

HIGH PERFORMANCE BALL VALVES

H6800 SERIES



HIGH PERFORMANCE BALL VALVES H6800 SERIES

FEATURES

- On/off-service ball valve with 2-way pattern
 - Diverter-service ball valve with 3-way pattern
 - Stainless Steel and Brass construction
 - MAWP 6000 psi (410 bar)
 - MAWT 500°F (260°C)
 - Variable end connection types and sizes from 1/16" to 3/4" 3mm to 18mm
 - Operation with colored nylon handles, metal handle and color anodized aluminum *ISLT (locking device) handles
- * ISLT – Integral Safety Lock-out Tag-out Patent pending

GENERAL

The H6800 Series is a high-performance instrumentation ball valve for general service and instrumentation panels. The valves offer tight shutoff*, long-life service and low operating torque. The H6800 Series is rated to max. 6000 psig and performs on/off or diverter service. *Only straight and angle patterns

MATERIALS				
No.	Part	Qty.	Maximum allowed working pressure	
			Up to 3000 psi	Up to 6000 psi
1	Handle	1	Nylon / Metal / ISLT	Nylon / Metal / ISLT
2	Handle Set Screw	1	St.St.304	St.St.304
3	Packing Bolt	1	St.St.316	St.St.316
4	Packing	3	Virgin PTFE	PTFE / PEEK
5	Gland	2	St.St.316	St.St.316
6	Stem	1	St.St.316	St.St.316
7	Ball	1	St.St.316	St.St.316
8	Panel Nut	1	St.St.316 / Brass	St.St.316
9	End Cap	2	St.St.316 / Brass	St.St.316
10	Body Seal	2	Virgin PTFE	PTFE / PEEK
11	Seat	2	TFM® 1600	PCTFE / PEEK
12	Body	1	St. St. ASTM A351 Gr. CF8M Brass ASTM B-16	St. St. ASTM A-276

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TESTING

The H6800 design has been tested for Burst and Proof. Standard testing for each H6800 valve includes testing with nitrogen at 80 & 1000 Psig. Each valve is tested for leakage through the shell, packing and ball seats. The maximum allowable leakage across the ball seats is 0.1 std cc/min.

CLEANING & PACKAGING

HAM-LET's H6800 Ball Valve is treated with HAM-LET Passivation Cleaning and Packaging Procedure 8075. HAM-LET H6800 Ball valves with face-seal end connections are treated with Oxygen Cleaning and Packaging Procedure 8055. Oxygen Cleaning and Packaging Procedure 8055 is available as an option.

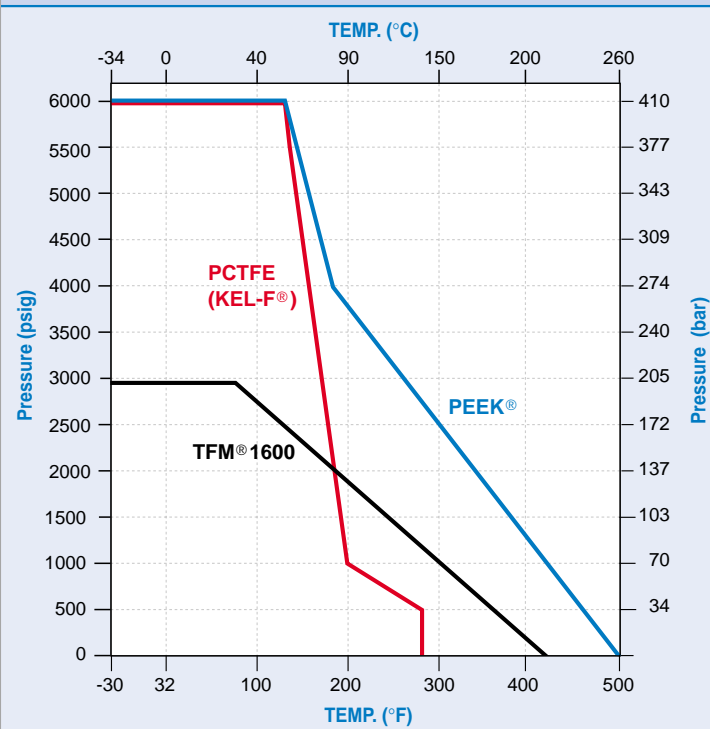
Cleaning and packing procedures 8075 and 8055 are available for reference in HAM-LET website.

PACKING ADJUSTMENT

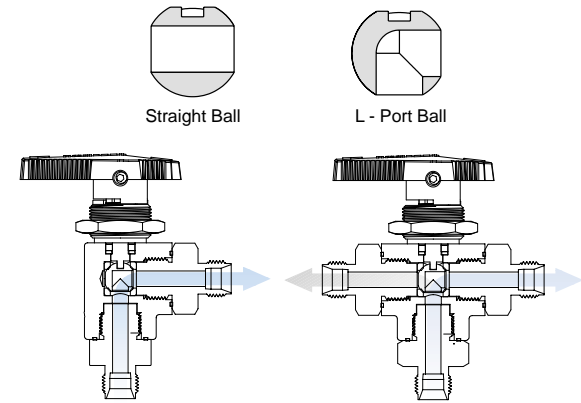
Due to the varied service applications of the valve, packing adjustment may be occasionally necessary. Packing is factory adjusted to 1000 psig service. Initial adjustment is recommended after installation and prior to start-up. Please find more information at installation instruction chapter.

HAM-LET Ball Valves are designed for operation in the fully closed or fully open position.

H6800 PRESSURE/TEMPERATURE RATINGS



ANGLE AND 3-PORT VALVE - BOTTOM ENTRY



MANUAL OPERATION



SEAT MATERIAL CHARACTERISTICS

TFM1600 (PFA and PTFE composite)

Excellent seat material for purity applications. Very low residual material during operation. Lower deformation ratio than PTFE, but higher pressure and temperature ratings than PTFE. Rated up to 410°F (210°C). Chemical resistance equal to PTFE material.

PCTFE (Kel-F®)

Excellent seat material for cryogenic applications such as Oxygen and Nitrogen. Suitable for low temperature applications down to -200°C.

PEEK (PolyEtherEtherKeton)

Excellent seat material for high-pressure and high-temperature applications. Excellent chemical resistance. Can be used continuously to 500°F (260°C) and in hot water or steam without permanent loss in physical properties. High strength for hostile environment and high pressure.

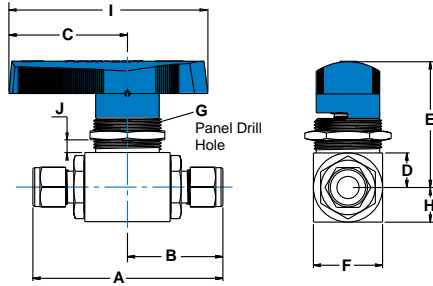
ISLT - Locking Device
 AL6061 Anodized Handle
 (St.St. internal components)
 For color selection, please see ordering information in page 8.

- ISLTB** ----ISLT Black
- ISLT** ----ISLT Blue
- ISLTR** ----ISLT Red
- ISLT** ----ISLT Yellow
- ISLTG** ----ISLT Green

For ordering handle type or kit use the ordering information.
 *Black Nylon Handle with brass insert is standard.

HIGH PERFORMANCE BALL VALVES H6800 SERIES

STRAIGHT PORT VALVE DIMENSIONS

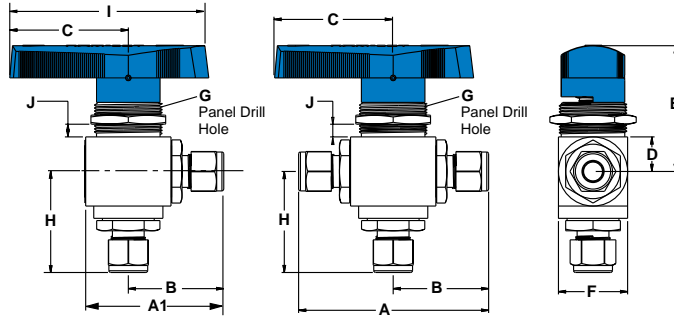


MATERIALS																								
Size	End connection	Orifice		Cv	A		B		C		D		E		F		G		H		**I		*J	
		mm	in		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
1/16"	LET-LOK® - INCH	1.3	0.051	0.1	70.2	2.76	35.1	1.38	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/8"		2.4	0.094	0.2	78.6	3.09	39.3	1.55	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	2.4	83.6	3.29	41.8	1.65	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	1.5	86.3	3.40	43.15	1.70	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	12	102.5	4.04	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	6.5	102.5	4.04	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
3mm	LET-LOK® - Metric	2.4	0.094	0.2	78.6	3.09	39.3	1.55	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
6mm		4.8	0.189	2.4	83.6	3.29	41.8	1.65	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
8mm		4.8	0.189	1.5	84.8	3.34	42.4	1.67	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
10mm		4.8	0.189	1.5	86.4	3.40	43.2	1.70	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
12mm		10.3	0.40	12	102.5	4.04	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
18mm		10.3	0.40	6.5	102.5	4.04	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
1/8"	Female NPT	4.8	0.189	1.2	54.8	2.16	27.4	1.08	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	0.9	63.6	2.50	31.8	1.25	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.6	69.6	2.74	34.8	1.37	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	6.3	87.4	3.44	43.7	1.72	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	3.8	91.0	3.58	45.5	1.79	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
1/8"	Female BSPT/BSPP	4.8	0.189	1.2	54.8	2.16	27.4	1.08	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	0.9	63.6	2.50	31.8	1.25	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.6	69.6	2.74	34.8	1.37	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	6.3	87.4	3.44	43.7	1.72	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	3.5	91.0	3.58	45.5	1.79	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
1/8"	Male NPT	4.8	0.189	1.5	67.6	2.66	33.8	1.33	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	1.2	76.6	3.02	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.9	76.6	3.02	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	8.2	92.4	3.64	46.2	1.82	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	4.5	94.4	3.71	47.2	1.86	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
1/8"	Male BSPT/BSPP	4.8	0.189	1.5	65.4	2.57	32.7	1.29	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	1.2	76.6	3.02	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.9	76.6	3.02	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	8.2	92.4	3.64	46.2	1.82	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	4.5	94.4	3.71	47.2	1.86	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255
1/4"	Face Seal Male	4.5	0.18	2.4	79.8	3.14	39.9	1.57	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	11.30	0.44	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	12	93.8	3.69	46.9	1.85	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	16.00	0.63	80.0	3.15	6.5	0.255

Dimensions are for reference only, and are subject to change.
 Face to face dimensions for LET-LOK® end connections (dimensions A and B) are finger tight.
 * Maximum panel thickness
 ** Refers to standard nylon handle.

HIGH PERFORMANCE BALL VALVES H6800 SERIES

ANGLE & 3-PORT VALVE DIMENSIONS



MATERIALS																										
Size	End connection	Orifice		Cv	A		A1		B		C		D		E		F		G		H		I		*J	
		mm	in		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
1/16"	LET-LOK® - INCH	1.3	0.051	0.08	70.2	2.76	49.3	1.94	35.1	1.38	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	37.9	1.49	50.0	1.96	6.5	0.255
1/8"		2.4	0.094	0.15	78.6	3.09	52.0	2.05	39.3	1.55	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	42.1	1.66	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	0.90	83.6	3.29	52.8	2.08	41.8	1.65	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	44.6	1.76	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.60	86.3	3.40	54.5	2.15	43.15	1.70	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	46.0	1.81	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	4.6	102.5	4.04	67.3	2.65	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	57.5	2.26	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	3.8	102.5	4.04	67.3	2.65	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	57.5	2.26	80.0	3.15	6.5	0.255
3mm	LET-LOK® - Metric	2.4	0.094	0.15	78.6	3.09	52.0	2.05	39.3	1.55	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	42.1	1.66	50.0	1.96	6.5	0.255
6mm		4.8	0.189	0.90	83.6	3.29	52.8	2.08	41.8	1.65	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	44.6	1.76	50.0	1.96	6.5	0.255
8mm		4.8	0.189	0.80	84.8	3.34	61.0	2.4	42.4	1.67	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	46.0	1.81	50.0	1.96	6.5	0.255
10mm		4.8	0.189	0.60	86.4	3.40	61.9	2.44	43.2	1.70	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	46.0	1.81	50.0	1.96	6.5	0.255
12mm		10.3	0.40	4.6	102.5	4.04	47.35	1.86	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	57.5	2.11	80.0	3.15	6.5	0.255
18mm		10.3	0.40	2.5	102.5	4.04	47.35	1.86	51.25	2.02	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	57.5	2.19	80.0	3.15	6.5	0.255
1/8"	Female NPT	4.8	0.189	0.3	54.8	2.16	38.5	1.5	27.4	1.08	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	34.6	1.36	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	0.75	63.6	2.50	42.9	1.69	31.8	1.25	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	34.6	1.36	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.5	69.6	2.74	45.9	1.8	34.8	1.37	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	37.6	1.48	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	3.5	87.4	3.44	59.7	2.35	43.7	1.72	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	50.0	1.97	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	2.5	91.0	3.58	61.5	2.42	45.5	1.79	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	50.0	1.97	80.0	3.15	6.5	0.255
1/8"	Female BSPT/BSPP	4.8	0.189	0.3	54.8	2.16	38.5	1.5	27.4	1.08	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	34.6	1.36	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	0.75	63.6	2.50	42.9	1.69	31.8	1.25	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	34.6	1.36	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.5	69.6	2.74	45.9	1.8	34.8	1.37	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	37.6	1.48	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	3.5	87.4	3.44	59.7	2.35	43.7	1.72	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	50.0	1.97	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	2.5	91.0	3.58	61.5	2.42	45.5	1.79	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	50.0	1.97	80.0	3.15	6.5	0.255
1/8"	Male NPT	4.8	0.189	0.9	67.6	2.66	44.8	1.76	33.8	1.33	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	36.6	1.44	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	0.6	76.6	3.02	49.4	1.94	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	41.1	1.62	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.35	76.6	3.02	49.4	1.94	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	41.1	1.62	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	3.0	92.4	3.64	62.2	2.45	46.2	1.82	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	52.5	2.07	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	2.0	94.4	3.71	63.2	2.49	47.2	1.86	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	53.5	2.1	80.0	3.15	6.5	0.255
1/8"	Male BSPT/BSPP	4.8	0.189	0.9	65.4	2.57	44.8	1.76	32.7	1.29	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	36.6	1.44	50.0	1.96	6.5	0.255
1/4"		4.8	0.189	0.6	76.6	3.02	49.4	1.94	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	41.1	1.62	50.0	1.96	6.5	0.255
3/8"		4.8	0.189	0.35	76.6	3.02	49.4	1.94	38.3	1.51	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	41.1	1.62	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	3.0	92.4	3.64	62.2	2.45	46.2	1.82	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	52.5	2.07	80.0	3.15	6.5	0.255
3/4"		10.3	0.40	2.0	94.4	3.71	63.2	2.49	47.2	1.86	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	53.5	2.1	80.0	3.15	6.5	0.255
1/4"	Face Seal Male	4.5	0.18	0.9	79.8	3.14	50.9	2.0	39.9	1.57	31.0	1.22	11.30	0.44	38.85	1.53	22.2	0.87	19.3	0.76	42.7	1.68	50.0	1.96	6.5	0.255
1/2"		10.3	0.40	4.6	93.8	3.69	62.9	2.47	46.9	1.85	50.0	1.97	16.00	0.63	50.0	1.97	32.0	1.26	20.8	0.82	49.3	1.94	80.0	3.15	6.5	0.255

Dimensions are for reference only, and are subject to change.
 Face to face dimensions for LET-LOK® end connections (dimensions A, A1, B and H) are finger tight.
 * Maximum panel thickness
 ** Refers to standard nylon handle

HIGH PERFORMANCE BALL VALVES H6800 SERIES

H6800 - PNEUMATIC ACTUATED VALVES

FEATURES

- Can be installed on straight, angle and 3-way patterns.
- Compliant with ISO 5211 mounting standard.
- Position indicators as standard.
- Metric and Imperial port connections.
- Wall-mounting brackets.
- Mounting kits are available (see mounting-kit ordering in page 8).
- Limit switches are available (please contact HAM-LET).

GENERAL

The H6800 Series offers quarter-turn rack-and-pinion pneumatic actuators.

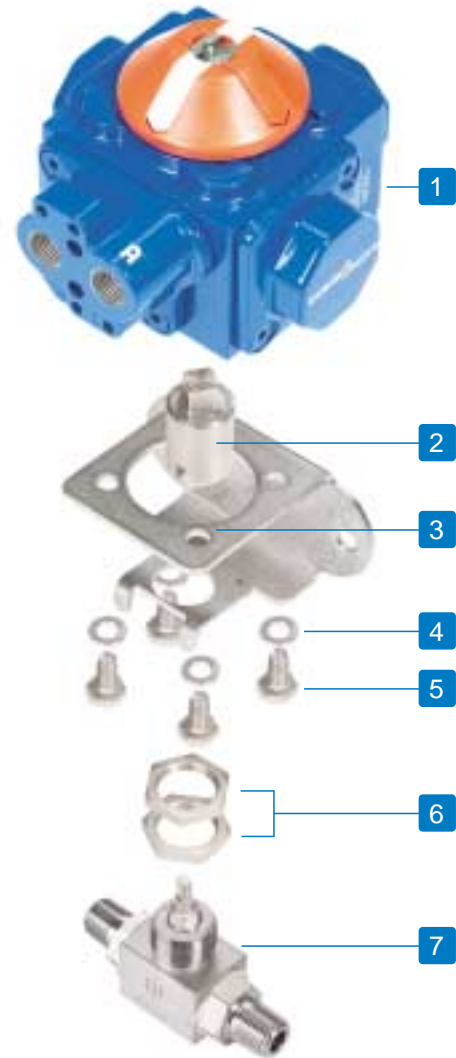
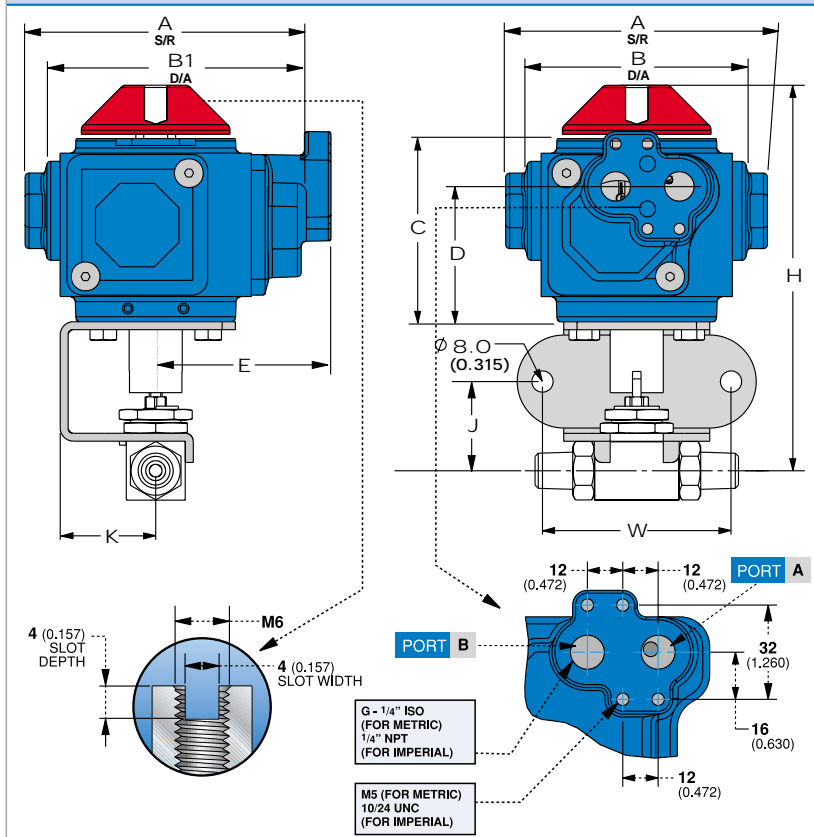
The actuators are compact, lightweight, easy to mount, high cycle, and can be operated with standard, shop air pressure as Double Acting or Spring Return types.

MATERIALS

No.	Part	Qty.	Material
1	Actuator	1	AL 356-T5
2	Coupling	1	St.St.316
3	Bracket	1	St.St.304
4	Washer	4	St.St.304
5	Cap screw	4	St.St.304
6	Panel Nut	2	St.St.316
7	H6800	1	St.St.316 / Brass *

* Body material: St.St. ASTM A-276; St.St. ASTM A351 Gr. CF8M; Brass ASTM B-16

DIMENSIONS



Valve Size	Actuator Size	A S/R		B D/A		B1 D/A		C		D		E		H		J		K		W	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
1/16" to 3/4"	C15	110	4.31	86.0	3.39	97.8	3.85	68.8	2.71	50.8	2.0	66.0	2.6	145.2	5.71	33.5	1.32	35.0	1.38	71.0	2.79
1/2" to 3/4"	C20	131	5.17	102	4.03	117	4.60	80.5	3.17	61.5	2.42	77.2	3.04	150.1	5.9	38.4	1.51	35.0	1.38	71.0	2.79

C15 Actuators are standard for all sizes.
C20 Actuators are optional for 1/2" valves and above.

HIGH PERFORMANCE BALL VALVES H6800 SERIES

VALVE TORQUE DATA						
Valve size	Breaking torque			Bridge flange size		
	lbf.in	N.m	kgf.cm	ISO 5211 Size	PCD	
					in	mm
H6800 1/16" - 3/8"	14.2	1.6	16.3	F05	1.97	50
H6800 1/2" - 3/4"	24.8	2.8	28.5			

Valve torque data refers to TFM®1600 ball seats.

ACTUATOR TECHNICAL INFORMATION							
Actuator size and type	Minimum supply pressure				Actuator flange size		
	UP TO 3/8"		1/2" to 3/4"		ISO 5211 Size	PCD	
	psig	bar	psig	bar		in	mm
C15 SPRING RETURN	58	4.0	58	4.0	F05	1.97	50
C15 DOUBLE ACTING	40	3.0	40	3.0	F05	1.97	50
C20 SPRING RETURN	-	-	58	4.0	F05	1.97	50
					F07	2.76	70
C20 DOUBLE ACTING	-	-	40	3.0	F05	1.97	50
					F07	2.76	70

ACTUATOR MOUNTING KIT

Mounting kit includes bridge, adapter, panel nut and wall mount bushings.

Z6800 - 1/4"	MK	C15	IM
End Connection Size	Mounting Kit	Actuator size	Imperial / Metric
1/4 - Up to 3/8"	MK - Mounting Kit	C15	IM - Imperial
1/2 - 1/2" to 3/4"		C20	MT - Metric

ISLT



GENERAL
The integral locking mechanism enables safe and easy-to-use solutions for valve position locking and tagging. The design prevents undesirable valve position changes, even if no locking equipment is used. Available for 2-way straight and angle pattern in locked-open and locked-closed positions. For 3-way pattern valves, the ISLT handle allows locking in left and right positions.

ISLT DEVICE CONSTRUCTION			
No.	Part	Qty	Material
1	Handle	1	Aluminum anodized
2	Latch	1	St.St.304
3	Pin	1	St.St.304
4	Spring	1	St.St.302
5	Set Screw	1	St.St.304

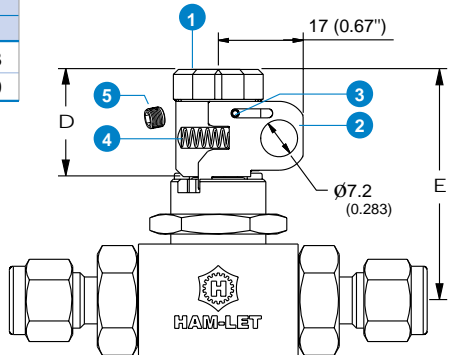
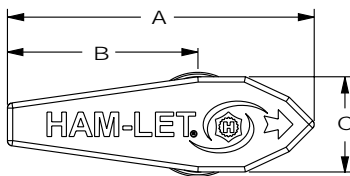
H6800 ISLT HANDLE - DIMENSIONS

Valve Size	A		B		C		D		E	
	in	mm	in	mm	in	mm	in	mm	in	mm
1/16" to 3/8"	2.28	58.0	1.18	30.0	0.71	18.0	0.85	21.5	1.82	46.3
1/2" to 3/4"	3.15	80.0	1.97	50.0	0.87	22.0	0.98	25.0	2.1	53.0

BODY & SEAT MATERIAL COMBINATIONS

Body Material	*MAWP	Seat Material
St.St. ASTM A351 Gr. CF8M	3000 psi	TFM1600
St.St. ASTM A-276	6000 psi	PCTFE / PEEK
Brass ASTM B-16	3000 psi	TFM®1600

For other body and seat combinations, please contact our customer service
* Maximum Allowed Working Pressure.



Single-Mounted Actuator
See ordering information.



Dual-Mounted Actuator
For ordering and more information, Contact HAM-LET

HIGH PERFORMANCE BALL VALVES H6800 SERIES

H6800 SERIES ORDERING INFORMATION

Valve Description **H68 00 SS L 1/4 C S S**

OPTIONAL:

Valve series

Valve Type

- 00** - LET-LOK® End Connection
- 10** - Female End Connection
- 80** - Male End Connection
- 85** - Male to Female End Connection
- 90** - Female to LET-LOK® End Connection
- 95** - Male to LET-LOK® End Connection

Body and Ends Material

- SS** - St.St 316
- B** - Brass

For other materials, please consult HAM-LET.

End Connection

- L** - LET-LOK® Tube Fitting
- N** - Threaded NPT
- G** - Threaded BSPP
- R** - Threaded BSPT
- GL** - Face Seal Male Connector
- HL** - ONE-LOK® Tube fitting

Other end connections are available upon request.

End Connection Size

1/16 inch	6mm
1/8 inch	8mm
1/4 inch	10mm
3/8 inch	12mm
1/2 inch	18mm
3/4 inch	

Seat Material

- P** - TFM®1600
- C** - PCTFE
- A** - PEEK

Handle Type

- *S** - Black Nylon Handle
- R** - Red Nylon Handle
- B** - Blue Nylon Handle
- Y** - Yellow Nylon Handle
- G** - Green Nylon Handle
- M** - Metal (St.St.) Handle
- ISLTS** - ISLT Black
- ISLTB** - ISLT Blue
- ISLTR** - ISLT Red
- ISLTY** - ISLT Yellow
- ISLTG** - ISLT Green

* Black Nylon handle is standard.

Treatments

- OC** - Oxygen Clean
- LF** - Lubricant Free

Valve Pattern Type

- S** - Straight Port Valve
- A** - Angle Port Valve
- T** - 3-Port Valve

Actuator

- C15** - Standard
- C20** - Optional for 1/2" - 3/4" only

Actuation type

- SR** - Spring Return
- DA** - Double Acting

Position

- NO** - Normally open
- NC** - Normally close

Imperial / Metric

- IM** Imperial
- MT** Metric

ORDERING INFORMATION SPARE-PARTS KIT & REPAIR KIT

Seal Kit includes seats, stem packings and body seals. Handle kit includes handle and set screw. To order a spare-parts kit, use the following format:

End Connection Size	Seat Material	Seat Material	Handle	Pattern Valve Type
1/16 in 3 mm	SK - Seal kit HK - Handle kit	P - TFM®1600 C - PCTFE A - PEEK	S - Black Nylon Handle R - Red Nylon Handle B - Blue Nylon Handle Y - Yellow Nylon Handle G - Green Nylon Handle M - Metal (St.St.) Handle ISLTS - ISLT Black ISLTB - ISLT Blue ISLTR - ISLT Red ISLTY - ISLT Yellow	S - Straight port valve A - Angle port valve T - 3-port valve
1/8 in 6 mm				
1/4 in 8 mm				
3/8 in 10 mm				
1/2 in 12 mm				
3/4 in 18 mm				

Warning

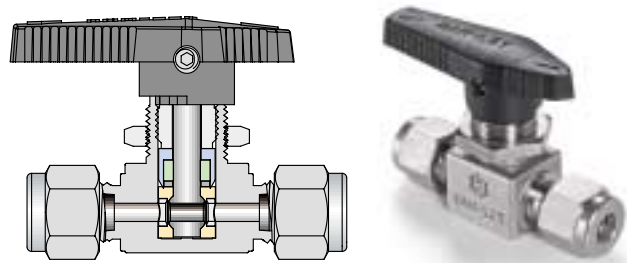
Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your HAM-LET products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

COMPACT ONE PIECE BALL VALVE

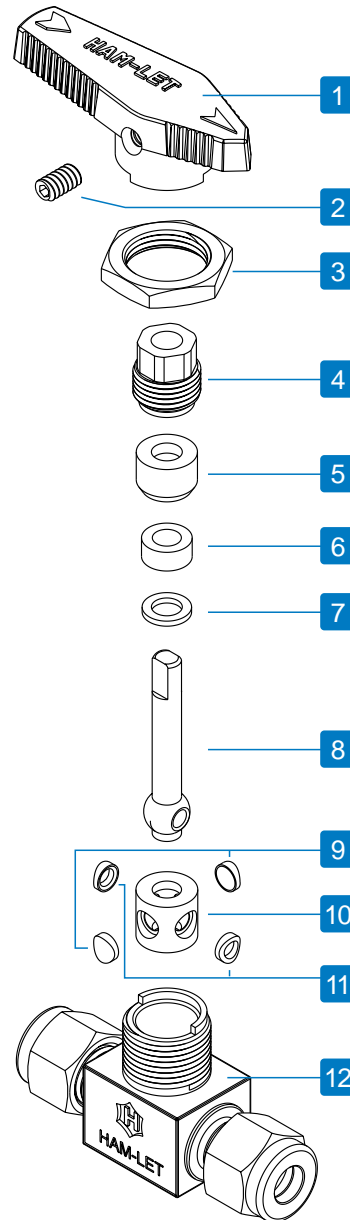
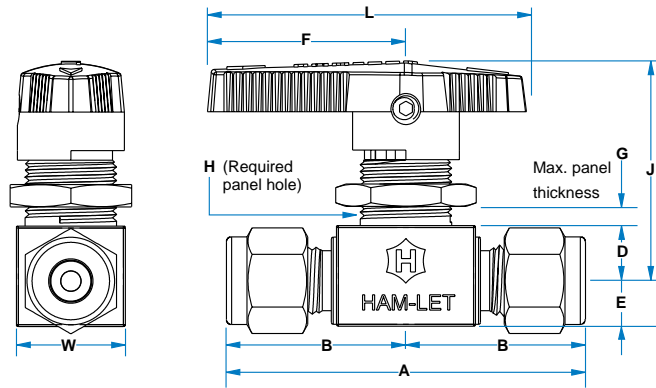
H800 SERIES



COMPACT ONE PIECE BALL VALVE H800 SERIES

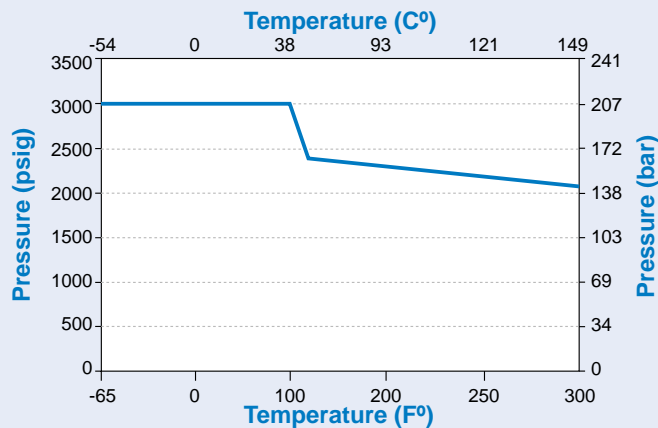


MATERIALS																									
Description	End Connexion		Orifice		Cv	A		B		D		E		F		G		H		J		W		L	
	Type	Size	mm	in		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
H-800-SS-L-1/8	Imperial	1/8"	2.4	0.094	0.2	51.5	2.012	25.7	1.012																
H-800-SS-L-1/4	LET-LOK®	1/4"	3.2	0.126	0.6	56.1	2.209	27.9	1.098																
H-800-SS-L-3MM	Metric	3MM	2.4	0.094	0.2	51.1	2.012	25.7	1.012	8.6	0.339	7.1	0.280	31	1.220	6.4	0.252	15.1	0.594	34.5	1.358	16.85	0.663	50	1.969
H-800-SS-L-6MM	LET-LOK®	6MM	3.2	0.126	0.6	56.1	2.209	27.9	1.098																
H-810-SS-N-1/4	F-NPT	1/8"	3.2	0.126	0.5	41.1	1.618	20.6	0.811																



MATERIALS			
No.	Part	Qty.	Material
1	Handle	1	Nylon + Glass Fiber
2	Set Screw	1	St.St.304
3	Panel nut	1	St.St.304
4	Packing Bolt	1	St.St.316
5	Gland	1	St.St.304
6	Stem packing	1	Virgin® PTFE
7	Washer	1	St.St.304
8	Ball stem	1	St.St.316
9	Seat disc	2	St.St.304 (PTFE coated)
10	Seat	1	PFA
11	Seat ring	2	St.St.304 (PTFE coated)
12	Body	1	St.St. ASTM A351 Gr. CF8M

PRESSURE Vs. TEMPERATURE



© PTFE is trade mark of DuPont.

THREE-PIECE BALL VALVES

H500 SERIES



3-PIECE BALL VALVES H500 SERIES

FEATURES

3-piece heavy-duty ball valves with :

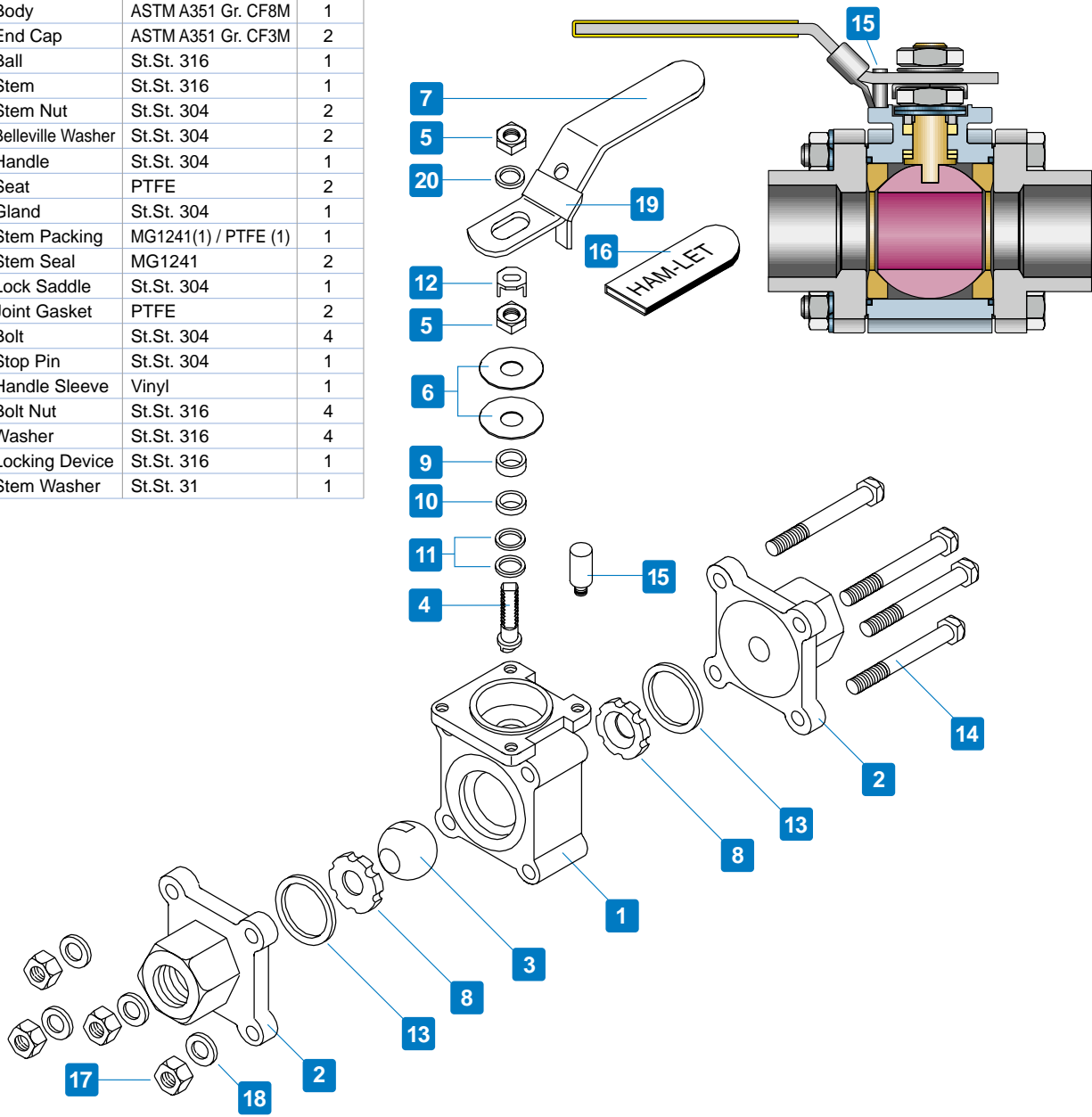
- Precision Investment cast body in CF8M stainless steel
- Precision Investment cast end caps in CF3M stainless steel
- Blow-out proof stem with Belleville washer design for long life stem sealing
- ISO 5211 Mounting Pad for automation
- Manual Operation with integral locking device
- Flow coefficient (Cv) from 1.2 to 24.0
- MAWP 3000 psig (204 Bar)
- MAWT 465°F (240°C)

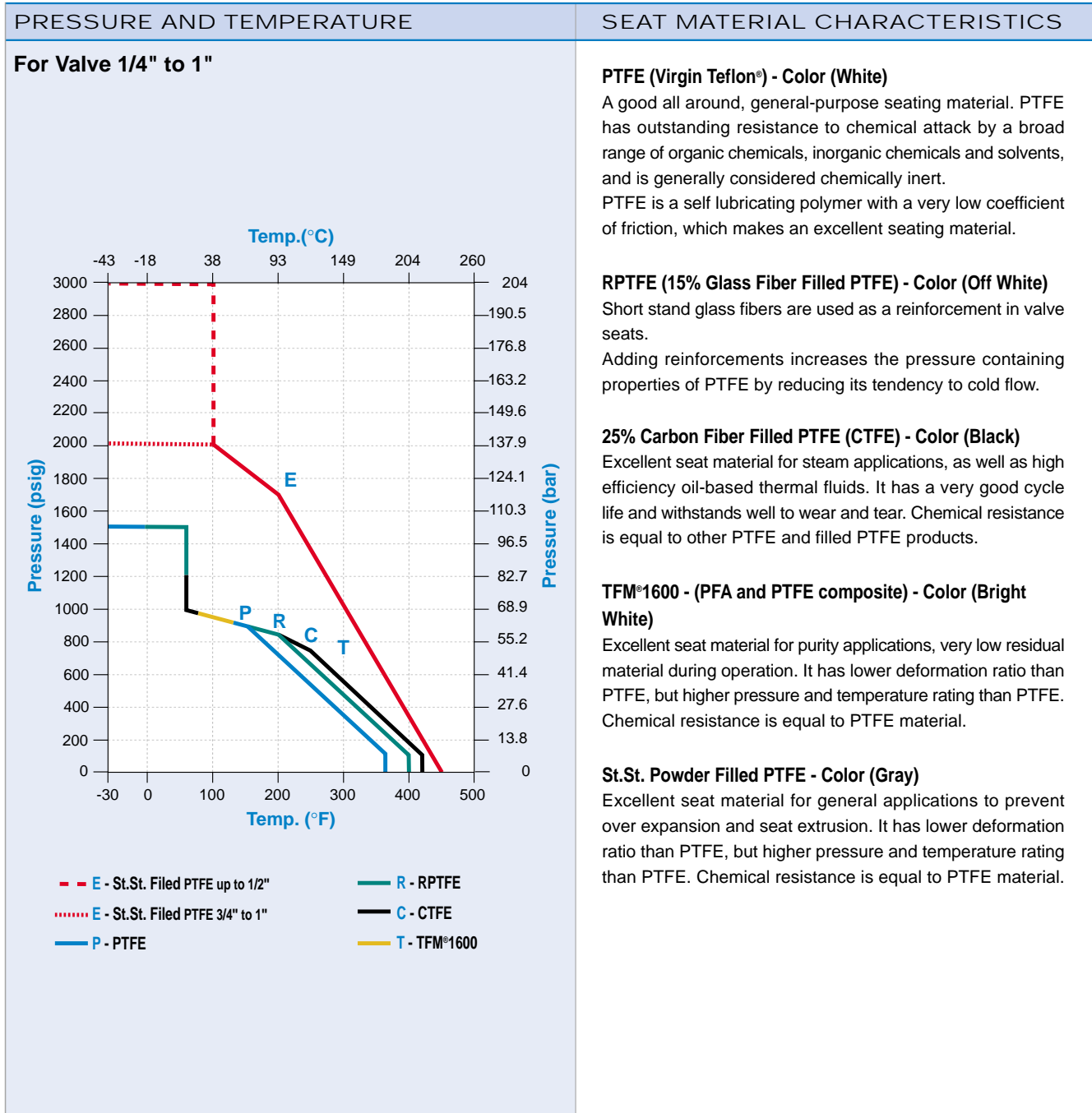
GENERAL

The H500 Series is a moderate-pressure instrumentation ball valve for general service and instrumentation panels. The valves offer large ports for high flow, tight shutoff, long-life service and low operating torque. The H500 Series can be used for bi-directional flow and is rated to max. 3000 psig (204 Bar) and performs on/off service.

MATERIALS

No.	Part No.	Material	Qty
1	Body	ASTMA351 Gr. CF8M	1
2	End Cap	ASTMA351 Gr. CF3M	2
3	Ball	St.St. 316	1
4	Stem	St.St. 316	1
5	Stem Nut	St.St. 304	2
6	Belleville Washer	St.St. 304	2
7	Handle	St.St. 304	1
8	Seat	PTFE	2
9	Gland	St.St. 304	1
10	Stem Packing	MG1241(1) / PTFE (1)	1
11	Stem Seal	MG1241	2
12	Lock Saddle	St.St. 304	1
13	Joint Gasket	PTFE	2
14	Bolt	St.St. 304	4
15	Stop Pin	St.St. 304	1
16	Handle Sleeve	Vinyl	1
17	Bolt Nut	St.St. 316	4
18	Washer	St.St. 316	4
19	Locking Device	St.St. 316	1
20	Stem Washer	St.St. 31	1





3-PIECE BALL VALVES H500 SERIES

H500 LET-LOK - DIMENSIONS											
Valve size		Orifice	Cv	A	B	F	G	H	K	S	W
mm	in										
6	1/4"	4.80	1.20	58.0	20.6	44.4	38.0	57.0	14.3	122	32.0
		0.189		2.283	0.811	1.748	1.496	2.244	0.563	4.803	1.260
10	3/8"	7.10	3.8	59.6	20.6	44.4	38.0	57.0	17.5	122	32.0
		0.280		2.346	0.811	1.748	1.496	2.244	0.689	4.803	1.260
12	1/2"	10.5	7.6	67.7	20.6	44.4	38.0	57.0	22.2	122	32.0
		0.413		2.665	0.811	1.748	1.496	2.244	0.874	4.803	1.260
20	3/4"	13.0	14.0	71.7	24.6	50.4	40.0	60.0	28.6	122	38.0
		0.512		2.823	0.968	1.984	1.575	2.362	1.126	4.803	1.496
25	1"	19.5	24.0	121.9	31.8	60.0	56.0	75.0	38.1	151	52.0
		0.768		4.8	1.252	2.362	2.205	2.952	1.500	5.945	2.047

H510 FEMALE NPT / BSPT											
Valve size		Orifice	Cv	A	B	F	G	H	K	S	W
in											
1/4"	10.5	5.10	65.6	20.6	44.4	38.0	57.0	27.0	122	32.0	
	0.413		2.283	0.811	1.748	1.496	2.244	1.063	4.803	1.260	
3/8"	10.5	5.10	68.6	20.6	44.4	38.0	57.0	27.0	122	32.0	
	0.413		2.346	0.811	1.748	1.496	2.244	1.063	4.803	1.260	
1/2"	10.5	5.10	73.6	20.6	44.4	38.0	57.0	27.0	122	32.0	
	0.413		2.665	0.811	1.748	1.496	2.244	1.063	4.803	1.260	
3/4"	13.0	14.0	77.6	24.6	50.4	40.0	60.0	33.0	122	38.0	
	0.512		2.823	0.968	1.984	1.575	2.362	1.30	4.803	1.496	
1"	19.5	24.0	121.9	31.8	60.0	56.0	75.0	42.0	151	52.0	
	0.768		4.8	1.252	2.362	2.205	2.952	1.653	5.945	2.047	

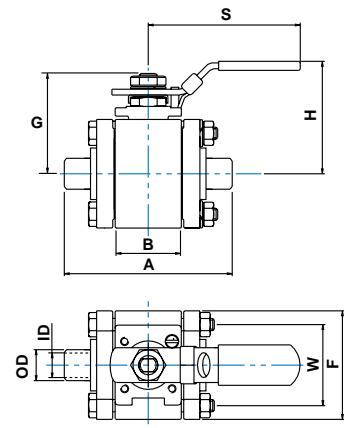
3-PIECE BALL VALVES H500 SERIES

H510 TUBE SOCKET WELD											
Valve size		Orifice	Cv	A	B	F	G	H	K	S	W
mm	in										
6	1/4"	4.80	1.20	65.6	20.6	44.4	38.0	57.0	27.0	122	32.0
		0.189		2.283	0.811	1.748	1.496	2.244	1.063	4.803	1.260
10	3/8"	7.10	3.80	68.6	20.6	44.4	38.0	57.0	27.0	122	32.0
		0.280		2.346	0.811	1.748	1.496	2.244	1.063	4.803	1.260
12	1/2"	10.5	7.60	73.6	20.6	44.4	38.0	57.0	27.0	122	32.0
		0.413		2.665	0.811	1.748	1.496	2.244	1.063	4.803	1.260
20	3/4"	13.0	14.0	77.6	24.6	50.4	40.0	60.0	33.0	122	38.0
		0.512		2.823	0.968	1.984	1.575	2.362	1.30	4.803	1.496
25	1"	19.5	24.0	121.9	31.8	60.0	56.0	75.0	42.0	151	52.0
		0.768		4.8	1.252	2.362	2.205	2.952	1.653	5.945	2.047

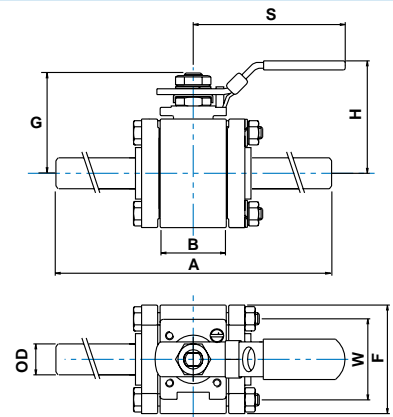
H510 PIPE SOCKET WELD											
Valve size		Orifice	Cv	A	B	F	G	H	K	S	W
in											
1/4"	4.80	1.20	70	20.6	44.4	38.0	57.0	13.7	122	32.0	
	0.189		2.756	0.811	1.748	1.496	2.244	0.54	4.803	1.260	
3/8"	7.10	3.80	70	20.6	44.4	38.0	57.0	17.1	122	32.0	
	0.280		2.756	0.811	1.748	1.496	2.244	0.673	4.803	1.260	
1/2"	10.5	7.60	70	20.6	44.4	38.0	57.0	21.3	122	32.0	
	0.413		2.756	0.811	1.748	1.496	2.244	0.838	4.803	1.260	
3/4"	13.0	14.0	74	24.6	50.4	40.0	60.0	27.1	122	38.0	
	0.512		2.913	0.968	1.984	1.575	2.362	1.067	4.803	1.496	
1"	19.5	24.0	99	31.8	60.0	56.0	75.0	34.1	151	52.0	
	0.768		3.9	1.252	2.362	2.205	2.952	1.342	5.945	2.047	

3-PIECE BALL VALVES H500 SERIES

H580 PIPE BUTTWELD													
Valve size	Orifice	Cv	A	B	F	G	H	OD	Schedule			S	W
									10 ID	40 ID	80 ID		
1/4"	7.1	3.8	65.6	20.6	44.4	38.0	57.0	13.7	10.4	9.24	7.7	122	32.0
	0.280		2.283	2.283	1.748	1.496	2.244	0.539	0.410	0.364	0.302	4.803	1.260
3/8"	10.5	7.60	68.6	20.6	44.4	38.0	57.0	17.1	13.85	12.5	10.75	122	32.0
	0.413		2.346	2.346	1.748	1.496	2.244	0.673	0.545	0.492	0.423	4.803	1.260
1/2"	10.5	7.60	73.6	20.6	44.4	38.0	57.0	21.3	17.1	15.8	13.9	122	32.0
	0.413		2.665	2.665	1.748	1.496	2.244	0.838	0.674	0.622	0.546	4.803	1.260
3/4"	13.0	14.0	77.6	24.6	50.4	40.0	60.0	26.7	22.45	20.9	18.85	122	38.0
	0.512		2.823	2.823	1.984	1.575	2.362	1.051	0.884	0.824	0.742	4.803	1.496
1"	19.5	24.0	97.8	31.8	60.0	56.0	75.0	33.4	27.85	26.64	24.3	151	52.0
	0.768		3.523	3.523	2.362	2.205	2.952	1.315	1.097	1.049	0.956	5.945	2.047



H580 EXTENDED AND SHORT TUBE BUTTWELD														
Valve size	Orifice	Cv	A	A	B	F	G	H	K	S	W			
												mm	in	Extended
6	1/4"	4.80	1.20	-	52.6	20.6	44.4	38.0	57.0	6.35	122	32.0		
		0.189		-	2.07	0.811	1.748	1.5	2.244	0.25	4.8	1.26		
10	3/8"	7.1	3.8	-	52.6	20.6	44.4	38.0	57.0	9.5	122	32.0		
		0.280		-	2.07	0.811	1.748	1.5	2.244	0.374	4.8	1.26		
12	1/2"	10.4	7.6	140	52.6	20.6	44.4	38.0	57.0	12.7	122	32.0		
		0.409		5.5	2.07	0.811	1.748	1.5	2.244	0.5	4.8	1.26		
20	3/4"	13.0	14.0	150	56.6	24.6	50.4	40.0	60.0	19.1	122	38.0		
		0.512		5.9	2.228	0.968	1.984	1.57	2.362	0.75	4.8	1.496		
25	1"	21.1	24.0	161	66.8	31.8	60.0	56.0	75.0	25.4	151	52.0		
		19.5		6.338	2.629	1.25	2.362	2.20	2.952	1	5.944	2.047		



VALVE TORQUE KGF CM (LBF X INCH)		
Valve size	Break-away Torque	Running Torque
1/4"	30 (26)	15 (13)
3/8"	30 (26)	15 (13)
1/2"	30 (26)	15 (13)
3/4"	35 (30.4)	22 (19.1)
1"	45 (39)	25 (21.7)

3-PIECE BALL VALVES H500 SERIES

PACKING ADJUSTMENT

Due to the varied service applications of the valve, packing adjustment may be occasionally necessary. Packing is factory adjusted to 1000 psig service. Initial packing adjustment is recommended after installation and prior to start-up. Please find more information at H500 under nstallation instruction.

HAM-LET Ball Valves are designed for operation in the fully closed or fully open position.

TESTING

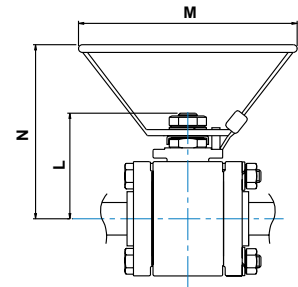
The H500 Series Ball Valve designs have been tested for Proof and Burst. Every H500 Ball Valve is factory tested with nitrogen at 1000 psi (69 bar). Maximum allowable leak age across seats is 0.1 std cc/min.

CLEANING & PACKAGING

HAM-LET's H500 Ball Valve is treated with HAM-LET Passivation Cleaning and Packaging (Procedure 8075). Oxygen Cleaning and Packaging (Procedure 8055) is available as an option.

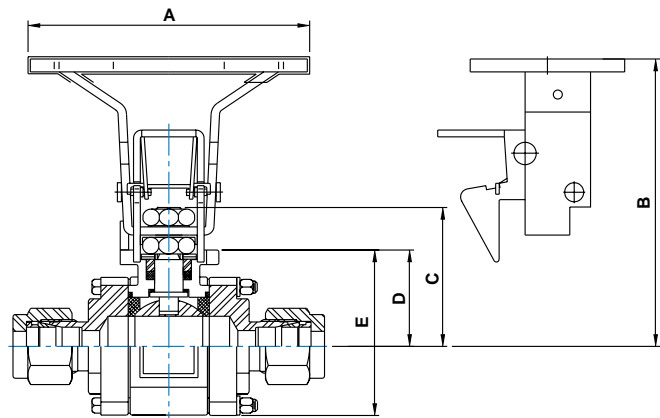
OVAL HANDLE

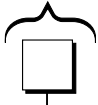
Size	L	M	N
1/4";3/8";1/2";3/4"	38.0	85.0	65
	1.50	3.346	2.560
1"	56.0	105.0	85
	2.20	4.134	3.346



H500 GRIP HANDLE (OVAL)

Size	A	B	C	D	E
1/4"	104	94.5	40.5	27.5	49.5
3/8"	104	94.5	40.5	27.5	49.5
1/2"	104	94.5	40.5	27.5	49.5
1/4"	104	98	44	30.5	56



ORDERING INFORMATION						
H5	00	SS	L	1/4	P	OPTIONAL:
Valve Series	Series Designator	Structure Material	End Connection	Size	Seat Material	Handle
	00 - LET-LOK® 10 - Female End 80 - Male End	Body: ASTM A351 Gr. CF8M End cups: ASTM A351 Gr. CF3M	L - LET-LOK® HL - ONE-LOK® N - NPT R - BSPT TSW - Tube socket weld TBW - Tube buttweld XTBW - Extended Tube buttweld PSW - Pipe socket weld PBW1 - Pipe buttweld sch10 PBW4 - Pipe buttweld sch40 PBW8 - Pipe buttweld sch80	1/4" 6 mm 3/8" 10 mm 1/2" 12 mm 3/4" 20 mm 1" 25 mm	P - PTFE E - Extended Temperature Seat & Seal	 OV - Oval Handle GR - Grip Handle

Standard is with St.St. 304 banded handle.

ORDERING INFORMATION: SPARE-PARTS KIT / REPAIR KIT

A Spare-Parts kit is available for each valve. The kit includes gaskets, seats, stem packing and stem seal. To order a Spare-Parts Kit, use the following format:

Z500 - **1/4** - **P**

End Connection Size	Seat Material
6mm 1/4"	P - PTFE
10mm 3/8"	R - RPTFE
12mm 1/2"	C - CTFE
20mm 3/4"	T - TFM®1600
25mm 1"	E - St.St.Filled PTFE

Warning
 Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your HAM-LET products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

H700 SERIES

BALL VALVE WITH LOCKING DEVICE



FEATURES:

Compliance with OSHA LOTO Standard 29 CFR Part 1910.147- Control of Hazardous Energy.

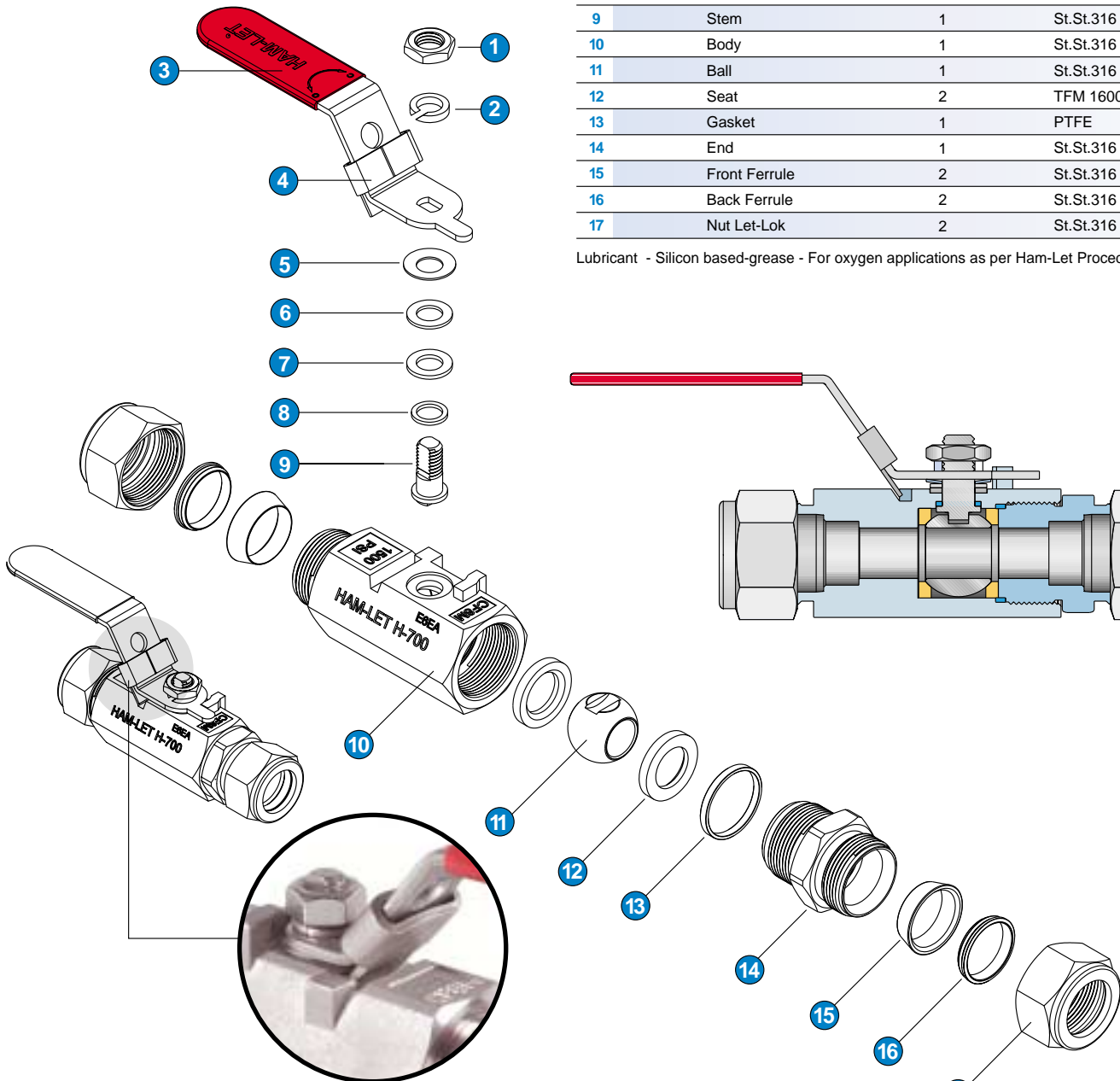
- Explosion Proof Stem *
- Vented Ball *
- Stainless Steel and Brass Construction. A351 or 316 Bar
- Welded end * (One piece body)
- Locking Handle in On and Off positions.
- MAWP 2000 psi (135Bar)
- MAWT 400°F (204°C)
- Flow coefficient (Cv) 1.25 to 17.35
- Size range: 1/4" to 1" or 6mm to 25mm.

* Optional

GENERAL

The H700 Series is a moderate pressure instrumentation ball valve for general service and instrumentation panels.

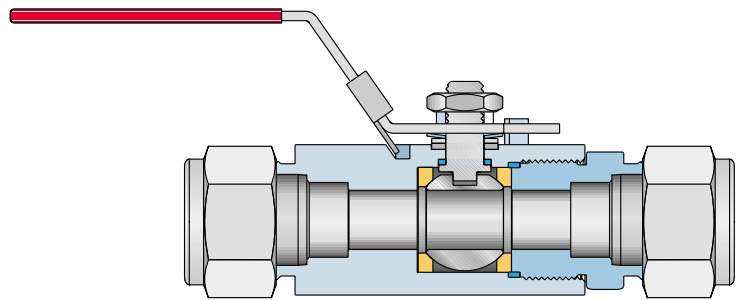
The valves offer compact size of structure with relatively large ports, for high flow, tight shut-off, long life service and low operating torque. The H700 Series can be used for bi-directional flow and is rated to max. 2000 psig (135 Bar) and performs on-off service.



MATERIAL OF CONSTRUCTION

No.	Part No.	Qty	Material
1	Nut	1	St.St.304
2	Spring Washer	1	St.St.304
3	Handle	1	St.St.304
4	Locking Device	1	St.St.304
5	Belleville Washer	1	St.St.304
6	Flat Washer	1	St.St.304
7	Stem Packing	1	PTFE
8	Stem Seal	1	PTFE
9	Stem	1	St.St.316
10	Body	1	St.St.316
11	Ball	1	St.St.316
12	Seat	2	TFM 1600
13	Gasket	1	PTFE
14	End	1	St.St.316
15	Front Ferrule	2	St.St.316
16	Back Ferrule	2	St.St.316
17	Nut Let-Lok	2	St.St.316

Lubricant - Silicon based-grease - For oxygen applications as per Ham-Let Procedure 8055



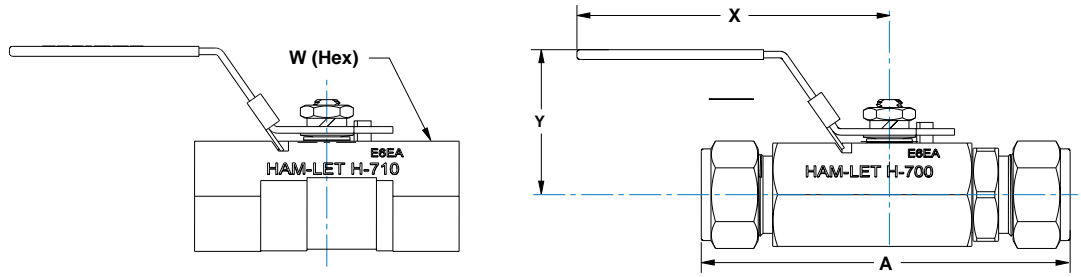
TESTING:

The H700 series Ball Valve designs have been tested for Proof, Burst and Leakage.

Every H700 Ball Valve is factory tested with nitrogen at 1000psi (69 bar). Maximum allowable leak across seats is 0.1 std cc/min. No leakage is allowed for shell testing.

CLEANING & PACKAGING

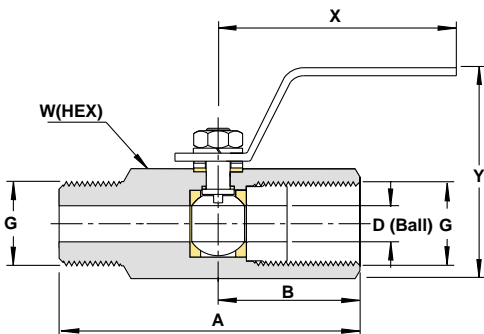
Ham-Let's H700 Ball valve is treated with Ham-Let Passivation Cleaning and Packaging (Procedure 8075). Ham-Let H700 Ball valves with face seal end connections are treated with Oxygen Cleaning and Packaging (Procedure 8055). Oxygen Cleaning and Packaging (Procedure 8055) is available as an option.



H700 SERIES DIMENSIONS

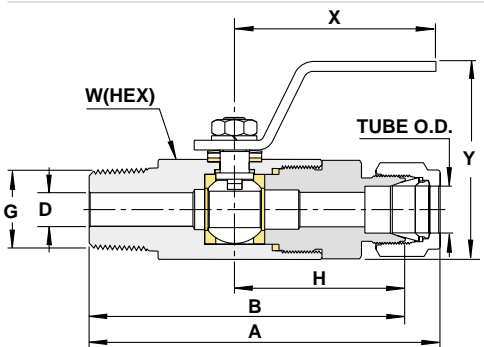
Type	End Connection Size	Order Type	Cv	Orifice		A		X		Y		W (HEX)
				mm	inch	mm	inch	mm	inch	mm	inch	
Fractional Let-Lok Tube Fittings	1/4	H-700	1.25	5.0	0.2	90.0	3.54	82.0	3.23	38.0	1.50	17mm
	3/8	H-700	2.50	7.0	0.28	90.0	3.54	82.0	3.23	40.0	1.57	21mm
	1/2	H-700	9.25	9.2	0.36	95.3	3.75	82.0	3.23	40.7	1.60	25mm
	3/4	H-700	12.65	12.5	0.49	113.4	4.46	82.0	3.23	44.5	1.75	32mm
	1"	H-700	17.35	15	0.59	129.6	5.10	102.0	4.02	50.0	1.97	38mm
Metric Let-Lok Tube Fittings	6mm	H-700	1.25	5.0	0.20	90.0	3.54	82.0	3.23	38.0	1.50	17mm
	8mm	H-700	1.35	7.0	0.28	90.0	3.54	82.0	3.23	40.0	1.57	21mm
	10mm	H-700	2.6	9.2	0.36	95.3	3.75	82.0	3.23	40.7	1.60	25mm
	12mm	H-700	9.25	12.5	0.49	113.4	4.46	82.0	3.23	44.5	1.75	32mm
	25mm	H-700	17.35	15	0.59	129.6	5.10	102.0	4.02	50.0	1.97	38mm
Female NPT	1/4	H-710	1.35	5.0	0.20	50.0	1.97	67.0	2.64	47.0	1.85	16.5mm
	3/8	H-710	2.6	7.0	0.28	60.0	2.36	67.0	2.64	49.0	1.93	20.7mm
	1/2	H-710	9.25	9.0	0.35	75.0	2.95	90.0	3.54	57.0	2.24	25mm
Male NPT	1/4	H-780	1.35	5.0	0.20	50.3	1.98	82.0	3.23	38.0	1.50	17mm
	3/8	H-780	2.5	7.0	0.28	62.2	2.45	82.0	3.23	40.0	1.57	21mm
	1/2	H-780	9.25	9.2	0.36	74.9	2.95	82.0	3.23	40.7	1.60	25mm
Male NPT to Let-Lok Tube Fittings	1/4 to 1/4	H-795	1.25	5.0	0.20	70.15	2.76	82.0	3.23	38.0	1.50	17mm
	3/8 to 3/8	H-795	2.5	7.0	0.28	76.10	2.99	82.0	3.23	40.0	1.57	21mm
	1/2 to 1/2	H-795	9.25	9.2	0.36	85.10	3.35	82.0	3.23	40.7	1.5	25mm

Dimensions are for reference only, and are subject to change



H785

G (THREAD)	Cv	D (Minimum Orifice)		A	B	W (HEX)		X		Y		
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
1/4"-19BSPP						17.0	0.67					
	1.35	5.0	0.2	50.0	1.97	24.85	0.98			60.0	2.36	39.0 1.54
1/4-18NPT						19.05	3/4				40.0 1.57	
1/2"-14BSPP	9.25	9.0	0.35	75.0	29.5	37.55	1.48	27.0	1-1/16	82.0	3.23	56.6 2.23
1/2"-14NPT												



H795

TUBE O.D.	G (THREAD)	Cv	D (Minimum Orifice)		A	B	H	W (HEX)		X		Y				
			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		
3/8"	1/4-18NPT	2.50	7.10	0.28	76.7	3.02	69.35	2.73	38.25	1.505	20.6	13/16	82	3.23	50.8	2

ORDERING INFORMATION

Your safety is important to us, please ensure proper reference to our latest catalog

Valve Description Example:

H7

00

SS

L

1/4

R

LD

OPTIONAL:

Valve Series

Valve Type

- 00 - Let-Lok End Connection
- 10 - Female End Connection
- 80 - Male End Connection
- 85 - Male to Female End Connection
- 95 - Male to Let-Lok End Connection

Body

- SS - Stainless steel
- B - Brass

Up to 3/8" - 316SS bar stock
 1/2" to 1" - 316 CF8M casting per ASTM A351
 Brass - Bar for all sizes

End Connection

- L - Let-Lok Tube Fitting
- N - NPT Thread
- HL - One-Lok Tube Fitting
- R - BSPT
- G - BSPP

Other end connections are available upon request

Seat Material

- R - RPTFE- 1500 PSI
- T - TFM1600 - 2000 PSI

Other seat material is available upon request

End Connection Size

1/4 inch	6 mm
3/8 inch	8 mm
1/2 inch	10 mm
3/4 inch	12 mm
1 inch	25 mm

Locking Device

Treatments

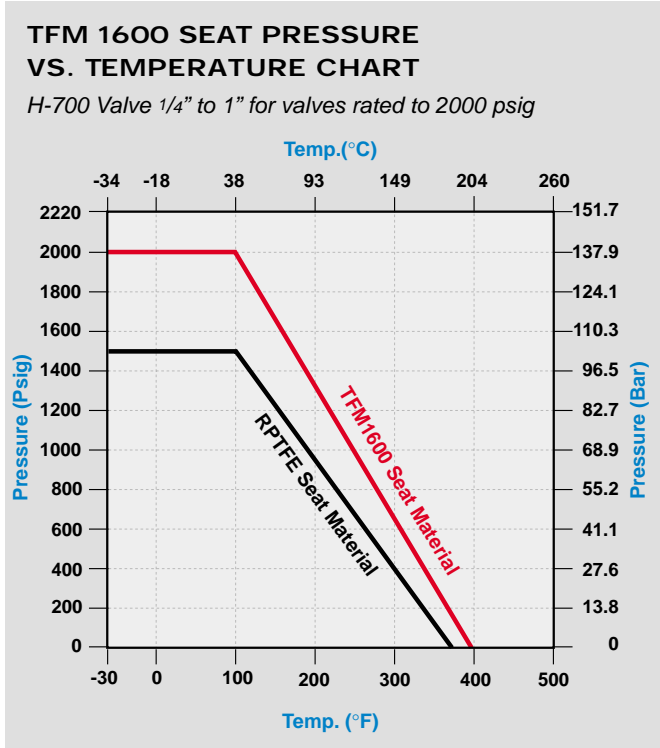
- OC - Oxygen Clean
- LF - Lubricant Free

Spare Parts Kit - Repair Kit

Spare parts kit is available for each valve. The kit includes: Gasket, Seats, Stem Packing, Stem Seal. To order a spare parts kit, use the following format:

H700 - KIT - 1/4 - C

End Connection Size	Seat Material
6mm 1/4"	R - RPTFE®
8mm 3/8"	T - TFM1600
10mm 1/2"	
12mm 3/4"	
25mm 1"	



SEAT MATERIAL CHARACTERISTICS

RPTFE (15% Glass Fiber Filled PTFE) - Color (Of White)
 Short stand glass fibers are used as a reinforcement in valve seats. Adding reinforcements increases the pressure containing properties of PTFE by reducing its tendency to cold flow.

TFM1600 - (PFA and PTFE composite) - Color (Bright White)
 Excellent seat material for purity applications, very low residual material during operation. It has lower deformation ratio than PTFE, but higher pressure and temperature rating than PTFE. Chemical resistance is equal to PTFE material.

PACKING ADJUSTMENT

Due to the varied service applications of the valve, packing adjustment may be occasionally necessary. Initial adjustment is recommended after installation and prior to start-up. Please find more information at installation instruction chapter. Ham-Let Ball Valves designed to be operated in fully closed or fully open position.

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

For more information and local representatives - please check our web site. at www.ham-let.com



H300 SERIES

NEDDLE VALVES



FEATURES:

- Straight and angle pattern.
- Stainless Steel and Brass Construction.
- MAWP 5000 psi (340bar)
- MAWT 810°F (435°C)
- Flow coefficient (Cv) 0.09 to 1.8.
- Sizes: 1/8" to 3/4" (3mm-12mm)
- Double Ferrule Let-Lok®,
- Single Ferrule, Female NPT, Male NPT, BSPT.
- Round and metal handles
- Variable stem range

GENERAL

The H300 Series is a high pressure instrumentation needle valve for shut-off service on instrumentation panels.

The valves offer compact structure size of with the ability for relatively high flow regulating and long life service. The H300 Series is rated to max. 5000 psig (340 Bar) and performs on-off service.

STEM PACKING KIT

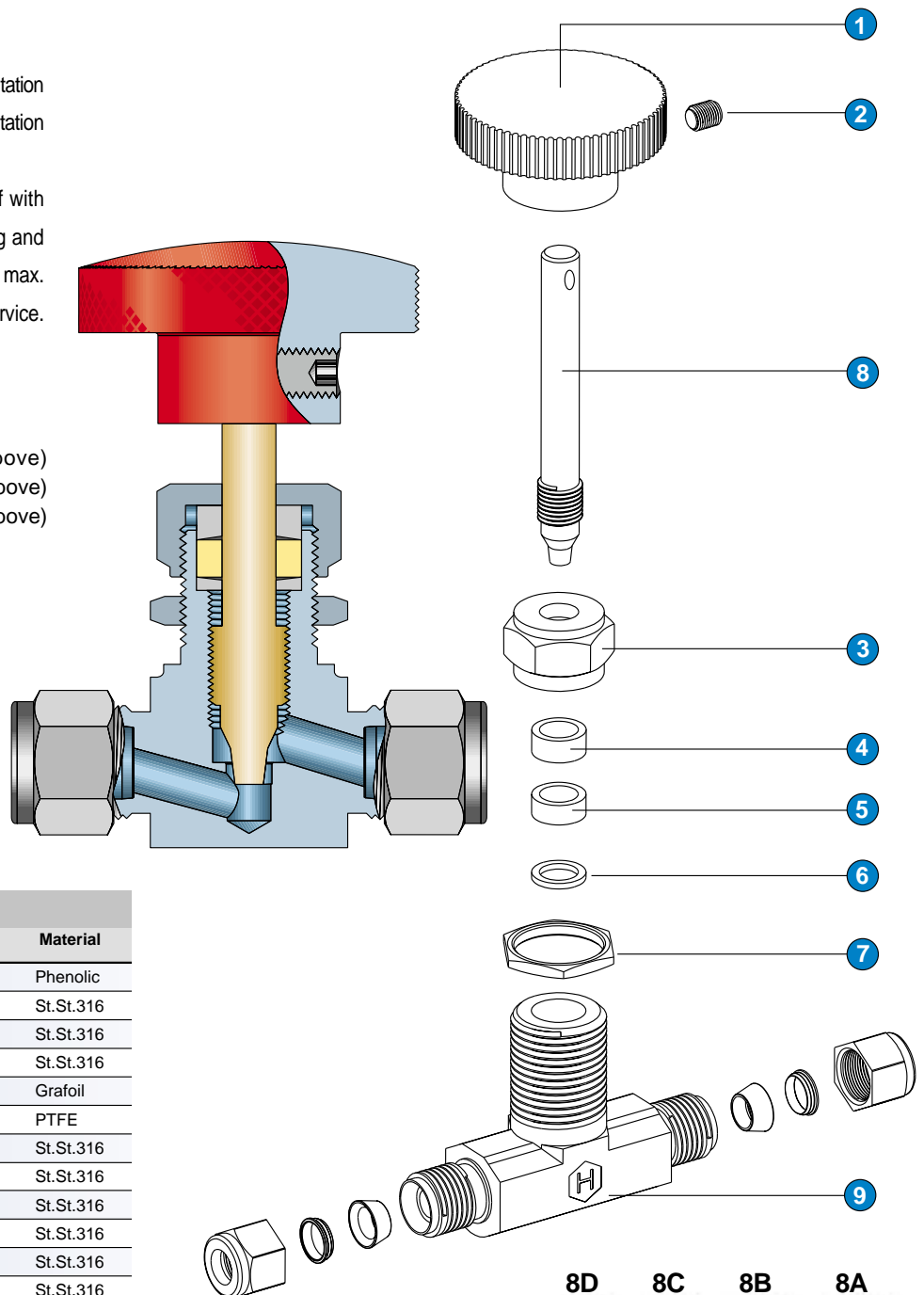
Packing kits are available.

Kits contain:

Packing (no. 5 in Material table above)

Upper Gland (no. 4 in Material table above)

Lower Gland (no. 6 in Material table above)



MATERIALS

No.	Part No.	Qty	Material
1	Handle	1	Phenolic
2	Set Screw	1	St.St.316
3	Packing Nut	1	St.St.316
4	Upper Gland	1	St.St.316
5	A Packing Grafoil	1	Grafoil
	B Packing PTFE	1	PTFE
6	Lower Gland	1	St.St.316
7	Panel Nut	1	St.St.316
	A Regulating Stem	1	St.St.316
	B V-Stem	1	St.St.316
8	C Non-Rotating Stem	1	St.St.316
	D Soft Seat Stem	1	St.St.316
9	Body	1	St.St.316

* As per customer request; see listed Alternative Stems below

ALTERNATIVE STEMS

Ham-Let needle valves are available with a choice of stem tip options to allow greater flexibility.

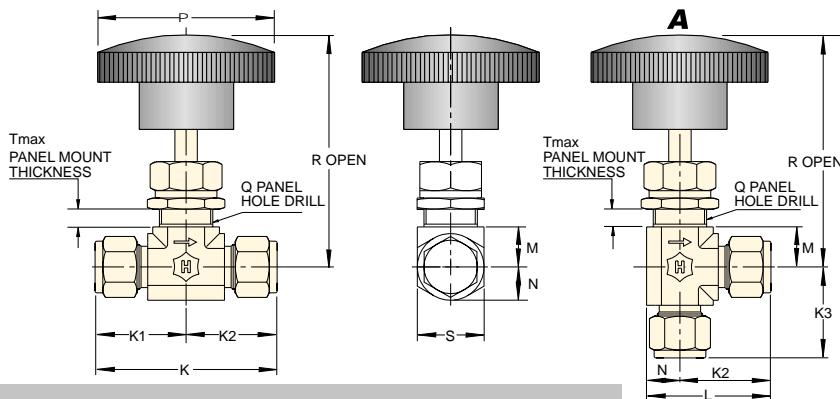
A Regulating: Used where some degree of flow control is required.

B V-Stem: A standard stem tip used for general purpose liquids and gases.

C Non-Rotating: Typically used in high-cycle applications to extend valve life. It is designed to prevent galling between the seat and stem.

D Soft Seat: A soft seat requires a lower seating torque than a metal stem tip. The soft seat is replaceable. Maximum temperature 250°F (121°C).

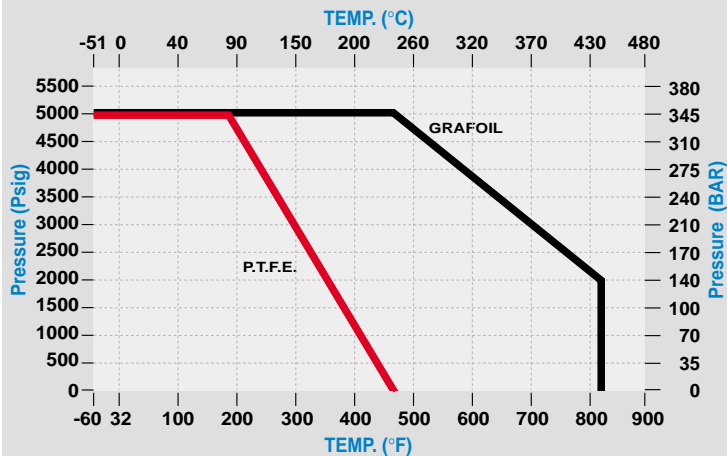




DIMENSIONS H300 SERIES

Basic Ordering Number	Orifice mm (in)	Cv	Connection Size		K		K1		K2		K3		Dimensions L		M mm/ inch	N mm/ inch	P mm/ inch	Q mm/ inch	R Open mm/ inch	S mm/ inch	Tmax mm/ inch
			Inlet	Outlet	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch							
H300	2.0 (0.08)	0.09	3mm LET-LOK	3mm LET-LOK	50.8	2.00	25.4	1.00	25.4	1.00	25.4	1.00	33.4	1.31	10.0	7.95	41.0	13.0	72.0	15.9	7.0
H300			1/8" LET-LOK	1/8" LET-LOK	50.8	2.00	25.4	1.00	25.4	1.00	25.4	1.00	33.4	1.31							
H395			1/8" MALE NPT	1/8" LET-LOK	44.4	1.75	19.0	0.75	25.4	1.00	19.0	0.75	33.4	1.31							
H300	4.4 (0.172)	0.37	1/4" LET-LOK	1/4" LET-LOK	58.8	2.31	29.4	1.16	29.4	1.16	29.4	1.16	37.4	1.47	0.39"	0.31"	1.61"	0.51"	2.83"	5/8"	0.27"
H300			6mm LET-LOK	6mm LET-LOK	58.8	2.31	29.4	1.16	29.4	1.16	29.4	1.16	37.4	1.47							
H300			8mm LET-LOK	8mm LET-LOK	58.8	2.31	29.4	1.16	29.4	1.16	29.4	1.16	37.4	1.47							
H310			1/8" Female NPT	1/8" Female NPT	41.2	1.62	20.6	0.81	20.6	0.81	20.6	0.81	28.6	1.12							
H380			1/8" Male NPT	1/8" Male NPT	50.8	2.00	25.4	1.00	25.4	1.00	25.4	1.00	33.4	1.31							
H380			1/4" Male NPT	1/4" Male NPT	50.8	2.00	25.4	1.00	25.4	1.00	25.4	1.00	33.4	1.31							
H395			1/4" Male NPT	1/4" LET-LOK	54.8	2.16	25.4	1.00	29.4	1.16	25.4	1.00	37.4	1.47							
H300			3/8" LET-LOK	3/8" LET-LOK	66.0	2.60	33.0	1.30	33.0	1.30	33.0	1.30	45.0	1.77							
H300	6.4 (0.25)	0.73	10mm LET-LOK	10mm LET-LOK	66.4	2.62	33.2	1.31	33.2	1.31	33.2	1.31	45.2	1.78	14.3	11.9	50.0	20.0	82.6	23.8	7.0
H300			1/2" LET-LOK	1/2" LET-LOK	71.6	2.82	35.8	1.41	35.8	1.41	35.8	1.41	47.7	1.88							
H300			12mm LET-LOK	12mm LET-LOK	71.6	2.82	35.8	1.41	35.8	1.41	35.8	1.41	47.7	1.88							
H310			1/4" Female NPT	1/4" Female NPT	54.0	2.12	27.0	1.06	27.0	1.06	27.0	1.06	38.9	1.53							
H310R			1/4" Female BSPT	1/4" Female BSPT	54.0	2.12	27.0	1.06	27.0	1.06	27.0	1.06	38.9	1.53							
H380			3/8" Male NPT	3/8" Male NPT	57.0	2.24	28.5	1.12	28.5	1.12	28.5	1.12	40.4	1.59							
H385			1/4" Male NPT	1/4" Female NPT	55.5	2.18	28.5	1.12	27.0	1.06	28.5	1.12	38.9	1.53							
H385			3/8" Male NPT	3/8" Female NPT	56.5	2.22	28.5	1.12	28.0	1.10	28.5	1.12	39.9	1.57							
H395			1/4" Male NPT	3/8" LET-LOK	61.5	2.42	28.5	1.12	33.0	1.30	28.5	1.12	45.0	1.77							
H395			3/8" Male NPT	3/8" LET-LOK	61.5	2.42	28.5	1.12	33.0	1.30	28.5	1.12	45.0	1.77							
H395			3/8" Male NPT	1/2" LET-LOK	64.3	2.53	28.5	1.12	35.8	1.41	28.5	1.12	47.7	1.88							
H300			9.5 (0.375)	1.8	3/4" LET-LOK	3/4" LET-LOK	97.0	3.82	48.5	1.91	48.5	1.91	48.5	1.91							
H310	3/8" Female NPT	3/8" Female NPT			76.2	3.00	38.1	1.50	38.1	1.50	38.1	1.50	53.2	2.09							
H310	1/2" Female NPT	1/2" Female NPT			76.2	3.00	38.1	1.50	38.1	1.50	38.1	1.50	53.2	2.09							
H380	1/2" Male NPT	1/2" Male NPT			76.2	3.00	38.1	1.50	38.1	1.50	38.1	1.50	53.2	2.09							
H385	1/2" Male NPT	1/2" Female NPT			76.2	3.00	38.1	1.50	38.1	1.50	38.1	1.50	53.2	2.09							

PRESSURE TEMPERATURE CURVE
Only applicable to metallic stem tips in 316 St. St. Body.

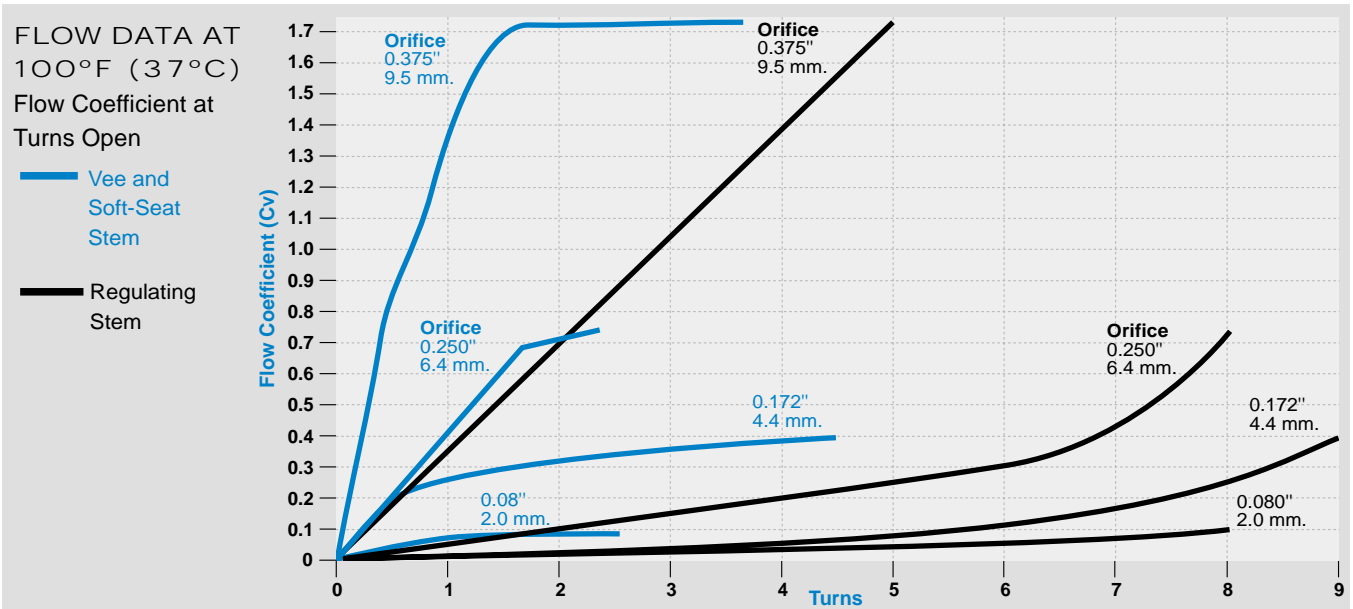


TECHNICAL DATA

The following table depicts the temperature and pressure ratings for a standard valve with PTFE packing

Body Material	Stem Type	Rating	
		Temperature	Pressure
316 st.st.	All St.St. Stems	-46°C to 230°C (-51°F to 446°F)	5000 psi
	Kel-F	-46°C to 121°C (-51°F to 250°F)	(34,450kPa)
Brass	Regulating & V-Stem	-46°C to 200°C (-51°F to 392°F)	3000 psi
	Kel-F	-46°C to 121°C (-51°F to 250°F)	(20,600kPa)

* Extreme temperature fluctuations may require packing nut adjustment



ORDERING INFORMATION

Your Safety is important to us. Please ensure proper reference to our latest catalog

Valve Series	Body Material	End Connection	Stem Designator	End Connection Size	Handle	Pattern Designator	Suffix Designator
H3 00 SS	SS - 316SS B - Brass	L - LET-LOK R - NPT N - BSPT NL - NPT to LET-LOK HL - Single Ferrule G - BSPP GL - Face Seal Ends	V - V-Stem R - Regulating Stem K - Soft Seat Kel-F Stem NR - Non-Rotating Stem	1/8" 3mm 1/4" 6mm 3/8" 8mm 1/2" 10mm 3/4" 12mm	RS - Black Plastic RAS - Black Aluminum RAR - Red Aluminum RAB - Blue Aluminum RAG - Green Aluminum RAY - Yellow Aluminum M - Metal 316L	A - Angle S - Straight (standard)	G - Grafoil

OPTIONAL:

For other materials and end connections consult factory Engineering Dept.
For more technical information and data see our catalog T-3300 Corrosion Data.

Spare Parts Kit - Repair Kit

COLOR HANDLE AVAILABLE:



Spare parts kit is available for each valve. The kit includes: Stem Packing. To order a spare parts kit, use the following format:

H300 -	-	KIT -	1/4 -	-	C -	-	M
Seat Handle		End Connection Size		Seat Material			
				P - PTFE® G - Grafoil			
						RS - Black Plastic RAS - Black Aluminum RAR - Red Aluminum	RAB - Blue Aluminum RAG - Green Aluminum RAY - Yellow Aluminum M - Metal 316L

Spare Round Handle Kit

Spare Round Handle Kits are available for each valve. The spare Round Handle Kit includes: Aluminum Round Handle and set screw.

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

CLEANING & PACKAGING:

Ham-Let's H300 Needle valve is treated with Ham-Let Passivation Cleaning and Packaging (Procedure 8075).
Ham-Let H300 Needle valves with face seal end connections are treated with Oxygen Cleaning and Packaging (Procedure 8055).
Oxygen Cleaning and Packaging (Procedure 8055) is available as an option.

TESTING:

The H300 series Needle Valve designs have been tested for Proof, Burst and Leakage. Every H300 Needle Valve is factory tested with nitrogen at 1000psi (69 bar). Maximum allowable leak across seats is 0.1 std cc/min. No leakage is allowed for shell testing.

PACKING ADJUSTMENT

Due to the varied service applications of the valve, packing adjustment may be occasionally necessary. Initial adjustment is recommended after installation and prior to start-up. Please find more information at installation instruction chapter.

HAM-LET
SCREWED BONNET
NEEDLE VALVE
H99 & H99HP SERIES



SCREWED-BONNET NEEDLE VALVES H99 & H99HP SERIES

FEATURES

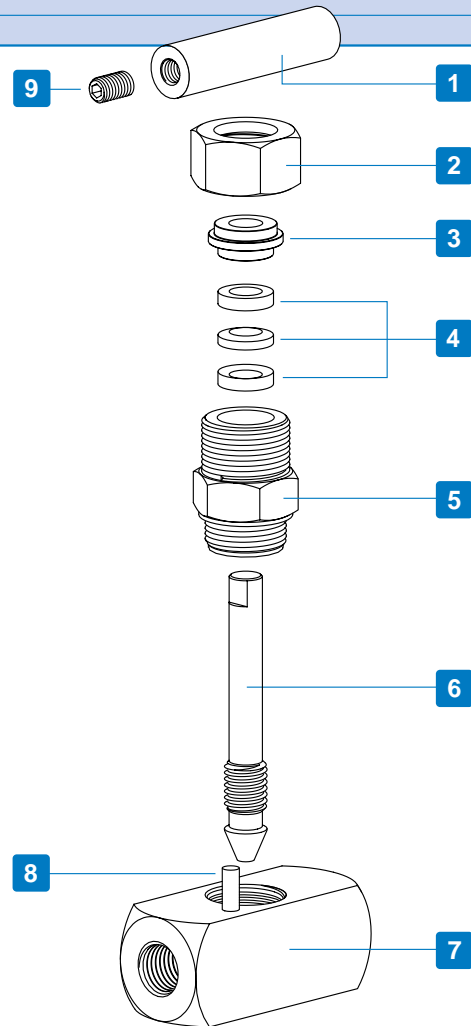
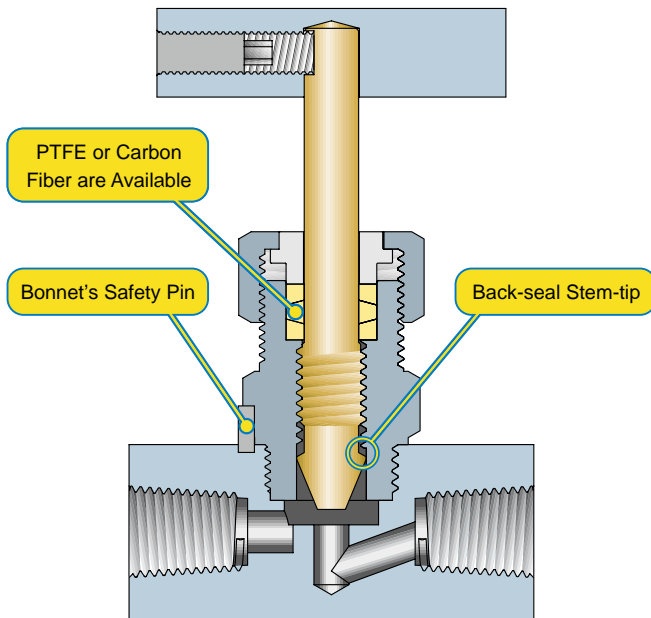
- Blow-out Proof Stem
- MAWP up to 10,000 psi (690 bar)
- MAWT up to 600°C (1112°F)
- Size range: 1/8" to 1" or 6mm to 25mm

GENERAL

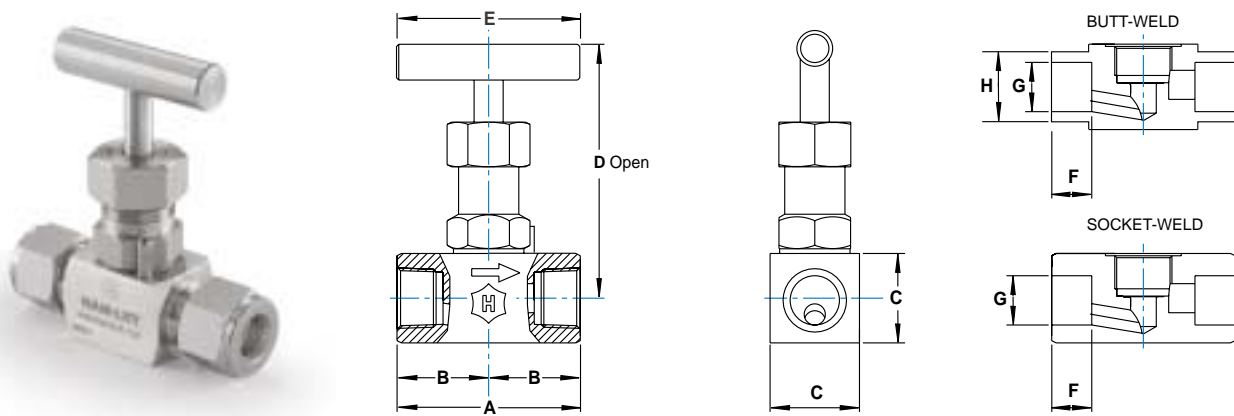
The H99 & H99HP Series offers a general-service valve of rugged design and construction. It is available in stainless steel to suit a wide range of services. Capable of withstanding high pressures (10,000 psig max and high temperature), this valve is typically used in a severe environment, high pressure sampling systems, high pressure shut-down systems and test stands.

MATERIALS

No.	Part Name	Qty	Material
1	Handle	1	Stainless Steel 410
2	Gland Nut	1	Stainless Steel 304
3	Upper Gland	1	Stainless Steel 304
4	Packing	3	PTFE / Carbon Fiber
5	Bonnet	1	Stainless Steel 316 / ASTM 351
6	Stem	1	Stainless Steel 316 / ASTM 351
7	Body	1	Stainless Steel 316 / ASTM 351
8	Bonnet's Safety Pin	1	Stainless Steel 304
9	Set Screw	1	Stainless Steel 304



DIMENSIONS



SCREWED-BONNET NEEDLE VALVES H99 & H99HP SERIES

CLEANING & PACKAGING
HAM-LET's H99 & H99HP Needle Valves are treated with HAM-LET's Passivation Cleaning and Packaging (Procedure 8075). Special Cleaning for Oxygen service is available upon request

TESTING
The H99 & H99HP Series Needle Valve designs have been tested for Proof and Burst. Every H99 & H99HP Needle Valve is factory tested with Nitrogen at 1000 psi (69 bar). The maximum allowable leakage across seat is 0.1 std cc/min.

PACKING ADJUSTMENT
Due to the varied service applications of the valve, packing adjustment may be occasionally necessary. Valve's Packing is factory pre adjusted to 1000 psig service. Initial packing adjustment is recommended after installation and prior to start-up.

DIMENSIONS H99 & H99HP SERIES																															
End Connection	Con. Size	Orifice		A		B		C		D		E		F		G		H													
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in												
LET-LOK® Inch	1/4"	5.00	0.20	72.7	2.9	36.4	1.4	25.0	1.0	75.0	3.0	50.0	2.0																		
	3/8"			72.7	2.9	36.4	1.4																								
	1/2"			78.3	3.1	39.2	1.5																								
	3/4"			85.3	3.4	42.7	1.7																								
LET-LOK® Metric	6mm	5.00	0.20	72.8	2.9	36.4	1.4	25.0	1.0	75.0	3.0	50.0	2.0																		
	8mm			73.0	2.9	36.5	1.4																								
	10mm			73.2	2.9	36.6	1.4																								
	12mm			78.2	3.1	39.1	1.5																								
Female Thread (NPT / ISO)	1/8"	5.00	0.20	58.0	2.3	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0																		
	1/4"																														
	3/8"																														
	1/2"													6.00	0.24	65.0	2.6	32.5	1.3	30.0	1.2	87.0	3.4	60.0	2.4						
	3/4"															70.0	2.8	35.0	1.4	35.0	1.4	90.0	3.5	60.0	2.4						
1"	8.00	0.31	80.0	3.1	40.0	1.6	45.0	1.8	103.0	4.1	80.0	3.1																			
Tube Socket Weld Inch	1/4"	5.00	0.20	58.0	2.3	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0	6.4	0.3	6.5	0.3														
	3/8"													9.7	0.4	9.7	0.4														
	1/2"													12.7	0.5	12.9	0.5														
	3/4"													14.2	0.6	19.2	0.8														
	1"													19.2	0.8	25.6	1.0														
Tube Socket Weld Metric	6mm	5.00	0.20	58.0	2.3	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0	6.0	0.2	6.2	0.2														
	8mm													7.9	0.3	8.2	0.3														
	10mm													12.7	0.5	10.2	0.4														
	12mm													12.7	0.5	12.2	0.5														
	25mm													6.00	0.24	70.0	2.8	35.0	1.4	35.0	1.4	90.0	3.5	60.0	2.4	19.2	0.8	25.2	1.0		
Pipe Socket-Weld	1/8"	5.00	0.20	58.0	2.3	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0	9.0	0.4	10.8	0.4														
	1/4"													14.0	0.6	14.0	0.6														
	3/8"													14.0	0.6	17.5	0.7														
	1/2"													6.00	0.24	65.0	2.6	32.5	1.3	30.0	1.2	87.0	3.4	60.0	2.4	16.5	0.6	22.0	0.9		
	3/4"															70.0	2.8	35.0	1.4	35.0	1.4	90.0	3.5	60.0	2.4	18.0	0.7	27.5	1.1		
	1"													8.00	0.31	80.0	3.1	40.0	1.6	45.0	1.8	103.0	4.1	80.0	3.1	20.0	0.8	34.5	1.4		
Tube Butt-Weld Inch	1/4"	5.00	0.20	58.0	2.3	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0	-	-	3.1	0.1	6.4	0.3												
	3/8"													6.0	0.2	6.2	0.2	9.5	0.4												
	1/2"													6.0	0.2	8.5	0.3	12.7	0.5												
	3/4"													6.00	0.24	65.0	2.6	32.5	1.3	30.0	1.2	87.0	3.4	60.0	2.4	8.0	0.3	13.5	0.5	19.1	0.8
	1"															70.0	2.8	35.0	1.4	35.0	1.4	90.0	3.5	60.0	2.4	10.0	0.4	19.3	0.8	25.4	1.0
Tube Butt-Weld Metric	6mm	5.00	0.20	58.0	2.3	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0	-	-	3.1	0.1	6.0	0.2												
	8mm													-	-	4.8	0.2	8.0	0.3												
	10mm													6.0	0.2	6.7	0.3	10.0	0.4												
	12mm													6.0	0.2	7.8	0.3	12.0	0.5												
	25mm													6.00	0.24	70.0	2.8	35.0	1.4	35.0	1.4	90.0	3.5	60.0	2.4	10.0	0.4	18.9	0.7	25.0	1.0
Pipe (S40) Butt-Weld	1/8"	5.00	0.20	58.0	2.3	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0	6.0	0.2	7.1	0.3	10.5	0.4												
	1/4"															9.2	0.4	13.7	0.5												
	3/8"															12.5	0.5	17.1	0.7												
	1/2"													6.00	0.24	65.0	2.6	32.5	1.3	30.0	1.2	87.0	3.4	60.0	2.4	8.0	0.3	15.8	0.6	21.3	0.8
	3/4"															70.0	2.8	35.0	1.4	35.0	1.4	90.0	3.5	60.0	2.4	10.0	0.4	21.0	0.8	26.7	1.1
	1"													8.00	0.31	80.0	3.1	40.0	1.6	45.0	1.8	103.0	4.1	80.0	3.1	12.0	0.5	26.6	1.0	33.4	1.3
Male Thread To Female Thread (NPT / ISO)	1/4"	5.00	0.20	60.0	2.4	29.0	1.1	25.0	1.0	75.0	3.0	50.0	2.0																		
	3/8"																														
	1/2"													6.00	0.24	70.0	2.8	32.5	1.3	30.0	1.2	87.0	3.4	60.0	2.4						
	3/4"															75.0	3.0	35.0	1.4	35.0	1.4	90.0	3.5	60.0	2.4						
1"	8.00	0.31	85.0	3.3	40.0	1.6	45.0	1.8	103.0	4.1	80.0	3.1																			

Dimensions are for reference only, and are subject to change.
Face to face dimensions for LET-LOK® end connections (dimensions A and B) are finger tight.

SCREWED-BONNET NEEDLE VALVES H99 & H99HP SERIES

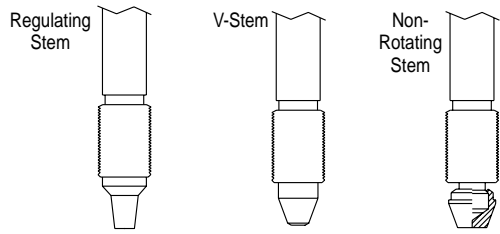
ALTERNATIVE STEMS

HAM-LET Needle Valves are available with a choice of stem-tip options to allow greater flexibility.

Regulating: Used where some degree of flow control is required.

V-Stem: A standard stem tip used for general-purpose liquids and gases.

Non-Rotating: Typically used in high-cycle applications to extend valve life. It is designed to prevent galling between the seat and stem.



PRESSURE - TEMPERATURE RATING Applicable only to St.St. 316 body

MAX. PRESSURERATING AT 70°F (21°C)

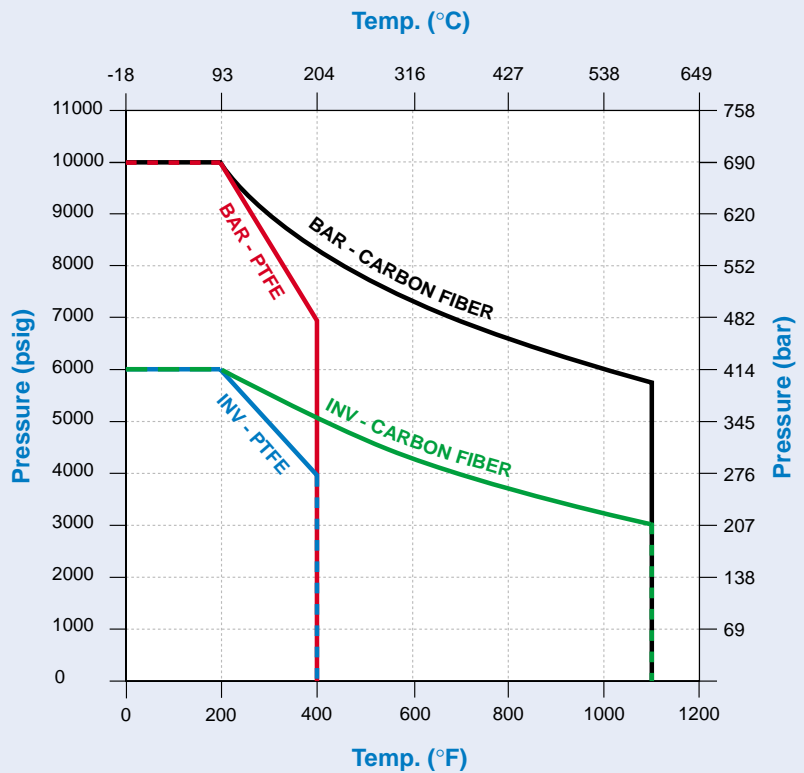
Threaded & weld connections

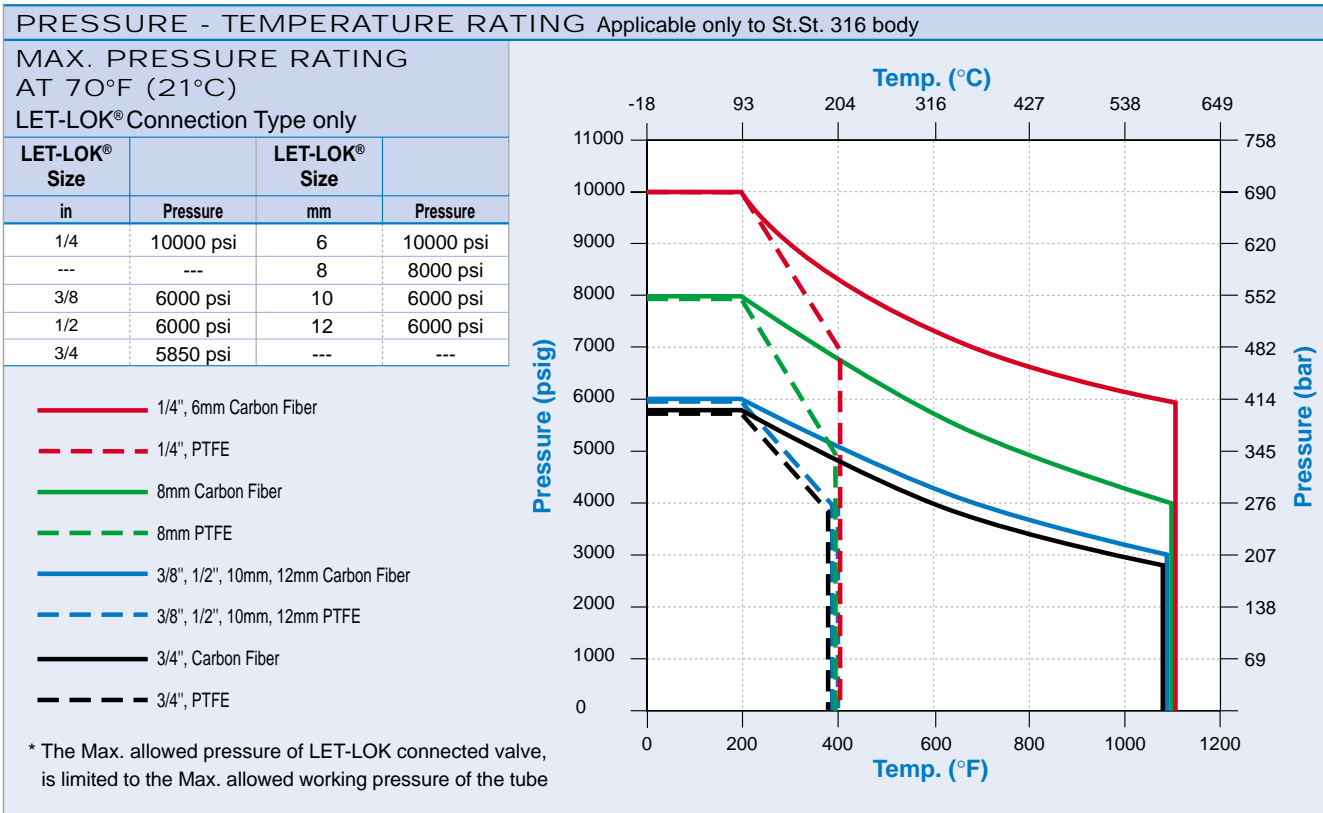
Body Raw Material	Pressure	
	psi	bar
Investment casting	6000	414
Bar Stock	10000	690

MAX. ALLOWED WORKING TEMPERATURE

Packing Material	Max. Temperature	
	°C	°F
PTFE	204	400
Carbon Fiber	600	1112

* The Max. allowed pressure of welded connected valve, is limited to the Max. allowed working pressure of the tube.





ORDERING INFORMATION Your Safety is important to us. Please ensure proper reference to our latest catalog.

H99	HP	00	SS	L	V	1/2	
Valve Series	Body Row Material	Valve Type	Material	End Connection	Stem Designator	Size	Packing Designator
	Blank - Investment Casting HP - Bar Stock	00 - LET-LOK® End Connection 10 - Female End Connection 80 - Male End Connection 85 - Male to Female End Connection	St.St. 316 Default	L - LET-LOK® N - NPT R - ISO Taper G - ISO Parallel RG - Male ISO Taper to Female ISO Parallel TBW - Tube Butt-weld TSW - Tube Socket Weld PBW - Pipe Butt-weld (Schedule 40) PSW - Pipe socket Weld	V - V Stem R - Regulating Stem NR - Non Rotating	1/8" 3mm 1/4" 6mm 3/8" 8mm 1/2" 10mm 3/4" 12mm 1" 25mm	Blank - PTFE CF - Carbon Fiber

Warning

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your HAM-LET products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance.



Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

TOGGLE VALVES

H1200 SERIES



TOGGLE VALVES H1200 SERIES

FEATURES

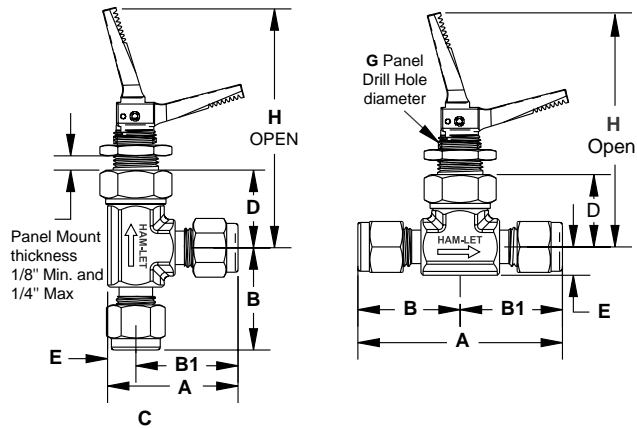
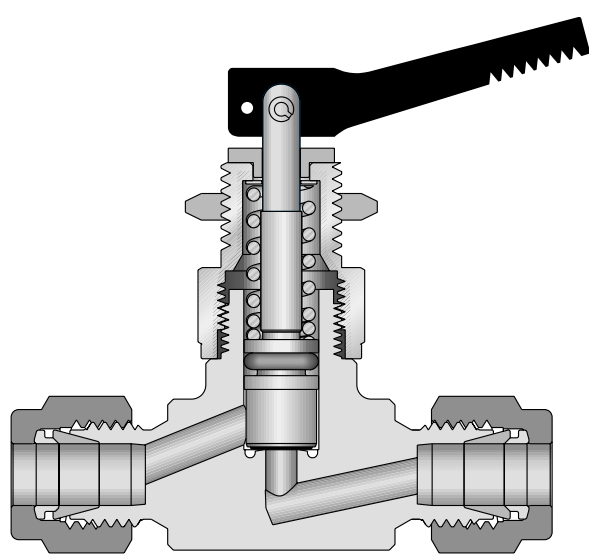
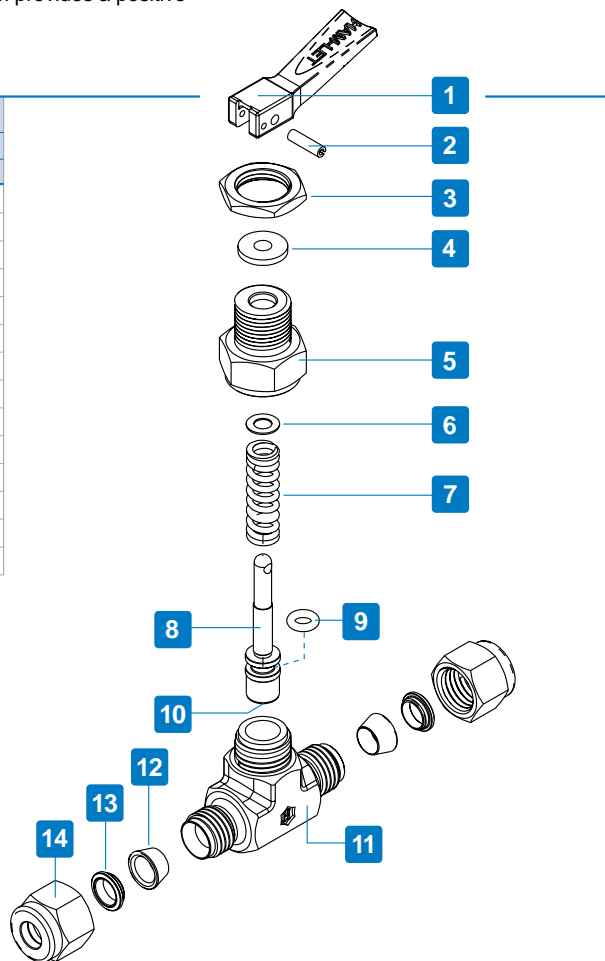
- Compact Rugged Design
- Stainless Steel and Brass Construction
- Panel Mountable
- Quick On/Off Service
- Straight and Angle Patterns Available
- Sizes: 1/8" & 1/4"
- LET-LOK®, Male and Female NPT ends
- MAWP 300 psig at 20°C (70°F)
- MAWT 400°F (204°C)
- Flow coefficient (Cv) 0.1 to 0.2
- Colored Nylon and Metal Handles

GENERAL

The H1200 Series standard toggle valve is a compact design for normally closed and quick on/off service.

Moving the handle 90 degrees upwards opens the valve to full flow and locks it firmly in the open position. Shifting the handle position downwards shuts off the valve by spring return. The PTFE soft seat at the tip of the stem provides a positive repetitive seal.

H1200 MATERIALS				
Item No.	Components	Qty.	Valve Body Material	
			316 St.St.	Brass
1	Handle	1	Nylon	
2	Roll Pin	1	St.St. 420 SS	
3	Panel Nut	1	St.St. ASTM A-276	Brass ASTM B-16
4	Washer	1	Nylon	
5	Packing Nut	1	St.St. ASTM A-276	Brass ASTM B-16
6	Thrust Washer	1	N/A	Nylon
7	Spring	1	302SS / A313	
8	Stem	1	St.St. ASTM A-276	
9	O-ring	1	Viton® (Fluorocarbon FKM)	
10	Stem Seat	1	PTFE	
11	Body	1	St.St. ASTM A-182	Brass ASTM B-283
12	Front Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
13	Back Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
14	Nut	2	St.St. ASTM A-276	Brass ASTM B-16



SCREWED-BONNET NEEDLE VALVES H99 SERIES

TESTING

All H1200 Series designs have been tested and approved for Burst and Proof. All of the valves are factory tested with Nitrogen pressure at 200 psig (13 bar) for shell, stem and across-the-seat leak detection.

CLEANING & PACKAGING

All H1200 valves are treated with the HAM-LET Passivation Cleaning and Packaging (Procedure 8075). Other treatments are available upon request.

H1200 SERIES DIMENSIONS (MM) For other end connections, please contact HAM-LET customer service.																				
End connection		Cv	Orifice		A		B		B1		C		D		E		G		H (Open)	
Type	Size		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Female NPT	1/8	0.20	3.28	0.13	41.2	1.66	20.6	0.81	20.6	0.81	N/A	N/A	21.8	0.85	7.95	0.31	13.5	0.53	65.5	2.57
Male NPT	1/8	0.11	2.50	0.10	43.7	1.72	21.8	0.86	21.9	0.86	29.7	1.17	21.8	0.85	7.95	0.31	13.5	0.53	65.5	2.57
Male NPT	1/4	0.20	3.28	0.13	49.8	1.96	24.9	0.98	24.9	0.98	32.8	1.29	21.8	0.85	7.95	0.31	13.5	0.53	65.5	2.57
LET-LOK®	1/8	0.11	2.30	0.09	49.8	1.96	24.9	0.98	24.9	0.98	32.8	1.29	21.8	0.85	7.95	0.31	13.5	0.53	65.5	2.57
LET-LOK®	1/4	0.20	3.28	0.13	57.4	2.26	28.7	1.13	28.7	1.13	36.5	1.44	21.8	0.85	7.95	0.31	13.5	0.53	65.5	2.57

O-RINGS Different materials are available for special applications.

O-ring Material	Temperature Rating °F (°C)
Buna N	-30 to 250 (-34 to 121)
Ethylene Propylene	-70 to 250 (-57 to 121)
Viton® (Fluorocarbon)	-15 to 400 (-26 to 204)
Kalrez®	-15 to 500 (-26 to 260)
Neoprene	-35 to 225 (-37 to 107)

ORDERING INFORMATION

H 12	00	SS	N	1/8	A	OPTIONAL
Valve Series	Valve Type	Body Material	End Connection	Size Designator	Pattern Designator	O-ring Material
	00 - LET-LOK® Ends 10 - Female Ends NPT 80 - Male Ends NPT	SS - 316SS B - Brass	L - LET-LOK® N - NPT	1/8" 1/4"	A - Angle S - Straight	Viton® O-ring is standard BU - Buna N EP - EPDM NE - Neoprene KZ - Kalrez®

Warning

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your HAM-LET products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

METERING VALVES

H1300 SERIES



METERING VALVES H1300 SERIES

H, HF & HXF1300 SERIES FEATURES

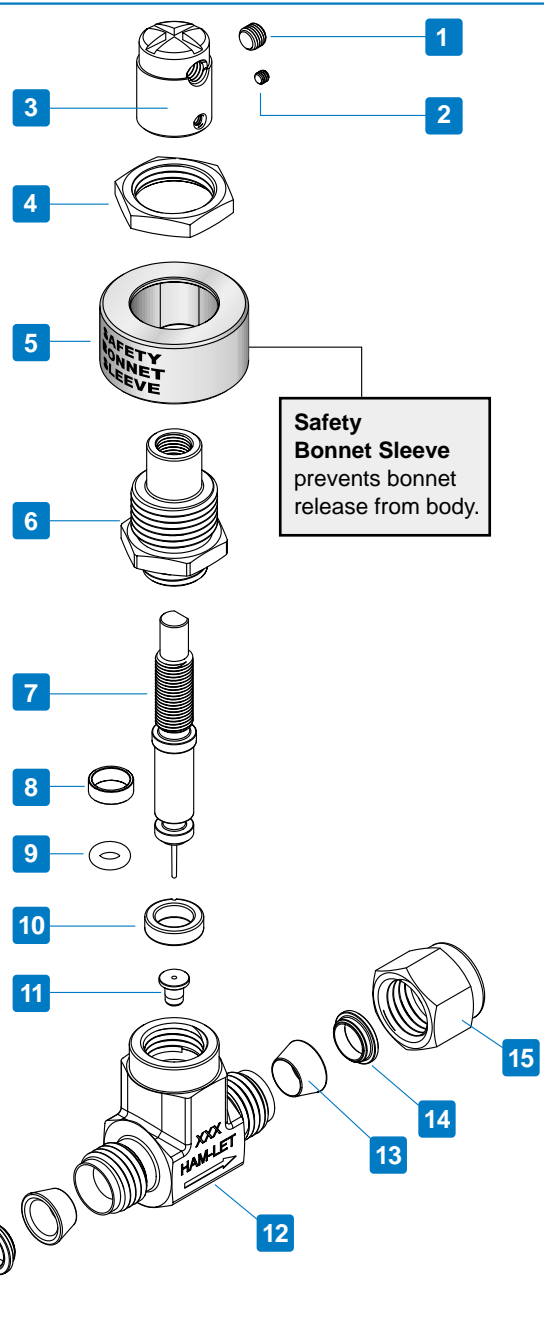
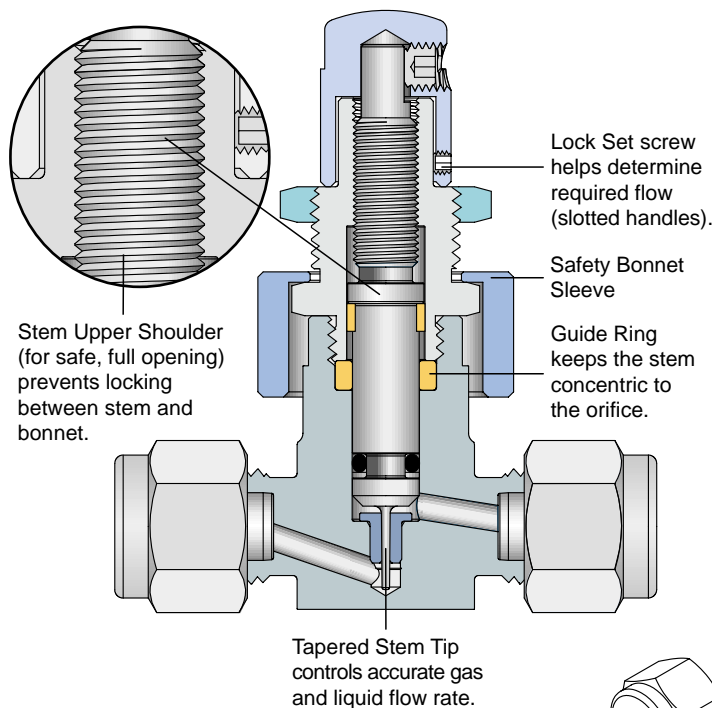
- Forged-body 316 St.St. or Brass Construction
- Straight and Angle Patterns
- Panel Mounting
- MAWP 2000 psig - (135 bar)
- MAWT 400°F (204°C)
- Flow coefficients (Cv) from 0.004 to 0.15
- Round & Slotted Handles with Screwdriver Slots
- HAM-LET LET-LOK® Ends, Male & Female
- NPT, HTC® Face Seal Bead End Connections
- 1°, 3° and 5° Stem Taper for required flow control
- Stem with Stopper Shoulder - long lifetime

GENERAL

The H1300 Series is a moderate-pressure instrumentation flow-regulating needle valve. It is generally used for instrumentation panels, sampling systems and accurate applications. The valves are compact in size and structure and offer reliably low and moderate flow regulation with long service life. The H1300 Series is rated to max. 2000 psig (340 bar).

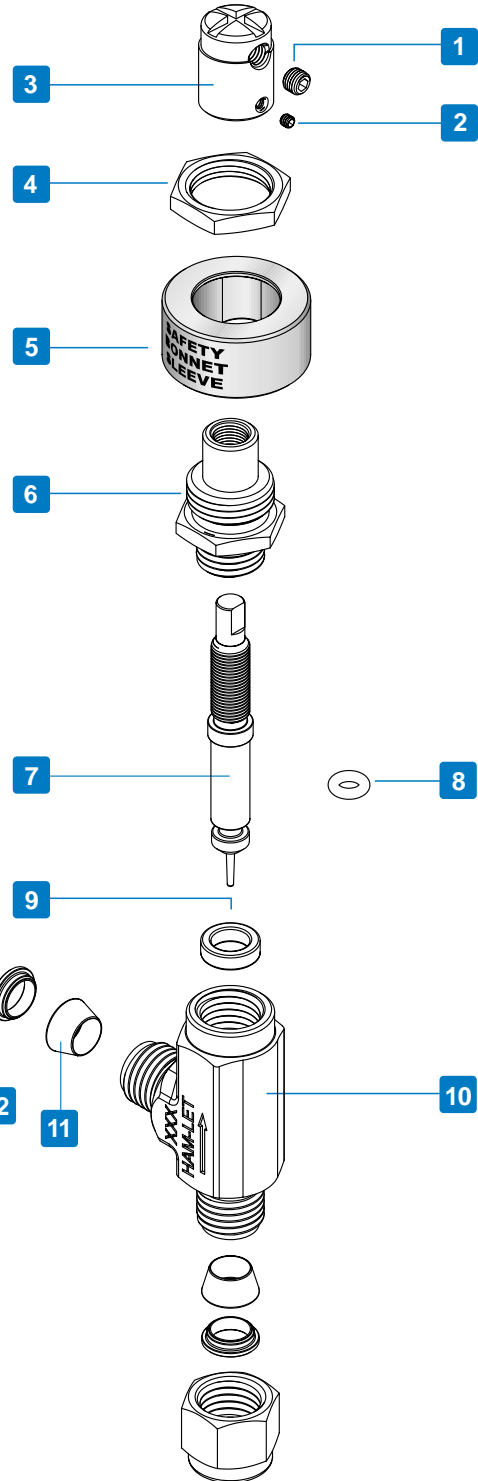
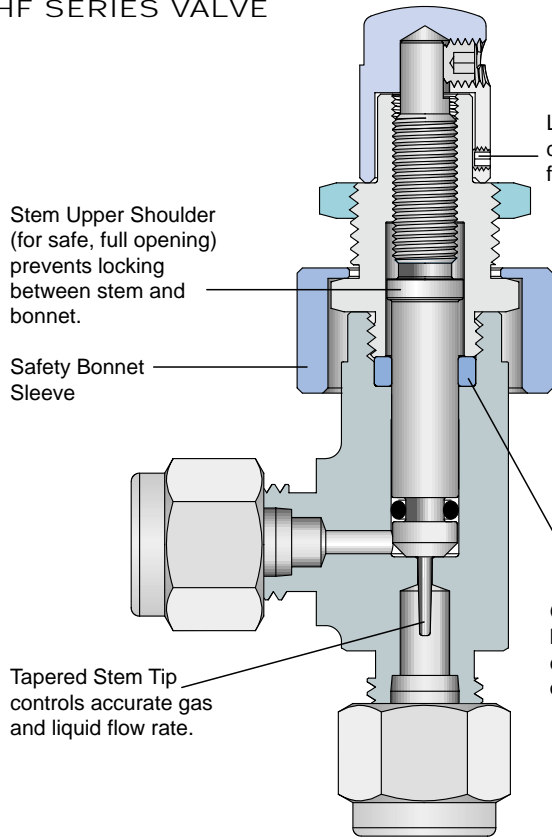
HXF1300 - MATERIALS				
Item No.	Components	Qty.	Valve Body Material	
			316 St.St.	Brass
1	Handle Set Screw	1	18-8 Stainless Steel	
2	Flow Fixing Screw	1	18-8 Stainless Steel	
3	Handle	1	St.St. ASTM A-276	Brass ASTM B-16
4	Panel Nut	1	St.St. ASTM A-276	Brass ASTM B-16
5	Safety Bonnet Sleeve	1	St.St. ASTM A-276	Brass ASTM B-16
6	Bonnet	1	St.St. ASTM A-276	Brass ASTM B-16
7	Stem	1	St.St. 174PH/A564	
8	Stem Ring	1	Glass-filled TFE	
9	O-ring	1	Viton® (fluorocarbon)	
10	Guide Ring	1	Glass-filled TFE	
11	Orifice	1	St.St. ASTM A-276	Brass ASTM B-16
12	Body	1	St.St. ASTM A-276	Brass ASTM B-16
13	Front Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
14	Back Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
15	Nut	2	St.St. ASTM A-276	Brass ASTM B-16

HXF SERIES STRAIGHT VALVE

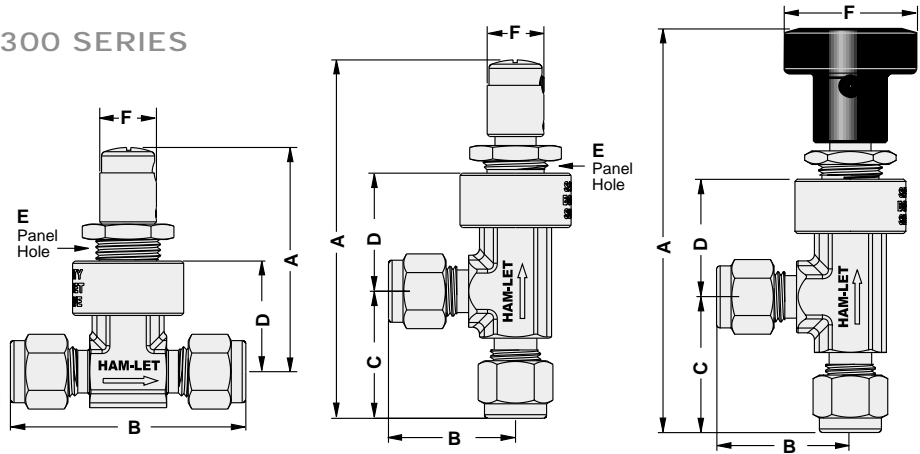


H&HF1300 - MATERIALS				
Item No.	Components	Qty.	Valve Body Material	
			316 St.St.	Brass
1	Handle Set Screw	1	St.St. ASTM A-276	Brass ASTM B-16
2	Flow Fixing Screw	1	18-8 Stainless Steel	
3	Handle	1	St.St. ASTM A-276	
4	Panel Nut	1	St.St. ASTM A-276	Brass ASTM B-16
5	Safety Bonnet Sleeve	1	St.St. ASTM A-276	Brass ASTM B-16
6	Bonnet	1	St.St. ASTM A-276	Brass ASTM B-16
7	Stem	1	St.St. 174PH/A564	
8	O-ring	1	Viton® (fluorocarbon)	
9	Guide Ring	1	Glass-filled TFE	
10	Body	1	St.St. ASTM A-276	Brass ASTM B-16
11	Front Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
12	Back Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
13	Nut	2	St.St. ASTM A-276	Brass ASTM B-16

HF SERIES VALVE



METERING VALVES H1300 SERIES



DIMENSIONS (MM) H1300, HF1300 & HXF1300																
Basic Ordering Number	Stem Taper Angle	Orifice mm/inch	Cv	Inlet	Outlet	A-open		B		C		D		E		F
						mm	in	mm	in	mm	in	mm	in	mm	in	
H-1300 Angle	50	3.3 mm 0.13"	0.13 Max	1/4" LET-LOK®	1/4" LET-LOK®	95.7	3.77	29.6	1.17	30.0	1.18	26.0	1.02	14.8	0.58	29 mm
				6MM LET-LOK®	6MM LET-LOK®	95.7	3.77	29.6	1.17	30.0	1.18	26.0	1.02	14.8	0.58	1.14"
H1300 Straight	50	3.3 mm 0.13"	0.13 Max	1/4" LET-LOK®	1/4" LET-LOK®	71.5	2.81	29.5	2.34	-	-	32.0	1.26	14.8	0.58	29 mm
				3/8" LET-LOK®	3/8" LET-LOK®	71.5	2.81	62.4	2.46	-	-	32.0	1.26	14.8	0.58	1.14"
				6MM LET-LOK®	6MM LET-LOK®	71.5	2.81	59.5	2.34	-	-	32.0	1.26	14.8	0.58	
HF1300 Angle	30	1.4 mm 0.055"	0.03 Max	1/4" Male NPT	1/4" Male NPT	71.5	2.81	50.8	2.00	-	-	32.0	1.26	14.8	0.58	12.5 mm 0.5"
				1/8" LET-LOK®	1/8" LET-LOK®	83.5	3.29	25.8	1.02	25.8	1.02	27.0	1.06	14.8	0.58	
				1/4" LET-LOK®	1/4" LET-LOK®	85.0	3.35	28.0	1.10	28.0	1.10	27.0	1.06	14.8	0.58	
				3MM LET-LOK®	3MM LET-LOK®	83.5	3.29	25.8	1.02	25.8	1.02	27.0	1.06	14.8	0.58	
				6MM LET-LOK®	6MM LET-LOK®	85.0	3.35	28.0	1.10	28.0	1.10	27.0	1.06	14.8	0.58	
				1/8" Male NPT	1/8" Male NPT	77.0	3.03	19.0	0.75	19.0	0.75	27.0	1.06	14.8	0.58	
				1/4" Male NPT	1/4" Male NPT	83.0	3.27	25.0	0.98	26.0	1.02	27.0	1.06	14.8	0.58	
				1/8" Male NPT	1/8" LET-LOK®	77.0	3.03	25.8	1.02	19.0	0.75	27.0	1.06	14.8	0.58	
				1/4" Male NPT	1/4" LET-LOK®	81.5	3.2	28.3	1.11	23.5	0.92	27.0	1.06	14.8	0.58	
				1/8" Female NPT	1/8" Female NPT	82.5	3.25	24.9	0.98	24.9	0.98	27.0	1.06	14.8	0.58	
HF1300 Straight	30	1.4 mm 0.055"	0.03 Max	1/8" LET-LOK®	1/8" LET-LOK®	70.0	2.76	51.0	2.01	-	-	27.0	1.06	14.8	0.58	12.5 mm 0.5"
				1/8" LET-LOK®	1/4" LET-LOK®	85.0	3.35	28.0	1.10	-	-	27.0	1.06	14.8	0.58	
				3MM LET-LOK®	3MM LET-LOK®	83.5	3.29	25.8	1.02	-	-	27.0	1.06	14.8	0.58	
				6MM LET-LOK®	6MM LET-LOK®	85.0	3.35	28.0	1.10	-	-	27.0	1.06	14.8	0.58	
				1/8" Male NPT	1/8" Male NPT	77.0	3.03	19.0	0.75	-	-	27.0	1.06	14.8	0.58	
				1/4" Male NPT	1/4" Male NPT	83.0	3.27	25.0	0.98	26.0	1.02	27.0	1.06	14.8	0.58	
				1/8" Female NPT	1/8" Female NPT	77.0	3.03	25.8	1.02	19.0	0.75	27.0	1.06	14.8	0.58	
				1/8" Male Face Seal	1/8" Male Face Seal	82.5	3.25	24.9	0.98	-	-	27.0	1.06	14.8	0.58	
HXF1300 Angle	10	0.8 mm 0.03"	0.004 Max	1/8" LET-LOK®	1/8" LET-LOK®	84.0	3.31	24.8	0.98	24.8	0.98	23.4	0.92	14.8	0.58	12.5 mm 0.5"
				1/4" LET-LOK®	1/4" LET-LOK®	85.0	3.35	25.8	1.02	25.8	1.02	23.4	0.92	14.8	0.58	
				3MM LET-LOK®	3MM LET-LOK®	84.0	3.31	24.8	0.98	25.0	0.98	23.4	0.92	14.8	0.58	
				1/8" Male NPT	1/8" LET-LOK®	77.5	3.05	24.8	0.98	24.8	0.98	23.4	0.92	14.8	0.58	
HXF1300 Straight	10	0.8 mm 0.03"	0.004 Max	1/4" Male NPT	1/4" LET-LOK®	82	3.22	27.3	1.07	29.3	1.15	23.4	0.92	14.8	0.58	12.5 mm 0.5"
				1/8" LET-LOK®	1/8" LET-LOK®	59.6	2.34	48.0	1.89	-	-	24.4	0.96	14.8	0.58	
				1/4" LET-LOK®	1/4" LET-LOK®	59.6	2.34	51.9	2.04	-	-	24.4	0.96	14.8	0.58	
				3MM LET-LOK®	3MM LET-LOK®	59.6	2.34	48.0	1.89	-	-	24.4	0.96	14.8	0.58	
				6MM LET-LOK®	6MM LET-LOK®	59.6	2.34	51.9	2.04	-	-	24.4	0.96	14.8	0.58	
				1/4" Male Face Seal	1/4" Male Face Seal	59.6	2.34	52.0	2.05	-	-	24.4	0.96	14.8	0.58	
"HXF" Series - 4.3 mm (0.17") maximum panel thickness "H" and "HF" - 3.3 mm (0.13") maximum panel thickness																

Dimensions are for reference only, and are subject to change.

METERING VALVES H1300 SERIES

CLEANING & PACKAGING

HAM-LET metering valves are treated with HAM-LET Passivation Cleaning and Packaging (Procedure 8075).
Oxygen Cleaning and Packaging for other end connections is available as an option.

TESTING

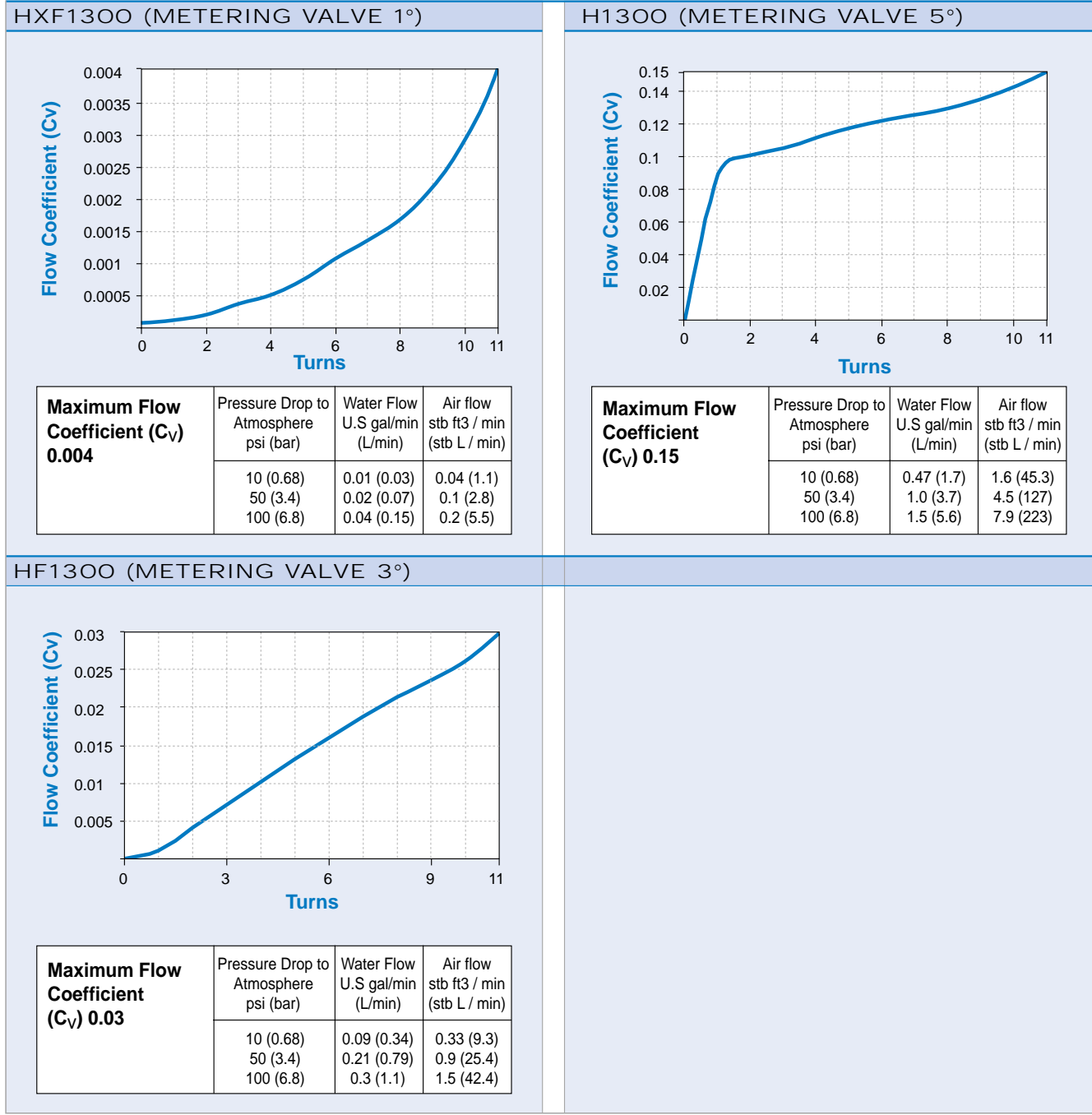
The H, HF and HXF Series metering valve designs have been tested for Proof and Burst.
Every H, HF & HXF1300 metering valve is factory tested for proper assembly, using leak detection.
Every H1300 metering valve is tested for leakage and bubble-tight at 100 psig (6.8 bar).

TECHNICAL DATA						
Series	Pressure - Temperature Ratings		Orifice		Shutoff Service	Stem Taper
	Temperature F° (C°)	Pressure psig (bar)	in	mm		
HXF	-10°F to 400°F (-23°C- 204°C) Viton® O-ring	2000 (135)	0.03	(0.8)	No	1°
HF		1000 (68.9)	0.055	(1.4)	No	3°
H	-10°F to 300°F (-23°C- 148°C) Buna-N O-ring	1000 (68.9)	0.13	(3.3)	*Yes	5°
<p>*Shutoff Service: In Stainless steel construction only. Stainless steel H1300 Series valves are not recommended for shutoff in vacuum or gas service, or for repetitive shutoff in liquid service.</p>						
O-RINGS Different materials are available for special applications.						
O-ring Material	Temperature Rating F° (C°)					
Buna N	-30 to 250 (-34 to 121)					
Ethylene Propylene	-70 to 250 (-57 to 121)					
Viton® (Fluorocarbon)	-15 to 400 (-26 to 204)					
Kalrez®	-15 to 500 (-26 to 260)					
Neoprene	-35 to 225 (-37 to 107)					

METERING VALVES H1300 SERIES

FLOW SETTING

The handle dead-stop position is set at 4 to 10 std cm³/min with 15 psig (1 bar) inlet pressure.



ORDERING INFORMATION Your Safety is important to us. Please ensure proper reference to our latest catalog.

Valve Description
Example:

H-13 00 SS L 1/4 S

OPTIONAL

Valve Series	
H13	- 5°
HF13	- 3°
HXF13	- 1°

Valve Type	
00	- LET-LOK® End Connection
10	- Female End Connection
80	- Male End Connection
95	- Male to LET-LOK® End Connection

Other valve types are available by special request.

Body and Ends Material	
SS	- St.St. 316
B	- Brass
*H	- Alloy C276
*M	- Monel®

* For these materials, please consult HAM-LET.

End Connection	
L	- LET-LOK®
N	- Threaded NPT
GL	- Male Face Seal
HL	- ONE-LOK®

Other end connections are available upon request.

Pattern Valve Type	
S	- Straight Port Valve
A	- Angle Port Valve

End Connection Size	
1/8 inch	3 mm
1/4 inch	6 mm
3/8 inch	

O-ring Material	
EP	- EPDM, EPM
NE	- Neoprene
KZ	- Kalrez®
BU	- Buna-N

Viton O-rings are standard for St.St. body construction.

Handle Color	
G	- Green
R	- Red
Y	- Yellow

Black round aluminum handle is standard for H Series only.
Metal slotted st.st. handle is standard for HF and HXF series.

Oxygen Clean	
OC	- Oxygen Clean
LF	- Lubricant Free

Warning

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your HAM-LET products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

H400 SERIES

HAM-LET CHECK VALVES



H-400	Ham-Let's fixed pressure check valve (up to 3000 psi)
H-400 HP	Small size fixed High pressure check valve (up to 6000 psi)
H-400 A	Adjustable pressure check valve (up to 3000 psi)
H-400 OPA	One piece Adjustable pressure check valve (up to 3000 psi)
H-400 OP	Small size One piece fixed pressure check valve (up to 3000 psi)

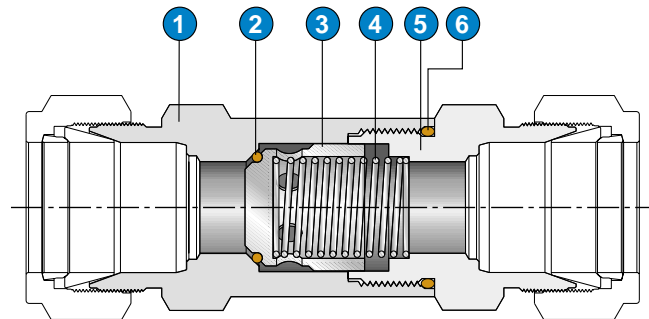
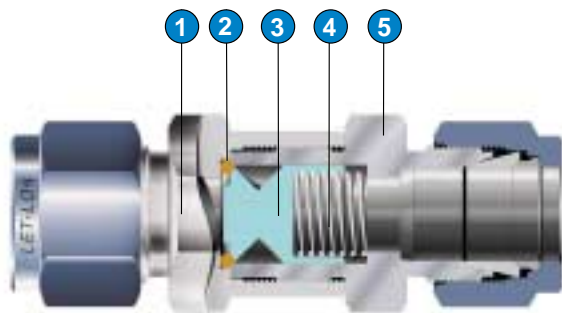
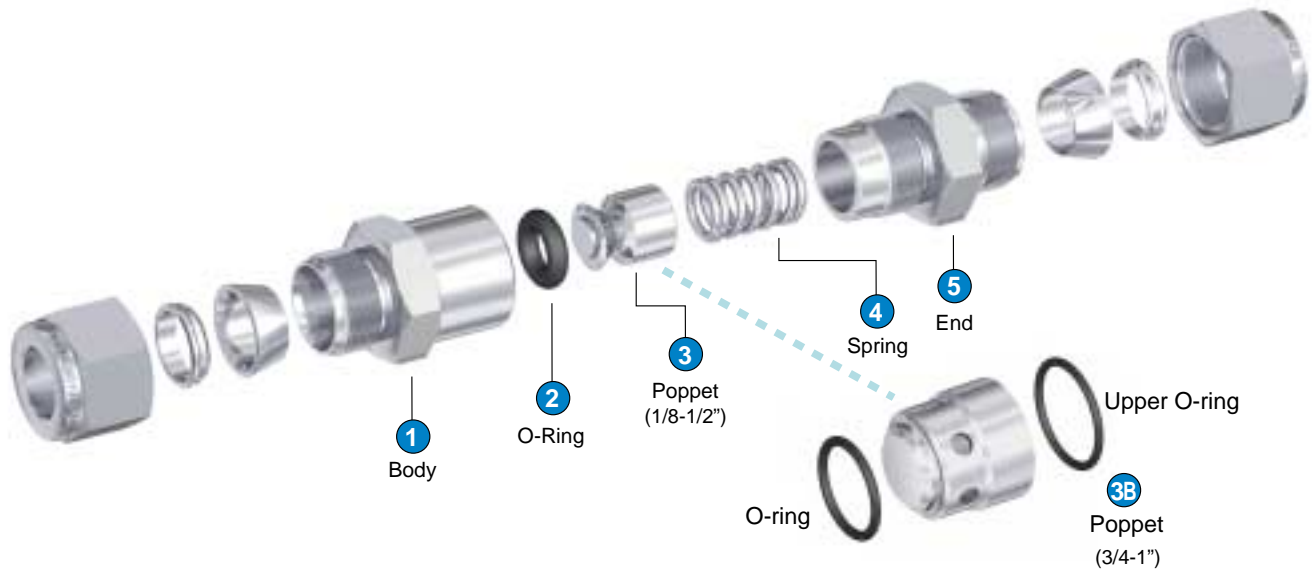
H400 SERIES

FEATURES:

- 316 St.St. End Brass Construction.
- Moderate Pressure Characteristics (up to 3000psi)
- Compact Design
- Interchangeable Parts
- Variable fixed cracking pressure springs
- Ham-Let Let-Lok, Male & Female NPT, and HTC Face Seal Bead Ends.

GENERAL

The H400 Series is a compact design for instrumentation panels and systems. Provides an accurate operating point. H400 valves are normally closed. When differential pressure between inlet and outlet will be higher than the set pressure of the spring, the loaded poppet will move backwards and will provide a free passage of flow through the valve.



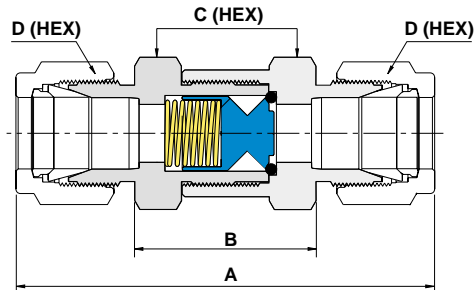
MATERIALS: SIZE 1/8''-1/2''

Item No.	Material	QTY.	Part No.
1	A.I.S.I 316	1	Body
2	Viton	1	O-Ring
3	A.I.S.I 316	1	Poppet
A	A.I.S.I 302	1	Spring 1/3 psi
B	A.I.S.I 302	1	Spring 3 psi
C	A.I.S.I 302	1	Spring 10 psi
D	A.I.S.I 302	1	Spring 25 psi
5	A.I.S.I 316	1	End

MATERIALS : SIZE 3/4''-1''

Item No.	Material	QTY.	Part No.
1	A.I.S.I 316	1	Body
2	Viton	1	O-Ring
3B	A.I.S.I 316	1	Poppet
A	A.I.S.I 302	1	Spring 1/3 psi
B	A.I.S.I 302	1	Spring 3 psi
C	A.I.S.I 302	1	Spring 10 psi
D	A.I.S.I 302	1	Spring 25 psi
5	A.I.S.I 316	1	End
6	Viton	1	Upper O-ring

H400 SERIES



DIMENSIONS

Catalog Number	Connection/Size		Cv	A		B		C		D	
	Inlet	Outlet		mm	inch	mm	inch	mm	inch	mm	inch
H-400	1/8" LET-LOK	1/8" LET-LOK	0.1	56.0	2.20	25.3	1.00	15.88	5/8	11.11	7/16
H-400	1/4" LET-LOK	1/4" LET-LOK	0.47	60.5	2.38	25.0	0.98	15.88	5/8	14.28	9/16
H-400	6mm LET-LOK	6mm LET-LOK	0.47	60.5	2.38	25.0	0.98	15.88	5/8	14.00	
H-400	3/8" LET-LOK	3/8" LET-LOK	1.47	63.5	2.50	24.9	0.98	17.46	11/16	17.46	11/16
H-400	10mm LET-LOK	10mm LET-LOK	1.68	64.0	2.52	24.9	0.98	17.46	11/16	19.00	
H-400	1/2" LET-LOK	1/2" LET-LOK	1.68	77.0	3.03	32.6	1.28	23.8	15/16	22.23	7/8
H-400	12mm LET-LOK	12mm LET-LOK	1.68	77.0	3.03	32.8	1.28	23.8	15/16	22.00	
H-400	3/4" LET-LOK	3/4" LET-LOK	4.48	88.5	3.48	44.4	1.75	28.6	11/8	28.60	11/8
H-400	1" LET-LOK	1" LET-LOK	4.48	120	4.72	67.2	2.65	34.9	13/8	38.10	11/2
H-410	1/8" FEMALE NPT	1/8" FEMALE NPT	0.1	44.0	1.73	25.4	1.00	15.88	5/8		
H-410	1/4" FEMALE NPT	1/4" FEMALE NPT	0.47	52.5	2.07	28.0	1.10	19.05	3/4		
H-410	3/8" FEMALE NPT	3/8" FEMALE NPT	1.47	51.5	2.03	34.1	1.34	22.23	7/8		
H-410	1/2" FEMALE NPT	1/2" FEMALE NPT	1.68	76.5	3.01	43.4	1.71	28.6	11/8		
H-410	3/4" FEMALE NPT	3/4" FEMALE NPT	4.48	86.0	3.39	56.0	2.20	34.9	13/8		
H-410	1" FEMALE NPT	1" FEMALE NPT	4.48	107	4.21	73.0	2.87	41.28	15/8		
H-480	1/4" MALE NPT	1/4" MALE NPT	0.47	53.3	2.10	25.0	0.98	19.05	3/4		
H-485	1/4" MALE NPT	1/4" FEMALE NPT	0.47	53.7	2.11	27.3	1.07	19.05	3/4		

CRACKING PRESSURE:

The differential pressure between **inlet and outlet**, at which an **initial flow** is passing through the valve.

RESEAL PRESSURE:

The differential pressure between **outlet and inlet**, at which **no flow** is passing through the valve.

MAWP PRESSURE AT 21°C (70°F)

SIZE	PRESSURE	BRASS	AISI 316
	PSI	BAR	PSI
1/8, 1/4, 6mm	3000	210	3000
	210		210
3/8, 1/2, 5/8,	3000	210	3000
	210		210
10mm, 12mm	1500	102	2000
	102		140

O-RINGS

Different materials are available for special applications.

O-Ring Material	Temperature Rating °F (°C)
Buna N	-30 to 250 (-34 to 121)
Ethylene Propylene	-70 to 250 (-57 to 121)
Viton (Fluorocarbon)	-15 to 400 (-26 to 204)
Kalrez	-15 to 500 (-26 to 260)
Neoprene	-35 to 225 (-37 to 107)

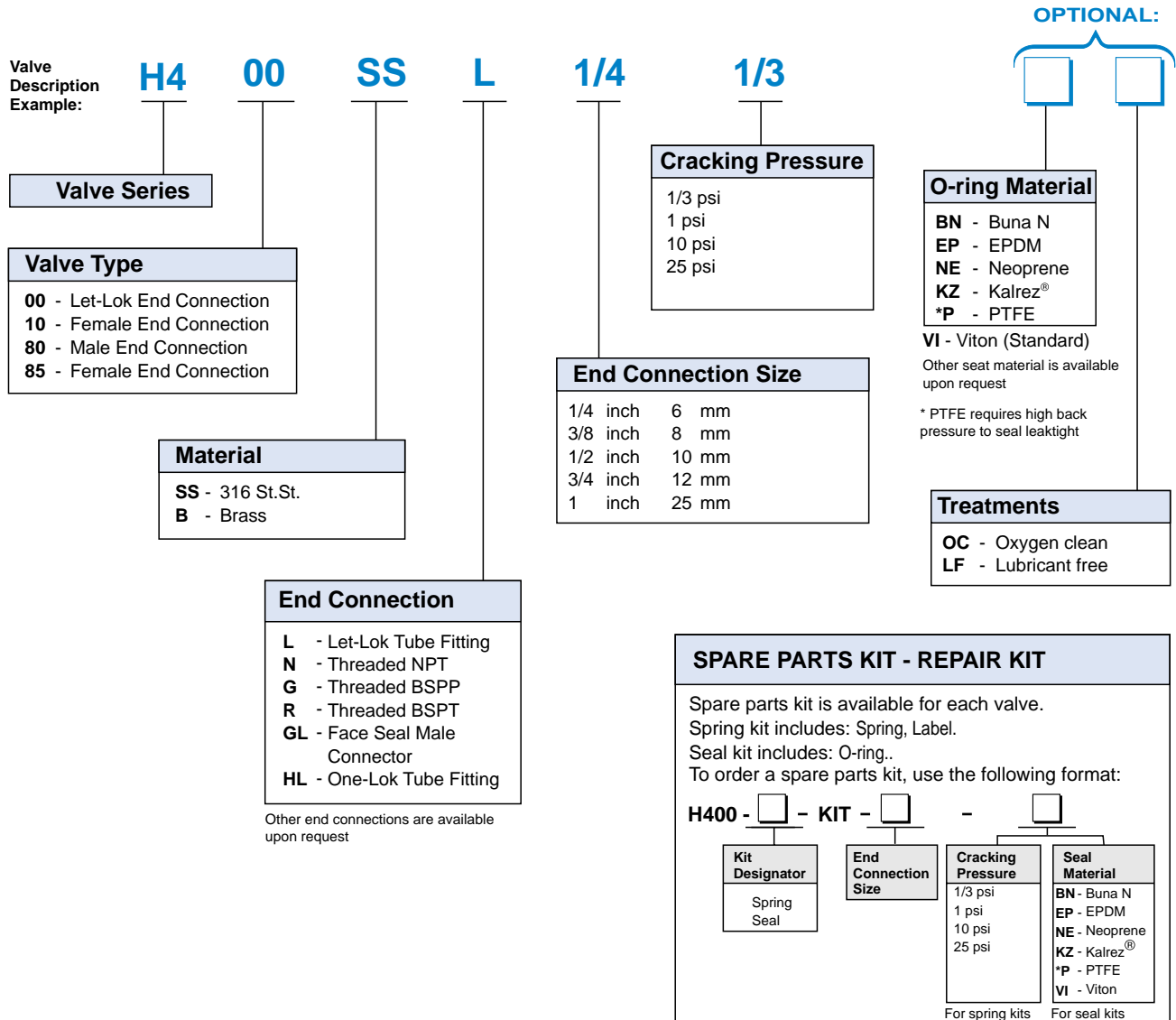
CRACKING AND RESEAL PRESSURE

Nominal Cracking Pressure Psi (Bar)	Cracking Pressure Range Psi (Bar)	Reseal Pressure Psi (Bar)	
		Up / Back Pressure	Pressure
1/3 (0.02)	Up to 3 (0.02)	Up to 6 (0.40)	Back
1 (0.06)	Up to 4 (0.27)	Up to 6 (0.27)	Back
10 (0.68)	7 to 15 (0.48 to 1.0)	3 (0.2) or more	Up
25 (1.7)	20 to 30 (1.3 to 2.0)	17 (1.1) or more	Up

H400 SERIES

H400 ORDERING INFORMATION

Your safety is important to us, please ensure proper reference to our latest catalog



Note: Check valves are designed and suitable for direct flow control only. These valves are not meant for pressure release.

CLEANING / PACKAGING

Ham-Let H400 valves are treated with Ham-Let Passivation, Cleaning and Packaging (Procedure 8075).

Ham-Let H400 Valves with face seal end connections are treated with Ham-Let Oxygen Cleaning and Packaging (Procedure 8055). Oxygen cleaning and packaging for other end connections are available as an option.

TESTING:

The H400 valve designs have been tested for Proof, Burst and Leakage.

Every H400 valve is factory tested for proper assembly, by leakage detection at 1000psig (68 bar) for 10sec.

Every H400 valve is factory tested for functionality at the relevant cracking pressure, 5 cycles each.

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance.

Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

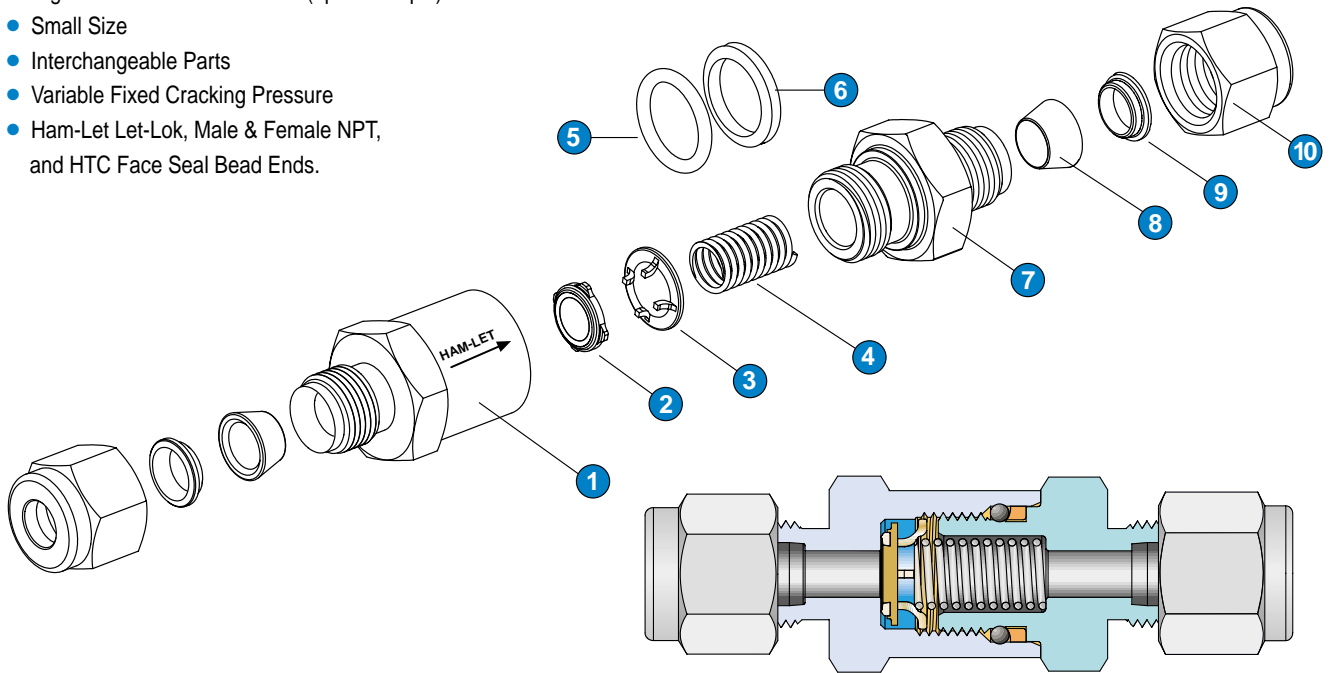
H400-HP FIXED CRACKING PRESSURE

GENERAL

The H400-HP Series is a compact robust and heavy duty design for high pressure (up to 6000psi) instrumentation panels and systems. Provides an accurate operating point. H400-HP valves are normally closed. When the differential pressure between the inlet and the outlet is higher than the set pressure of the spring, the loaded poppet will move backwards and provide a free passage of flow through the valve.

FEATURES:

- 316 St.St. construction.
- High Pressure Characteristics (up to 6000psi)
- Small Size
- Interchangeable Parts
- Variable Fixed Cracking Pressure
- Ham-Let Let-Lok, Male & Female NPT, and HTC Face Seal Bead Ends.



H400-HP - MATERIALS

Item No.	Components	QTY.	Material
1	Body	1	St.St. ASTM A-276
2	Poppet	1	Viton Bonded on 316 St.St.
3	Pusher	1	St.St. ASTM A-276
4	Spring	1	St.St. 304
5	O-ring	1	Viton
6	Back Up	1	Viton
7	End	1	St.St. ASTM A-276
8	Front Ferrule	1	St.St. ASTM A-276
9	Back Ferrule	2	St.St. ASTM A-276
10	Nut	2	St.St. ASTM A-276

PRESSURE - TEMPERATURE RATING

Material	316SS	
	Size	22&25mm , 3/4&1"
Temperature, °F (°C)	Working Pressure, psig (bar)	
-10 (-23) to 100 (37)	6000 (413)	5000 (344)
200 (93)	5160 (355)	4290 (295)
250 (121)	4910 (338)	4080 (281)
300 (148)	4660 (321)	3875 (267)
400 (204)	4280 (295)	3560 (245)

Pressure estimates may be limited by the end connections. (See table of dimensions attached).

RESEAL PRESSURE:

The differential pressure between **outlet and inlet**, at which **no flow** is passing through the valve.

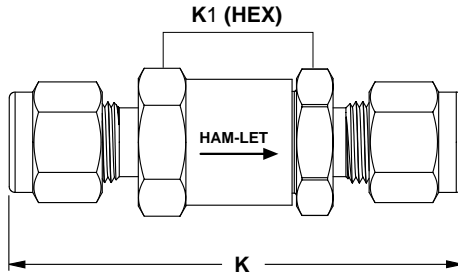
CRACKING AND RESEAL PRESSURE

Nominal Cracking Pressure Psi (Bar)	Cracking Pressure Range Psi (Bar)	Reseal Pressure	
		Psi (Bar)	Up / Back Pressure
1/3 (0.02)	Up to 3 (0.02)	Up to 5 (0.40)	Back
1 (0.06)	Up to 4 (0.27)	Up to 4 (0.27)	Back
5 (0.34)	3 to 9 (0.20 to 0.62)	Up to 2 (0.13)	Back
10 (0.68)	7 to 15 (0.48 to 1.0)	3 (0.2) or more	Up
25 (1.7)	20 to 30 (1.3 to 2.0)	17 (1.1) or more	Up

CRACKING PRESSURE:

The differential pressure between **inlet and outlet**, at which an **initial flow** is passing through the valve.

H400-HP FIXED CRACKING PRESSURE



TECHNICAL DATA

Connection sizes	Maximum Flow Coefficient (Cv)	Nominal Cracking Pressure Psi (Bar)	Downstream Pressure at 70°F (20°C) Psi (Bar)
1/8, 1/4, 6mm	0.67	1/3, 1, 5, 10 & 25	6000 (413)
3/8, 1/2, 8-12 mm	1.80	(0.02, 0.06, 0.34,	
3/4, 1, 22mm, 25mm	4.7	0.68, and 7.1)	5000 (344)

DIMENSIONS

Basic Ordering Number H400-HP

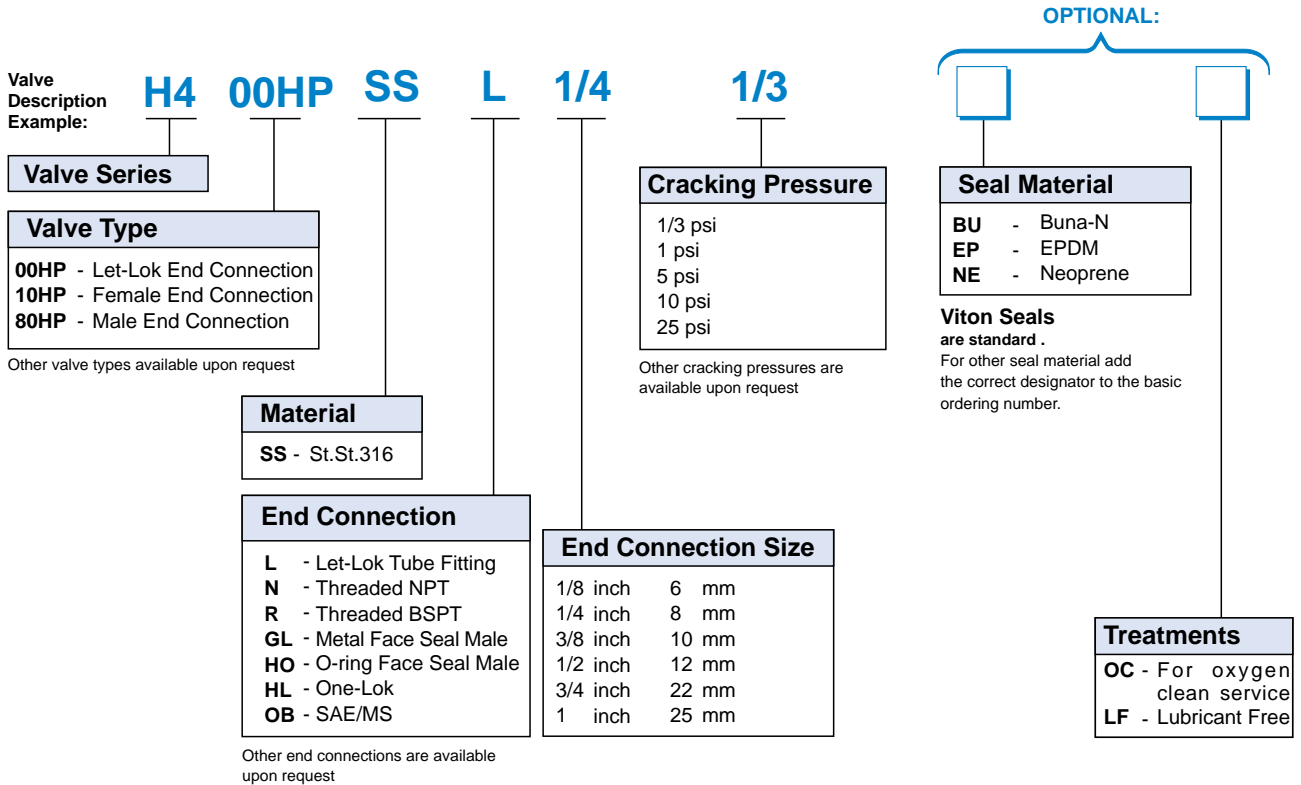
Inlet	Outlet	Pressure Rating at 100°F/37°C		Dimensions		K1 inch
		Psig	Bar	K		
				mm	inch	
1/8" Let-Lok	1/8" Let-Lok	6000	413	57.8	2.28	11/16"
1/4" Let-Lok	1/4" Let-Lok			61.8	2.43	
3/8" Let-Lok	3/8" Let-Lok			70.0	2.76	
1/2" Let-Lok	1/2" Let-Lok			75.3	2.96	
3/4" Let-Lok	3/4" Let-Lok	5000	344	89.5	3.52	1 5/8"
1" Let-Lok	1" Let-Lok	4700	323	98.5	3.88	
6mm Let-Lok	6mm Let-Lok	6000	413	61.8	2.43	11/16"
8mm Let-Lok	8mm Let-Lok			68.5	2.70	
10mm Let-Lok	10mm Let-Lok			71.1	2.80	
12mm Let-Lok	12mm Let-Lok			75.3	2.96	
22mm Let-Lok	22mm Let-Lok	5000	344	88.5	3.48	1 5/8"
25mm Let-Lok	25mm Let-Lok			98.5	3.88	
1/4" Female NPT	1/4" Female NPT	6000	413	54.1	2.13	11/16"
3/8" Female NPT	3/8" Female NPT	5000	344	64.8	2.55	1"
1/2" Female NPT	1/2" Female NPT	4600	316	77.0	3.03	1 1/16"
3/4" Female NPT	3/4" Female NPT	4300	296	82.0	3.23	1 5/8"
1" Female NPT	1" Female NPT	4100	282	97.3	3.83	
1/8" Male NPT	1/8" Male NPT	6000	413	45.6	1.80	11/16"
1/4" Male NPT	1/4" Male NPT			55.0	2.17	
3/8" Male NPT	3/8" Male NPT			60.0	2.36	
1/2" Male NPT	1/2" Male NPT			69.2	2.72	
3/4" Male NPT	3/4" Male NPT	5000	344	83.5	3.29	1 5/8"
1" Male NPT	1" Male NPT			93.3	3.67	
1/4" Female BSPT	1/4" Female BSPT	6000	413	58.0	2.28	11/16"
1/2" Female BSPT	1/2" Female BSPT	4600	316	83.5	3.29	1 1/16"
3/4" Female BSPT	3/4" Female BSPT	4300	296	90.1	3.55	1 5/8"
1" Female BSPT	1" Female BSPT	4100	282	97.4	3.83	
1/4" Male BSPT	1/4" Male BSPT	6000	413	55.0	2.17	11/16"
1/2" Male BSPT	1/2" Male BSPT			69.2	2.72	1"
3/4" Male BSPT	3/4" Male BSPT	5000	344	85.2	3.35	1 5/8"
1" Male BSPT	1" Male BSPT			93.3	3.67	
1/2" Female SAE/MS	1/2" Female SAE/MS	4600	316	69.5	2.74	1"
1/2" Male SAE/MS	1/2" Male SAE/MS	6000	413	63.0	2.48	
1/4" Male HO Fitting	1/4" Male HO Fitting	6000	413	50.4	1.98	11/16"
1/2" Male HO Fitting	1/2" Male HO Fitting			59.8	2.35	1"
3/4" Male HO Fitting	3/4" Male HO Fitting			73.6	2.90	1 5/8"
1" Male HO Fitting	1" Male HO Fitting					
1/4" Male Face Seal	1/4" Male Face Seal	6000	413	58.0	2.28	11/16"
1/2" Male Face Seal	1/2" Male Face Seal	3500	241	69.2	2.72	1"
3/4" Male Face Seal	3/4" Male Face Seal	3000	206	96.1	3.78	1 5/8"

Dimensions are for reference only and are subject to change

H400-HP FIXED CRACKING PRESSURE

H400-HP ORDERING INFORMATION

Your safety is important to us, please ensure proper reference to our latest catalog



Note: Check valves are designed and suitable for direct flow control only. These valves are not meant for pressure release.

O-RINGS

Different materials are available for special applications.

O-Ring Material	Temperature rating °F (°C)
Buna N	-30 to 250 (-34 to 121)
Ethylene Propylene	-70 to 250 (-57 to 121)
Viton (Fluorocarbon)	-15 to 400 (-26 to 204)
Neoprene	-35 to 225 (-37 to 107)

CLEANING / PACKAGING

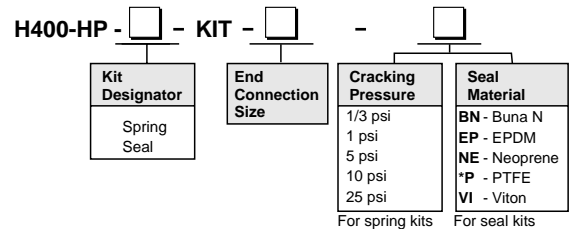
Ham-Let H400-HP valves are treated with Ham-Let Passivation, Cleaning and Packaging (Procedure 8075). Ham-Let H400-HP Valves with face seal end connections are treated with Ham-Let Oxygen Cleaning and Packaging (Procedure 8055). Oxygen cleaning and packaging for other end connections are available as an option.

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

SPARE PARTS KIT - REPAIR KIT

Spare parts kit is available for each valve.
 Spring kit includes: Spring, Label.
 Seal kit includes: O-ring, Back-up, Bonded poppet.
 To order a spare parts kit, use the following format:



TESTING:

The H400-HP valve designs have been tested for Proof, Burst and Leakage.
 Every H400-HP valve is factory tested for proper assembly, by leakage detection at 1000psig (68 bar) for 10sec.
 Every H400-HP valve is factory tested for functionality at the relevant cracking pressure, 5 cycles each.

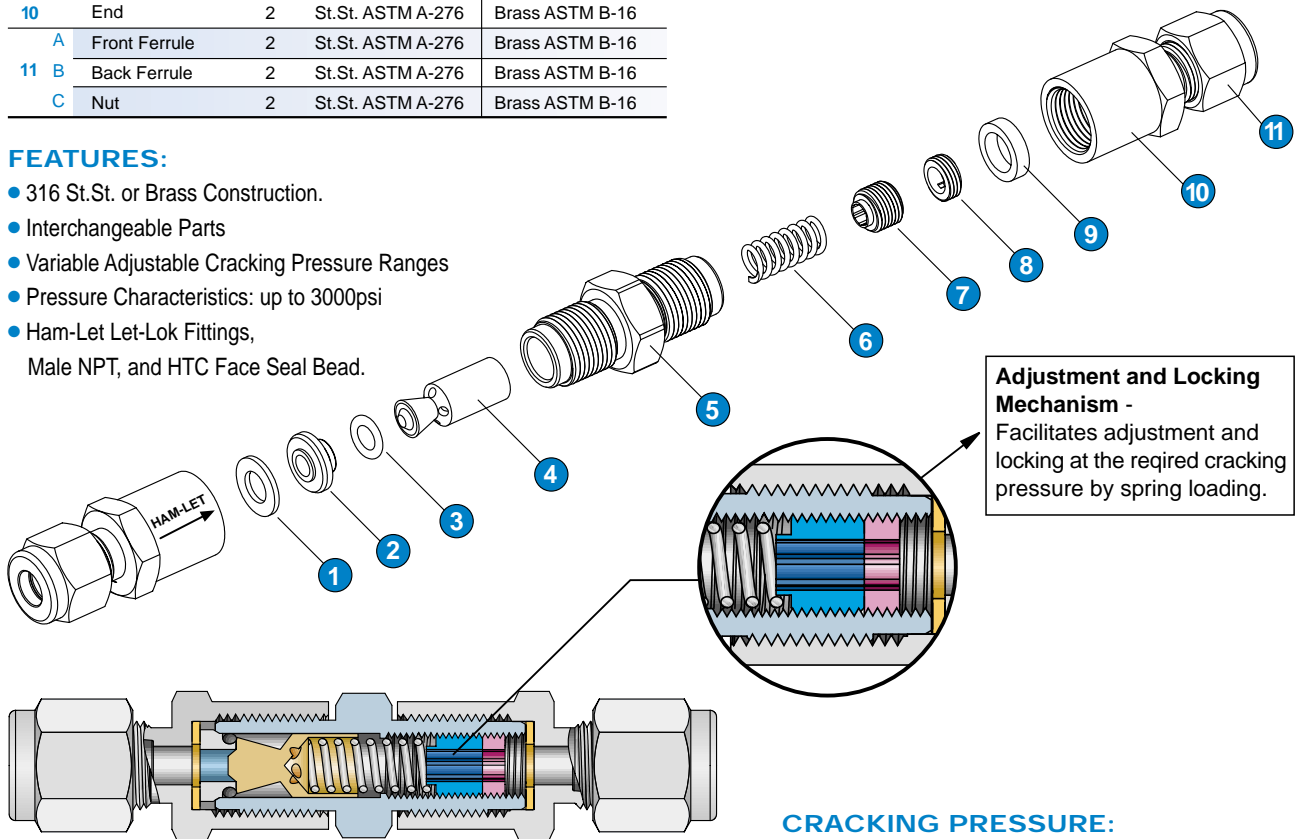
H400-A ADJUSTABLE CRACKING PRESSURE

H400-A - MATERIALS

Item No.	Components	QTY.	Valve Body Material	
			316 St.St.	Brass
1	Gasket	1	316 St.St. Silver plated	Al-6061 Silver plated
2	O-ring Holder	1	St.St. ASTM A-276	Brass ASTM B-16
3	O-ring	1	Viton (Fluorocarbon)	
4	Poppet	1	St.St. ASTM A-276	Brass ASTM B-16
5	Body	1	St.St. ASTM A-276	Brass ASTM B-16
6	Spring	1	St.St. 302	
7	Adjusting Screw	1	St.St. 304	
8	Lock Screw	1	St.St. 304	
9	Gasket	1	316 St.St. Silver plated	Al-6061 Silver plated
10	End	2	St.St. ASTM A-276	Brass ASTM B-16
A	Front Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
11 B	Back Ferrule	2	St.St. ASTM A-276	Brass ASTM B-16
C	Nut	2	St.St. ASTM A-276	Brass ASTM B-16

FEATURES:

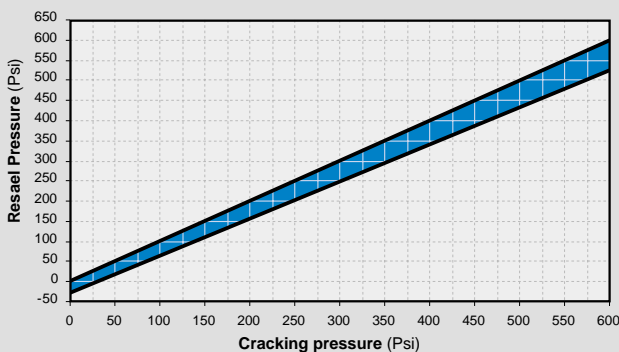
- 316 St.St. or Brass Construction.
- Interchangeable Parts
- Variable Adjustable Cracking Pressure Ranges
- Pressure Characteristics: up to 3000psi
- Ham-Let Let-Lok Fittings, Male NPT, and HTC Face Seal Bead.



GENERAL

The H400-A Series is a compact design for moderate pressure (up to 3000psi) instrumentation panels and systems. Provides an accurate and adjustable operating point. H400-A valves are normally closed. When the differential pressure between the inlet and the outlet is higher than the set pressure of the spring, the loaded poppet will move backwards and provide a free passage for flow through the valve.

CRACKING AND RESEAL PRESSURE



CRACKING PRESSURE:

The differential pressure between **inlet and outlet**, at which an **initial flow** is passing through the valve.

RESEAL PRESSURE:

The differential pressure between **outlet and inlet**, at which **no flow** is passing through the valve.

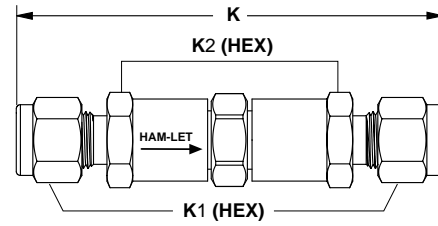
PRESSURE - TEMPERATURE RATING

Material Temperature, °F (°C)	Working Pressure, psig (bar)	
	316SS	Brass
-10 (-23) to 100 (37)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)
250 (121)	2450 (168)	2405 (165)
300 (148)	2325 (160)	-
375 (190)	2185 (150)	-

H400-A ADJUSTABLE CRACKING PRESSURE

DIMENSIONS						
Basic Ordering Number H400-A						
Inlet	Outlet	K		Dimensions		
		mm	inch	K1 Hex	K2 Hex	
1/4"	1/4"	82.5	3.25	9/16	5/8	
6 mm	6 mm	82.5	3.25	14.0 mm	5/8	
8 mm	8 mm	84.4	3.32	16.0 mm	5/8	
1/4" Male NPT	1/4" Let-Lok	79.3	3.12	9/16	5/8	
1/4" Male Face Seal	1/4" Male Face Seal	78.4	3.09	-	5/8	

Dimensions are for reference only, and are subject to change



O-RINGS	
Different materials are available for special applications.	
O-Ring Material	Temperature Rating °F (°C)
Buna N	-30 to 250 (-34 to 121)
Ethylene Propylene	-70 to 250 (-57 to 121)
Viton (Fluorocarbon)	-15 to 400 (-26 to 204)
Kalrez	-15 to 500 (-26 to 260)
Neoprene	-35 to 225 (-37 to 107)

TECHNICAL DATA			
Connection Sizes	Maximum Flow Coefficient (Cv)	Nominal Cracking Pressure Psi (Bar)	Downstream Pressure at 70°F (20°C) Psi (Bar)
1/4, 6mm, 8mm	0.37	3 to 50 (0.2 to 3.4)	3000 (413)
		50 to 150 (3.4 to 10.3)	
		150 to 350 (10.3 to 24.1)	
		350 to 600 (24.1 to 41.3)	

H400-A ORDERING INFORMATION

Your safety is important to us, please ensure proper reference to our latest catalog

OPTIONAL:

Valve Description Example: **H4 00A SS L 1/4 3**

Valve Series

Valve Type

00A - Let-Lok End Connection
80A - Male End Connection

For other valve types please consult Ham-Let.

Material

SS - 316 St.St.
B - Brass

Cracking Pressure

Designator	Values (psi)
3	3-50
50	50-150
150	150-350
350	350-600

End Connection Size

1/4 inch
6 mm
8 mm

End Connection

L - Let-Lok Tube Fitting
N - Threaded NPT
GL - Face Seal Male Connector
HL - One-Lok

Other end connections are available upon request

O-ring Material

EP - EPDM
NE - Neoprene
KZ - Kalrez
P - PTFE
PTFE requires high back pressure for leak tight sealing

Viton O-rings are standard for St.St. body construction.

Tretments

OC - Oxygen Clean
LF - Lubrucant Free

REPAIR KIT

Please see H400-OPA how to order.

Note: Check valves are designed and suitable for direct flow control only. These valves are not meant for pressure release.

CLEANING / PACKAGING:

Ham-Let H400-A valves are treated with Ham-Let Passivation, Cleaning and Packaging (Procedure 8075).

Ham-Let H400-A valves with face seal end connections are treated with Ham-Let Oxygen Cleaning and Packaging (Procedure 8055).

Oxygen cleaning and packaging for other end connections are available as an option.

TESTING:

The H400-A valve designs have been tested for Proof, Burst and Leakage.

Every H400-A valve is factory tested for proper assembly, by leak detection at 1000psig (68bar) for 10sec.

Every H400-A valve is factory tested for functionality at the relevant cracking pressure, 5 cycles each.

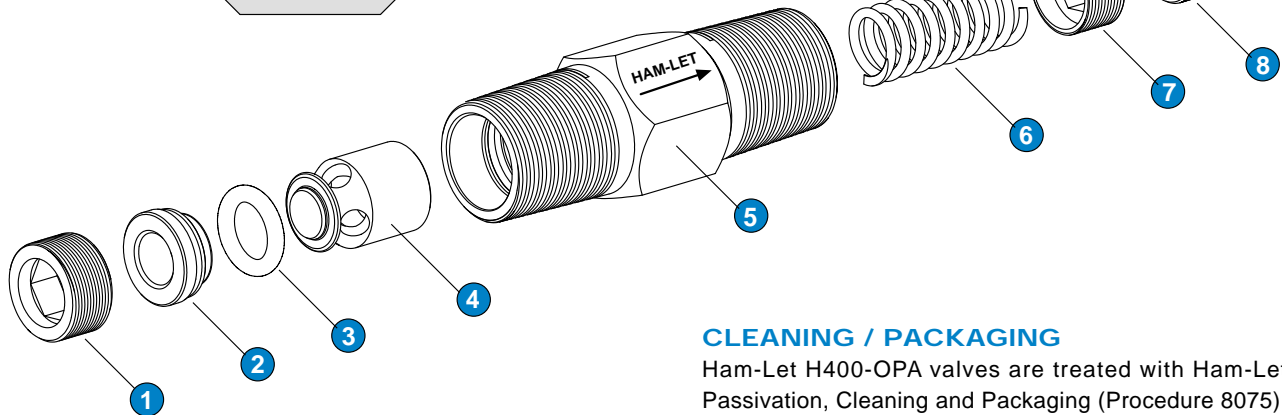
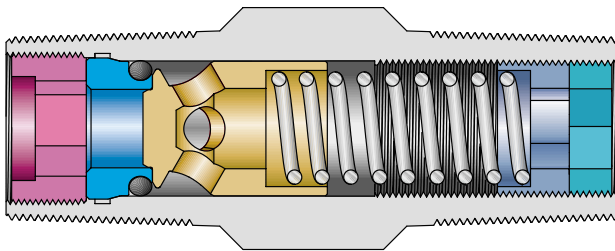
Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance.

Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

H400-OPA ONE-PIECE ADJUSTABLE CRACKING PRESSURE

H400-OPA - MATERIALS				
Item No.	Components	QTY.	Valve Body Material	
			316 St.St.	Brass
1	Inlet lock Screw	1	St.St. 304	Brass ASTM B-16
2	O-ring Holder	1	St.St. ASTM A-276	Brass ASTM B-16
3	O-ring	1	Viton (Fluorocarbon)	
4	Poppet	1	St.St. ASTM A-276	Brass ASTM B-16
5	Body	1	St.St. ASTM A-276	Brass ASTM B-16
6	Spring	1	St.St. 302	
7	Adjusting Screw	1	St.St. 304	
8	Lock Screw	1	St.St. 304	



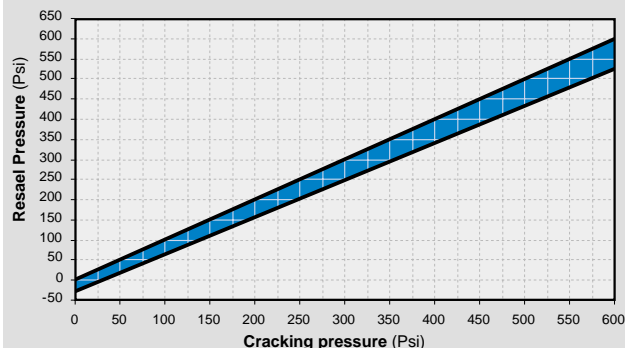
CRACKING PRESSURE:

The differential pressure between **inlet and outlet**, at which an **initial flow** is passing through the valve.

RESEAL PRESSURE:

The differential pressure between **outlet and inlet**, at which **no flow** is passing through the valve.

CRACKING AND RESEAL PRESSURE



GENERAL

The H400-OPA Series is a compact one-piece design for moderate pressure (up to 3000psi) instrumentation panels and systems. Provides an accurate and adjustable operating point. H400-OPA valves are normally closed. When the differential pressure between the inlet and the outlet is higher than the set pressure of the spring, the loaded poppet will move backwards and provide a free passage for flow through the valve.

FEATURES:

- One-piece Body
- 316 St.St. or Brass Construction.
- Repair Kits
- Variable Adjustable Cracking Pressure Ranges
- Pressure Characteristics: up to 3000psi
- Ham-Let Male & Female NPT, Male BSPT

CLEANING / PACKAGING

Ham-Let H400-OPA valves are treated with Ham-Let Passivation, Cleaning and Packaging (Procedure 8075). Ham-Let H400-OPA Valves with face seal end connections are treated with Ham-Let oxygen cleaning and packaging (Procedure 8055). Oxygen Cleaning and Packaging for other end connections are available as an option.

TESTING:

The H400-OPA valve designs have been tested for Proof, Burst and Leakage.

Every H400-OPA valve is factory tested for proper assembly, by leakage detection at 1000psig (68bar) for 10sec.

Every H400-OPA valve is factory tested for functionality at the

relevant cracking pressure, 5 cycles each.

TECHNICAL DATA

Connection Sizes	Maximum Flow Coefficient (Cv)	Nominal Cracking Pressure Psi (Bar)	Downstream Pressure at 70°F (20°C) Psi (Bar)
1/4	0.35	3 to 50 (0.2 to 3.4)	3000 (207)
		50 to 150 (3.4 to 10.3)	
1/2	1.20	150 to 350 (10.3 to 24.1)	3000 (207)
		350 to 600 (24.1 to 41.3)	

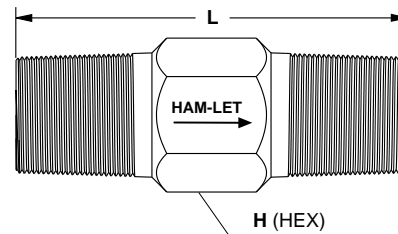
H400-OPA ONE-PIECE ADJUSTABLE CRACKING PRESSURE

DIMENSIONS				
Basic Ordering Number H400-OPA				
End Connection	Size	Dimensions		
		Inlet / Outlet	L	H
		mm	inch	inch
Female NPT	1/4"	75.5	2.97	3/4
Male NPT	1/4"	41	1.61	9/16
	1/2"	65	2.55	7/8
Male BSPT	1/4"	41	1.61	9/16
	1/2"	65	2.55	7/8

Dimensions are for reference only, and are subject to change

PRESSURE - TEMPERATURE RATING		
Material	316SS	Brass
Temperature, °F (°C)	Working Pressure, psig (bar)	
-10 (-23) to 100 (37)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)
250 (121)	2450 (168)	2405 (165)
300 (148)	2325 (160)	-
375 (190)	2185 (150)	-

O-RINGS	
Different materials are available for special applications.	
O-Ring Material	Temperature Rating °F (°C)
Buna N	-30 to 250 (-34 to 121)
Ethylene Propylene	-70 to 250 (-57 to 121)
Viton (Fluorocarbon)	-15 to 400 (-26 to 204)
Kalrez	-15 to 500 (-26 to 260)
Neoprene	-35 to 225 (-37 to 107)



H400-OPA ORDERING INFORMATION

Your safety is important to us, please ensure proper reference to our latest catalog

Valve Description Example: **H4 00-OPA SS N 1/4 3**

Valve Series

Valve Type

10 - Female End Connection
80 - Male End Connection

Material

SS - 316 St.St.
B - Brass

End Connection

N - Threaded NPT
R - Threaded BSPT

For other valve types please consult Ham-Let.

For other end connections Please consult Ham-Let

Cracking Pressure

Designator	Values (psi)
3	3-50
50	50-150
150	150-350
350	350-600

End Connection Size

1/4"
1/2"

O-ring Material

EP - EPDM
NE - Neoprene
KZ - Kalrez
P - PTFE
PTFE requires high back pressure for leak tight sealing

Viton O-rings are standard for St.St. body construction.

Treatments

OC - Oxygen Clean
LF - Lubricant Free

Note: Check valves are designed and suitable for direct flow control only. These valves are not meant for pressure release.

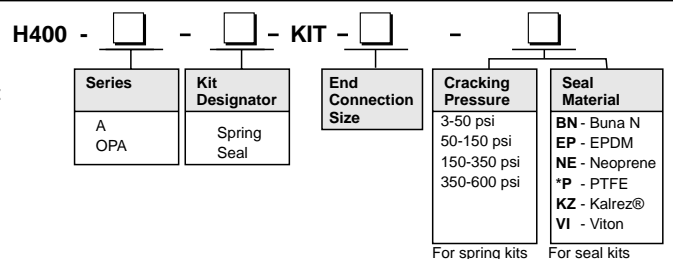
OPTIONAL:

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

Spare Parts Kit - Repair Kit

Spare parts kit is available for each valve.
Spring kit includes: Spring, Label.
Seal kit includes: O-ring.
To order a spare parts kit, use the following format:



H400-OP ONE-PIECE FIXED CRACKING PRESSURE

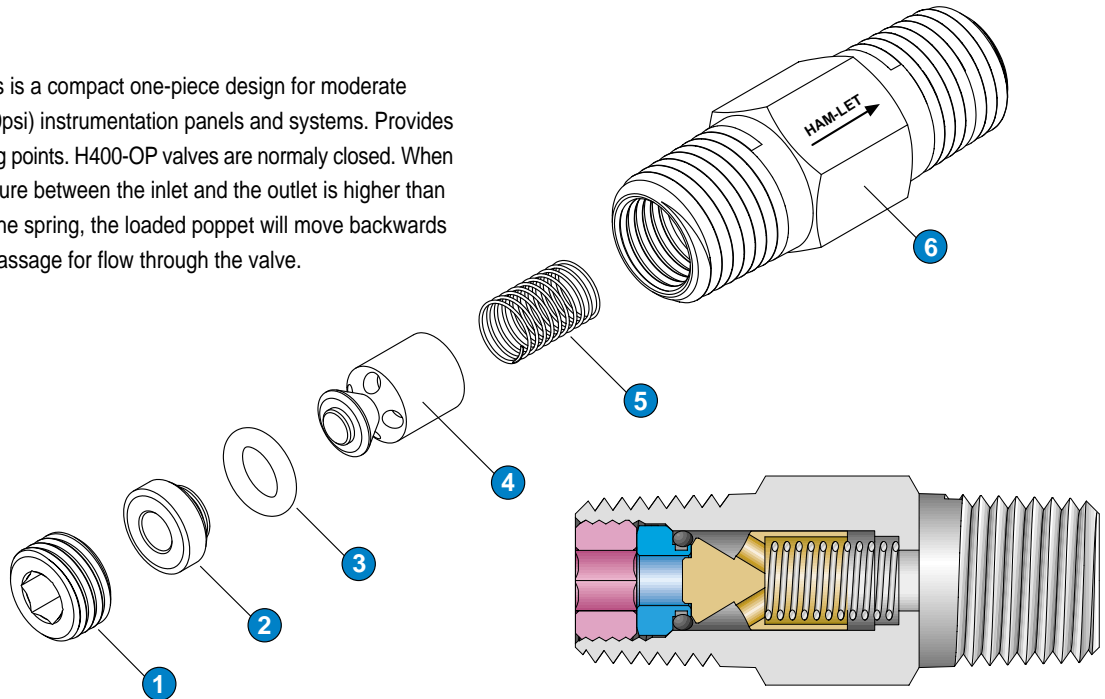
H400-OP - MATERIALS					
Item No.	Components	QTY.	Valve Body Material		
			316 St.St.	Brass	
1	Lock Screw	1	St.St. 304	Brass ASTM B-16	
2	O-ring Holder	1	St.St. ASTM A-276		
3	O-ring	1	Viton (Fluorocarbon)		
4	Poppet	1	St.St. ASTM A-276	Brass ASTM B-16	
5	Spring	1	St.St. 302		
6	Body	1	St.St. ASTM A-276	Brass ASTM B-16	

GENERAL

The H400-OP Series is a compact one-piece design for moderate pressure (up to 3000psi) instrumentation panels and systems. Provides an accurate operating points. H400-OP valves are normally closed. When the differential pressure between the inlet and the outlet is higher than the set pressure of the spring, the loaded poppet will move backwards and provide a free passage for flow through the valve.

FEATURES:

- One-piece Body
- 316 St.St. or Brass Construction.
- Interchangeable Parts
- Variable Adjustable Cracking Pressure
- Pressure Characteristics: up to 3000psi
- Ham-Let Male & Female NPT, Male & Female BSPT



TECHNICAL DATA			
Connection Sizes	Maximum Flow Coefficient (Cv)	Nominal Cracking Pressure Psi (Bar)	Downstream Pressure at 70°F (20°C) Psi (Bar)
1/4	0.35	1/3, 1, 10 & 25	3000 (207)
1/2	1.20	(0.02, 0.06, 0.68, and 7.1)	

PRESSURE - TEMPERATURE RATING			
Material Size	316SS	Brass	
Temperature, °F (°C)	Working Pressure, psig (bar)		
-10 (-23) to 100 (37)	3000 (206)	3000 (206)	3000 (206)
200 (93)	2575 (177)	2600 (179)	2600 (179)
250 (121)	2450 (168)	2405 (165)	2405 (165)
300 (148)	2325 (160)	-	-
375 (190)	2185 (150)	-	-

CRACKING AND RESEAL PRESSURE			
Nominal Cracking Pressure Psi (Bar)	Cracking Pressure Range Psi (Bar)	Reseal Pressure Psi (Bar)	Up / Back Pressure
1/3 (0.02)	Up to 3 (0.02)	6 to 20 (0.41 to 1.3)	Back
1 (0.06)	Up to 4 (0.27)	5 to 20 (0.34 to 1.3)	Back
10 (0.68)	7 to 13 (0.48 to 0.89)	3 to 10 (0.2 to 0.68)	Back
25 (1.7)	21 to 29 (1.4 to 1.9)	5 (0.34) or more	Up

CRACKING PRESSURE:

The differential pressure between **inlet and outlet**, at which an **initial flow** is passing through the valve.

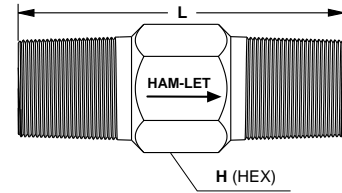
RESEAL PRESSURE:

The differential pressure between **outlet and inlet**, at which **no flow** is passing through the valve.

H400-OP ONE-PIECE FIXED CRACKING PRESSURE

DIMENSIONS				
Basic Ordering Number H400-OP				
End Connection	Size	Dimensions		
		L	H	
Inlet / Outlet		mm	inch	inch
Female NPT	1/4"	61.0	2.4	3/4
	1/2"	94.0	3.7	11/16
Male NPT	1/4"	41.0	1.61	9/16
	1/2"	58.0	2.28	7/8
Female / Male NPT	1/4"	58.0	2.28	3/4
Male /	1/4"	44.5	1.75	3/4
Female NPT	1/2"	72.0	2.83	11/16
Female BSPT	1/4"	64.5	2.54	3/4
Male BSPT	1/2"	41.0	1.61	9/16

Dimensions are for reference only, and are subject to change



O-RINGS	
Different materials are available for special applications.	
O-Ring Material	Temperature rating °F (°C)
Buna N	-30 to 250 (-34 to 121)
Ethylene Propylene	-70 to 250 (-57 to 121)
Viton (Fluorocarbon)	-15 to 400 (-26 to 204)
Kalrez	-15 to 500 (-26 to 260)
Neoprene	-35 to 225 (-37 to 107)

H400-OPA ORDERING INFORMATION

Your safety is important to us, please ensure proper reference to our latest catalog

Valve Description Example: **H4 00-OP SS N 1/4 1/3**

Valve Series

Valve Type

10 - Female End Connection
80 - Male End Connection

Material

SS - 316 St.St.
B - Brass

Cracking Pressure

1/3 psi
1 psi
10 psi
25 psi

Other Cracking pressures are available upon request

End Connection Size

1/4"
1/2"

End Connection

N - Threaded NPT
R - Threaded BSPT

O-ring Material

BN - Buna N
EP - EPDM, EPM®
NE - Neoprene
KZ - Kalrez
P - PTFE

PTFE requires high back pressure for leak tight sealing

Viton O-rings are standard for St.St. body construction.

For other valve types please consult Ham-Let.

For other end connections Please consult Ham-Let

Tretments

OC - Oxygen Clean
LF - Lubrucant Free

CLEANING / PACKAGING:

Ham-Let H400-OP valves are treated with Ham-Let Passivation, Cleaning and Packaging (Procedure 8075).

Ham-Let H400-OP valve with face seal end connections are treated with Ham-Let oxygen cleaning and Packaging (Procedure 8055). Oxygen Cleaning and packaging for other end connections are available as an option.

TESTING:

The H400-OP Valves designs have been tested for Proof, Burst and Leakage.

Every H400-OP valve is factory tested for proper assembly, by leakage detection at 100psig (6.8bar) for 10sec.

Every H400-OP Valve is factory tested for functionality at the relevant cracking pressure, 5 cycles each.

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance.

Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

For more information and local representatives - please check our web site. at www.ham-let.com

Spare Parts Kit - Repair Kit

Spare parts kit is available for each valve.

Spring kit includes: Spring, Label.

Seal kit includes: O-ring.

To order a spare parts kit, use the following format:

H400-OP - [] - KIT - [] - []

Kit Designator	End Connection Size	Cracking Pressure	Seal Material
Spring Seal		1/3 psi 1 psi 10 psi 25 psi	BN - Buna N EP - EPDM NE - Neoprene *P - PTFE KZ - Kalrez® VI - Viton

For spring kits For seal kits

H911 SERIES

INDUSTRIAL EXCESS FLOW VALVES



Features:

- Stainless Steel Construction.
- High Pressure Characteristic up to 6000psi (413bar).
- Temperature up to 400°F (204°C).
- Variable connection sizes (1/8 to 1/2in & 6 to 12mm).
- Cv = 0.5 ; 1.1
- Safety System Shut Off Device

GENERAL

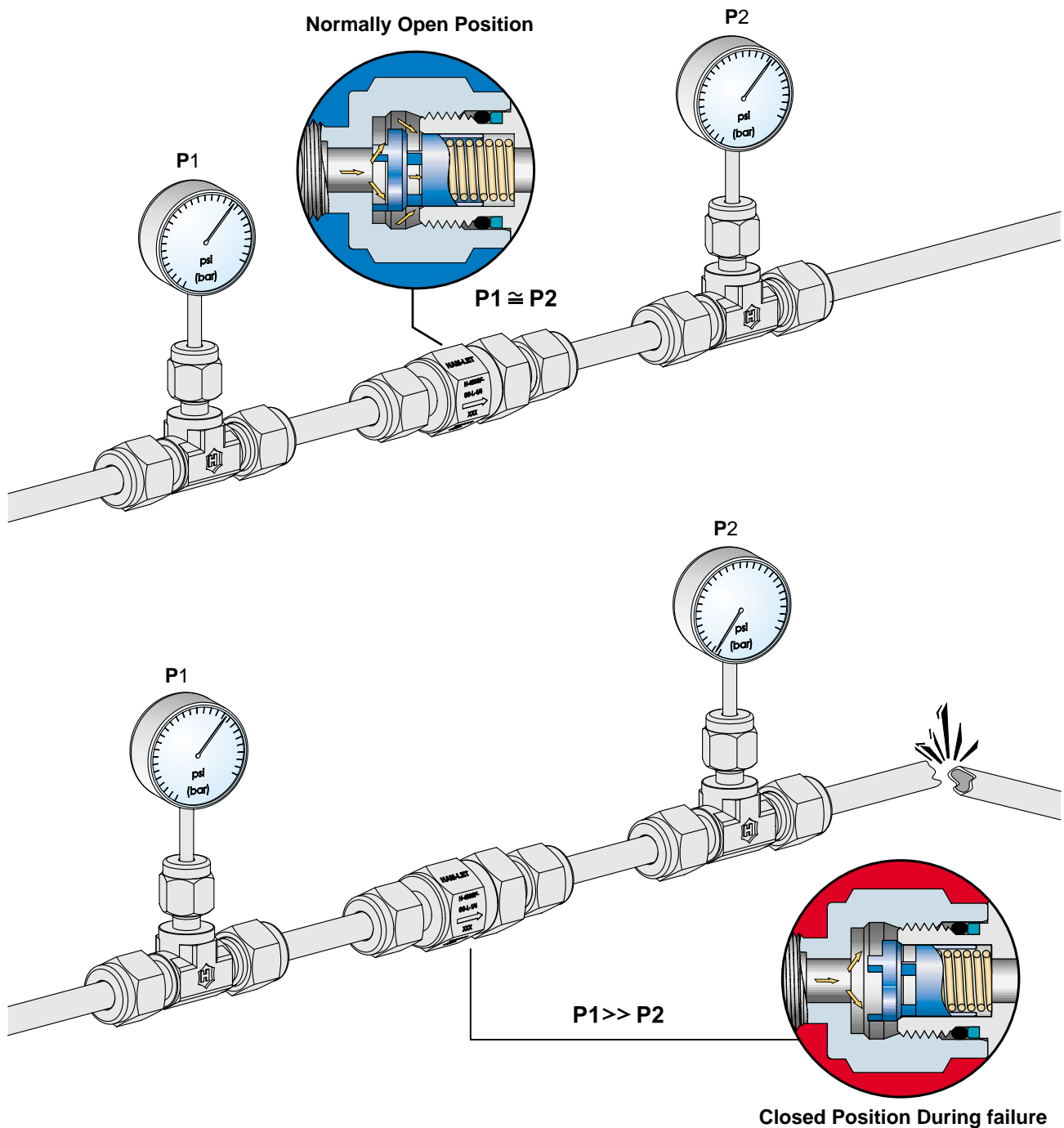
1. The poppet is loaded by a spring in a Normally Open position as long as the system is balanced.
2. If the system becomes unbalanced and the downstream pressure drops, the poppet moves towards the sealing area, and stops preventing free, uncontrolled flow from the line.

3. If the downstream pressure increases, the ventilation outlet ("bleeding") enables the system to balance the pressures and with the help of the spring to reset the system. In this situation, the poppet reverts back to Normally Open.

Excellent for Automatic Safety Shutoff in a wide range of areas:

- Fuel systems • Toxic Media Systems • Gas Systems • Valued Media Systems
- Hydraulic & Pneumatic Systems.

OPERATING PRINCIPLE

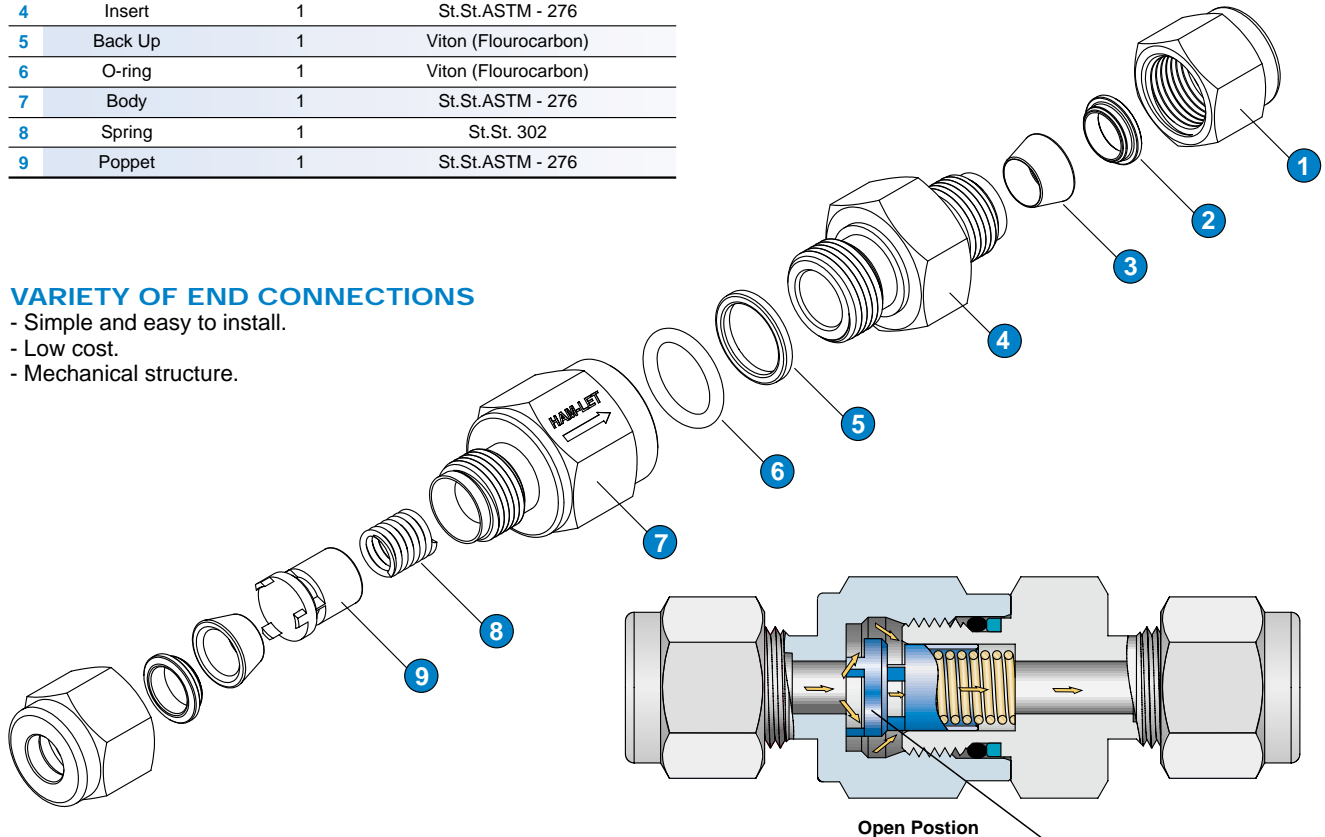


H911 SERIES - MATERIALS

Item No.	Components	QTY.	Valve Body Material
1	Nut	2	St.St.ASTM - 276
2	Back Ferulle	2	St.St.ASTM - 276
3	Front Ferulle	2	St.St.ASTM - 276
4	Insert	1	St.St.ASTM - 276
5	Back Up	1	Viton (Flourocarbon)
6	O-ring	1	Viton (Flourocarbon)
7	Body	1	St.St.ASTM - 276
8	Spring	1	St.St. 302
9	Poppet	1	St.St.ASTM - 276

VARIETY OF END CONNECTIONS

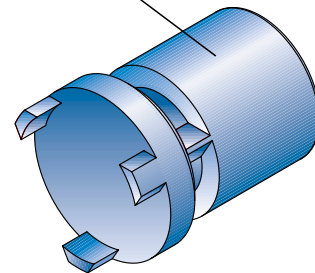
- Simple and easy to install.
- Low cost.
- Mechanical structure.

**8 Spring**

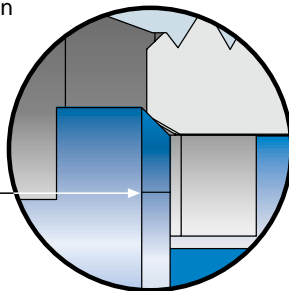
Resets the system back to normal open position when the downstream pressure equalizes the upstream pressure.

9 Poppet

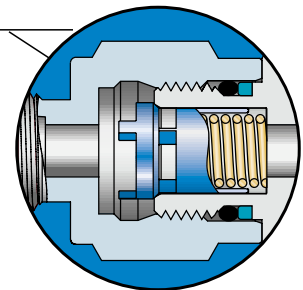
- Produced from stainless steel.
- Enables high flow rates.
- Improves reliability and performance.

**Ventilation Outlet - "Bleeding"**

Enables "information transfer" between the two sides of the valve and automatically resets the system.

**Metallic Sealing**

Improves stability and repeatability. Does not need maintenance.

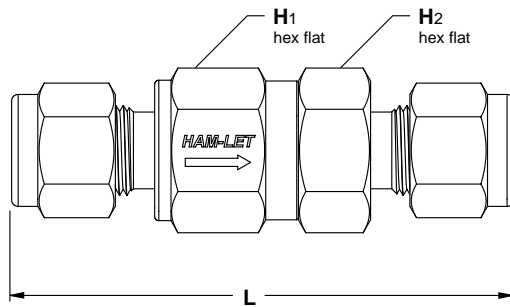


Closed Position

PRESSURE TEMPERATURE RANGES

- The estimate refers to O-Rings & back up made from Viton.
- For O-Rings & back up made from other materials see table in 911 ordering instructions.
- 5000 psi (344 bar) for H911 series with end connections 3/8 NPT female.
- 4600psi (316 bar) for H911 series with end connection 1/2 NPT female.

Material Name Temperature, °F (°C)	316 St.St. Working Pressure, psig (bar)
-10 (-23) to 100 (37)	6000 (413)
200 (93)	5160 (355)
250 (121)	4910 (338)
300 (148)	4660 (321)
400 (204)	4280 (294)



TESTING:

The design of the H911 valves was verified and confirmed by proof, burst and leakage tests. Every assembled valve is tested for proper functionality.

CLEANING / PACKAGING:

The H911 valves are treated for passivation, cleaning and packaging (Procedure 8075). The H911 valves with face seal ends are treated by oxygen cleaning and packaging (Procedure 8055).

Oxygen cleaning and packaging is available for ends, not face seal - upon request.

OPTIONAL O-RING MATERIAL

O-ring Material	Temperature Rating °F (°C)
Viton	-10° to 400 (-23 to 204)
Buna-N	-40° to 250 (-40 to 121)
Ethylene propylene	-50° to 300 (-45 to 148)
Kalrez®	-15° to 500 (-26 to 260)
Neoprene	-35° to 225 (-37 to 107)

Viton O-rings are standard.

For other O-ring materials see ordering instructions.

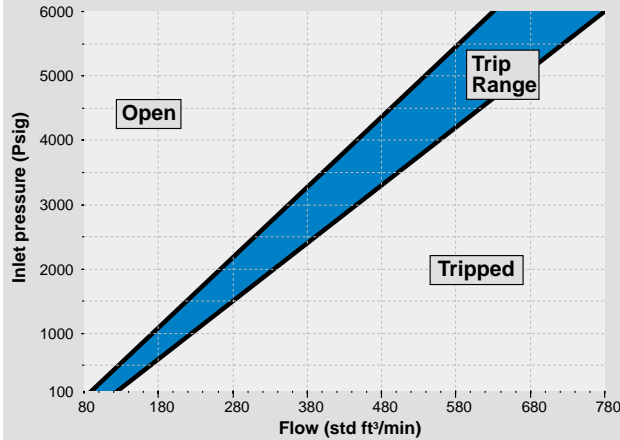
For O-ring materials that are not in this table please consult Ham-Let.

DIMENSIONS (MM)

Type	End Connection		Dimensions: inch (mm)	
	Size	L	H1	H2
Let-Lok Tube Fittings	1/4 inch	2.43 (61.7)	11/16	
	3/8 inch	2.75 (69.9)	1	
	1/2 inch	2.97 (75.4)		
	6 mm	2.43 (61.7)	11/16	
	8 mm	2.70 (68.6)	1	
	10 mm	2.80 (71.1)		
Female NPT	12 mm	2.96 (75.2)		
	1/8 inch	1.87 (47.5)	11/16	
	1/4 inch	2.12 (53.8)		
	3/8 inch	2.55 (64.8)	1	
Male NPT	1/2 inch	3.03 (77.0)	1 1/16	
	1/8 inch	1.79 (45.5)	11/16	
	1/4 inch	2.17 (55.1)		
	3/8 inch	2.36 (59.9)	1	
Male NPT to Let-Lok Tube Fittings	1/2 inch	2.73 (69.3)		
	1/4 inch	2.30 (58.4)	11/16	
	3/8 inch	2.56 (65.0)	1	
Male to Female NPT	1/2 inch	2.85 (72.4)		
	1/4 inch	2.13 (54.1)	11/16	
	3/8 inch	2.46 (62.5)	1	
Male BSPT	1/2 inch	2.89 (73.4)	1	1 1/16
	1/4 inch	2.17 (55.0)	11/16	
Female BSPT	1/2 inch	2.74 (69.5)	1	
	1/2 inch	3.29 (83.5)	1 1/16	
Male SAE/MS	1/2 inch	2.48 (63.0)	1	
Female SAE/MS	1/2 inch	2.74 (69.5)		
Male Face Seal	1/4 inch	2.28 (57.9)	1 1/16	
	1/2 inch	2.73 (69.3)	1	
Male O-ring Face Seal	1/4 inch	1.89 (50.3)	11/16	
	1/2 inch	2.36 (59.9)	1	

Dimensions are for reference only, and are subject to change

**AIR FLOW - CONNECTION
SIZES : 3/8" , 6MM , 10MM**



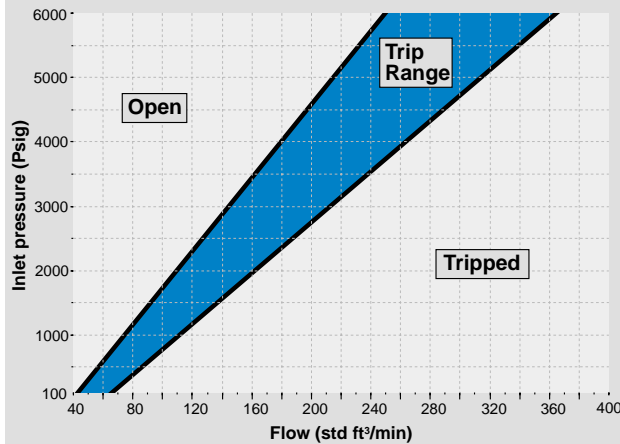
WATER FLOW

Flow data at 70°F (20°C)

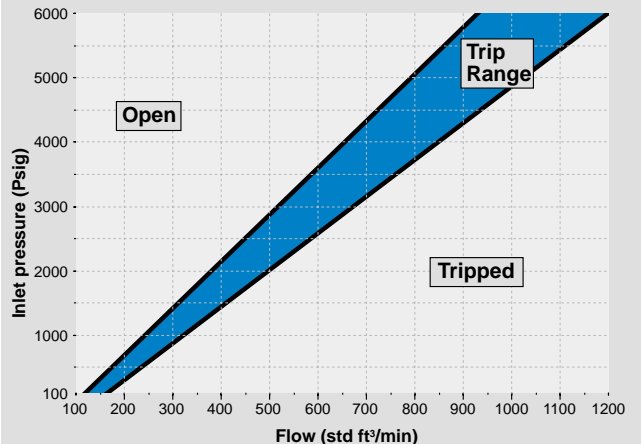
For springs with other trip ranges consult Ham-Let

Connection Size	Cv	Trip Range
		U.S. gal/min (L/min)
1/8, 1/4, 6mm	0.5	3.9 to 5.8 (14.7 to 21.9)
3/8, 8mm, 10mm	1.1	8.2 to 10.0 (31.0 to 37.9)
1/2, 12mm		11.2 to 14.9 (42.4 to 56.4)

**AIR FLOW - CONNECTION
SIZES : 1/4" , 6MM**



**AIR FLOW - CONNECTION
SIZES : 1/2" , 12MM**



ORDERING INFORMATION

Your safety is important to us, please ensure proper reference to our latest catalog

Valve Description Example:

H911 00

SS

L

1/4

OPTIONAL:

Valve series

Valve Type

- 00** - Let-Lok End Connection
- 10** - Female End Connection
- 80** - Male End Connection
- 85** - Male to Female End Connection
- 95** - Male to Let-Lok End Connection

Material

SS - St.St 316

For other materials please consult Ham-Let

End Connection

- L** - Let-Lok Tube Fitting
- N** - Threaded NPT
- R** - Threaded BSPT
- GL** - Face Seal Male Connector
- HL** - One-Lok Tube Fitting
- HO** - O-ring Face Seal Male
- OB** - SAE/MS

Other end connections are available upon request

End Connection Size

- 1/8 inch 6 mm
- 1/4 inch 8 mm
- 3/8 inch 10 mm
- 1/2 inch 12 mm

O-ring Material

- BU** - Buna N
- EP** - EPDM
- NE** - Neoprene
- KZ** - Kalrez

Viton O-rings are standard.

For other O-ring material add the correct designator to the basic ordering number.

Treatments

- OC** - Oxygen Clean
- LF** - Lubricant Free

Warning - for your safety:

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H900 SERIES

HAM-LET RELIEF VALVES



Features:

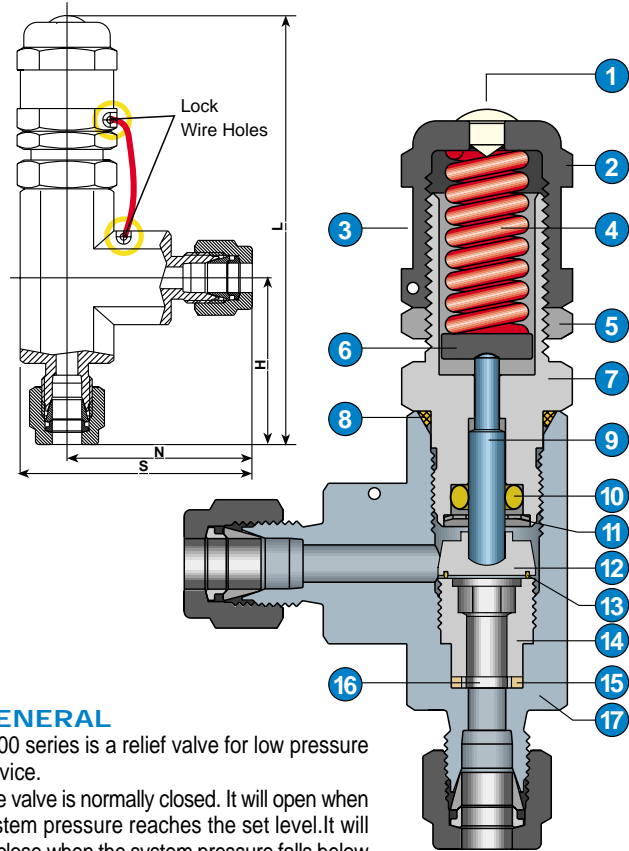
- 316St.St. Construction.
- Service 10-225psi
- One spring for all set pressure range
- Available in all pipe threads and Let Lok connectors.
- Sizes: 1/4" or 6mm.

H900 MATERIALS

	NAME	QTY.	MATERIAL
1	Cap Plug	1	Polypropylene
2	Adjustment Cap	1	St.St. 316
3	Cap Lable	1	Polyester
4	Spring	1	St.St. 302
5	Locking Nut	1	St.St. 316
6	Spring Support Disc	1	St.St. 316
7	Bonnet	1	St.St. 316
8	O-ring	1	Viton (Fluorocarbon)
9	Stem	1	St.St. 316
10	O-Ring	1	Viton (Fluorocarbon)
11	Retaining Ring	1	PH1-57 Mo
12	Poppet	1	St.St. 316
13	Seal	1	Viton (Fluorocarbon)
14	Insert	1	St.St. 316
15	Packing	1	PTFE
16	Ring	1	St.St. 316
17	Body	1	St.St. 316

DIMENSIONS:

Cat. No Order No	Connection/Size		H	N	S	L
	inlet	outlet				
H900	1/4 LET-LOK	1/4 LET-LOK	37	39	50	105
H900	6mm LET-LOK	6 mm LET-LOK	37	39	50	105
H985	1/4 Male NPT	1/4 Female NPT	32	30	40	100
H995	1/4 Male NPT	1/4 LET-LOK	32	39	50	100



GENERAL

H900 series is a relief valve for low pressure service.

The valve is normally closed. It will open when system pressure reaches the set level. It will re-close when the system pressure falls below the set level.

ORDERING INFORMATION

H9	00	SS	L	1/4	SL	<input type="checkbox"/>
Valve type	Body Designator	Body Material	End Connection	Size Designator	Spring Designator	Seal Designator
	00 - LET-LOK to LET-LOK 85 - Male to Female 95 - Male to LET-LOK	SS - 316SS	L - LET-LOK N - NPT NL - NPT to LET-LOK	1/4" 6mm	SL - SILVER Code For Spring Range 1 - 225 psi	BN - Buna N EP - EPDM NE - Neoprene

Viton seals are standard

Spare Parts Kit

H900 Spring Kit: Includ: Spring, Cup label and Lock wire.
Ordering description: **Z900 - Spring Kit**

H900 Seal Kit: Includ: O-ring & Bonded poppet

H900 - Seal KIT - 1/4 -

End Connection Size	Seal Material
	BU - Buna N EP - EPDM NE - Neoprene VI - Viton

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance. Improper selection or use of products can cause property damage or personal injury, in respect of which the system designer and/or the user shall be solely liable and responsible.

H900HP SERIES

HAM-LET HIGH PRESSURE RELIEF VALVES



Features:

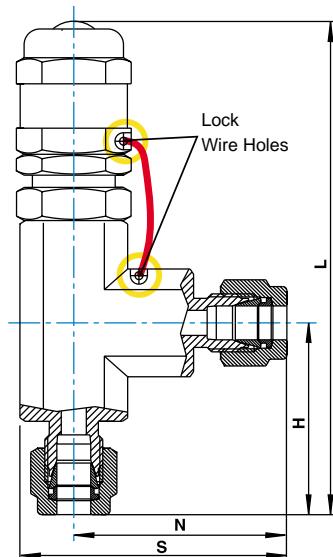
- 316SS Construction.
- Service up to 6000psi
- Set Pressure from 50 psig to 6,000 psig (3.50 TO 414 BAR)
- Identifying colored springs for each pressure range
- Replaceable springs for a variable pressure range
- Available in all pipe threads and Let-Lok connectors.
- Sizes: 1/4" or 6mm.

GENERAL

H900-HP series is a relief valve for high pressure service. The valve is normally closed. It will open when system pressure reaches the set level. It will re-close when the system pressure falls below the set level.

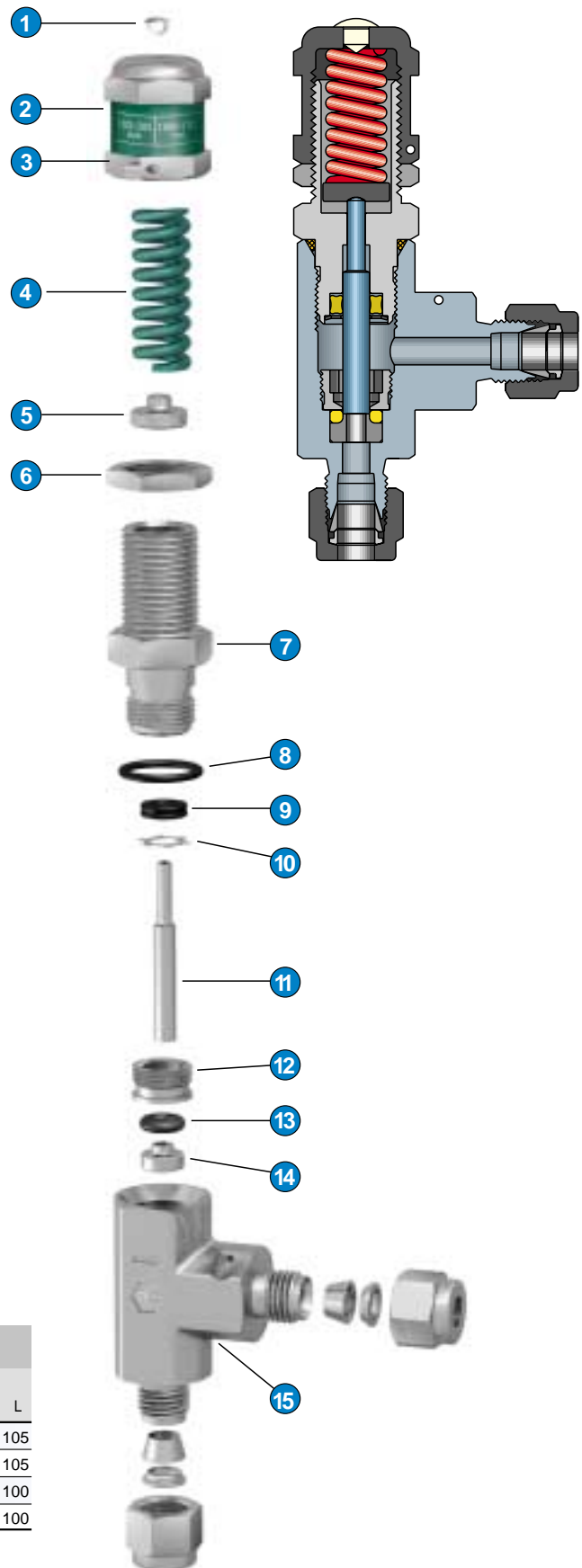
MATERIAL OF CONSTRUCTION

Item No.	Components	QTY.	Valve Body Material
1	Cap Plug	1	P.T.F.E
2	Label	1	PVC
3	Adjustment Cap	1	St.St 316
4	Spring	1	St.St. 302,17-7PH
5	Lower Spring Button	1	St.St 316
6	Locking Nut	1	St.St 316
7	Bonnet	1	St.St 316
8	O-Ring	1	Viton (Fluorocarbon)
9	Quad Ring	1	Viton (Fluorocarbon)
10	Retaining Ring	1	PH15-7Mo
11	Poppet	1	St.St 316
12	Clamps Screw	1	St.St 316
13	O-Ring	1	Viton (Fluorocarbon)
14	Insert	1	St.St 316
15	Body	1	St.St 316



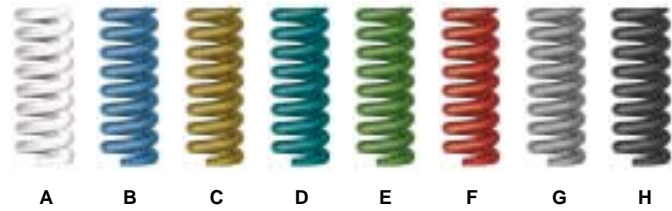
DIMENSIONS:

Cat. No Order No	Connection/Size		H	N	S	L
	Inlet	Outlet				
H900-HP		1/4 LET-LOK	37	39	50	105
H900-HP	6mm LET-LOK	6 mm LET-LOK	37	39	50	105
H985-HP		1/4 Female NPT	32	30	40	100
H995-HP	1/4 Male NPT	1/4 LET-LOK	32	39	50	100

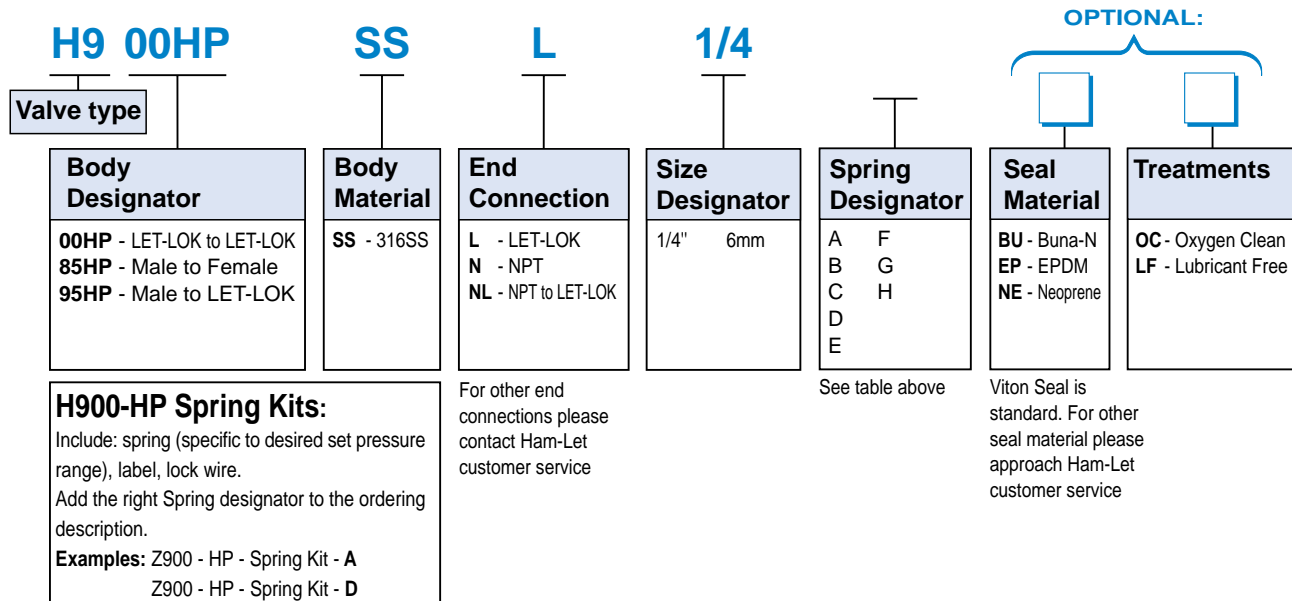


NOMINAL CRACKING PRESSURE RANGE

Psig	Bars	Spring Designator.	Color
50-350	3.4 - 24	A	White
350-750	24 - 51.5	B	Blue
750-1500	51.5 - 103	C	Gold
1500-2250	103 - 155	D	Turquoise
2250-3000	155 - 206	E	Green
3000-4000	206 - 275	F	Red
4000-5000	275 - 344	G	Silver
5000-6000	344 - 413	H	Black

**ORDERING INFORMATION**

Your safety is important to us, please ensure proper reference to our latest catalog

**CLEANING / PACKAGING**

Ham-Let's H900 & H900-HP Relief valves are treated with Ham-Let Passivation Cleaning and Packaging (Procedure 8075). Oxygen Cleaning and Packaging (Procedure 8055) is available as an option.

TESTING:

The Ham-Let's H900 & H900-HP Relief valves designs have been tested for Proof, Burst and Leakage. Every H900 & H900-HP Relief valves are factory tested for proper set and resealing performance.

Warning - for your safety:

Select the right component for safety's sake: The total design of the system must be taken into consideration when selecting components in order to ensure that your Ham-Let products provide safe, trouble-free operation. It is the responsibility of the system designer and the user to consider the compatibility of the materials, of the components and system, the function of the component, appropriate ratings and to ensure proper installation, operation and maintenance.

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