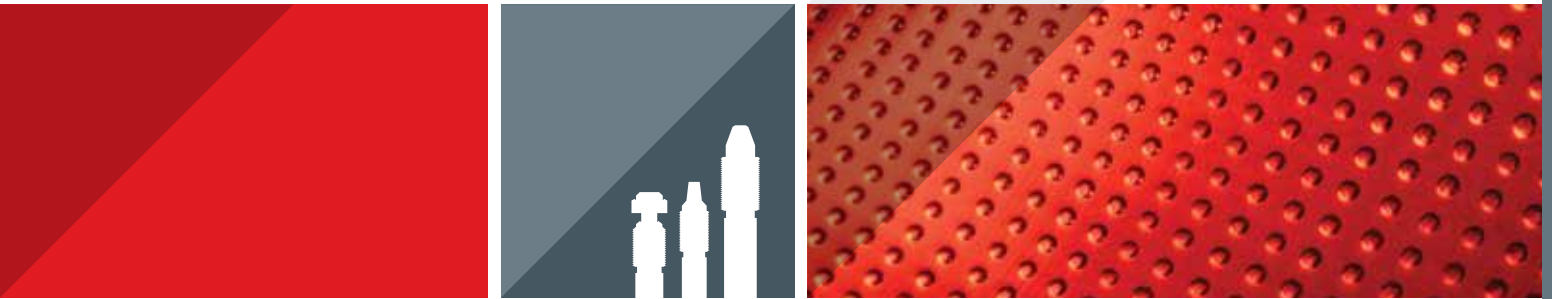


SCREWED BONNET NEEDLE VALVES

H-99 SERIES



FEATURES

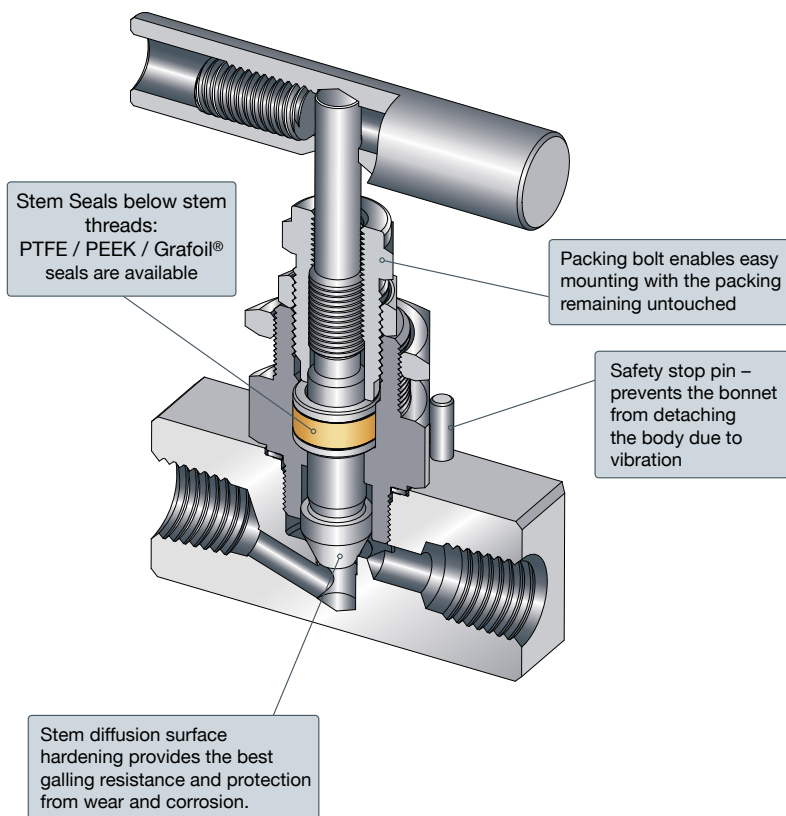
- Blowout-Proof Stem
- MAWP* up to 10,000 psi (690 bar)
- MAWT* up to 648°C (1200°F)
- End connection size range: 1/4" to 1" or 6mm to 25mm
- Flow Coefficient (Cv) 0 to 1.5
- Variety of stem types
- Packing bolt for easy panel mounting, no packing disassembling is required

* Maximum Allowed Working Pressure, Maximum Allowed Working Temperature.

MATERIALS OF CONSTRUCTION

No.	Components	Qty	Material
1	Set Screw	1	St.St. 18-8
2	Handle	1	St.St.316 ASTM A-276 / A-479
3	Upper Bonnet	1	St.St.316 ASTM A-276 / A-479
4	Lock Nut	1	St.St.316 ASTM A-276 / A-479
5	Panel Nut	1	St.St.316 ASTM A-276 / A-479
6	Stem Washer	2	St.St.316 ASTM A-276 / A-479
7	Packing	1	PTFE / PEEK / Grafoil®
8	Bonnet	1	St.St.316 ASTM A-276 / A-479
9	Stem	1	St.St.316 ASTM A-276 / A-479
10	Safety Pin	1	St.St. 304
11	Gasket	1	St.St.316
12	Body*	1	St.St.316 ASTM A-479

*For weld ends valves, body is made of low carbon stainless steel

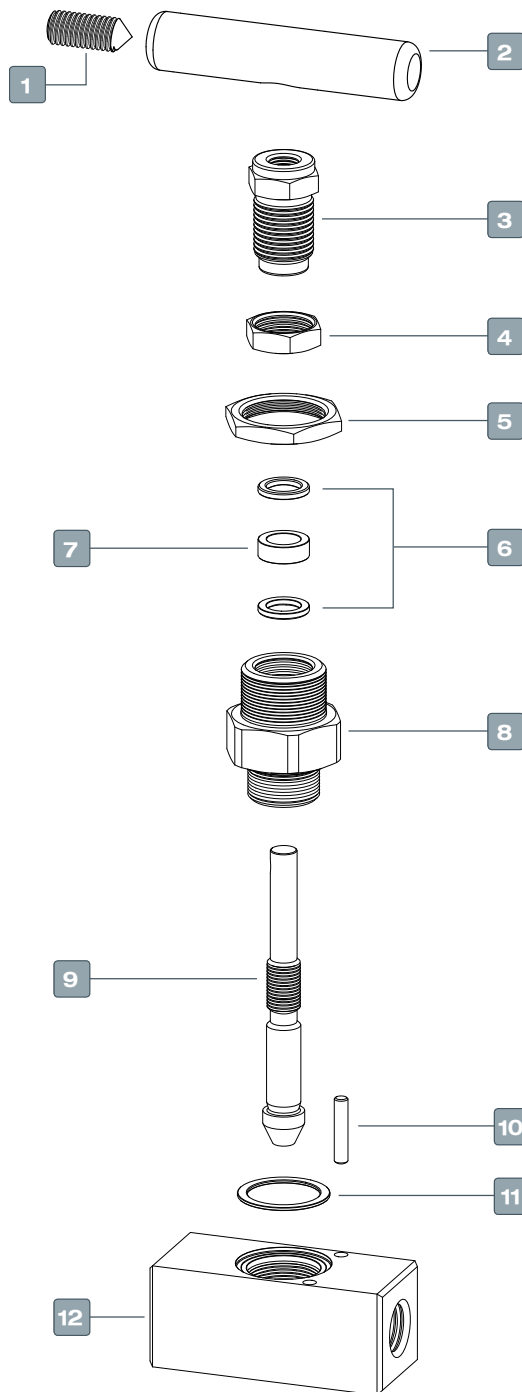


GENERAL

The H-99 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 temperatures.

This valve is typically used in a severe environments, high pressure sampling systems, high pressure shut-down systems and test stands.



Grafoil - TM GrafTech International Holdings, Inc.

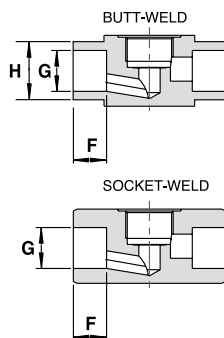
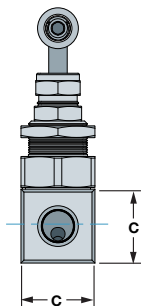
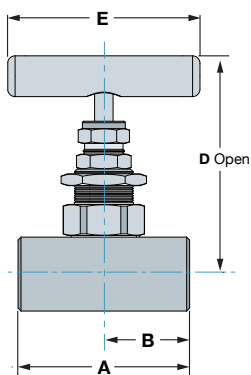


Table 1

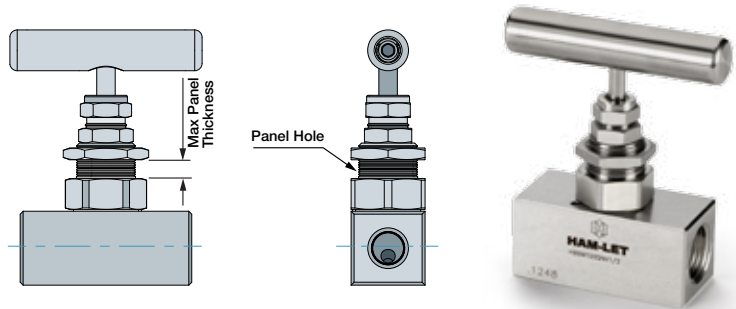
STANDARD CONFIGURATION DIMENSIONS																							
End		Body	Orifice		A		B		C		D		E		F		G		H				
Connection	Size	Size	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in			
Let-Lok® Inch	1/4"	S	6.35	0.25	72.7	2.9	36.4	1.4	25.0	1.0	78.9	3.1	65.0	2.6									
	3/8"				72.7	2.9	36.4	1.4															
	1/2"				78.3	3.1	39.2	1.5															
	3/4"				85.3	3.4	42.7	1.7															
Let-Lok® Metric	6mm	S	6.35	0.25	72.8	2.9	36.4	1.4	25.0	1.0	78.9	3.1	65.0	2.6									
	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"	S	6.35	0.25	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	65.0	2.6									
	1/4"				58.0	2.3	29.0	1.1															
	3/8"				58.0	2.3	29.0	1.1															
	1/2"	M	6.35	0.25	65.0	2.6	32.5	1.3	30.0	1.2	81.4	3.2	80.0	3.2									
	3/4"	L	9.50	0.375	70.0	2.8	35.0	1.4	35.0	1.4	92.5	3.6	80.0	3.2									
	1"	XL	9.50	0.375	80.0	3.1	40.0	1.6	45.0	1.8	99.6	3.9	80.0	3.2									
Tube Socket Weld Inch	1/4"	S	6.35	0.25	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	65.0	2.6	6.4	0.25	6.5	0.26					
	3/8"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	65.0	2.6	9.7	0.38	9.7	0.38					
	1/2"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	65.0	2.6	12.7	0.50	12.9	0.51					
	3/4"				M	6.35	0.25	65.0	2.6	32.5	1.3	30.0	1.2	81.4	3.2	80.0	3.2	14.2			0.56	19.2	0.76
	1"				L	9.50	0.375	70.0	2.8	35.0	1.4	35.0	1.4	92.5	3.6	80.0	3.2	19.2			0.76	25.6	1.01
Tube Socket Weld Metric	6mm	S	6.35	0.25	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	6.2	0.24					
	8mm				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	7.9	0.31	8.2	0.32					
	10mm				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	12.7	0.50	10.2	0.40					
	12mm				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	12.7	0.50	12.2	0.48					
	25mm				L	9.50	0.375	70.0	2.8	35.0	1.4	35.0	1.4	92.5	3.6	80.0	3.2	19.2			0.76	25.2	0.99
Pipe Socket Weld	1/8"	S	6.35	0.25	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	9.0	0.35	10.8	0.43					
	1/4"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	14.0	0.55	14.0	0.55					
	3/8"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	14.0	0.55	17.5	0.69					
	1/2"	M	6.35	0.25	65.0	2.6	32.5	1.3	30.0	1.2	81.4	3.2	80.0	3.2	16.5	0.65	22.0	0.87					
	3/4"	L	9.50	0.375	70.0	2.8	35.0	1.4	35.0	1.4	92.5	3.6	80.0	3.2	18.0	0.71	27.5	1.08					
	1"	XL	9.50	0.375	80.0	3.1	40.0	1.6	45.0	1.8	99.6	3.9	80.0	3.2	20.0	0.79	34.5	1.36					
Tube Butt Weld Inch	1/4"	S	6.35	0.25	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.4	0.25	3.1	0.12	6.4	0.25			
	3/8"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	6.2	0.24	9.5	0.37			
	1/2"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	8.5	0.33	12.7	0.50			
	3/4"				M	6.35	0.25	65.0	2.6	32.5	1.3	30.0	1.2	81.4	3.2	80.0	3.2	8.0	0.31	13.5	0.53		
	1"				L	9.50	0.375	70.0	2.8	35.0	1.4	35.0	1.4	92.5	3.6	80.0	3.2	10.0	0.39	19.3	0.76		
Tube Butt Weld Metric	6mm	S	6.35	0.25	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	3.1	0.12	6.0	0.24			
	8mm				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	7.9	0.31	4.8	0.19	8.0	0.31			
	10mm				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	6.7	0.26	10.0	0.39			
	12mm				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	7.8	0.31	12.0	0.47			
	25mm				L	9.50	0.375	70.0	2.8	35.0	1.4	35.0	1.4	92.5	3.6	80.0	3.2	10.0	0.39	18.9	0.74		
Pipe (S40) Butt Weld	1/8"	S	6.35	0.25	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	7.1	0.28	10.5	0.41			
	1/4"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6	6.0	0.24	9.2	0.36	13.7	0.54			
	3/8"				58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6			12.5	0.49	17.1	0.67			
	1/2"	M	6.35	0.25	65.0	2.6	32.5	1.3	30.0	1.2	81.4	3.2	80.0	3.2	8.0	0.31	15.8	0.62					
	3/4"	L	9.50	0.375	70.0	2.8	35.0	1.4	35.0	1.4	92.5	3.6	80.0	3.2	10.0	0.39	21.0	0.83					
Male Thread to Female Thread (NPT/ISO)	1"	XL	9.50	0.375	80.0	3.1	40.0	1.6	45.0	1.8	99.6	3.9	80.0	3.2	12.0	0.47	26.6	1.04	33.4	1.31			
	1/4"	S	6.35	0.25	60.0	2.4	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6									
	3/8"				60.0	2.4	29.0	1.1	25.0	1.0	78.9	3.1	60.0	2.6									
	1/2"				M	6.35	0.25	70.0	2.8	32.5	1.3	30.0	1.2	81.4							3.2	80.0	3.2
	3/4"				L	9.50	0.375	75.0	3.0	35.0	1.4	35.0	1.4	92.5							3.6	80.0	3.2
1"	XL	9.50	0.375	85.0	3.3	40.0	1.6	45.0	1.8	99.6	3.9	80.0	3.2										

Body Dimensions: **S** - 25mm / **M** - 30mm / **L** - 35mm / **XL** - 45mm.

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.

HIGH PERFORMANCE NEEDLE VALVE FOR EASY MOUNTING

H-99 SERIES

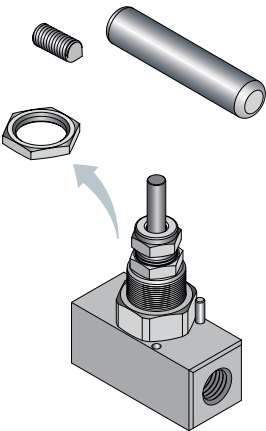


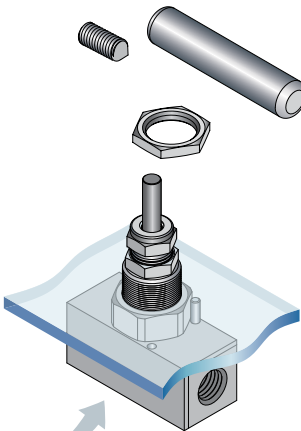
MOUNTING CONFIGURATION DIMENSIONS						
End		Body	Panel Hole		Max Panel Thickness	
Connection	Size	Size	mm	in	mm	in
Let-Lok® Inch	1/4"	S	22.0	0.87	6.35	0.25
	3/8"					
	1/2"	M	25.0	0.98	6.35	0.25
	3/4"					
Let-Lok® Metric	6mm	S	22.0	0.87	6.35	0.25
	8mm					
	10mm					
	12mm					
Female Thread (NPT/ISO)	1/8"	S	22.0	0.87	6.35	0.25
	1/4"					
	3/8"	M	25.0	0.98	6.35	0.25
	1/2"					
	3/4"	L	25.0	0.98	6.35	0.25
Tube Socket Weld Inch	1"	XL	27.0	1.06	6.35	0.25
	1/4"	S	22.0	0.87	6.35	0.25
	3/8"					
	1/2"	M	25.0	0.98	6.35	0.25
	3/4"					
Tube Socket Weld Metric	1"	L	25.0	0.98	6.35	0.25
	6mm	S	22.0	0.87	6.35	0.25
	8mm					
	10mm					
	12mm					
	25mm	L	25.0	0.98	6.35	0.25

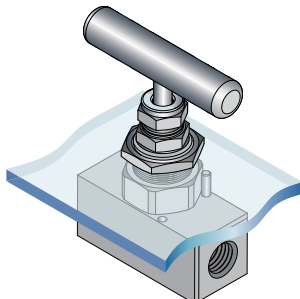
Body Dimensions: **S** - 25mm / **M** - 30mm / **L** - 35mm / **XL** - 45mm.

MOUNTING CONFIGURATION DIMENSIONS						
End		Body	Panel Hole		Max Panel Thickness	
Connection	Size	Size	mm	in	mm	in
Pipe Socket Weld	1/8"	S	22.0	0.87	6.35	0.25
	1/4"					
	3/8"	M	25.0	0.98	6.35	0.25
	1/2"					
	3/4"	L	25.0	0.98	6.35	0.25
Tube Butt Weld Inch	1"	XL	27.0	1.06	6.35	0.25
	1/4"	S	22.0	0.87	6.35	0.25
	3/8"					
	1/2"	M	25.0	0.98	6.35	0.25
	3/4"					
Tube Butt Weld Metric	1"	L	25.0	0.98	6.35	0.25
	6mm	S	22.0	0.87	6.35	0.25
	8mm					
	10mm					
	12mm					
Pipe (S40) Butt Weld	25mm	L	25.0	0.98	6.35	0.25
	1/8"	S	22.0	0.87	6.35	0.25
	1/4"					
	3/8"	M	25.0	0.98	6.35	0.25
	1/2"					
Male Thread to Female Thread (NPT/ISO)	3/4"	L	25.0	0.98	6.35	0.25
	1"	XL	27.0	1.06	6.35	0.25
	1/4"	S	22.0	0.87	6.35	0.25
	3/8"					
	1/2"	M	25.0	0.98	6.35	0.25
	3/4"					
	1"	L	25.0	0.98	6.35	0.25
	1"	XL	27.0	1.06	6.35	0.25

EASY MOUNTING PROCEDURE

- 

1. Disassemble the handle, using an appropriate hex key. Take off the panel nut.
- 

2. Insert the valve into the panel hole and reassemble the panel nut. Firmly tighten the nut.
- 

3. Reassemble the handle. Firmly tighten the hex screw.

CLEANING & PACKAGING

Every H-99 series needle valve is cleaned in accordance with Standard Cleaning and Packaging (procedure 8184). Oxygen Clean & Lubricant Free Cleaning and packaging, in accordance with Special Cleaning and Packaging (procedure 8185), is available as an option.

Lubricant free cleaned valves have significantly higher actuation torque.

TESTING

The H-99 Series Needle Valve design have been tested for Proof and Burst. Every H-99 Needle Valve is factory tested with Nitrogen at 1000 psi (69 bar). The maximum allowable leakage across the seat is 0.1 std cc/min.

PACKING ADJUSTMENT

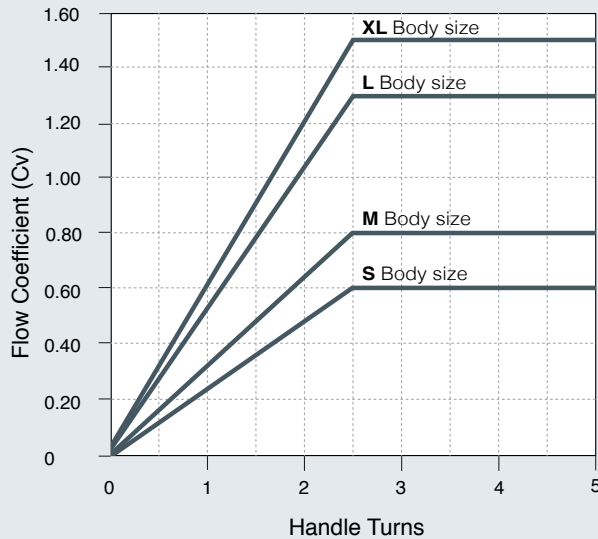
Due to the varied service applications of the valve, packing adjustment may be occasionally necessary.

Valve Packing is factory preadjusted to 1000 psig service.

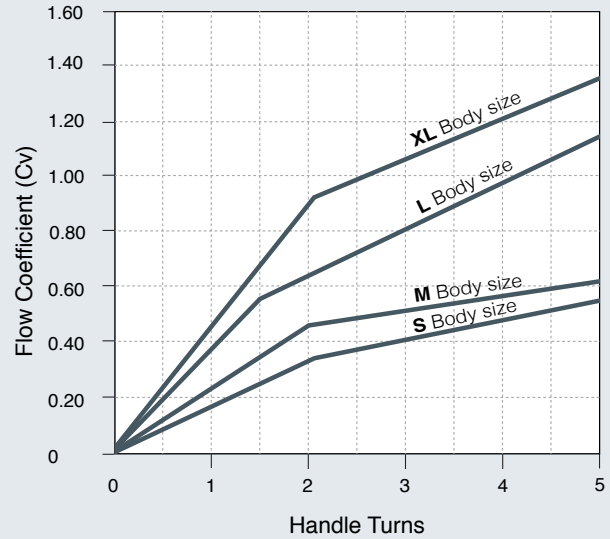
Initial packing adjustment is recommended after installation and prior to start-up.

FLOW DATA AT 100°F (37°C)

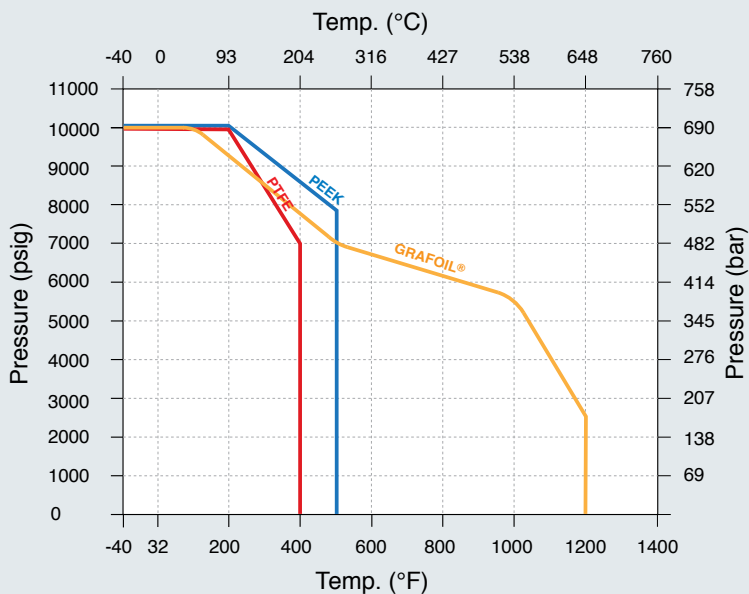
V-STEM / NR-STEM



R-STEM



PRESSURE TEMPERATURE RATING THREADED & WELD CONNECTION



MAX. PRESSURE RATING AT 70°F (21°C)

Body Raw Material	Pressure	
	psi	bar
St.St.316 ASTM A-479	10000	690

MAX. ALLOWED WORKING TEMPERATURE

Packing Material	Max. Temperature	
	°C	°F
PTFE	204	400
PEEK	260	500
GRAFOIL®	648	1200

The max. allowable pressure of welded connected valve is limited to the max. allowed working pressure of the tube.

Note: For lower temperature applications please contact your local representative.
Grafoil - TM GrafTech International Holdings, Inc.

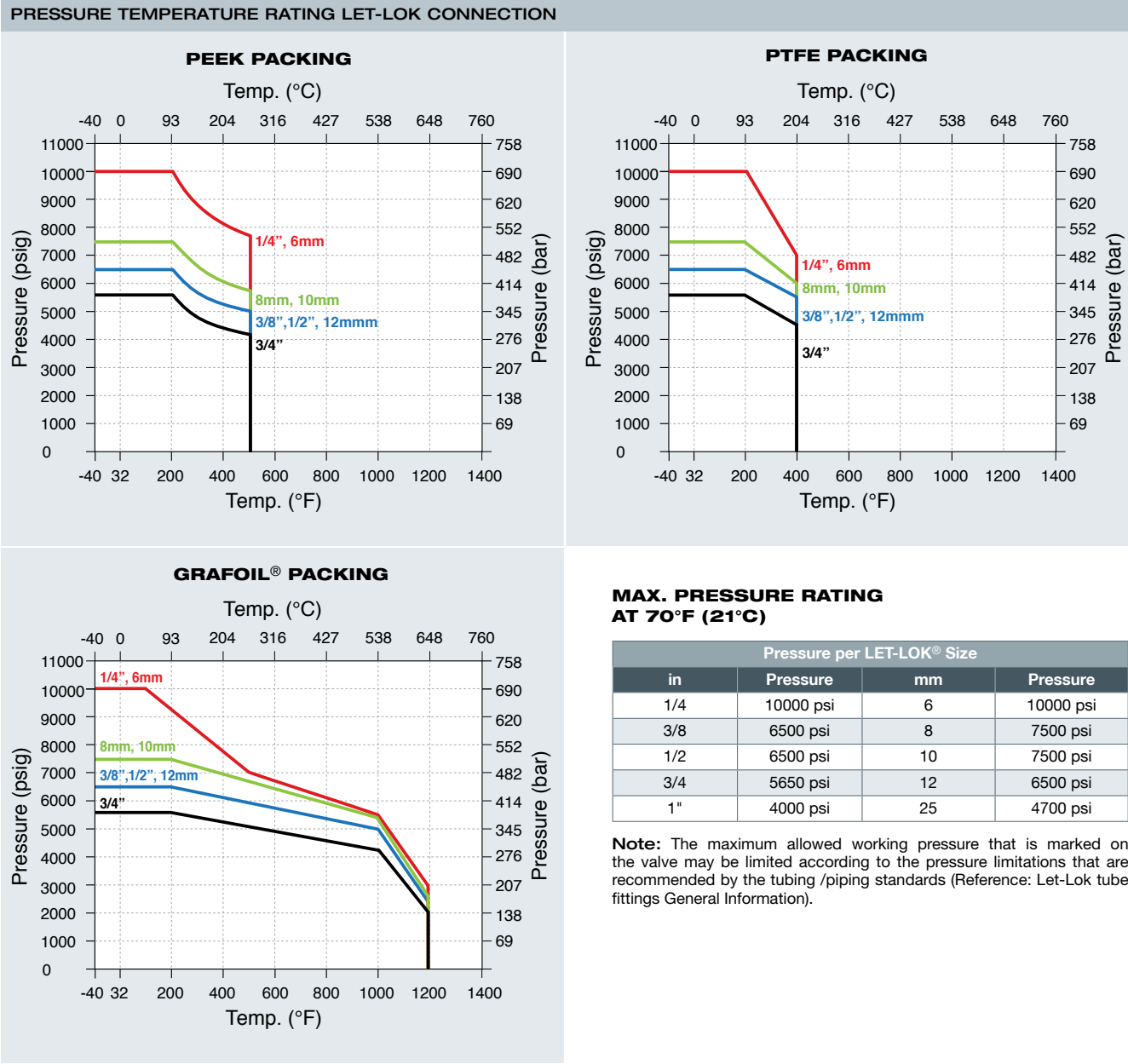
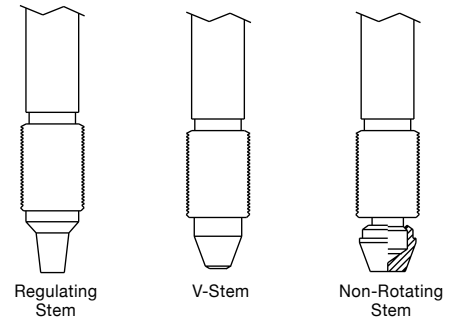
ALTERNATIVE STEMS

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

V- Stem: Standard stem tip used for the on/off operation in general-purpose liquids and gas service.

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

NR- Non-Rotating: Typically used in high-cycle applications to extend valve life and prevent stem rotation inside the body tip, a suitable selection for gaseous high pressure applications.



MAX. PRESSURE RATING AT 70°F (21°C)

Pressure per LET-LOK® Size			
in	Pressure	mm	Pressure
1/4	10000 psi	6	10000 psi
3/8	6500 psi	8	7500 psi
1/2	6500 psi	10	7500 psi
3/4	5650 psi	12	6500 psi
1"	4000 psi	25	4700 psi

Note: The maximum allowed working pressure that is marked on the valve may be limited according to the pressure limitations that are recommended by the tubing /piping standards (Reference: Let-Lok tube fittings General Information).

Note:
Valves with Let-Lok ends are always made of bar stock body.
For lower temperature applications please contact your local representative.

Grafoil - TM GrafTech International Holdings, Inc.

H-99 SERIES ORDERING INFORMATION

H-99 - L - 00 - SS - L - V - 1/2 - [] - []							OPTIONAL	
Valve Series								
Body Designator	Valve Type	Material	End Connection Type	Stem	Size	Packing		
S - Small	00 - LET-LOK® End	St.St. 316	L - LET-LOK®	V - V Stem	1/4 6MM	Blank - PTFE		
M - Medium	10 - Female End		N - Threaded NPT	R - Regulating Stem	3/8 8MM	PK - PEEK		
L - Large	15 - Female to Male End		R - ISO Taper	NR - Non Rotating	1/2 10MM	G - Grafoil®		
XL - Extra Large	80 - Male End		G - ISO Parallel		3/4 12MM			
	85 - Male to Female End		TBW - Tube Butt-Weld		1" 25MM			
			TSW - Tube Socket-Weld					
			PBW - Pipe Butt-Weld (Schedule 40)					
			PSW - Pipe Socket Weld					
						Treatment		
						BLANK - Standard Cleaning & Passivation		
						OC - Oxygen Clean		
						LF - Lubricant Free		

SEAL KIT

Included: Packing & Label

Z - 99 - M - SK - PT

Body's size			Packing
S	Small	(25mm)	PT - PTFE
M	Medium	(30mm)	PK - PEEK
L	Large	(35mm)	G - Grafoil®
XL	Extra Large	(45mm)	

HANDLE KIT

Z - 99 - SS - HK - 65mm

SIZE	
65mm	For S body size
80mm	For M body size
90mm	For L / XL body size

Grafoil - TM GrafTech International Holdings, Inc.

Warning!

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

H-99S, Rev.00, February 2015

