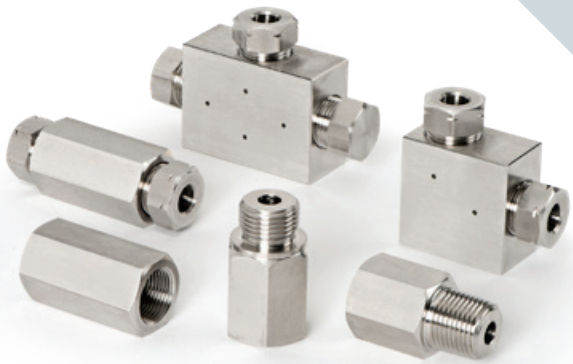
HAM-LET HIGH PRESSURE

HHP

UP TO 60,000 PSI



HAM-LET Group

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 the Ham-let High Pressure 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 up to 60,000 psi, 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

HHP

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 are supplied with glands and sleeves.

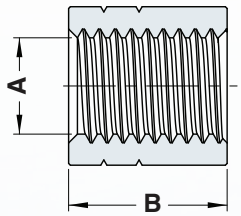
High-pressure connections having an elastic metal-to-metal sealing. A complete connection consists of four parts: a high-pressure tube, a collar, a gland and a female part (fitting, valve or adapter). The tube has a cone point of 58° which is pressed in the 60° cone of the counterpart.

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.

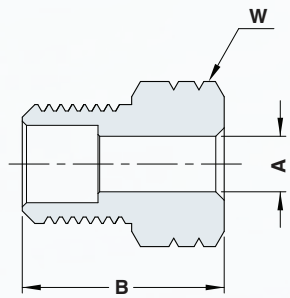
All fittings and adapters are marked with Ham-Let logo, ordering code, material specification, pressure rating for which they can be used and material batch number (refers to DIN 3.1.B material certificate).

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.



COLLAR

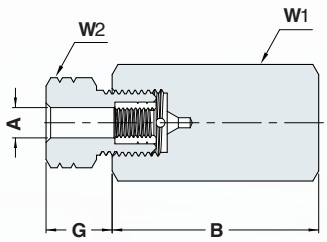
Ordering Information	A TUBE O.D.		B	
	inch	mm	inch	mm
High pressure: 60,000 psi (4,200 bar)				
HHPFS60-S-HF4	1/4	6.35	0.35	9.00
HHPFS60-S-HF6	3/8	9.53	0.49	12.50
HHPFS60-S-HF9	9/16	14.29	0.87	22.00



GLAND

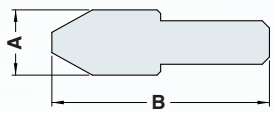
Ordering Information	A TUBE O.D.		B		W Hex Flat
	inch	mm	inch	mm	inch
High pressure: 60,000 psi (4,200 bar)					
HHPFS60-G-HM4	1/4	6.35	0.94	24.00	11/16
HHPFS60-G-HM6	3/8	9.53	1.06	27.00	7/8
HHPFS60-G-HM9	9/16	14.29	1.26	32.00	1-5/16

CAP



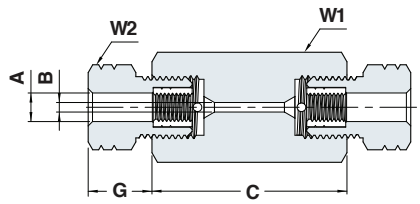
Ordering Information	A TUBE O.D.		B		G		W1 Hex Flat	W2 Hex Flat
	inch	mm	inch	mm	inch	mm	inch	inch
High pressure: 60,000 psi (4,200 bar)								
HHPFS60-C-HF4	1/4	6.35	1.77	45.00	0.59	15.09	7/8	11/16
HHPFS60-C-HF6	3/8	9.53	1.97	50.00	0.64	16.21	1-1/16	7/8
HHPFS60-C-HF9	9/16	14.29	2.20	56.00	0.82	20.92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

PLUG



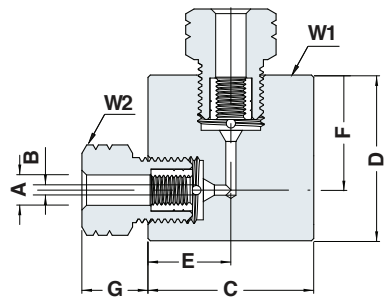
Ordering Information	A TUBE O.D.		B	
	inch	mm	inch	mm
High pressure: 100,000 psi (6,800 bar)				
HHPFS60-P-HM4	1/4	6.35	1.18	30.00
HHPFS60-P-HM6	3/8	9.53	1.42	36.00
HHPFS60-P-HM9	9/16	14.29	1.61	41.00

STRAIGHT COUPLING

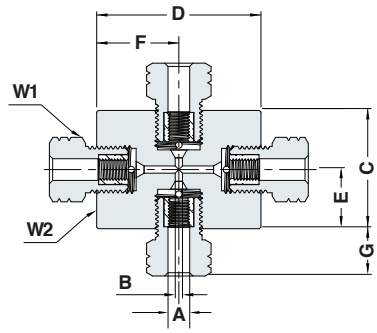


Ordering Information	A TUBE O.D.		B		C		G		W1 Hex Flat	W2 Hex Flat
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch
High pressure: 30,000 psi (2,100 bar)										
HHPFS30-A-HF6	3/8	9.53	0.20	5.00	1.97	50.00	0.64	16.21	1-1/16	15/16
HHPFS30-A-HF9	9/16	14.29	0.31	8.00	2.20	56.00	0.82	20.90	1-1/2	1-5/16
High pressure: 60,000 psi (4,200 bar)										
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

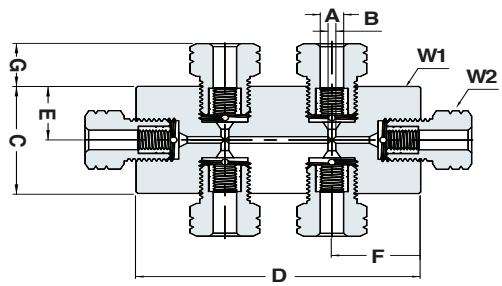


Ordering Information	A TUBE O.D.		B		C		D		E		F		G		W1 Hex Flat	W2 Hex Flat
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch
High pressure: 30,000 psi (2,100 bar)																
HHPFS30-L-HF6	3/8	9.53	0.20	5.00	1.73	44.00	1.73	44.00	0.87	22.00	1.18	30.00	0.64	16.21	1-1/16	7/8
HHPFS30-L-HF9	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
High pressure: 60,000 psi (4,200 bar)																
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



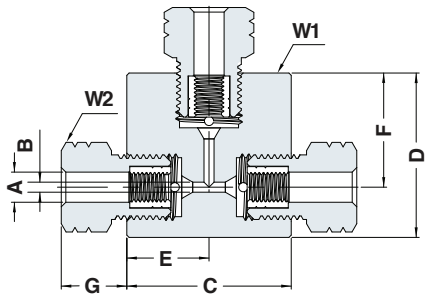
CROSS

Ordering Information	A TUBE O.D.		B		C		D		E		F		G		W1 Hex Flat	W2 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



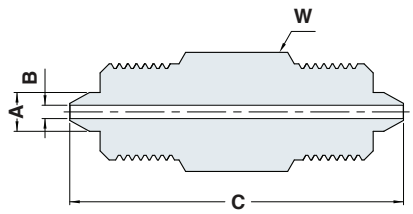
DOUBLE CROSS

Ordering Information	A TUBE O.D.		B		C		D		E		F		G		W1 Hex Flat	W2 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



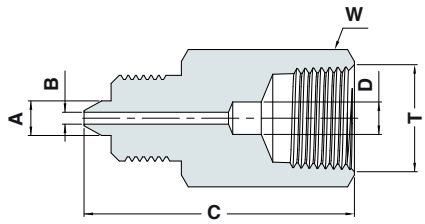
TEE

Ordering Information	A TUBE O.D.		B		C		D		E		F		G		W1 Hex Flat	W2 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-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
High pressure: 60,000 psi (4,200 bar)																
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



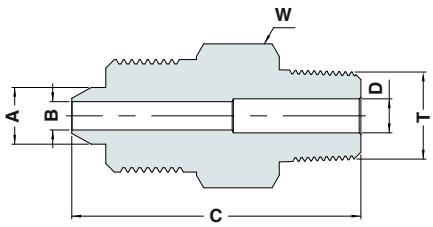
UNION MALE

Ordering Information	A TUBE O.D.		B		C		W Hex Flat
	inch	mm	inch	mm	inch	mm	inch
High pressure: 30,000 psi (2,100 bar)							
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
High pressure: 60,000 psi (4,200 bar)							
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



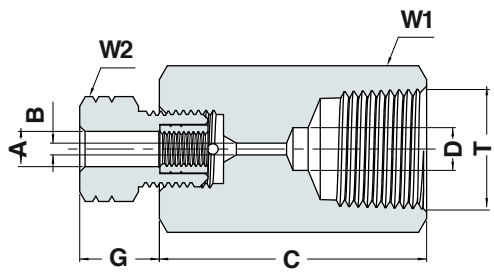
MALE HP - FEMALE NPT

Ordering Information	A TUBE O.D.		T NPT	B		C		D		W Hex Flat
	inch	mm		inch	mm	inch	mm	inch	mm	inch
Medium pressure: 10,000 psi (700 bar)										
HHPFS10-A-HM4NF8	1/4	6.35	1/2	0.09	2.20	2.17	55.00	0.31	8.00	1-1/16
HHPFS10-A-HM6NF8	3/8	9.53	1/2	0.20	5.00	2.20	56.00	0.31	8.00	1-1/16
HHPFS10-A-HM9NF8	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-HM4NF6	1/4	6.35	3/8	0.09	2.20	1.97	50.00	0.24	6.00	7/8
HHPFS15-A-HM6NF6	3/8	9.53	3/8	0.20	5.00	2.01	51.00	0.24	6.00	7/8
HHPFS15-A-HM9NF6	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)										
HHPFS23-A-HM4NF4	1/4	6.35	1/4	0.09	2.20	1.97	50.00	0.09	2.20	7/8
HHPFS23-A-HM6NF4	3/8	9.53	1/4	0.20	5.00	2.01	51.00	0.20	5.00	7/8
HHPFS23-A-HM9NF4	9/16	14.29	1/4	0.31	8.00	2.50	63.50	0.31	8.00	1-5/16



MALE HP - MALE NPT

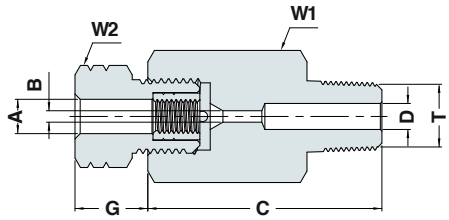
Ordering Information	A TUBE O.D.		T NPT	B		C		D		W Hex Flat
	inch	mm		inch	mm	inch	mm	inch	mm	inch
Medium pressure: 10,000 psi (700 bar)										
HHPFS10-A-HM4NM8	1/4	6.35	1/2	0.09	2.20	2.17	55.00	0.31	8.00	1-1/16
HHPFS10-A-HM6NM8	3/8	9.53	1/2	0.20	5.00	2.20	56.00	0.31	8.00	1-1/16
HHPFS10-A-HM9NM8	9/16	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-HM4NM6	1/4	6.35	3/8	0.09	2.20	1.97	50.00	0.24	6.00	7/8
HHPFS15-A-HM6NM6	3/8	9.53	3/8	0.20	5.00	2.01	51.00	0.24	6.00	7/8
HHPFS15-A-HM9NM6	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)										
HHPFS23-A-HM4NM4	1/4	6.35	1/4	0.09	2.20	1.97	50.00	0.20	5.00	11/16
HHPFS23-A-HM6NM4	3/8	9.53	1/4	0.20	5.00	2.01	51.00	0.20	5.00	7/8
HHPFS23-A-HM9NM4	9/16	14.29	1/4	0.31	8.00	2.50	63.50	0.20	5.00	1-5/16



FEMALE HP - FEMALE NPT

Ordering Information	A TUBE O.D.		T NPT	B		C		D		G		W1 Hex Flat	W2 Hex Flat
	inch	mm		inch	mm	inch	mm	inch	mm	inch	mm	inch	inch
Medium pressure: 10,000 psi (700 bar)													
HHPFS10-A-HF4NF8	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-HF6NF8	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-HF9NF8	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-HF4NF6	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-HF6NF6	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-HF9NF6	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)													
HHPFS23-A-HF4NF4	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
HHPFS23-A-HF6NF4	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
HHPFS23-A-HF9NF4	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

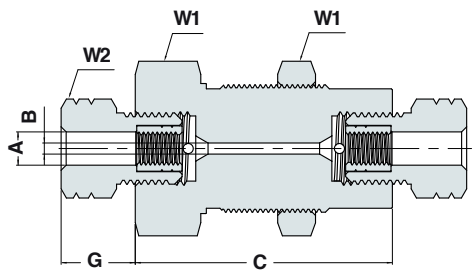
MEDIUM PRESSURE ADAPTORS



FEMALE HP - MALE NPT

Ordering Information	A TUBE O.D.		T NPT	B		C		D		G		W1 Hex Flat	W2 Hex Flat
	inch	mm		inch	mm	inch	mm	inch	mm	inch	mm	inch	inch
Medium pressure: 10,000 psi (700 bar)													
HHPFS10-A-HF4NM8	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-HF6NM8	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-HF9NM8	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-HF4NM6	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-HF6NM6	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-HF9NM6	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)													
HHPFS23-A-HF4NM4	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
HHPFS23-A-HF6NM4	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
HHPFS23-A-HF9NM4	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

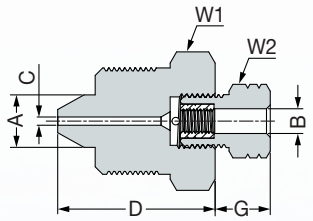
HIGH PRESSURE ADAPTORS



BULKHEAD COUPLING

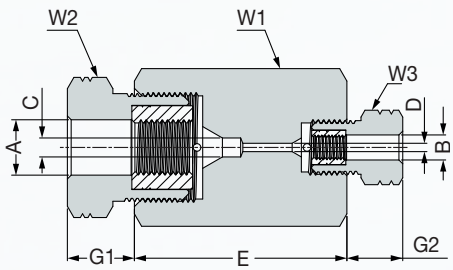
Ordering Information	A TUBE O.D		B		C		G		W1	W2	Panel Hole Size	Max. Panel Thickness
	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch	inch
High pressure: 30,000 psi (2,100 bar)												
HHPFS30-AB-HF6	3/8	9.53	0.20	5.00	2.36	60.00	0.65	16.40	1-5/8	7/8	1-21/64	0.75
HHPFS30-AB-HF9	9/16	14.29	0.31	8.00	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

MEDIUM AND HIGH PRESSURE ADAPTORS



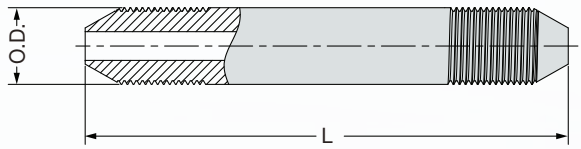
MALE HP - FEMALE HP (REDUCER GLAND)

Ordering Information	A Tube O.D		B Tube O.D		C		D		G		W1	W2
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch
Medium pressure: 30,000 psi (2,100 bar)												
HHPFS30-A-HM9HF6	9/16"	14.29	3/8"	9.53	0.20	5.00	1.56	39.50	0.65	16.40	1-5/16"	7/8"
High pressure: 60,000 psi (2,100 bar)												
HHPFS60-A-HM6HF4	3/8"	9.53	1/4"	6.35	0.09	2.20	1.46	37.00	0.60	15.27	7/8"	11/16"
HHPFS60-A-HM9HF4	9/16"	14.29	1/4"	6.35	0.09	2.20	1.65	42.00	0.60	15.27	1-5/16"	11/16"
HHPFS60-A-HM9HF6	9/16"	14.29	3/8"	9.53	0.14	3.50	1.65	42.00	0.67	17.10	1-5/16"	7/8"



FEMALE HP - FEMALE HP (REDUCER BUSHING)

Ordering Information	A Tube O.D		B Tube O.D		C		D		E		G1		G2		W1	W2	W3
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	inch
Medium pressure: 30,000 psi (2,100 bar)																	
HHPFS30-A-HF9HF6	9/16"	14.29	3/8"	9.53	0.31	8.00	0.20	5.00	2.20	56.00	0.84	21.27	0.65	16.40	1-1/2"	1-5/16"	7/8"
High pressure: 60,000 psi (4,200 bar)																	
HHPFS60-A-HF6HF4	3/8"	9.53	1/4"	6.35	0.14	3.50	0.09	2.20	1.97	50.00	0.67	17.10	0.60	15.27	1-1/16"	7/8"	11/16"
HHPFS60-A-HF9HF4	9/16"	14.29	1/4"	6.35	0.20	5.00	0.09	2.20	2.20	56.00	0.81	20.67	0.60	15.27	1-1/2"	1-5/16"	11/16"
HHPFS60-A-HF9HF6	9/16"	14.29	3/8"	9.53	0.20	5.00	0.14	3.50	2.20	56.00	0.81	20.67	0.67	17.10	1-1/2"	1-5/16"	7/8"



CONED AND THREADED NIPPLES

Ordering Information	O.D. Tube Diameter		L Tube Lenght	
	inch	mm	inch	mm
High pressure: 60,000 psi (4,200 bar)				
HHPFS60-NE-HM4-2.75	1/4"	6.35	2.75	69.85
HHPFS60-NE-HM4-6	1/4"	6.35	6	152.4
HHPFS60-NE-HM4-8	1/4"	6.35	8	203.2
HHPFS60-NE-HM4-10	1/4"	6.35	10	254
HHPFS60-NE-HM4-12	1/4"	6.35	12	304.8
HHPFS60-NE-HM6-3	3/8"	9.53	3	76.2
HHPFS60-NE-HM6-6	3/8"	9.53	6	152.4
HHPFS60-NE-HM6-8	3/8"	9.53	8	203.2
HHPFS60-NE-HM6-10	3/8"	9.53	10	254
HHPFS60-NE-HM6-12	3/8"	9.53	12	304.8
HHPFS60-NE-HM9-4	9/16"	14.29	4	101.6
HHPFS60-NE-HM9-6	9/16"	14.29	6	152.4
HHPFS60-NE-HM9-8	9/16"	14.29	8	203.2
HHPFS60-NE-HM9-10	9/16"	14.29	10	254
HHPFS60-NE-HM9-12	9/16"	14.29	12	304.8

* Raw tubes are available by request, please contact your sales representative for additional information

Medium and High pressure Fittings and Components

HOW TO ORDER

HHPF	S	60	-	A	-	H	F	6	H	M	4
Fitting Type	Material			Component Type		Connection Style		Connection Size	Connection Style		Connection Size
High Pressure Fitting	S SS 316			A Straight		H High Pressure		4 1/4	H High Pressure		4 1/4
	PSI			B Bulk Head		N NPT		6 3/8	N NPT		6 3/8
	10 10,000			C Cap		Connection Type		9 9/16	Connection Type		9 9/16
	15 15,000			G Gland		F Female			F Female		
	23 23,000			L Elbow		M Male			M Male		
	30 30,000			S Collar							
	60 60,000			P Plug							
				T Tee							
				X Cross							
				DX Double Cross							
				NE Nipples							

HIGH PRESSURE NEEDLE VALVES UP TO 60,000 PSI SERVICE

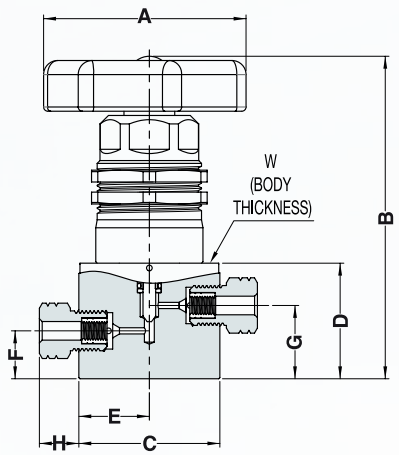
- **Connection type:** cone and thread connection is available in 1/4”, 3/8”, 9/16’. sizes and for pressure rating of 60,000 Psi.
- **Tip stem:** all high pressure connection valves are with Non-rotating stem with Vee Tip as a default, non-rotating stem assure that there will not be any material reduction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

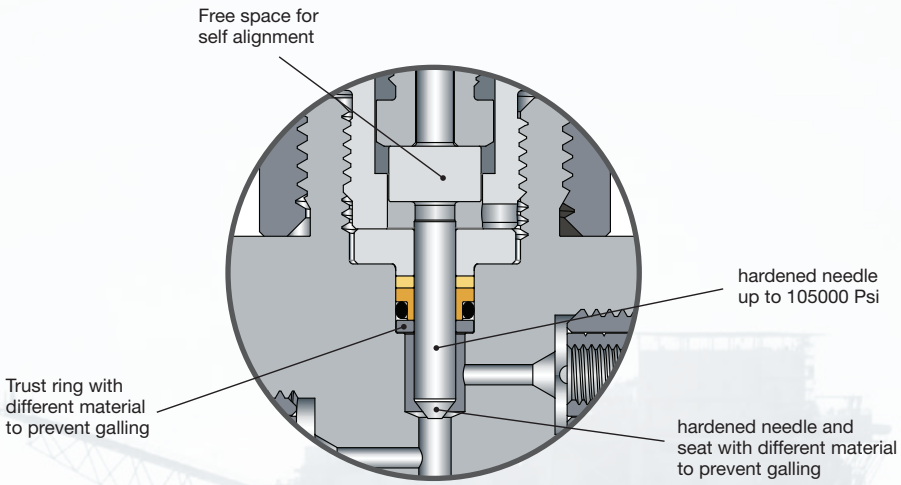
Panel mounting standard Safety cover protects the operator against blowout of valve internals Internal stem-lifting stop prevents stem blowout self-adjusting compensating packing requires minimal pre-loading

- **Materials:** valve body is from 316L stainless steel with high mechanical properties.
- **Packing:** PTFE packing is a default, suitable for working temperature from -10°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.

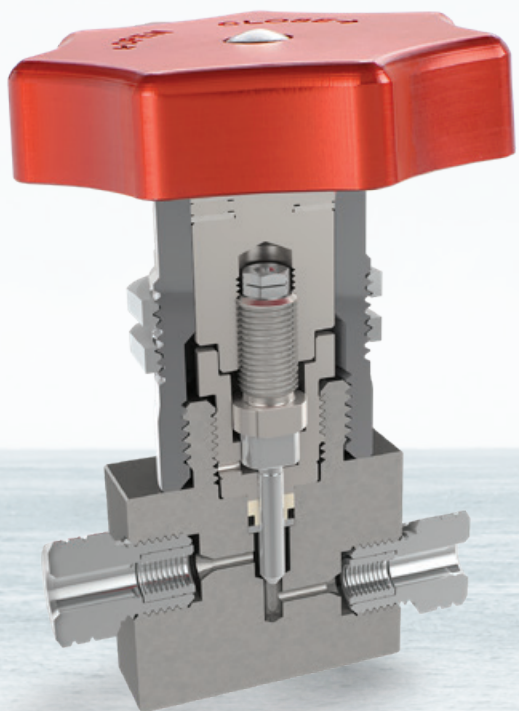
- **Actuators:** Pneumatic actuators are available for all valves type.

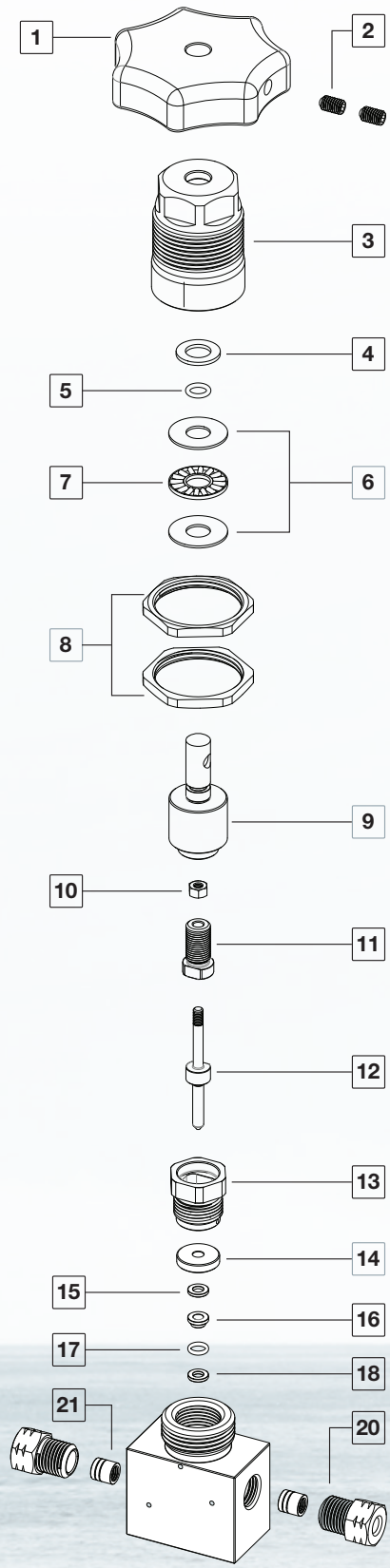




NV VALVES MATERIAL OF CONSTRUCTION

Item No.	Component	Qty.	Material
			Pressure rating up to 60,000 psi (4,137 bar)
1	Hand wheel	1	Aluminum 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

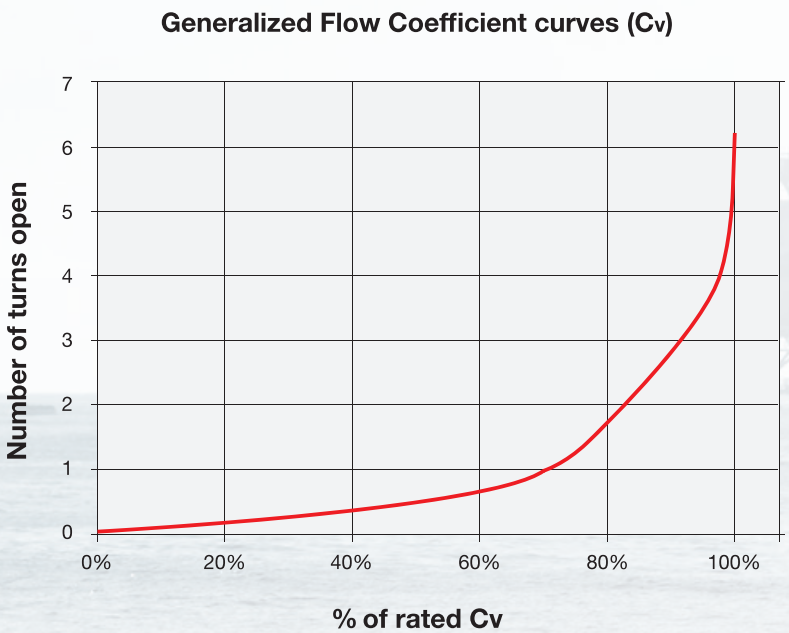




MAWP+NEEDLE VALVE TECHNICAL DATE

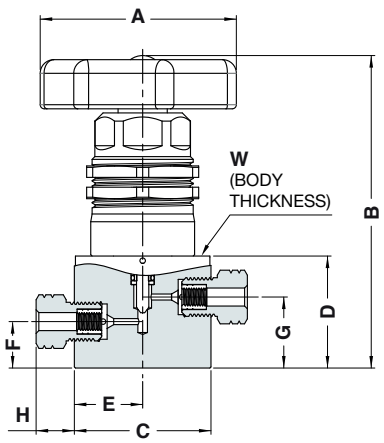
HAM-LET DESCRIPTION	Configuration	END			Orifice		MAWP		Rated Cv*
		Connection	Size						
			inch	mm	inch	mm	bar	psi	
High pressure: 10,000 psi (700bar)									
HHPVS10-NV2S-NF8	Straight	Female NPT	1/2	-	0.30	7.50	700	10000	0.60
HHPVS10-NV2E-NF8	Angle								0.68
High pressure: 30,000 psi (2,100 bar)									
HHPVS30-NV2S-HF6	Straight	High pressure 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 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 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 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 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)

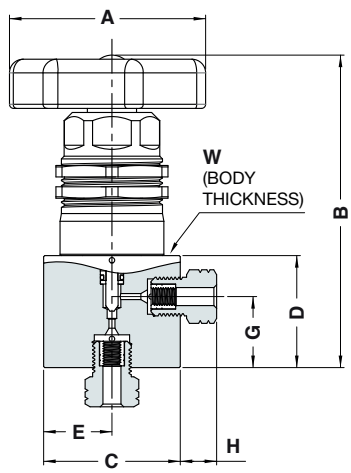


NEEDLE VALVE_HAND OPERATED DIMENSIONS

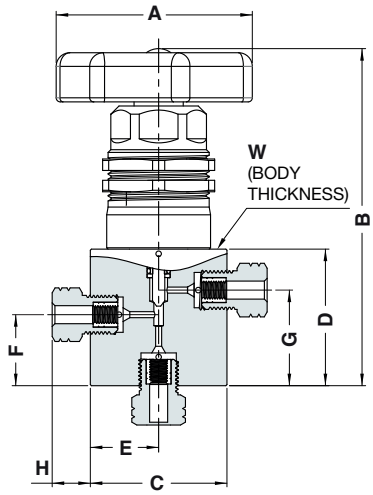
2 WAY STRAIGHT



2 WAY ANGLE

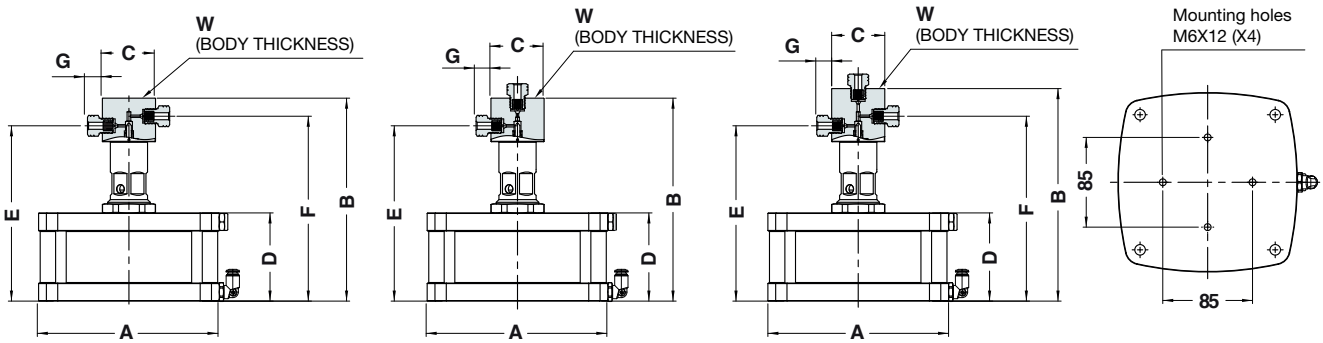


3 WAY - 2 ON PRESSURE



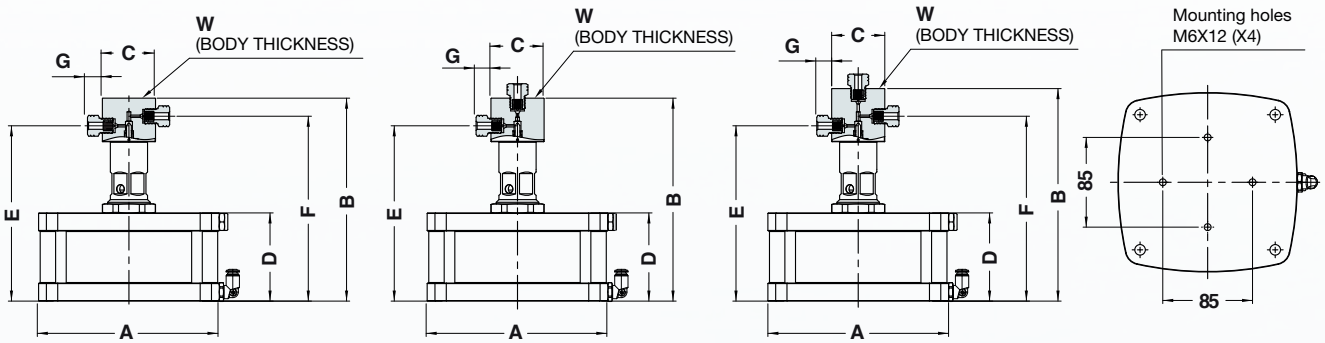
HAM-LET DESCRIPTION	Configuration	END			Orifice		A		B		C		D		E		F		G		H		W
		Connection	Size																				
			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	mm
Medium pressure: 10,000 psi (700bar)																							
HHPVS10-NV2S-NF8	Straight	Female NPT	1/2	-	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 Pressure 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 pressure								4.88	124.0			1.97	50.0			1.02	26.0	1.38	35.0			
HHPVS30-NV2S-HF9	Straight	High Pressure 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 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 Pressure 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 pressure								4.88	124.0			1.97	50.0			1.02	26.0	1.38	35.0			
HHPVS60-NV2S-HF6	Straight	High Pressure 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 pressure								4.88	124.0			1.97	50.0			1.02	26.0	1.38	35.0			
HHPVS60-NV2S-HF9	Straight	High Pressure 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 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 DESCRIPTION	Configuration	END			Operation Preesure		Orifice		A		B		C		D		E		F		G		W
		Connection	Size																				
			inch	mm	bar	psi	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 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 Pressure 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 pressure										7.87	200.0							6.85	174.0			
HHPVS30-NV2S-HF9-AO	Straight	High Pressure C&T	9/16	14.29			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 pressure										8.58	218.0							7.20	183.0			
High pressure: 60,000 psi (4,200 bar)																							
HHPVS60-NV2S-HF4-AO	Straight	High Pressure 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 pressure										7.87	200.0							6.85	174.0			
HHPVS60-NV2S-HF6-AO	Straight	High Pressure C&T	3/8	9.53			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 pressure										7.87	200.0							6.85	174.0			
HHPVS60-NV2S-HF9-AO	Straight	High Pressure C&T	9/16	14.29			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 pressure										8.58	218.0							7.20	183.0			

NEEDLE VALVE - AIR OPERATED NC (NORMALLY CLOSE) DIMENSIONS



HAM-LET DESCRIPTION	Configuration	END			Orifice		Operation Pressure		A		B		C		D		E		F		G		W
		Connection	Size																				
			inch	mm	inch	mm	bar	psi	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	mm
Medium pressure: 10,000 psi (700bar)																							
HHPVS10-NV2S-NF8-AC	Straight	Female 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 Pressure 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 pressure										9.06	230.0							8.03	204.0			
HHPVS30-NV2S-HF9-AC	Straight	High Pressure C&T	9/16	14.29			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 pressure										9.76	248.0							8.39	213.0			
High pressure: 60,000 psi (4,200 bar)																							
HHPVS60-NV2S-HF4-AC	Straight	High Pressure 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 pressure										9.06	230.0							8.03	204.0			
HHPVS60-NV2S-HF6-AC	Straight	High Pressure C&T	3/8	9.53			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 pressure										9.06	230.0							8.03	204.0			
HHPVS60-NV2S-HF9-AC	Straight	High Pressure C&T	9/16	14.29			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 pressure										9.76	248.0							8.39	213.0			

MEDIUM AND HIGH PRESSURE CONNECTION NEEDLE VALVE

HOW TO ORDER

HHPV	S	60	-	NV	2B	-	H	F	04	OPTIONAL

Valve Type

High Pressure Valve	

Material

S	SS 316

MAWP

10	10,000
30	30,000
60	60,000

Series

NV	Needle Valve

Body Pattern

2	2-Way	B	Two Pressure Connection
3	3-Way	E	Elbow / Angle
		S	Straight

Connection Style

H	High Pressure
N	NPT

Connection Type

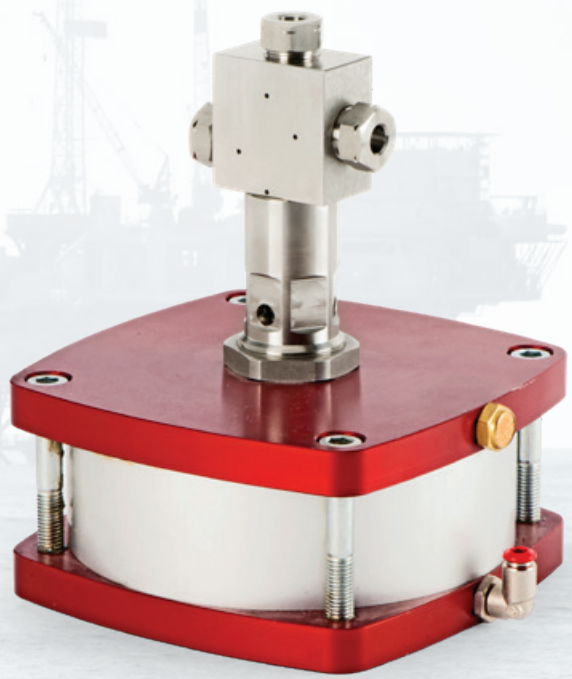
F	Female
M	Male

Connection Size

04	1/4
06	3/8
09	9/16

Operaiting

blank	non actuated
AO	Air Actuator Normally Open
AC	Air Actuator Normally Close



CONE AND THREAD TOOLING

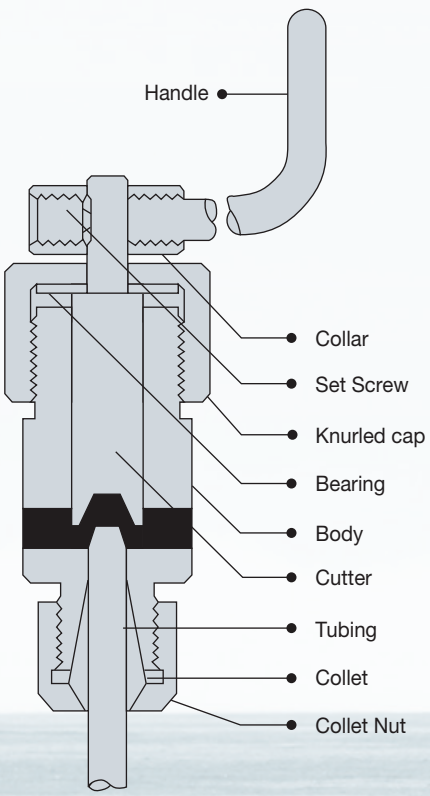
In addition to all the fittings and valves in the HHP line, tools that create a complete set of high pressure line assembly for Medium pressure, High pressure and Ultra-High pressure are available. There are 3 types of Cone and Thread tube available in the HHP line:

- Nipple in standard length
- Smooth tube that needs to be Coned and Threaded by the customer.

HHP Cone and Thread tools are used for 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

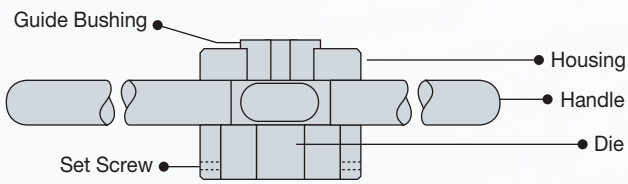
The HHP cone tool is used in order to perform a cone in approximately 57°-59° in Medium pressure, High pressure, and Ultra-High-pressure tubing ends.
The cutter and collet are interchangeable in all assemblies except for 9/16”, in order to permit easier changing from one tube size to another.



THREADING TOOL

The HHP threading tool is used in order to provide left-handed thread preparation on 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.



CONING AND THREADING 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:

Tubing O.D. size	Number of turns
1/8”	3
1/4”	4.5
3/8”	4.5
3/16”	8

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.
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”	2.5
1/4”	3.5
3/8”	4.54
3/16”	7.5

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:

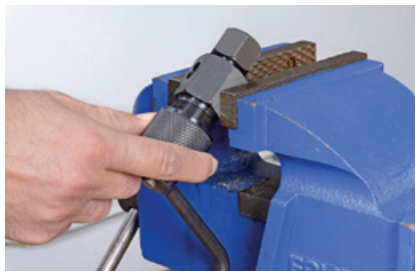
1. By removing the knurled cap and the cutter from the coning tool it will be used as a holder for the tube for using of threading operation.
2. After the tube is secured in place please put amount of oil (cutting fluid) on the end of the tube.
3. Place the threading tool onto the tubing while guide 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 needs 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 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

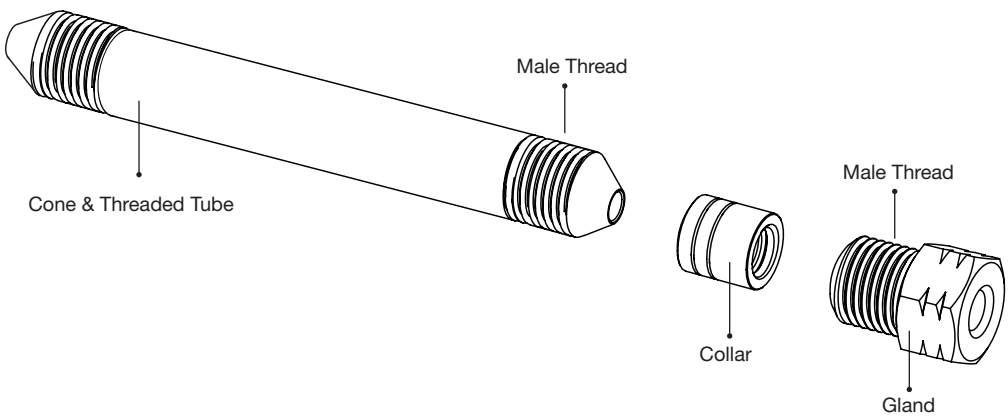
Ordering Information	TUBE O.D. Connection		TUBE I.D. Connection		Ordering Information Spare Cutter	Ordering Information Spare Collet
	inch	mm	inch	mm		
High Pressure: 60,000 psi (4,200 bar)						
HHPT60-CT-HF4	1/4	6.35	0.109	2.77	HHPT60-CT-HF4-CUT	HHPT60-CT-HF4-COL
HHPT60-CT-HF6	3/8	9.52	0.203	5.16	HHPT60-CT-HF6-CUT	HHPT60-CT-HF6-COL
HHPT60-CT-HF9	9/16	14.29	0.312	7.92	HHPT60-CT-HF9-CUT	HHPT60-CT-HF9-COL

Threading Tool

Ordering Information	TUBE O.D. Connection		Ordering Information Threading Die	Ordering Information Guide Bushing
	inch	mm		
High Pressure: 60,000 psi (4,200 bar)				
HHPT60-TT-HF4	1/4	6.35	HHPT60-TT-HF4-TD	HHPT60-TT-HF4-GB
HHPT60-TT-HF6	3/8	9.52	HHPT60-TT-HF6-TD	HHPT60-TT-HF6-GB
HHPT60-TT-HF9	9/16	14.29	HHPT60-TT-HF9-TD	HHPT60-TT-HF9-GB

HAM-LET HIGH PRESSURE -HHP
INSTALLATION INSTRUCTIONS

Any installation of HHP elements with cone & thread (c&t) end connection, either to fitting, adapter or a valve, must be conducted by the following steps:



1. Lubricate all male threads with any anti-seize lubricant.
2. Apply the same lubricant to the cone end of the tubing.
3. Thread the collar counter-clock wise (left-hand thread) to the tube, up to 1-2 full threads space from the cone end of the tube.
4. Insert the tube with the collar into the fitting body.
5. Before applying the final torque, pay attention that the tube is on full contact with the female cone on the fitting body, a full metal face to face contact should be achieved.
6. Thread the gland into the fitting body until finger tight.
7. Hold the fitting body steady and tighten the gland to the required torque as specified in the table below.