTINGS AND COMPONENTS



### Tee

| Ordering Information                         | A<br>TUBE O.D. |       | B    |      | C    |       | D    |       | E    |       | F    |       | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|----------------------------------------------|----------------|-------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|----------------|----------------|
|                                              | inch           | mm    | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch           | inch           |
| <b>High pressure: 30,000 psi (2,100 bar)</b> |                |       |      |      |      |       |      |       |      |       |      |       |      |       |                |                |
| HHPFS30-T-HF6                                | 3/8            | 9.53  | 0.20 | 5.00 | 1.73 | 44.00 | 1.73 | 44.00 | 0.87 | 22.00 | 1.18 | 30.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS30-T-HF9                                | 9/16           | 14.29 | 0.31 | 8.00 | 2.52 | 64.00 | 2.28 | 58.00 | 1.26 | 32.00 | 1.50 | 38.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| <b>High pressure: 60,000 psi (4,200 bar)</b> |                |       |      |      |      |       |      |       |      |       |      |       |      |       |                |                |
| HHPFS60-T-HF4                                | 1/4            | 6.35  | 0.09 | 2.20 | 1.42 | 36.00 | 1.42 | 36.00 | 0.71 | 18.00 | 0.98 | 25.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS60-T-HF6                                | 3/8            | 9.53  | 0.14 | 3.50 | 1.73 | 44.00 | 1.73 | 44.00 | 0.87 | 22.00 | 1.18 | 30.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS60-T-HF9                                | 9/16           | 14.29 | 0.20 | 5.00 | 2.52 | 64.00 | 2.28 | 58.00 | 1.26 | 32.00 | 1.50 | 38.00 | 0.82 | 20.92 | 1-1/2          | 1-5/16         |

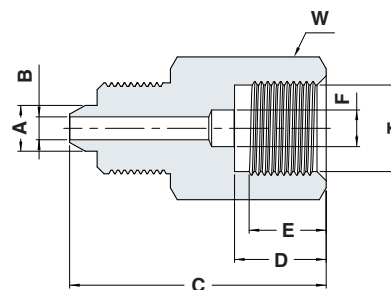


### Union Male

| Ordering Information                         | A<br>TUBE O.D. |       | B    |      | C    |       | W<br>Hex Flat |
|----------------------------------------------|----------------|-------|------|------|------|-------|---------------|
|                                              | inch           | mm    | inch | mm   | inch | mm    | inch          |
| <b>High pressure: 30,000 psi (2,100 bar)</b> |                |       |      |      |      |       |               |
| HHPFS30-A-HM6                                | 3/8            | 9.53  | 0.20 | 5.00 | 2.24 | 57.00 | 1-1/16        |
| HHPFS30-A-HM9                                | 9/16           | 14.29 | 0.31 | 8.00 | 2.80 | 71.00 | 1-5/16        |
| <b>High pressure: 60,000 psi (4,200 bar)</b> |                |       |      |      |      |       |               |
| HHPFS60-A-HM4                                | 1/4            | 6.35  | 0.09 | 2.20 | 2.17 | 55.00 | 11/16         |
| HHPFS60-A-HM6                                | 3/8            | 9.53  | 0.14 | 3.50 | 2.32 | 59.00 | 1-1/16        |
| HHPFS60-A-HM9                                | 9/16           | 14.29 | 0.20 | 5.00 | 2.99 | 76.00 | 1-5/16        |



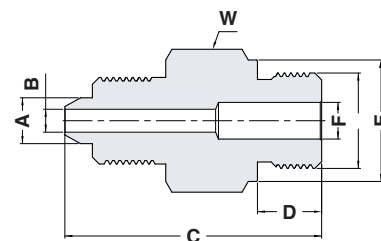
## MEDIUM PRESSURE ADAPTORS



### Male HP - Female BSPP

| Ordering Information                    | A<br>TUBE O.D. |       | T<br>BSPP | B    |      | C    |       | D    |       | E    |       | F    |      | W<br>Hex Flat |
|-----------------------------------------|----------------|-------|-----------|------|------|------|-------|------|-------|------|-------|------|------|---------------|
|                                         | inch           | mm    |           | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm   |               |
| Medium pressure: 10,000 psi (700 bar)   |                |       |           |      |      |      |       |      |       |      |       |      |      |               |
| HHPFS10-A-HM4-GF8                       | 1/4            | 6.35  | G-1/2     | 0.09 | 2.20 | 2.17 | 55.00 | 0.79 | 20.00 | 0.68 | 17.30 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM6-GF8                       | 3/8            | 9.53  | G-1/2     | 0.20 | 5.00 | 2.20 | 56.00 | 0.79 | 20.00 | 0.68 | 17.30 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM9-GF8                       | 9/16           | 14.29 | G-1/2     | 0.31 | 8.00 | 2.50 | 63.50 | 0.79 | 20.00 | 0.68 | 17.30 | 0.31 | 8.00 | 1-5/16        |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |               |
| HHPFS15-A-HM4-GF6                       | 1/4            | 6.35  | G-3/8     | 0.09 | 2.20 | 1.97 | 50.00 | 0.67 | 17.00 | 0.56 | 14.30 | 0.24 | 6.00 | 7/8           |
| HHPFS15-A-HM6-GF6                       | 3/8            | 9.53  | G-3/8     | 0.20 | 5.00 | 2.01 | 51.00 | 0.67 | 17.00 | 0.56 | 14.30 | 0.24 | 6.00 | 7/8           |
| HHPFS15-A-HM9-GF6                       | 9/16           | 14.29 | G-3/8     | 0.31 | 8.00 | 2.50 | 63.50 | 0.67 | 17.00 | 0.56 | 14.30 | 0.24 | 6.00 | 1-5/16        |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |               |
| HHPFS20-A-HM4-GF4                       | 1/4            | 6.35  | G-1/4     | 0.09 | 2.20 | 1.97 | 50.00 | 0.51 | 13.00 | 0.41 | 10.30 | 0.20 | 5.00 | 7/8           |
| HHPFS20-A-HM6-GF4                       | 3/8            | 9.53  | G-1/4     | 0.20 | 5.00 | 2.01 | 51.00 | 0.51 | 13.00 | 0.41 | 10.30 | 0.20 | 5.00 | 7/8           |
| HHPFS20-A-HM9-GF4                       | 9/16           | 14.29 | G-1/4     | 0.31 | 8.00 | 2.50 | 63.50 | 0.51 | 13.00 | 0.41 | 10.30 | 0.20 | 5.00 | 1-5/16        |

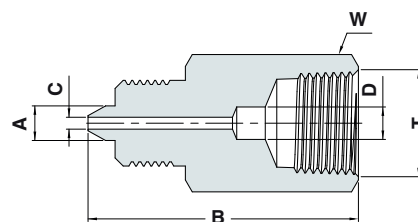
## MEDIUM PRESSURE ADAPTORS



### Male HP - Male BSPP

| Ordering Information                    | A<br>TUBE O.D. |       | T<br>BSPP | B    |      | C    |       | D    |       | E    |       | F    |      | W<br>Hex Flat |
|-----------------------------------------|----------------|-------|-----------|------|------|------|-------|------|-------|------|-------|------|------|---------------|
|                                         | inch           | mm    |           | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm   | inch          |
| Medium pressure: 10,000 psi (700 bar)   |                |       |           |      |      |      |       |      |       |      |       |      |      |               |
| HHPFS10-A-HM4-GM8                       | 1/4            | 6.35  | G-1/2     | 0.09 | 2.20 | 2.17 | 55.00 | 0.55 | 14.00 | 1.04 | 26.50 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM6-GM8                       | 3/8            | 9.53  | G-1/2     | 0.20 | 5.00 | 2.20 | 56.00 | 0.55 | 14.00 | 1.04 | 26.50 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM9-GM8                       | 9/16           | 14.29 | G-1/2     | 0.31 | 8.00 | 2.50 | 63.50 | 0.55 | 14.00 | 1.04 | 26.50 | 0.31 | 8.00 | 1-5/16        |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |               |
| HHPFS15-A-HM4-GM6                       | 1/4            | 6.35  | G-3/8     | 0.09 | 2.20 | 1.97 | 50.00 | 0.47 | 12.00 | 0.85 | 21.50 | 0.20 | 5.00 | 7/8           |
| HHPFS15-A-HM6-GM6                       | 3/8            | 9.53  | G-3/8     | 0.20 | 5.00 | 2.01 | 51.00 | 0.47 | 12.00 | 0.85 | 21.50 | 0.24 | 6.00 | 7/8           |
| HHPFS15-A-HM9-GM6                       | 9/16           | 14.29 | G-3/8     | 0.31 | 8.00 | 2.50 | 63.50 | 0.47 | 12.00 | 0.85 | 21.50 | 0.24 | 6.00 | 1-5/16        |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |               |
| HHPFS20-A-HM4-GM4                       | 1/4            | 6.35  | G-1/4     | 0.09 | 2.20 | 1.97 | 50.00 | 0.47 | 12.00 | 0.75 | 19.00 | 0.20 | 5.00 | 7/8           |
| HHPFS20-A-HM6-GM4                       | 3/8            | 9.53  | G-1/4     | 0.20 | 5.00 | 2.01 | 51.00 | 0.47 | 12.00 | 0.75 | 19.00 | 0.20 | 5.00 | 7/8           |
| HHPFS20-A-HM9-GM4                       | 9/16           | 14.29 | G-1/4     | 0.31 | 8.00 | 2.50 | 63.50 | 0.47 | 12.00 | 0.75 | 19.00 | 0.20 | 5.00 | 1-5/16        |

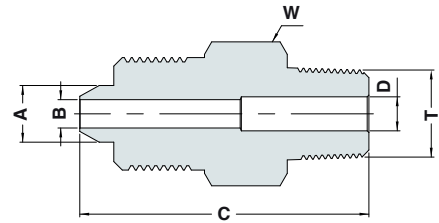
## MEDIUM PRESSURE ADAPTORS



### Male HP - Female NPT

| Ordering Information                    | A<br>TUBE O.D. |       | T<br>NPT | B    |      | C    |       | D    |      | W<br>Hex Flat |
|-----------------------------------------|----------------|-------|----------|------|------|------|-------|------|------|---------------|
|                                         | inch           | mm    |          | inch | mm   | inch | mm    | inch | mm   | inch          |
| Medium pressure: 10,000 psi (700 bar)   |                |       |          |      |      |      |       |      |      |               |
| HHPFS10-A-HM4-NF8                       | 1/4            | 6.35  | 1/2      | 0.09 | 2.20 | 2.17 | 55.00 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM6-NF8                       | 3/8            | 9.53  | 1/2      | 0.20 | 5.00 | 2.20 | 56.00 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM9-NF8                       | 9/16           | 14.29 | 1/2      | 0.31 | 8.00 | 2.50 | 63.50 | 0.31 | 8.00 | 1-5/16        |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |          |      |      |      |       |      |      |               |
| HHPFS15-A-HM4-NF6                       | 1/4            | 6.35  | 3/8      | 0.09 | 2.20 | 1.97 | 50.00 | 0.24 | 6.00 | 7/8           |
| HHPFS15-A-HM6-NF6                       | 3/8            | 9.53  | 3/8      | 0.20 | 5.00 | 2.01 | 51.00 | 0.24 | 6.00 | 7/8           |
| HHPFS15-A-HM9-NF6                       | 9/16           | 14.29 | 3/8      | 0.31 | 8.00 | 2.50 | 63.50 | 0.24 | 6.00 | 1-5/16        |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |          |      |      |      |       |      |      |               |
| HHPFS20-A-HM4-NF4                       | 1/4            | 6.35  | 1/4      | 0.09 | 2.20 | 1.97 | 50.00 | 0.09 | 2.20 | 7/8           |
| HHPFS20-A-HM6-NF4                       | 3/8            | 9.53  | 1/4      | 0.20 | 5.00 | 2.01 | 51.00 | 0.20 | 5.00 | 7/8           |
| HHPFS20-A-HM9-NF4                       | 9/16           | 14.29 | 1/4      | 0.31 | 8.00 | 2.50 | 63.50 | 0.31 | 8.00 | 1-5/16        |

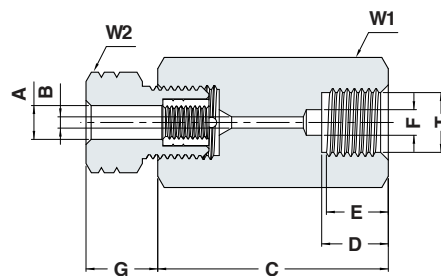
## MEDIUM PRESSURE ADAPTORS



### Male HP - Male NPT

| Ordering Information                    | A<br>TUBE O.D. |       | T<br>NPT | B    |      | C    |       | D    |      | W<br>Hex Flat |
|-----------------------------------------|----------------|-------|----------|------|------|------|-------|------|------|---------------|
|                                         | inch           | mm    |          | inch | mm   | inch | mm    | inch | mm   | inch          |
| Medium pressure: 10,000 psi (700 bar)   |                |       |          |      |      |      |       |      |      |               |
| HHPFS10-A-HM4-NM8                       | 1/4            | 6.35  | 1/2      | 0.09 | 2.20 | 2.17 | 55.00 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM6-NM8                       | 3/8            | 9.53  | 1/2      | 0.20 | 5.00 | 2.20 | 56.00 | 0.31 | 8.00 | 1-1/16        |
| HHPFS10-A-HM9-NM8                       | 9/16           | 14.29 | 1/2      | 0.31 | 8.00 | 2.50 | 63.50 | 0.31 | 8.00 | 1-5/16        |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |          |      |      |      |       |      |      |               |
| HHPFS15-A-HM4-NM6                       | 1/4            | 6.35  | 3/8      | 0.09 | 2.20 | 1.97 | 50.00 | 0.24 | 6.00 | 7/8           |
| HHPFS15-A-HM6-NM6                       | 3/8            | 9.53  | 3/8      | 0.20 | 5.00 | 2.01 | 51.00 | 0.24 | 6.00 | 7/8           |
| HHPFS15-A-HM9-NM6                       | 9/16           | 14.29 | 3/8      | 0.31 | 8.00 | 2.50 | 63.50 | 0.24 | 6.00 | 1-5/16        |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |          |      |      |      |       |      |      |               |
| HHPFS20-A-HM4-NM4                       | 1/4            | 6.35  | 1/4      | 0.09 | 2.20 | 1.97 | 50.00 | 0.20 | 5.00 | 11/16         |
| HHPFS20-A-HM6-NM4                       | 3/8            | 9.53  | 1/4      | 0.20 | 5.00 | 2.01 | 51.00 | 0.20 | 5.00 | 7/8           |
| HHPFS20-A-HM9-NM4                       | 9/16           | 14.29 | 1/4      | 0.31 | 8.00 | 2.50 | 63.50 | 0.20 | 5.00 | 1-5/16        |

## MEDIUM PRESSURE ADAPTORS

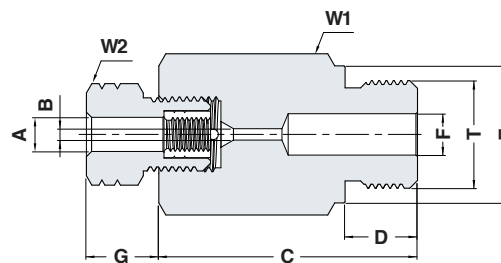


### Female HP - Female BSPP

| Ordering Information                    | A<br>TUBE O.D. |       | T<br>BSPP | B    |      | C    |       | D    |       | E    |       | F    |      | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|-----------------------------------------|----------------|-------|-----------|------|------|------|-------|------|-------|------|-------|------|------|------|-------|----------------|----------------|
|                                         | inch           | mm    |           | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm   | inch | mm    | inch           | inch           |
| Medium pressure: 10,000 psi (700 bar)   |                |       |           |      |      |      |       |      |       |      |       |      |      |      |       |                |                |
| HHPFS10-A-HF4-GF8                       | 1/4            | 6.35  | G-1/2     | 0.09 | 2.20 | 1.97 | 50.00 | 0.79 | 20.00 | 0.68 | 17.30 | 0.31 | 8.00 | 0.59 | 15.09 | 1-1/16         | 11/16          |
| HHPFS10-A-HF6-GF8                       | 3/8            | 9.53  | G-1/2     | 0.20 | 5.00 | 1.97 | 50.00 | 0.79 | 20.00 | 0.68 | 17.30 | 0.31 | 8.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS10-A-HF9-GF8                       | 9/16           | 14.29 | G-1/2     | 0.31 | 8.00 | 2.20 | 56.00 | 0.79 | 20.00 | 0.68 | 17.30 | 0.31 | 8.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |      |       |                |                |
| HHPFS15-A-HF4-GF6                       | 1/4            | 6.35  | G-3/8     | 0.09 | 2.20 | 1.77 | 45.00 | 0.67 | 17.00 | 0.56 | 14.30 | 0.24 | 6.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS15-A-HF6-GF6                       | 3/8            | 9.53  | G-3/8     | 0.20 | 5.00 | 1.97 | 50.00 | 0.67 | 17.00 | 0.56 | 14.30 | 0.24 | 6.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS15-A-HF9-GF6                       | 9/16           | 14.29 | G-3/8     | 0.31 | 8.00 | 2.20 | 56.00 | 0.67 | 17.00 | 0.56 | 14.30 | 0.24 | 6.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |      |       |                |                |
| HHPFS20-A-HF4-GF4                       | 1/4            | 6.35  | G-1/4     | 0.09 | 2.20 | 1.77 | 45.00 | 0.51 | 13.00 | 0.41 | 10.30 | 0.20 | 5.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS20-A-HF6-GF4                       | 3/8            | 9.53  | G-1/4     | 0.20 | 5.00 | 1.97 | 50.00 | 0.51 | 13.00 | 0.41 | 10.30 | 0.20 | 5.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS20-A-HF9-GF4                       | 9/16           | 14.29 | G-1/4     | 0.31 | 8.00 | 2.20 | 56.00 | 0.51 | 13.00 | 0.41 | 10.30 | 0.20 | 5.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |



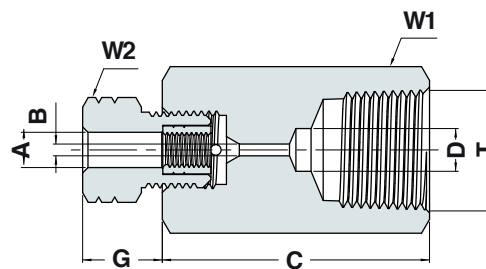
## MEDIUM PRESSURE ADAPTORS



### Female HP - Male BSPP

| Ordering Information                    | A<br>TUBE O.D. |       | T<br>BSPP | B    |      | C    |       | D    |       | E    |       | F    |      | G    |       | W1<br>Hex<br>Flat | W2<br>Hex Flat |
|-----------------------------------------|----------------|-------|-----------|------|------|------|-------|------|-------|------|-------|------|------|------|-------|-------------------|----------------|
|                                         | inch           | mm    |           | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm   | inch | mm    | inch              | inch           |
| Medium pressure: 10,000 psi (700 bar)   |                |       |           |      |      |      |       |      |       |      |       |      |      |      |       |                   |                |
| HHPFS10-A-HF4-GM8                       | 1/4            | 6.35  | G-1/2     | 0.09 | 2.20 | 1.97 | 50.00 | 0.55 | 14.00 | 1.04 | 26.50 | 0.31 | 8.00 | 0.59 | 15.09 | 1-1/16            | 11/16          |
| HHPFS10-A-HF6-GM8                       | 3/8            | 9.53  | G-1/2     | 0.20 | 5.00 | 1.97 | 50.00 | 0.55 | 14.00 | 1.04 | 26.50 | 0.31 | 8.00 | 0.64 | 16.21 | 1-1/16            | 7/8            |
| HHPFS10-A-HF9-GM8                       | 9/16           | 14.29 | G-1/2     | 0.31 | 8.00 | 2.20 | 56.00 | 0.55 | 14.00 | 1.04 | 26.50 | 0.31 | 8.00 | 0.82 | 20.90 | 1-1/2             | 1-5/16         |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |      |       |                   |                |
| HHPFS15-A-HF4-GM6                       | 1/4            | 6.35  | G-3/8     | 0.09 | 2.20 | 1.77 | 45.00 | 0.47 | 12.00 | 0.85 | 21.50 | 0.24 | 6.00 | 0.59 | 15.09 | 7/8               | 11/16          |
| HHPFS15-A-HF6-GM6                       | 3/8            | 9.53  | G-3/8     | 0.20 | 5.00 | 1.97 | 50.00 | 0.47 | 12.00 | 0.85 | 21.50 | 0.20 | 5.00 | 0.64 | 16.21 | 1-1/16            | 7/8            |
| HHPFS15-A-HF9-GM6                       | 9/16           | 14.29 | G-3/8     | 0.31 | 8.00 | 2.20 | 56.00 | 0.47 | 12.00 | 0.85 | 21.50 | 0.24 | 6.00 | 0.82 | 20.90 | 1-1/2             | 1-5/16         |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |           |      |      |      |       |      |       |      |       |      |      |      |       |                   |                |
| HHPFS20-A-HF4-GM4                       | 1/4            | 6.35  | G-1/4     | 0.09 | 2.20 | 1.77 | 45.00 | 0.47 | 12.00 | 0.75 | 19.00 | 0.20 | 5.00 | 0.59 | 15.09 | 7/8               | 11/16          |
| HHPFS20-A-HF6-GM4                       | 3/8            | 9.53  | G-1/4     | 0.20 | 5.00 | 1.97 | 50.00 | 0.47 | 12.00 | 0.75 | 19.00 | 0.20 | 5.00 | 0.64 | 16.21 | 1-1/16            | 7/8            |
| HHPFS20-A-HF9-GM4                       | 9/16           | 14.29 | G-1/4     | 0.31 | 8.00 | 2.20 | 56.00 | 0.47 | 12.00 | 0.75 | 19.00 | 0.20 | 5.00 | 0.82 | 20.90 | 1-1/2             | 1-5/16         |

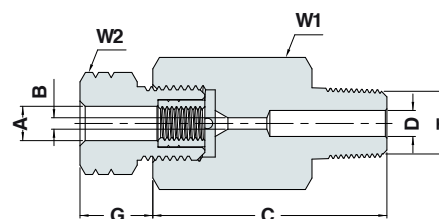
## MEDIUM PRESSURE ADAPTORS



### Female HP - Female NPT

| Ordering Information                    | A<br>TUBE O.D. |       | T<br>NPT | B    |      | C    |       | D    |      | G    |       | W1<br>Hex Flat | W2<br>Hex Flat |
|-----------------------------------------|----------------|-------|----------|------|------|------|-------|------|------|------|-------|----------------|----------------|
|                                         | inch           | mm    |          | inch | mm   | inch | mm    | inch | mm   | inch | mm    | inch           | inch           |
| Medium pressure: 10,000 psi (700 bar)   |                |       |          |      |      |      |       |      |      |      |       |                |                |
| HHPFS10-A-HF4-NF8                       | 1/4            | 6.35  | 1/2      | 0.09 | 2.20 | 1.97 | 50.00 | 0.31 | 8.00 | 0.59 | 15.09 | 1-1/16         | 11/16          |
| HHPFS10-A-HF6-NF8                       | 3/8            | 9.53  | 1/2      | 0.20 | 5.00 | 1.97 | 50.00 | 0.31 | 8.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS10-A-HF9-NF8                       | 9/16           | 14.29 | 1/2      | 0.31 | 8.00 | 2.20 | 56.00 | 0.31 | 8.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |          |      |      |      |       |      |      |      |       |                |                |
| HHPFS15-A-HF4-NF6                       | 1/4            | 6.35  | 3/8      | 0.09 | 2.20 | 1.77 | 45.00 | 0.24 | 6.00 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS15-A-HF6-NF6                       | 3/8            | 9.53  | 3/8      | 0.20 | 5.00 | 1.97 | 50.00 | 0.24 | 6.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS15-A-HF9-NF6                       | 9/16           | 14.29 | 3/8      | 0.31 | 8.00 | 2.20 | 56.00 | 0.24 | 6.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |          |      |      |      |       |      |      |      |       |                |                |
| HHPFS20-A-HF4-NF4                       | 1/4            | 6.35  | 1/4      | 0.09 | 2.20 | 1.77 | 45.00 | 0.09 | 2.20 | 0.59 | 15.09 | 7/8            | 11/16          |
| HHPFS20-A-HF6-NF4                       | 3/8            | 9.53  | 1/4      | 0.20 | 5.00 | 1.97 | 50.00 | 0.20 | 5.00 | 0.64 | 16.21 | 1-1/16         | 7/8            |
| HHPFS20-A-HF9-NF4                       | 9/16           | 14.29 | 1/4      | 0.31 | 8.00 | 2.20 | 56.00 | 0.20 | 5.00 | 0.82 | 20.90 | 1-1/2          | 1-5/16         |

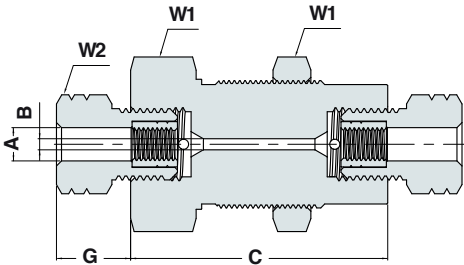
## MEDIUM PRESSURE ADAPTORS



### Female HP - Male NPT

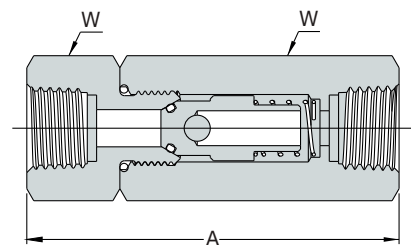
| Ordering Information                    | A<br>TUBE O.D. |       | T<br>NPT | B    |      | C    |       | D    |      | G    |       | W1<br>Hex<br>Flat | W2<br>Hex<br>Flat |
|-----------------------------------------|----------------|-------|----------|------|------|------|-------|------|------|------|-------|-------------------|-------------------|
|                                         | inch           | mm    |          | inch | mm   | inch | mm    | inch | mm   | inch | mm    | inch              | inch              |
| Medium pressure: 10,000 psi (700 bar)   |                |       |          |      |      |      |       |      |      |      |       |                   |                   |
| HHPFS10-A-HF4-NM8                       | 1/4            | 6.35  | 1/2      | 0.09 | 2.20 | 1.97 | 50.00 | 0.31 | 8.00 | 0.59 | 15.09 | 1-1/16            | 11/16             |
| HHPFS10-A-HF6-NM8                       | 3/8            | 9.53  | 1/2      | 0.20 | 5.00 | 1.97 | 50.00 | 0.31 | 8.00 | 0.64 | 16.21 | 1-1/16            | 7/8               |
| HHPFS10-A-HF9-NM8                       | 9/16           | 14.29 | 1/2      | 0.31 | 8.00 | 2.20 | 56.00 | 0.31 | 8.00 | 0.82 | 20.90 | 1-1/2             | 1-5/16            |
| Medium pressure: 15,000 psi (1,000 bar) |                |       |          |      |      |      |       |      |      |      |       |                   |                   |
| HHPFS15-A-HF4-NM6                       | 1/4            | 6.35  | 3/8      | 0.09 | 2.20 | 1.77 | 45.00 | 0.24 | 6.00 | 0.59 | 15.09 | 7/8               | 11/16             |
| HHPFS15-A-HF6-NM6                       | 3/8            | 9.53  | 3/8      | 0.20 | 5.00 | 1.97 | 50.00 | 0.24 | 6.00 | 0.64 | 16.21 | 1-1/16            | 7/8               |
| HHPFS15-A-HF9-NM6                       | 9/16           | 14.29 | 3/8      | 0.31 | 8.00 | 2.20 | 56.00 | 0.24 | 6.00 | 0.82 | 20.90 | 1-1/2             | 1-5/16            |
| Medium pressure: 23,000 psi (1,600 bar) |                |       |          |      |      |      |       |      |      |      |       |                   |                   |
| HHPFS20-A-HF4-NM4                       | 1/4            | 6.35  | 1/4      | 0.09 | 2.20 | 1.77 | 45.00 | 0.20 | 5.00 | 0.59 | 15.09 | 7/8               | 11/16             |
| HHPFS20-A-HF6-NM4                       | 3/8            | 9.53  | 1/4      | 0.20 | 5.00 | 1.97 | 50.00 | 0.20 | 5.00 | 0.64 | 16.21 | 1-1/16            | 7/8               |
| HHPFS20-A-HF9-NM4                       | 9/16           | 14.29 | 1/4      | 0.31 | 8.00 | 2.20 | 56.00 | 0.20 | 5.00 | 0.82 | 20.90 | 1-1/2             | 1-5/16            |

HIGH PRESSURE ADAPTORS



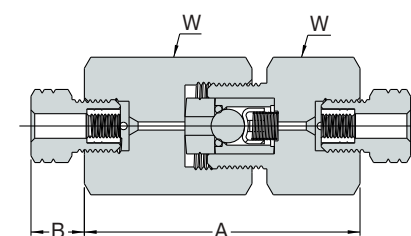
Bulkhead Coupling

| Ordering Information                  | A<br>TUBE O.D |       | B    |      | C    |       | G    |       | W1     | W2     | Panel Hole Size | Max. Panel Thickness |
|---------------------------------------|---------------|-------|------|------|------|-------|------|-------|--------|--------|-----------------|----------------------|
|                                       | inch          | mm    | inch | mm   | inch | mm    | inch | mm    | inch   | inch   | inch            | inch                 |
| High pressure: 30,000 psi (2,100 bar) |               |       |      |      |      |       |      |       |        |        |                 |                      |
| HHPFS30-AB-HF6                        | 3/8           | 9.53  | 0.20 | 5.00 | 2.36 | 60.00 | 0.65 | 16.40 | 1-5/8  | 7/8    | 1-21/64         | 0.75                 |
| HHPFS30-AB-HF9                        | 9/16          | 14.29 | 0.31 | 8.00 | 2.72 | 69.00 | 0.84 | 21.27 | 1-7/8  | 1-5/16 | 1-41/64         | 0.75                 |
| High pressure: 60,000 psi (4,200 bar) |               |       |      |      |      |       |      |       |        |        |                 |                      |
| HHPFS60-AB-HF4                        | 1/4           | 6.35  | 0.09 | 2.20 | 2.01 | 51.00 | 0.60 | 15.27 | 1-3/16 | 11/16  | 1-1/64          | 0.66                 |
| HHPFS60-AB-HF6                        | 3/8           | 9.53  | 0.14 | 3.50 | 2.36 | 60.00 | 0.67 | 17.10 | 1-5/8  | 7/8    | 1-21/64         | 0.75                 |
| HHPFS60-AB-HF9                        | 9/16          | 14.29 | 0.20 | 5.00 | 2.72 | 69.00 | 0.81 | 20.67 | 1-7/8  | 1-5/16 | 1-41/64         | 0.75                 |



## CHECK VALVES DIMENSIONS

| HAM-LET<br>DESCRIPTION              | END        |      |    | Orifice |      | Operation pressure |       | Rated Cv* | A    |       | W     |
|-------------------------------------|------------|------|----|---------|------|--------------------|-------|-----------|------|-------|-------|
|                                     | Connection | Size |    |         |      |                    |       |           |      |       |       |
|                                     |            | INCH | MM | INCH    | MM   | bar                | PSi   |           | INCH | MM    |       |
| high pressure: 10,000 psi (700 bar) |            |      |    |         |      |                    |       |           |      |       |       |
| HHPV10-K-NF6                        | Female NPT | 3/8  | -  | 0.31    | 8.00 | 1000               | 15000 | -         | 3.15 | 80.00 | 27.00 |

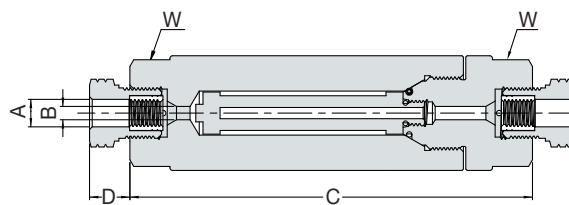


## CHECK VALVES DIMENSIONS

| HAM-LET<br>DESCRIPTION                | END               |      |       | Orifice |      | Operation pressure |       | Rated<br>Cv* | A    |       | B    |       | W     |
|---------------------------------------|-------------------|------|-------|---------|------|--------------------|-------|--------------|------|-------|------|-------|-------|
|                                       | Connection        | Size |       |         |      |                    |       |              | INCH | MM    | INCH | MM    |       |
|                                       |                   | INCH | MM    | INCH    | MM   | bar                | PSi   |              |      |       |      |       | INCH  |
| High pressure: 30,000 psi (2,100 bar) |                   |      |       |         |      |                    |       |              |      |       |      |       |       |
| HHPV30-K-HF6                          | High pressure C&T | 3/8  | 9.53  | 0.20    | 5.00 | 2100               | 30000 | 0.657        | 3.27 | 83.00 | 0.65 | 16.40 | 32.00 |
| HHPV30-K-HF9                          | High pressure C&T | 9/16 | 14.29 | 0.30    | 7.50 | 2100               | 30000 | 1.252        | 3.66 | 93.00 | 0.84 | 21.27 | 36.00 |
| High pressure: 60,000 psi (4,200 bar) |                   |      |       |         |      |                    |       |              |      |       |      |       |       |
| HHPV60-K-HF4                          | High pressure C&T | 1/4  | 6.35  | 0.09    | 2.20 | 4200               | 60000 | 0.062        | 3.11 | 79.00 | 0.60 | 15.27 | 32.00 |
| HHPV60-K-HF6                          | High pressure C&T | 3/8  | 9.53  | 0.14    | 3.50 | 4200               | 60000 | 0.464        | 3.11 | 79.00 | 0.67 | 17.10 | 32.00 |
| HHPV60-K-HF9                          | High pressure C&T | 9/16 | 14.29 | 0.20    | 5.00 | 4200               | 60000 | 0.563        | 3.50 | 89.00 | 0.81 | 20.67 | 36.00 |

The Cv\* values are only valid for fluid with a viscosity of 1.0 mPa\*s (water)

## FILTERS DIMENSIONS



| HAM-LET DESCRIPTION | Filter element rating [µm] |          | A<br>[TUBE O.D.]                    |      | B    |      | C    |        | D    |       | W     | Rated<br>Cv* |
|---------------------|----------------------------|----------|-------------------------------------|------|------|------|------|--------|------|-------|-------|--------------|
|                     | Nominal                    | Absolute | INCH                                | MM   | INCH | MM   | INCH | MM     | INCH | MM    | MM    | MM           |
|                     |                            |          | high pressure: 10,000 psi (700 bar) |      |      |      |      |        |      |       |       |              |
| HHPV10-F-HF6-R1     | 1                          | 5        | 3/8                                 | 9.53 | 0.20 | 5.00 | 5.94 | 150.90 | 0.65 | 16.40 | 36.00 | 0.48         |
| HHPV10-F-HF6-R20    | 20                         | 40       |                                     |      |      |      |      |        |      |       |       | -            |
| HHPV10-F-HF6-R40    | 40                         | 75       |                                     |      |      |      |      |        |      |       |       | -            |

The Cv\* values are only valid for fluid with a viscosity of 1.0 mPa\*s (water)

# Medium and High pressure Fittings and Components

## How to order

| HHPF                  |  | S        |                   | 10 - B         |                    | M                |                 | F               |      | 4                |                 | H                |      | M               |      | 6               |      |
|-----------------------|--|----------|-------------------|----------------|--------------------|------------------|-----------------|-----------------|------|------------------|-----------------|------------------|------|-----------------|------|-----------------|------|
| Fitting Type          |  | Material |                   | Component Type |                    | Connection Style |                 | Connection Size |      | Connection Style |                 | Connection Style |      | Connection Size |      | Connection Size |      |
| High Pressure Fitting |  | S        | SS 316            | A              | Straight Coupling  | M                | Medium Pressure | 4               | 1/4  | M                | Medium Pressure | 4                | 1/4  | 4               | 1/4  | 4               | 1/4  |
|                       |  | H        | Hastelloy 276     | B              | Bulk Head          | H                | High Pressure   | 6               | 3/8  | H                | High Pressure   | 6                | 3/8  | 6               | 3/8  | 6               | 3/8  |
|                       |  | D        | SS 304            | C              | Cap                | N                | NPT             | 9               | 9/16 | N                | NPT             | 9                | 9/16 | 9               | 9/16 | 9               | 9/16 |
|                       |  | L        | Incoloy 825       | F              | Filter             | G                | BSPP            |                 |      | G                | BSPP            |                  |      |                 |      |                 |      |
|                       |  | N        | Inconel 718       | G              | Gland              | Connection Type  |                 |                 |      | Connection Type  |                 |                  |      |                 |      |                 |      |
|                       |  | A        | Super Duplex 2507 | H              | Safety Head        | F                | Female          |                 |      | F                | Female          |                  |      |                 |      |                 |      |
|                       |  | I        | Inconel 625       | K              | Check Valve        | M                | Male            |                 |      | M                | Male            |                  |      |                 |      |                 |      |
|                       |  | B        | Super Duplex 2205 | L              | Elbow              |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | M        | 25MO              | S              | Collar/Sleeve      |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | P        | 17-4PH            | P              | Plug               |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | PSI      |                   | T              | Tee                |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | 10       | 10,000            | X              | Cross              |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | 20       | 20,000            | ST             | Coupling Slip Type |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | 30       | 30,000            | V              | Anti-Vibration     |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | 60       | 60,000            | DX             | Double Cross       |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |
|                       |  | 100      | 100,000           |                |                    |                  |                 |                 |      |                  |                 |                  |      |                 |      |                 |      |



# HIGH PRESSURE NEEDLE VALVES UP TO **60,000 PSI** SERVICE

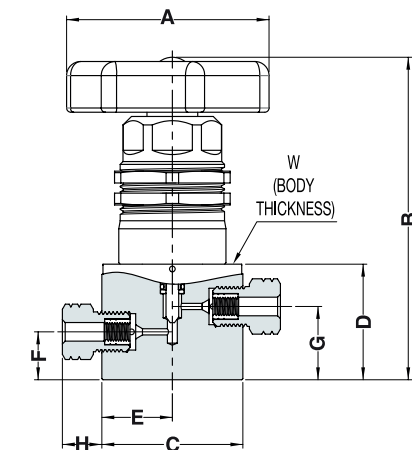
- **Connection type:** cone and thread connection is available in 1/4", 3/8", 9/16" sizes and for pressure rating of 60,000 Psi.
- **Tip stem:** all medium pressure connection valve are with Non-rotating stem with Vee Tip as a default, non-rotating stem assure that there will not be any material reduction in the sealing area between the stem Tip and the body and to prevent galling. Large orifices at rated pressures Panel mounting

standard Safety cover protects the operator against blowout of valve internals. Internal stem-lifting stop prevents stem blowout. Self-adjusting compensating packing requires minimal pre-loading.

- **Materials:** valve body is from 316L stainless steel with high mechanical properties.
- **Packing:** PTFE packing is a default, suitable for working temperature from -20°C to 60°C
- Ergonomically formed hand wheel

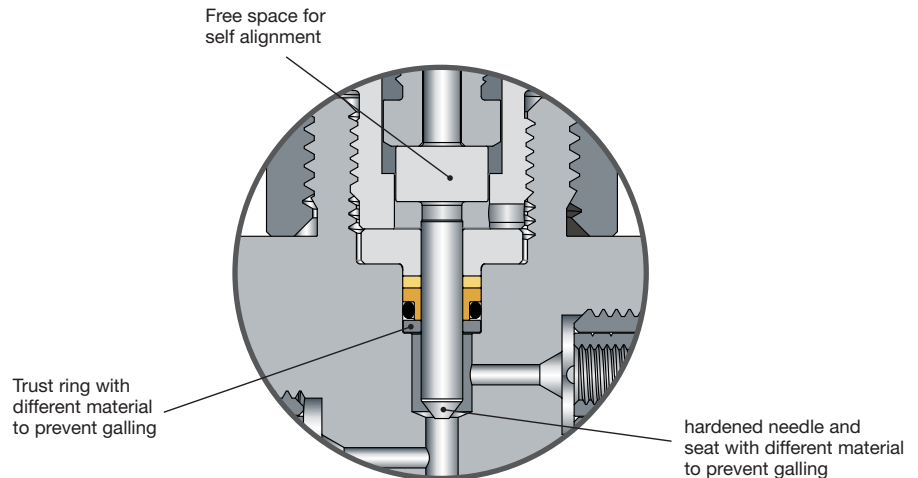
prevents damage to valves by use of "strange tools". Needle thrust bearing ensures smooth operation. Self-adjusting compensating packing requires minimal pre loading. Low frictional resistance and excellent chemical resistance of packing material. Wide internal orifices ensure excellent flow capabilities.

- **Actuators:** Pneumatic actuators are available for all valves type.



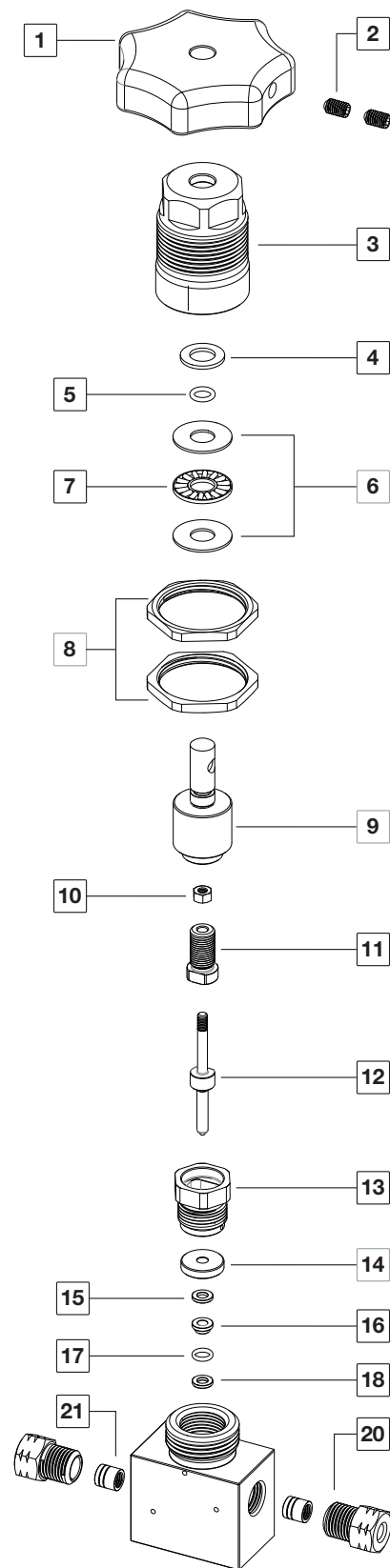
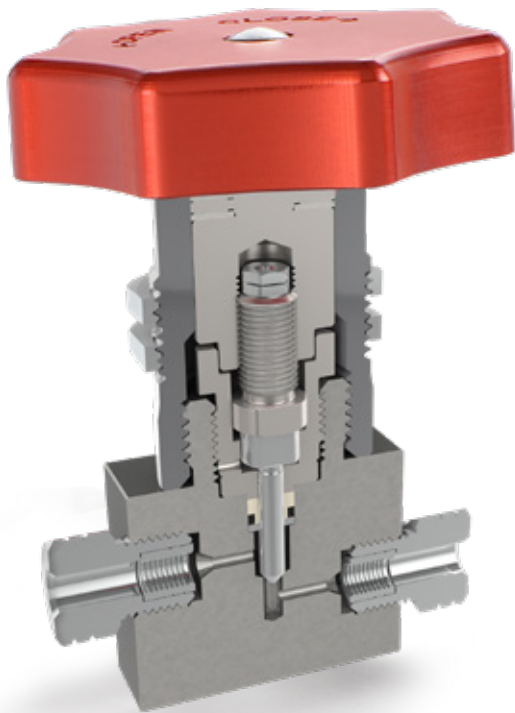
3/8" and 9/16"  
up to 30000 PSI

1/4 "3/8" and 9/16"  
to 60000 PSI



## NV VALVES MATERIAL OF CONSTRUCTION

| Item No. | Component                 | Qty. | Material                                     |
|----------|---------------------------|------|----------------------------------------------|
|          |                           |      | Pressure rating up to 60,000 psi (3,000 bar) |
| 1        | Hand wheel                | 1    | Aluminium 51ST                               |
| 2        | Set screw                 | 2    | SS A4                                        |
| 3        | Protection cap            | 1    | SS 316                                       |
| 4        | Washer protection cap     | 1    | Nylon-6                                      |
| 5        | O-ring                    | 1    | NBR                                          |
| 6        | Thin plate washer         | 2    | Chrome Steel                                 |
| 7        | Bearing                   | 1    | Chrome Steel / Sheet steel                   |
| 8        | Panel mounting nut plated | 2    | "Brass nickel                                |
| 9        | Actuator                  | 1    | SS 431                                       |
| 10       | Snep hex nut              | 1    | SS A2                                        |
| 11       | Needle base               | 1    | CuSN8P R620                                  |
| 12       | Needle                    | 1    | SS 440B                                      |
| 13       | Seal gland hand           | 1    | SS 430F                                      |
| 14       | Seal thrust ring          | 1    | Ampco M4                                     |
| 15       | Back-up ring              | 1    | PETP                                         |
| 16       | Seal                      | 1    | PTFE                                         |
| 17       | O-ring                    | 1    | NBR                                          |
| 18       | Thrust ring               | 1    | CuSN8                                        |
| 19       | Valve body                | 1    | SS 316L                                      |
| 20       | Gland                     | 2    | SS 303                                       |
| 21       | Collar                    | 2    | SS 1.4122                                    |

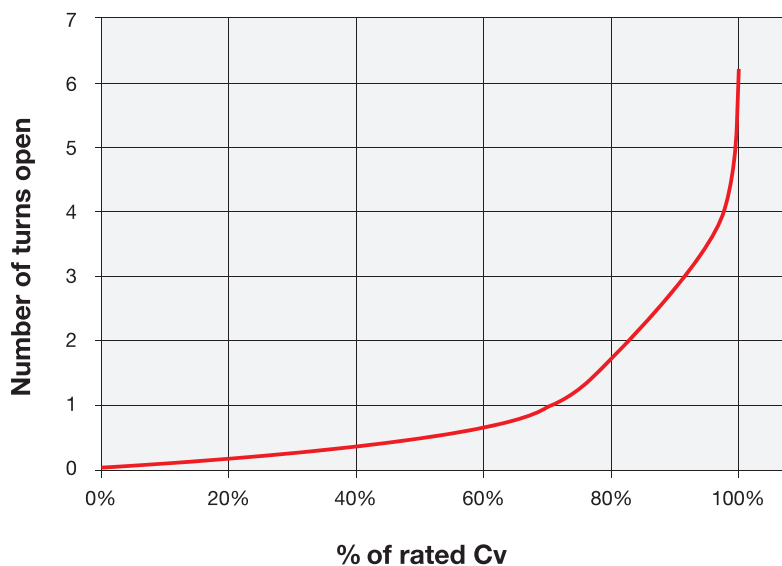


## MAWP+NEEDLE VALVE TECHNICAL DATE

| HAM-LET<br>DESCRIPTION                | Configuration         | END                  |      |       | Orifice |      | MAWP |       | Rated<br>Cv* |     |     |
|---------------------------------------|-----------------------|----------------------|------|-------|---------|------|------|-------|--------------|-----|-----|
|                                       |                       | Connection           | Size |       | inch    | mm   | inch | mm    |              | bar | psi |
|                                       |                       |                      | inch | mm    |         |      |      |       |              |     |     |
| High pressure: 10,000 psi (700bar)    |                       |                      |      |       |         |      |      |       |              |     |     |
| HHPVS10-NV2S-NF8                      | Straight              | Female NPT           | 1/2  | -     | 0.30    | 7.50 | 700  | 10000 | 0.60         |     |     |
| HHPVS10-NV2E-NF8                      | Angle                 |                      |      |       |         |      |      |       | 0.68         |     |     |
| High pressure: 30,000 psi (2,100 bar) |                       |                      |      |       |         |      |      |       |              |     |     |
| HHPVS30-NV2S-HF6                      | Straight              | High pressure<br>C&T | 3/8  | 9.53  | 0.20    | 5.00 | 2100 | 30000 | 0.57         |     |     |
| HHPVS30-NV2E-HF6                      | Angle                 |                      |      |       |         |      |      |       | 0.77         |     |     |
| HHPVS30-NV3B-HF6                      | 3 way - 2 on pressure |                      |      |       |         |      |      |       | -            |     |     |
| HHPVS30-NV2S-HF9                      | Straight              | High pressure<br>C&T | 9/16 | 14.29 | 0.30    | 7.50 | 2100 | 30000 | 0.60         |     |     |
| HHPVS30-NV2E-HF9                      | Angle                 |                      |      |       |         |      |      |       | 0.68         |     |     |
| HHPVS30-NV3B-HF9                      | 3 way - 2 on pressure |                      |      |       |         |      |      |       | -            |     |     |
| High pressure: 60,000 psi (4,200 bar) |                       |                      |      |       |         |      |      |       |              |     |     |
| HHPVS60-NV2S-HF4                      | Straight              | High pressure<br>C&T | 1/4  | 6.35  | 0.10    | 3.50 | 4200 | 60000 | 0.08         |     |     |
| HHPVS60-NV2E-HF4                      | Angle                 |                      |      |       |         |      |      |       | 0.08         |     |     |
| HHPVS60-NV3B-HF4                      | 3 way - 2 on pressure |                      |      |       |         |      |      |       | -            |     |     |
| HHPVS60-NV2S-HF6                      | Straight              | High pressure<br>C&T | 3/8  | 9.53  | 0.14    | 3.50 | 4200 | 60000 | 0.26         |     |     |
| HHPVS60-NV2E-HF6                      | Angle                 |                      |      |       |         |      |      |       | 0.38         |     |     |
| HHPVS60-NV3B-HF6                      | 3 way - 2 on pressure |                      |      |       |         |      |      |       | -            |     |     |
| HHPVS60-NV2S-HF9                      | Straight              | High pressure<br>C&T | 9/16 | 14.29 | 0.20    | 5.00 | 4200 | 60000 | 0.48         |     |     |
| HHPVS60-NV2E-HF9                      | Angle                 |                      |      |       |         |      |      |       | 0.57         |     |     |
| HHPVS60-NV3B-HF9                      | 3 way - 2 on pressure |                      |      |       |         |      |      |       | -            |     |     |

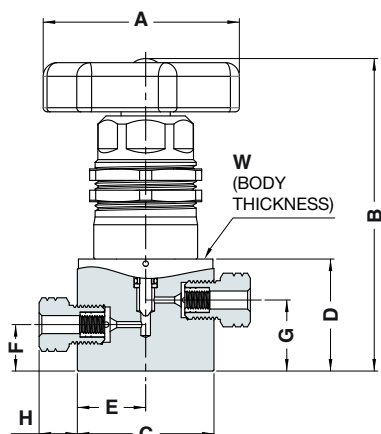
The Cv\* values are only valid for fluid with a viscosity of 1.0 mPa\*s (water)

**Generalized Flow Coefficient curves (Cv)**

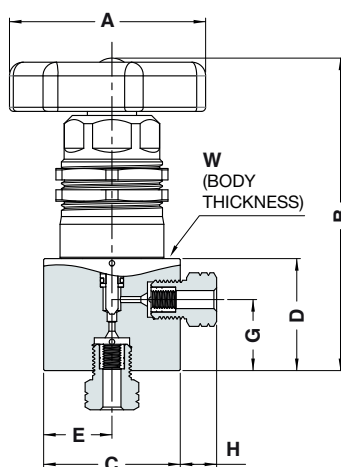


## NEEDLE VALVE\_HAND OPERATED DIMENSIONS

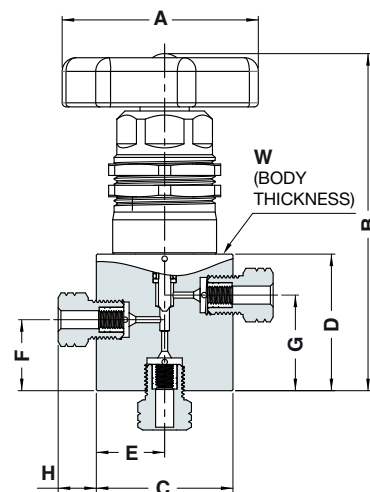
2 WAY STRAIGHT



2 WAY ANGLE

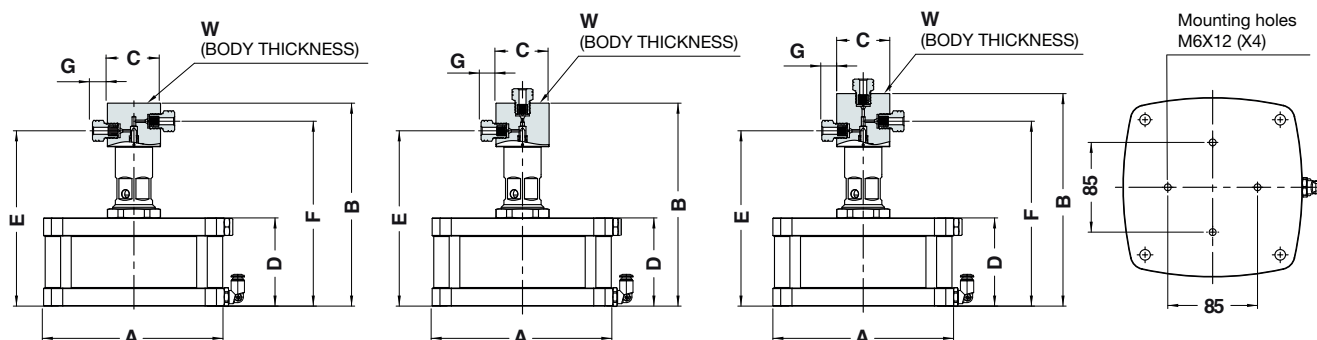


3 WAY - 2 ON PRESSURE



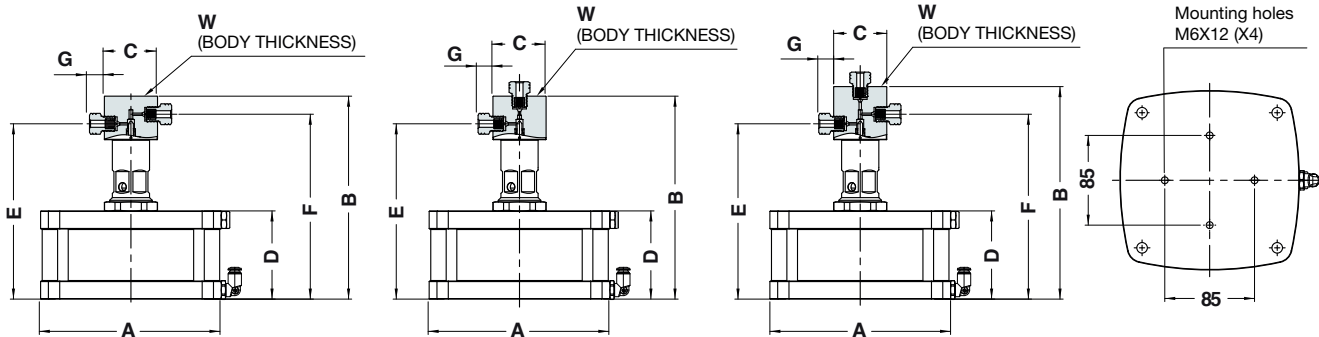
| HAM-LET<br>DESCRIPTION                | Configuration          | END                     |      |       |      | Orifice |      | A    |      | B     |      | C    |      | D    |      | E     |      | F    |      | G     |      | H     |      | W  |
|---------------------------------------|------------------------|-------------------------|------|-------|------|---------|------|------|------|-------|------|------|------|------|------|-------|------|------|------|-------|------|-------|------|----|
|                                       |                        | Connection              | Size |       |      |         |      |      |      |       |      |      |      |      |      |       |      |      |      |       |      |       |      |    |
|                                       |                        |                         | inch | mm    | inch | mm      | inch | mm   | inch | mm    | inch | mm   | inch | mm   | inch | mm    | inch | mm   | inch | mm    | inch | mm    | inch | mm |
| Medium pressure: 10,000 psi (700bar)  |                        |                         |      |       |      |         |      |      |      |       |      |      |      |      |      |       |      |      |      |       |      |       |      |    |
| HHPVS10-NV2S-NF8                      | Straight               | Female<br>NPT           | 1/2  | -     | 0.30 | 7.5     | 2.95 | 75.0 | 5.08 | 129   | 2.52 | 64.0 | 2.13 | 54.0 | 1.26 | 32.00 | 1.10 | 28.0 | 1.10 | 28.0  | -    | -     | 36.0 |    |
| HHPVS10-NV2E-NF8                      | Angle                  |                         |      |       |      |         |      |      | 5.28 | 134   |      |      | 2.32 | 59.0 |      |       | -    | -    | 1.57 | 40.0  |      |       |      |    |
| High pressure: 30,000 psi (2,100 bar) |                        |                         |      |       |      |         |      |      |      |       |      |      |      |      |      |       |      |      |      |       |      |       |      |    |
| HHPVS30-NV2S-HF6                      | Straight               | High<br>Pressure<br>C&T | 3/8  | 9.53  | 0.20 | 5.0     | 2.95 | 75.0 | 4.53 | 115   | 1.97 | 50.0 | 1.61 | 41.0 | 0.98 | 25.0  | 0.67 | 17.0 | 1.02 | 26.00 | 0.64 | 16.21 | 31.0 |    |
| HHPVS30-NV2E-HF6                      | Angle                  |                         |      |       |      |         |      |      | 4.53 | 115   |      |      | 1.61 | 41.0 |      |       | -    | -    | 1.02 | 26.0  |      |       |      |    |
| HHPVS30-NV3B-HF6                      | 3 way-2 on<br>pressure |                         |      |       |      |         |      |      | 4.88 | 124.0 |      |      | 1.97 | 50.0 |      |       | 1.02 | 26.0 | 1.38 | 35.0  |      |       |      |    |
| HHPVS30-NV2S-HF9                      | Straight               | High<br>Pressure<br>C&T | 9/16 | 14.29 | 0.30 | 7.5     | 2.95 | 75.0 | 5.08 | 129.0 | 2.52 | 64.0 | 2.13 | 54.0 | 1.26 | 32.0  | 0.83 | 21.0 | 1.38 | 35.0  | 0.82 | 21.90 | 36.0 |    |
| HHPVS30-NV2E-HF9                      | Angle                  |                         |      |       |      |         |      |      | 5.08 | 129.0 |      |      | 2.13 | 54.0 |      |       | -    | -    | 1.38 | 35.0  |      |       |      |    |
| HHPVS30-NV3B-HF9                      | 3 way-2 on<br>pressure |                         |      |       |      |         |      |      | 5.59 | 142.0 |      |      | 2.68 | 68.0 |      |       | 1.38 | 35.0 | 1.93 | 49.0  |      |       |      |    |
| High pressure: 60,000 psi (4,200 bar) |                        |                         |      |       |      |         |      |      |      |       |      |      |      |      |      |       |      |      |      |       |      |       |      |    |
| HHPVS60-NV2S-HF4                      | Straight               | High<br>Pressure<br>C&T | 1/4  | 6.35  | 0.10 | 3.5     | 2.95 | 75.0 | 4.53 | 115.0 | 1.97 | 50.0 | 1.02 | 26.0 | 0.98 | 25.0  | 0.67 | 17.0 | 1.02 | 26.00 | 0.59 | 15.09 | 31.0 |    |
| HHPVS60-NV2E-HF4                      | Angle                  |                         |      |       |      |         |      |      | 4.53 | 115.0 |      |      | 1.02 | 26.0 |      |       | -    | -    | 1.02 | 26.0  |      |       |      |    |
| HHPVS60-NV3B-HF4                      | 3 way-2 on<br>pressure |                         |      |       |      |         |      |      | 4.88 | 124.0 |      |      | 1.97 | 50.0 |      |       | 1.02 | 26.0 | 1.38 | 35.0  |      |       |      |    |
| HHPVS60-NV2S-HF6                      | Straight               | High<br>Pressure<br>C&T | 3/8  | 9.53  | 0.14 | 3.5     | 2.95 | 75.0 | 4.53 | 115.0 | 1.97 | 50.0 | 1.61 | 41.0 | 0.98 | 25.0  | 0.67 | 17.0 | 1.02 | 26.0  | 0.64 | 16.21 | 31.0 |    |
| HHPVS60-NV2E-HF6                      | Angle                  |                         |      |       |      |         |      |      | 4.53 | 115.0 |      |      | 1.61 | 41.0 |      |       | -    | -    | 1.02 | 26.0  |      |       |      |    |
| HHPVS60-NV3B-HF6                      | 3 way-2 on<br>pressure |                         |      |       |      |         |      |      | 4.88 | 124.0 |      |      | 1.97 | 50.0 |      |       | 1.02 | 26.0 | 1.38 | 35.0  |      |       |      |    |
| HHPVS60-NV2S-HF9                      | Straight               | High<br>Pressure<br>C&T | 9/16 | 14.29 | 0.20 | 5.0     | 2.95 | 75.0 | 5.08 | 129.0 | 2.52 | 64.0 | 2.13 | 54.0 | 1.26 | 32.0  | 0.83 | 21.0 | 1.38 | 35.0  | 0.82 | 20.92 | 36.0 |    |
| HHPVS60-NV2E-HF9                      | Angle                  |                         |      |       |      |         |      |      | 5.04 | 128.0 |      |      | 2.13 | 54.0 |      |       | -    | -    | 1.38 | 35.0  |      |       |      |    |
| HHPVS60-NV3B-HF9                      | 3 way-2 on<br>pressure |                         |      |       |      |         |      |      | 5.59 | 142.0 |      |      | 2.68 | 68.0 |      |       | 1.38 | 35.0 | 1.93 | 49.0  |      |       |      |    |

## NEEDLE VALVE - AIR OPERATED NO (NORMALLY OPEN) DIMENSIONS



| HAM-LET<br>DESCRIPTION                | Configuration            | END                     |      | Orifice |      | A     |      | B     |      | C     |      | D     |      | E    |      | F     |      | G     |      | H     |      | W     |      |
|---------------------------------------|--------------------------|-------------------------|------|---------|------|-------|------|-------|------|-------|------|-------|------|------|------|-------|------|-------|------|-------|------|-------|------|
|                                       |                          | Connection              | Size |         |      |       |      |       |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
|                                       |                          |                         | inch | mm      | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch | mm   | inch | mm    | inch | mm    | inch | mm    | inch | mm    | mm   |
| Medium pressure: 10,000 psi (700bar)  |                          |                         |      |         |      |       |      |       |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS10-NV2S-NF8-AO                   | Straight                 | Female<br>NPT           | 1/2  | -       | 5.0  | 72.5  | 0.30 | 7.50  | 6.69 | 170.0 | 8.03 | 204.0 | 2.52 | 64.0 | 3.27 | 83.00 | 6.93 | 176.0 | 6.93 | 176.0 | -    | -     | 36.0 |
| HHPVS10-NV2E-NF8-AO                   | Angle                    |                         | 8.23 | 209.0   | 6.65 | 169.0 | -    | -     |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| High pressure: 30,000 psi (2,100 bar) |                          |                         |      |         |      |       |      |       |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS30-NV2S-HF6-AO                   | Straight                 | High<br>Pressure<br>C&T | 3/8  | 9.53    | 5.0  | 72.5  | 0.20 | 5.00  | 6.69 | 170.0 | 7.52 | 191.0 | 1.97 | 50.0 | 3.27 | 83.00 | 6.50 | 165.0 | 6.85 | 174.0 | 0.64 | 16.21 | 31.0 |
| HHPVS30-NV2E-HF6-AO                   | Angle                    |                         | 7.52 | 191.0   |      |       | -    | -     |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS30-NV3B-HF6-AO                   | 3 way - 2 on<br>pressure |                         | 7.87 | 200.0   |      |       | 6.85 | 174.0 |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS30-NV2S-HF9-AO                   | Straight                 | High<br>Pressure<br>C&T | 9/16 | 14.29   | 5.0  | 72.5  | 0.30 | 7.50  | 8.35 | 212.0 | 8.03 | 204.0 | 2.52 | 64.0 | 3.27 | 83.00 | 6.65 | 169.0 | 7.20 | 183.0 | 0.82 | 21.90 | 36.0 |
| HHPVS30-NV2E-HF9-AO                   | Angle                    |                         | 8.03 | 204.0   |      |       | -    | -     |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS30-NV3B-HF9-AO                   | 3 way - 2 on<br>pressure |                         | 8.58 | 218.0   |      |       | 7.20 | 183.0 |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| High pressure: 60,000 psi (4,200 bar) |                          |                         |      |         |      |       |      |       |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS60-NV2S-HF4-AO                   | Straight                 | High<br>Pressure<br>C&T | 1/4  | 6.35    | 5.0  | 72.5  | 0.10 | 3.50  | 6.69 | 170.0 | 7.52 | 191.0 | 1.97 | 50.0 | 3.27 | 83.00 | 6.50 | 165.0 | 6.85 | 174.0 | 0.59 | 15.09 | 31.0 |
| HHPVS60-NV2E-HF4-AO                   | Angle                    |                         | 7.52 | 191.0   |      |       | -    | -     |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS60-NV3B-HF4-AO                   | 3 way - 2 on<br>pressure |                         | 7.87 | 200.0   |      |       | 6.85 | 174.0 |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS60-NV2S-HF6-AO                   | Straight                 | High<br>Pressure<br>C&T | 3/8  | 9.53    | 5.0  | 72.5  | 0.14 | 3.50  | 6.69 | 170.0 | 7.52 | 191.0 | 1.97 | 50.0 | 3.27 | 83.00 | 6.50 | 165.0 | 6.85 | 174.0 | 0.64 | 16.21 | 31.0 |
| HHPVS60-NV2E-HF6-AO                   | Angle                    |                         | 7.52 | 191.0   |      |       | -    | -     |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS60-NV3B-HF6-AO                   | 3 way - 2 on<br>pressure |                         | 7.87 | 200.0   |      |       | 6.85 | 174.0 |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS60-NV2S-HF9-AO                   | Straight                 | High<br>Pressure<br>C&T | 9/16 | 14.29   | 5.0  | 72.5  | 0.20 | 5.00  | 8.35 | 212.0 | 8.03 | 204.0 | 2.52 | 64.0 | 3.27 | 83.00 | 6.65 | 169.0 | 7.20 | 183.0 | 0.82 | 20.92 | 36.0 |
| HHPVS60-NV2E-HF9-AO                   | Angle                    |                         | 8.03 | 204.0   |      |       | -    | -     |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |
| HHPVS60-NV3B-HF9-AO                   | 3 way - 2 on<br>pressure |                         | 8.58 | 218.0   |      |       | 7.20 | 183.0 |      |       |      |       |      |      |      |       |      |       |      |       |      |       |      |

## NEEDLE VALVE - AIR OPERATED NC (NORMALLY CLOSE) DIMENSIONS

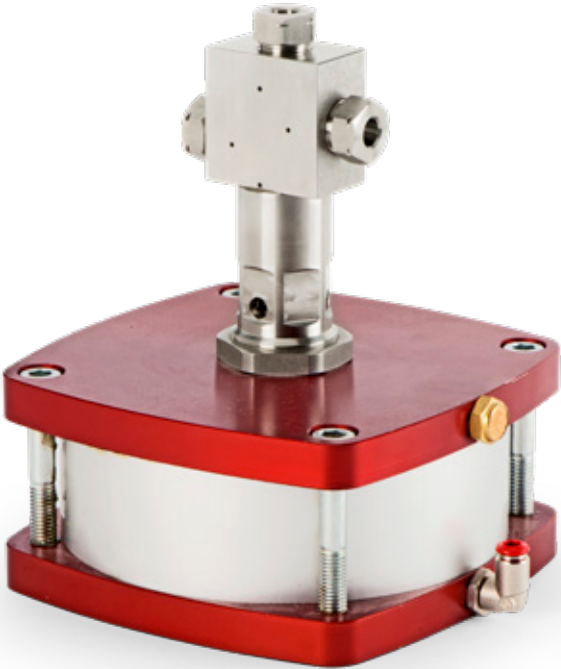
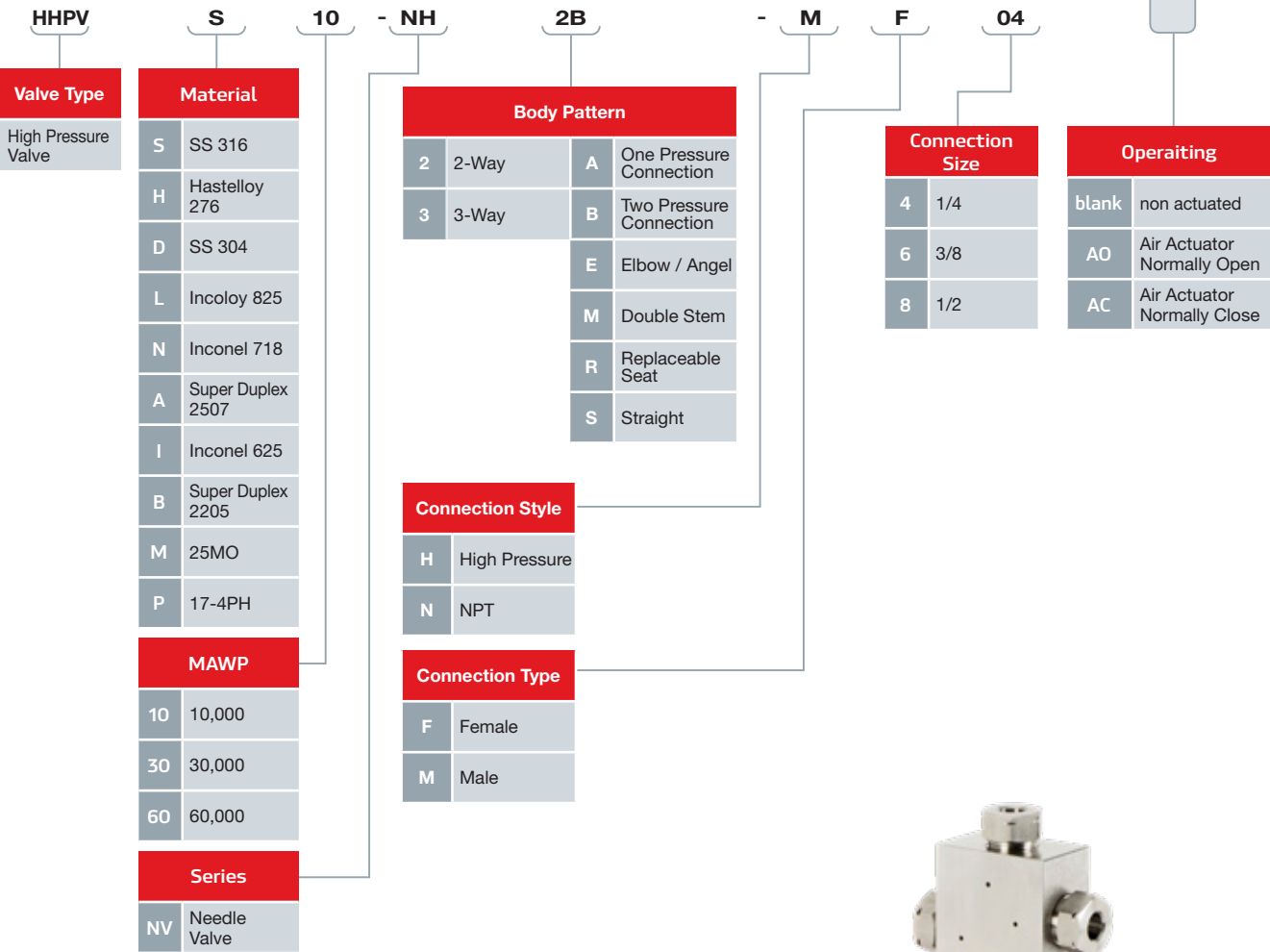


| HAM-LET<br>DESCRIPTION                | Configuration            | END                     |      | Orifice | A    |       | B    |      | C    |       | D    |       | E    |      | F    |       | G    |       | H    |       | W    |       |       |
|---------------------------------------|--------------------------|-------------------------|------|---------|------|-------|------|------|------|-------|------|-------|------|------|------|-------|------|-------|------|-------|------|-------|-------|
|                                       |                          | Connection              | Size |         | inch | mm    | inch | mm   | inch | mm    | inch | mm    | inch | mm   | inch | mm    | inch | mm    | inch | mm    | mm   |       |       |
|                                       |                          |                         | inch | mm      |      |       |      |      |      |       |      |       |      |      |      |       |      |       |      |       |      | inch  | mm    |
| Medium pressure: 10,000 psi (700bar)  |                          |                         |      |         |      |       |      |      |      |       |      |       |      |      |      |       |      |       |      |       |      |       |       |
| HHPVS10-NV2S-NF8-AC                   | Straight                 | Female<br>NPT           | 1/2  | -       | 6.50 | 87.00 | 0.30 | 7.50 | 6.69 | 170.0 | 9.21 | 234.0 | 2.52 | 64.0 | 4.45 | 113.0 | 8.11 | 206.0 | 8.11 | 206.0 | -    | -     | 36.0  |
| HHPVS10-NV2E-NF8-AC                   | Angle                    |                         |      |         |      |       |      |      |      |       | 9.41 | 239.0 |      |      |      |       | 7.83 | 199.0 | -    | -     |      |       |       |
| High pressure: 30,000 psi (2,100 bar) |                          |                         |      |         |      |       |      |      |      |       |      |       |      |      |      |       |      |       |      |       |      |       |       |
| HHPVS30-NV2S-HF6-AC                   | Straight                 | High<br>Pressure<br>C&T | 3/8  | 9.53    | 6.50 | 87.00 | 0.20 | 5.00 | 6.69 | 170.0 | 8.70 | 221.0 | 1.97 | 50.0 | 4.45 | 113.0 | 7.68 | 195.0 | 8.03 | 204.0 | 0.64 | 16.21 | 31.0  |
| HHPVS30-NV2E-HF6-AC                   | Angle                    |                         |      |         |      |       |      |      |      |       | 8.70 | 221.0 |      |      |      |       |      |       | -    | -     |      |       |       |
| HHPVS30-NV3B-HF6-AC                   | 3 way - 2 on<br>pressure |                         |      |         |      |       |      |      |      |       | 9.06 | 230.0 |      |      |      |       |      |       | 8.03 | 204.0 |      |       |       |
| HHPVS30-NV2S-HF9-AC                   | Straight                 | High<br>Pressure<br>C&T | 9/16 | 14.29   | 6.50 | 87.00 | 0.30 | 7.50 | 8.35 | 212.0 | 9.21 | 234.0 | 2.52 | 64.0 | 4.45 | 113.0 | 7.83 | 199.0 | 8.39 | 213.0 | 0.82 | 21.90 | 36.0  |
| HHPVS30-NV2E-HF9-AC                   | Angle                    |                         |      |         |      |       |      |      |      |       | 9.21 | 234.0 |      |      |      |       |      |       | -    | -     |      |       |       |
| HHPVS30-NV3B-HF9-AC                   | 3 way - 2 on<br>pressure |                         |      |         |      |       |      |      |      |       | 9.76 | 248.0 |      |      |      |       |      |       | 8.39 | 213.0 |      |       |       |
| High pressure: 60,000 psi (4,200 bar) |                          |                         |      |         |      |       |      |      |      |       |      |       |      |      |      |       |      |       |      |       |      |       |       |
| HHPVS60-NV2S-HF4-AC                   | Straight                 | High<br>Pressure<br>C&T | 1/4  | 6.35    | 6.50 | 87.00 | 0.10 | 3.50 | 6.69 | 170.0 | 8.70 | 221.0 | 1.97 | 50.0 | 4.45 | 113.0 | 7.68 | 195.0 | 8.03 | 204.0 | 0.59 | 15.09 | 31.00 |
| HHPVS60-NV2E-HF4-AC                   | Angle                    |                         |      |         |      |       |      |      |      |       | 8.70 | 221.0 |      |      |      |       |      |       | -    | -     |      |       |       |
| HHPVS60-NV3B-HF4-AC                   | 3 way-2 on<br>pressure   |                         |      |         |      |       |      |      |      |       | 9.06 | 230.0 |      |      |      |       |      |       | 8.03 | 204.0 |      |       |       |
| HHPVS60-NV2S-HF6-AC                   | Straight                 | High<br>Pressure<br>C&T | 3/8  | 9.53    | 6.50 | 87.00 | 0.14 | 3.50 | 6.69 | 170.0 | 8.70 | 221.0 | 1.97 | 50.0 | 4.45 | 113.0 | 7.68 | 195.0 | 8.03 | 204.0 | 0.64 | 16.21 | 31.00 |
| HHPVS60-NV2E-HF6-AC                   | Angle                    |                         |      |         |      |       |      |      |      |       | 8.70 | 221.0 |      |      |      |       |      |       | -    | -     |      |       |       |
| HHPVS60-NV3B-HF6-AC                   | 3 way-2 on<br>pressure   |                         |      |         |      |       |      |      |      |       | 9.06 | 230.0 |      |      |      |       |      |       | 8.03 | 204.0 |      |       |       |
| HHPVS60-NV2S-HF9-AC                   | Straight                 | High<br>Pressure<br>C&T | 9/16 | 14.29   | 6.50 | 87.00 | 0.20 | 5.00 | 8.35 | 212.0 | 9.21 | 234.0 | 2.52 | 64.0 | 4.45 | 113.0 | 7.83 | 199.0 | 8.39 | 213.0 | 0.82 | 20.92 | 36.0  |
| HHPVS60-NV2E-HF9-AC                   | Angle                    |                         |      |         |      |       |      |      |      |       | 9.21 | 234.0 |      |      |      |       |      |       | -    | -     |      |       |       |
| HHPVS60-NV3B-HF9-AC                   | 3 way-2 on<br>pressure   |                         |      |         |      |       |      |      |      |       | 9.76 | 248.0 |      |      |      |       |      |       | 8.39 | 213.0 |      |       |       |

# Medium and High pressure Connection Needle Valve

## How to order

OPTIONAL



# CONE AND TREADE TOOLING

In addition to all the fittings and valves in the HHP line, tools that create a complete set of high pressure line assembly for Medium pressure, High pressure and Ultra-High pressure are available. There are 3 types of Cone and Thread tube available in the HHP line:

- Nipple in standard length
- Nipple in special length up to 6.7 meter
- Smooth tube that needs to be Coned and Treaded by the customer.

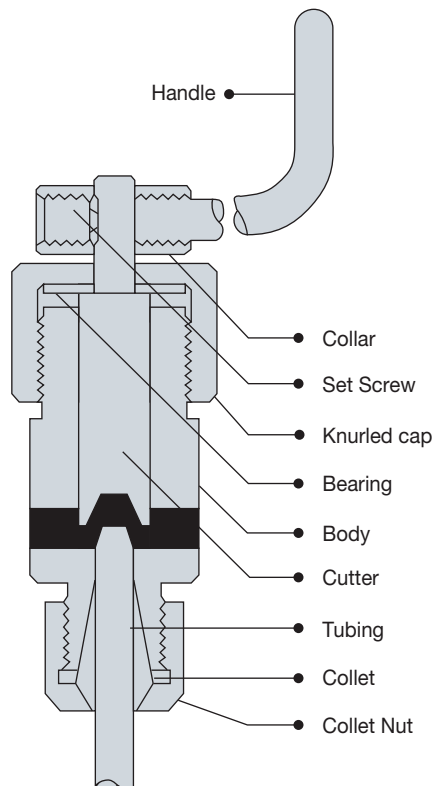
HHP Cone and Tread tools are used for Medium pressure, High pressure, and Ultra-High-pressure connections, and are simple to handle.

Cutting fluid is supplied with each order of coning tool in order to preform the cone properly. Some parts are interchangeable from one tube size to another on both the threading and cone tools.

## CONING TOOL

The HHP cone tool is used in order to perform a cone in approximately 57°-59° in Medium pressure, High pressure, and Ultra-High-pressure tubing ends.

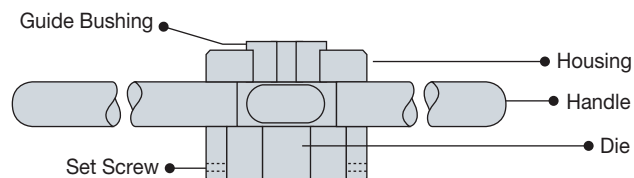
The cutter and collet are interchangeable in all assemblies except for 9/16", in order to permit easier changing from one tube size to another.



## THREADING TOOL

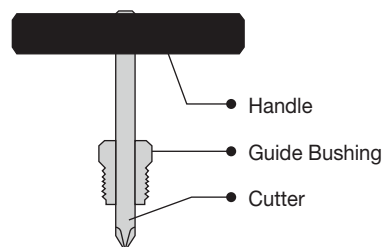
The HHP threading tool is used in order to provide left handed thread preparation on Medium pressure, High pressure, and Ultra-High-pressure tubing ends.

The die and guide bushing are interchangeable in all assemblies except for 1/8" in order to permit easier changing from one tube size to another.



## RESEATING TOOL

Extra tool that is available in the HHP line in order to repair old or damaged tubing connection seats in valve and fittings. This tool connects to the female cone and thread connection with the gland attached and offers the option to renew the connection seats.





# CONING AND TREADING INSTRUCTIONS

## Coning Tubing Ends

In order to get a proper sealing, you must use the HHP coning toll that provides approximately a 57°-59° cone in the end of the tube by completing the following steps:

1. Cut the tube with a Ham-Let Tube cutter and make sure to clean it properly with a Ham-Let Deburring tool.
2. Place the coning toll on a suitable vise and secure the body so you will have excess to the collet nut and knurled cap.
3. Rotate the knurled cap as far as possible to wards the coning tool body.
4. Take the knurled cap back away from the coning body by rotating counterclockwise for number of complete rotations as indicated below:
8. After removing the knurled cap and cutter apply a small amount of oil (cutting fluid) that is provided by HHP into the cutter and the coning body.
9. Reassemble the cutter and knurled cap back on the body until the cutter touches the tubing end.
10. Rotate the handle of the cutting tool clockwise rapidly with one hand while simultaneously slowly rotating the knurled cap clockwise with your other hand. Do not force the cutter against the tubing because it will bend. In order to perform the cone completely please rotate the knurled cap as indicated below

| Tubing O.D. size | Number of turns |
|------------------|-----------------|
| 1/8"             | 3               |
| 1/4"             | 4.5             |
| 3/8"             | 4.5             |
| 3/16"            | 8               |

| Tubing O.D. size | Number of turns |
|------------------|-----------------|
| 1/8"             | 2.5             |
| 1/4"             | 3.5             |
| 3/8"             | 4.54            |
| 3/16"            | 7.5             |

5. Insert the cut tube into the collet until it stops against the inside of the cutter.
6. Tighten the collet nut on the tube in order to secure its position.
7. Remove the knurled cap and cutter from the coning body by rotating the knurled cap counter clockwise.
11. After finishing coning the tube remove the tube from the collet by loosening the collet nut. Make to clean the cutting fluid and metal chips that remain in the body for the next assembly, after removing the knurled cap and cutter.

## Threading tubing ends

In order to get left hand thread onto the end of the tube so you will get proper connection you must use HHP threading tool and operate by the following steps:

1. By removing the knurled cap and the cutter from the coning tool it will be used as a holder for the tube for using of threading operation.
2. After the tube is secured in place please put amount of oil (cutting fluid) on the end of the tube.
3. Place the threading tool onto the tubing while guide busing side is first.
4. Start rotate the treading tool counterclockwise by using your hand on the tool and after starting to gain momentum start to do it with the handles, you may need to do it back and forth in order to remove chips from the tube end, please continue placing the oil on the end of the tube all the time.
5. Remove the tube from the treading tool and clean the oil and chips leftovers.
6. The tube is ready for use.

**NOTE:** If the tube collar feels too tight or too loose while screwing on the tube, the die need to be adjusted. Please remove the die from the holder by loosening the outer set screw, on the side of the die there is a small adjustment screw that can be turned in order to precisely set the die.

# CONING AND THREADING INSTRUCTIONS

manual coning and threading tool for optimum performance with tubing sizes up to 9/16" (14.3 mm) outside diameter. These manual tools permit on-site end preparation for Ham-Let high pressure fittings and high pressure tubing installations.



## CONING TUBING ENDS



Secure the coning tool body in suitable in the vise. Angle position is preferred to have better access to the collet nut and knurled cap. Rotate the knurled cap clockwise into the tool as far as it will go.

Back off" knurled cap by rotating counterclockwise a number of complete rotations as indicated in the table below. (A mark on the knurled cap may be useful)

| Tubing Size | "Back off Turns" |
|-------------|------------------|
| 1/2 O.D.    | 3 turns          |
| 1/4 O.D.    | 4-1/2 turns      |
| 3/4 O.D.    | 4-1/4 turns      |
| 9/16 O.D.   | 8 turns          |



Insert tubing through collet nut and collet until tubing stops up against inside cutter. Tighten collet nut to secure tubing into position.



Turn knurled cap counterclockwise to remove cap and cutter from tool. Apply a very liberal amount of cutting fluid to the end of the cutter. Screw cap and cutter back into the body until the cutter contacts the end of the tubing.



Rotate handle of cutting tool clockwise fairly rapidly with one hand while slowly rotating the knurled cap clockwise with the other hand in order to continuously feed the cutter into the tubing. Do not overly force the cutter against the tubing as it will bind.

(You will quickly develop the proper feel).

You will need to rotate the knurled cap a complete number of turns as per the chart below in order to complete the cone on the end of the tubing.

| Tubing Size | "Back off Turns" |
|-------------|------------------|
| 1/2 O.D.    | 2-1/2 turns      |
| 1/4 O.D.    | 3-1/2 turns      |
| 3/4 O.D.    | 4 turns          |
| 9/16 O.D.   | 7-1/2 turns      |

After coning the tubing end, loosen the collet nut and remove tubing from the tool. Remove the knurled cap and cutter from the tool to clean off the cutting fluid and steel chips in preparation for the next tube.

The 1/4" O.D. and 3/8" O.D. tubing sizes are relatively easy to cone. The 1/8" O.D. size is "delicate" (be especially careful not to force the cutter). The 9/16" O.D. size requires the most amount of firmness in the cutting.

As with other tools, it is not uncommon for a collet to "stick" even after the collet nut has been released. Should this occur, simply tap

the side of the collet nut firmly with the wrench to release the collet.

## THREADING THE TUBING



The coning tool (with the knurled cap and cutter removed) provides an ideal way to hold the tubing for the threading operation.



Apply a liberal amount of cutting fluid to the end of the tubing. Place the threading tool (guide bushing side first) onto the tubing.



Place the palm of your hand firmly against the center of the threading tool and rotate your wrist counterclockwise. This will help "start" the die onto the tube. After you feel the die start onto the tubing, continue to rotate the threading tool using the handles. Remove the threading tool and clean off cutting fluid and chips.

**Note:** The tubing collar should easily screw onto the tubing. If it feels too tight or loose, the die should be adjusted accordingly. Simply remove the die from the holder by loosening the outer set screw. The small adjustment screw located on the side of the die can be turned to precisely set the die

# CONING AND THREADING TOOLS

## How to order

### Coning Tool

| Ordering Information                   | TUBE O.D. Connection |       | TUBE I.D. Connection |      | Ordering Information Spare Cutter | Ordering Information Spare Collet |
|----------------------------------------|----------------------|-------|----------------------|------|-----------------------------------|-----------------------------------|
|                                        | inch                 | mm    | inch                 | mm   |                                   |                                   |
| Medium Pressure: 20,000 psi (1379 bar) |                      |       |                      |      |                                   |                                   |
| HHPSU20-UP-T4X109                      | 1/4                  | 6.35  | 0.109                | 2.77 | HHPSU20-UP-T4X109-CUT             | HHPSU20-UP-T4X109-COL             |
| HHPSU20-UP-T6X203                      | 3/8                  | 9.52  | 0.203                | 5.16 | HHPSU20-UP-T6X203-CUT             | HHPSU20-UP-T6X203-COL             |
| HHPSU20-UP-T9X312                      | 9/16                 | 14.29 | 0.312                | 7.92 | HHPSU20-UP-T9X312-CUT             | HHPSU20-UP-T9X312-COL             |

### Threading Tool

| Ordering Information                   | TUBE O.D. Connection |       | Ordering Information Threading Die | Ordering Information Guide Bushing |
|----------------------------------------|----------------------|-------|------------------------------------|------------------------------------|
|                                        | inch                 | mm    |                                    |                                    |
| Medium Pressure: 20,000 psi (1379 bar) |                      |       |                                    |                                    |
| HHPSU20-UQ-MF4                         | 1/4                  | 6.35  | HHPSU20-UQ-MF4-TD                  | HHPSU20-UQ-MF4-GB                  |
| HHPSU20-UQ-MF6                         | 3/8                  | 9.52  | HHPSU20-UQ-MF6-TD                  | HHPSU20-UQ-MF6-GB                  |
| HHPSU20-UQ-MF9                         | 9/16                 | 14.29 | HHPSU20-UQ-MF9-TD                  | HHPSU20-UQ-MF9-GB                  |

### Reseating Tool

| Ordering Information                          | TUBE O.D. CONNECTION |       |
|-----------------------------------------------|----------------------|-------|
|                                               | inch                 | mm    |
| <b>Medium Pressure: 20,000 psi (1379 bar)</b> |                      |       |
| HHPSU20-UO-MM4                                | 1/4                  | 6.35  |
| HHPSU20-UO-MM6                                | 3/8                  | 9.52  |
| HHPSU20-UO-MM9                                | 9/16                 | 14.29 |



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