

# SCREWED BONNET NEEDLE VALVES

H99 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
- Available in 4 body sizes (S, M, L, XL)
- 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.

## 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-pressure (10,000 psig max) and high temperature.

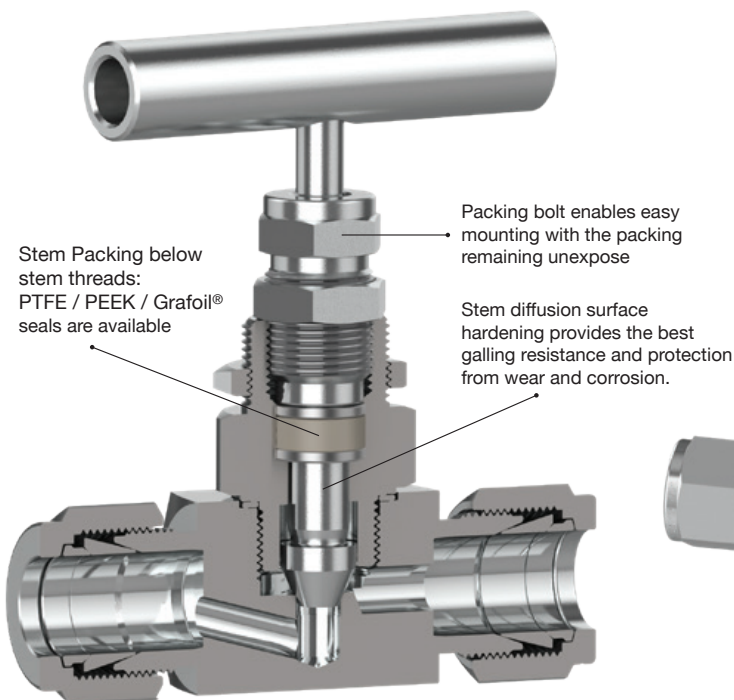
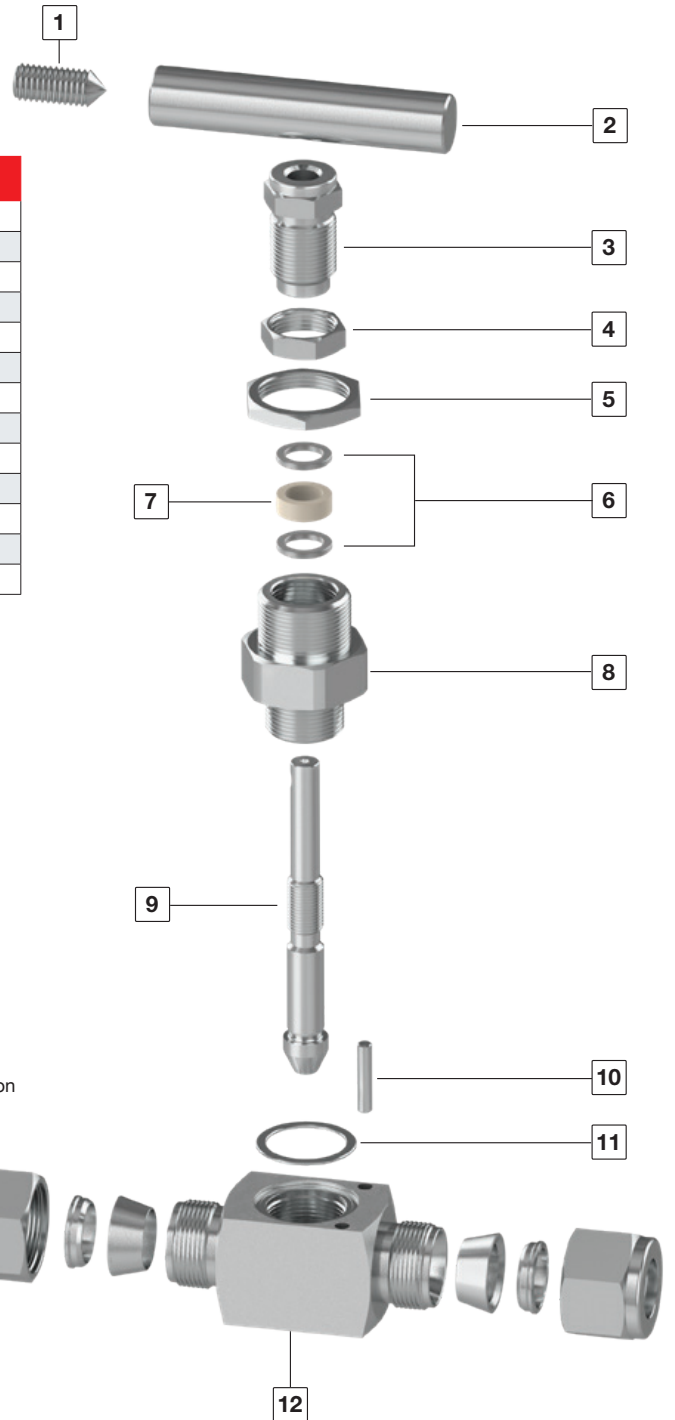
This valve is typically used in severe environments, high-pressure sampling systems, high-pressure shut-down systems and test stands.

## MATERIALS OF CONSTRUCTION

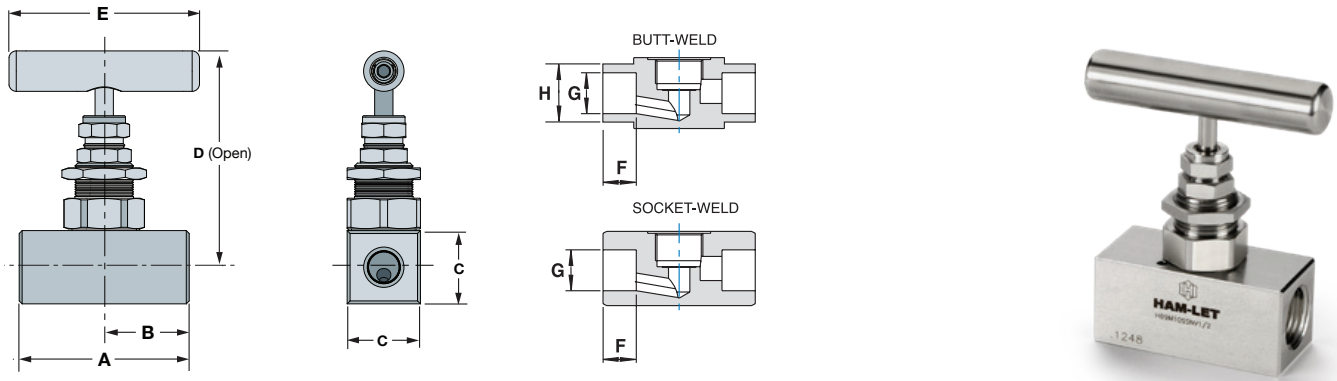
No.	Components	Qty	Material
1	Set Screw	1	St.St. 18-8
2	Handle	1	St.St.316 ASTM A-276 / A-479
3	Upper Bonnet	1	St.St.316 ASTM A-276 / A-479
4	Lock Nut	1	St.St.316 ASTM A-276 / A-479
5	Panel Nut	1	St.St.316 ASTM A-276 / A-479
6	*Stem Washer	2	St.St.316 ASTM A-276 / A-479
7	Packing	1	PTFE / PEEK / Grafoil®
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 <sup>(1)</sup>	1	St.St.316 ASTM A-479
	Lubricant		Silicone based

<sup>(1)</sup>For weld ends valves, body is made of low carbon stainless steel

\* Wetted parts



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## STANDARD CONFIGURATION DIMENSIONS

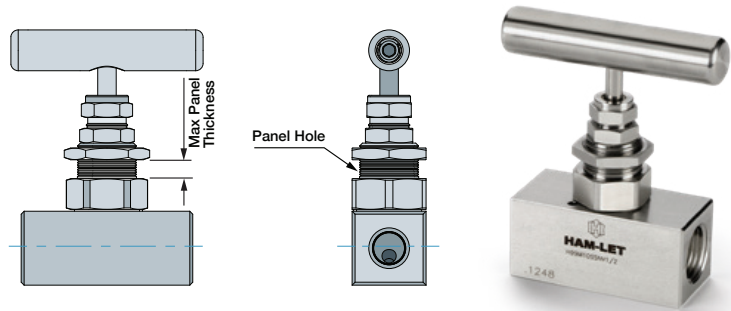
End		Body	Orifice		A		B		C		D		E		F		G		H																			
Connection	Size	Size	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in																		
Let-Lok® Inch	1/4"	S	6.35	0.25	72.7	2.9	36.4	1.4	25.0	1.0	78.9	3.1	65.0	2.6	-	-	-	-	-	-																		
	3/8"				72.7	2.9	36.4	1.4																														
	1/2"	M	6.35	0.25	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																														
	14mm				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"																																					
	3/8"																																					
	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"														9.7	0.38	9.7	0.38																				
	1/2"														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														7.9	0.31	8.2	0.32																				
	10mm														12.7	0.50	10.2	0.40																				
	12mm														12.7	0.50	12.2	0.48																				
	14mm														L	9.50	0.375	58.0			2.3	29.0	1.1	25.0	1.0	78.9	3.1	65.0	2.6	14.2	0.50	14.1	0.50					
	25mm																	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"														14.0	0.55	14.0	0.55																				
	3/8"														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"														6.0	0.24	6.2	0.24	9.5	0.37																		
	1/2"														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	19.1	0.75					
	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	25.4	1.00		
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														7.9	0.31	4.8	0.19	8.0	0.31																		
	10mm														6.0	0.24	6.7	0.26	10.0	0.39																		
	12mm														6.0	0.24	7.8	0.31	12.0	0.47																		
	14mm														L	9.50	0.375	58.0	2.3	29.0	1.1	25.0	1.0	78.9	3.1	65.0	2.6	6.0	0.2	11.0	0.4	14.0	0.55					
	25mm																	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	25.0	0.98					
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"																9.2	0.36	13.7	0.54																		
	3/8"																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	21.3	0.84			
	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	26.7	1.05
	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
Male Thread to Female Thread (NPT/ISO)	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"																																					
	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

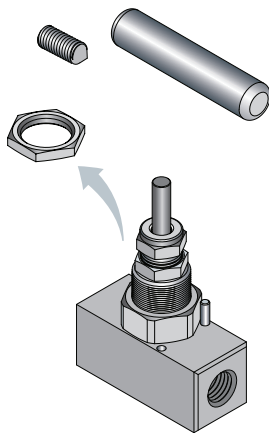
End		Body	Panel Hole		Max Panel Thickness						
Connection	Size	Size	mm	in	mm	in					
Let-Lok® Inch	1/4"	S	22.0	0.87	6.35	0.25					
	3/8"										
	1/2"										
	3/4"										
Let-Lok® Metric	6mm	S	22.0	0.87	6.35	0.25					
	8mm										
	10mm										
	12mm										
Female Thread (NPT/ISO)	1/8"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

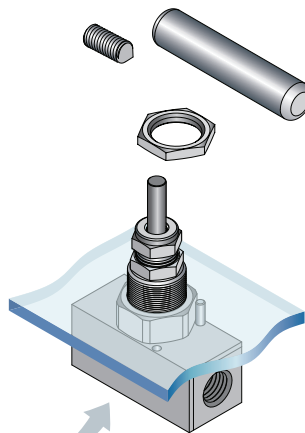
### MOUNTING CONFIGURATION DIMENSIONS

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"					
	1/2"	M	25.0	0.98	6.35	0.25
	3/4"	L				
1"	XL	27.0	1.06	6.35	0.25	
Tube Butt Weld 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"					
1"	L	25.0	0.98	6.35	0.25	
Tube Butt Weld Metric	6mm	S	22.0	0.87	6.35	0.25
	8mm					
	10mm					
	12mm					
	25mm	L	25.0	0.98	6.35	0.25
Pipe (S40) Butt Weld	1/8"	S	22.0	0.87	6.35	0.25
	1/4"					
	3/8"					
	1/2"	M	25.0	0.98	6.35	0.25
	3/4"	L				
	1"	XL	27.0	1.06	6.35	0.25
Male Thread to Female Thread (NPT/ISO)	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"	L				
	1"	XL	27.0	1.06	6.35	0.25

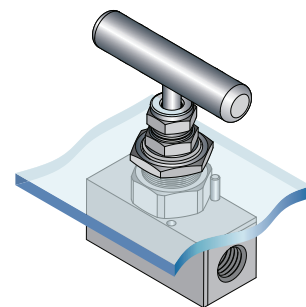
### EASY MOUNTING PROCEDURE



**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

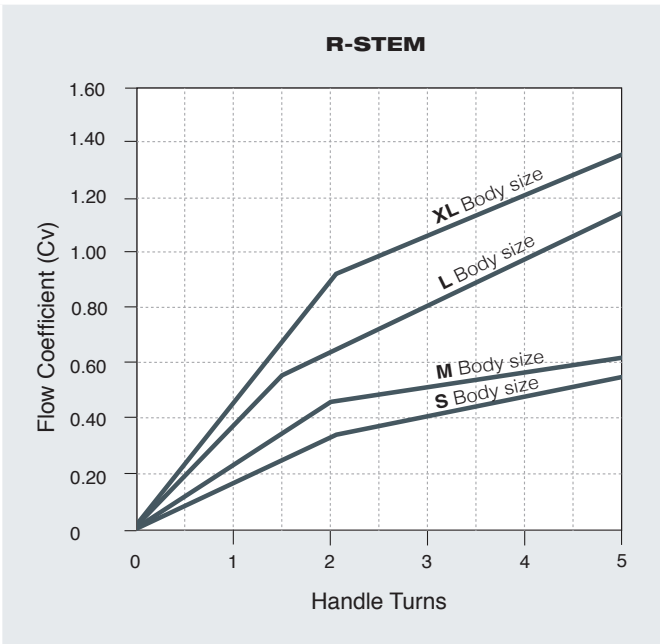
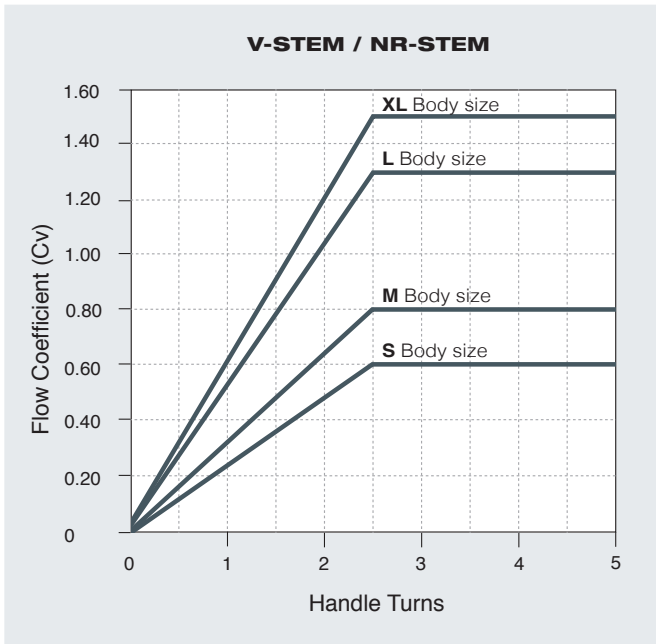
The H-99 Series Needle Valve design has been tested for proof and burst. Every H-99 Needle Valve is factory tested with Nitrogen at 1000 psi (69 bar) for leakage through the packing and seat. The maximum allowable leakage across the seat is 0.1 std cc/min. No detectable leakage is allowed during shell test.

## PACKING ADJUSTMENT

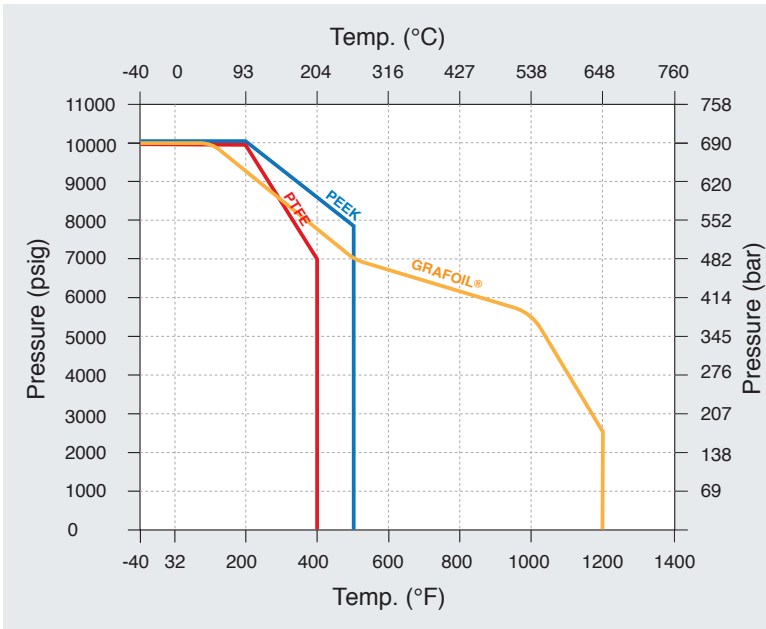
Due to the varied service applications of the valve, packing adjustment may be occasionally necessary. Valve Packing is factory preadjusted to 1000 psig service.

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

## FLOW DATA AT 100°F (37°C)



## 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	10,000	690
Super Duplex (2507)	6,000	410
Alloy C-276	6,000	410
Alloy 400	6,000	410

### 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.  
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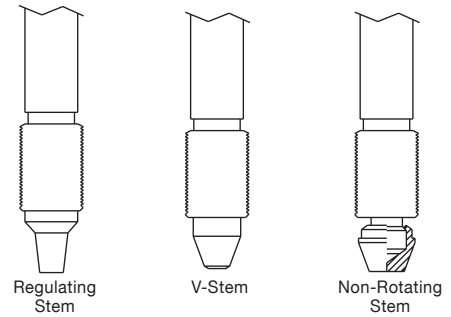
## ALTERNATIVE STEMS

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

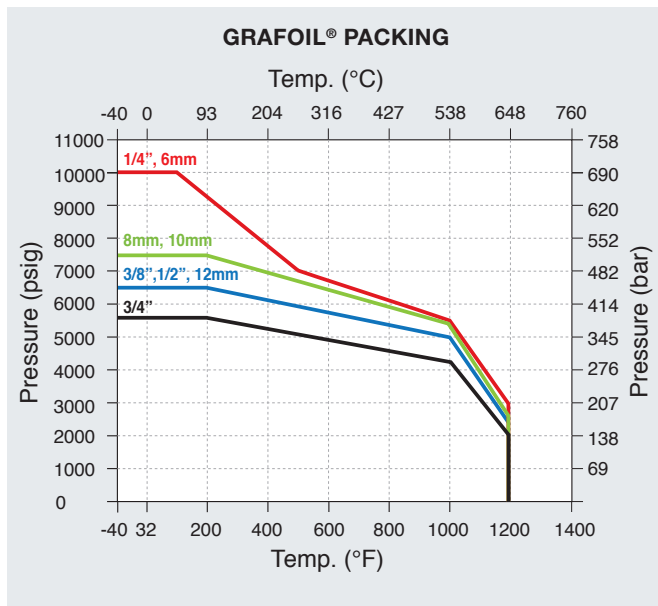
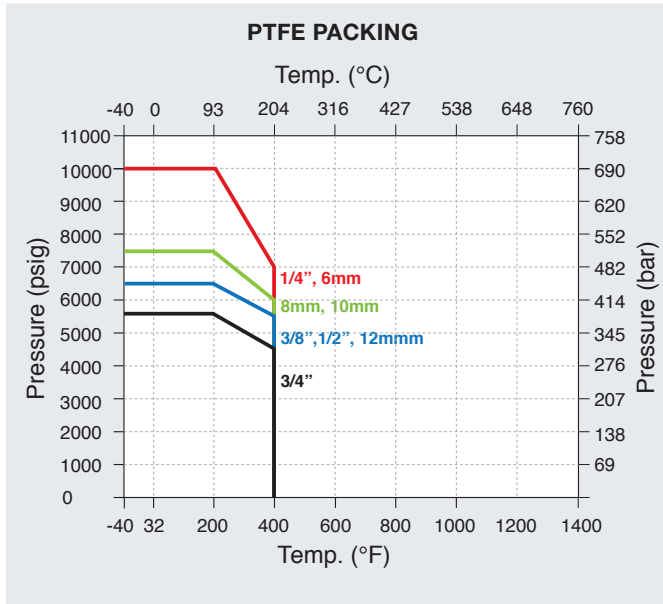
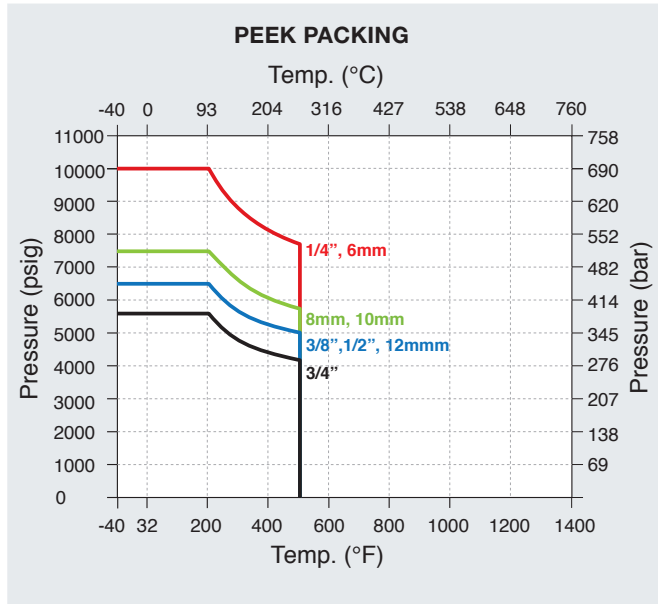
**V- Stem:** Standard stem tip used for the on/off operation in general-purpose liquids and gas service.

**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.



## PRESSURE TEMPERATURE RATING LET-LOK CONNECTION



### 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

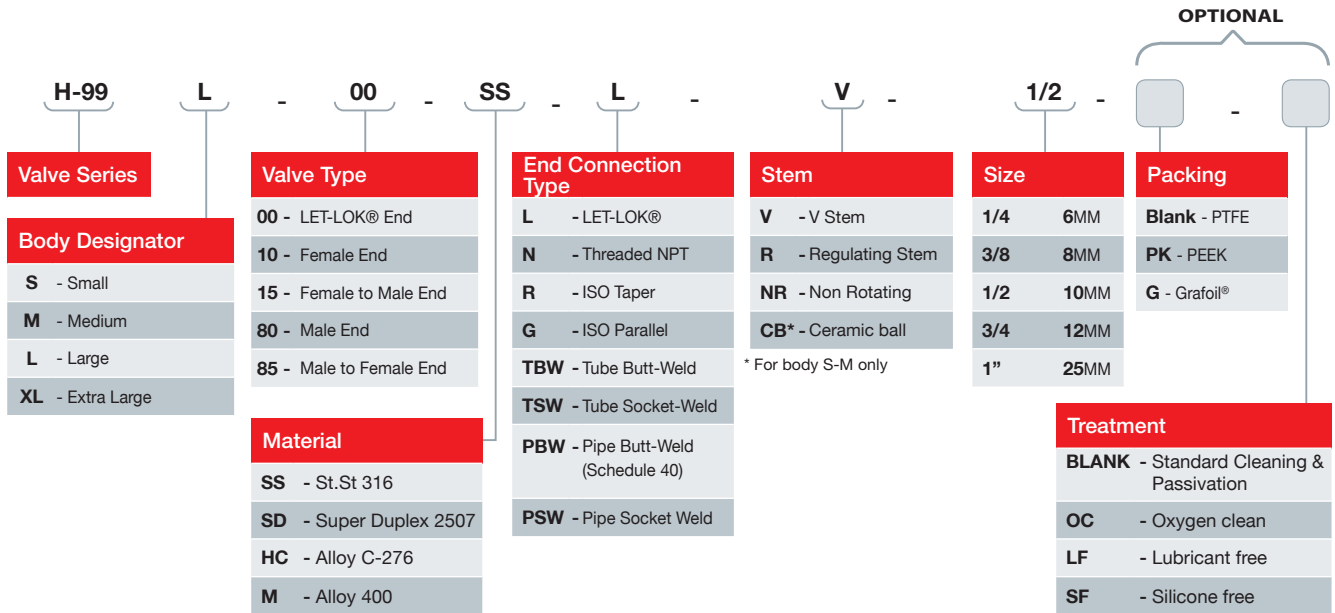
**Note:** The maximum allowed working pressure that is marked on the valve may be limited according to the pressure limitations that are recommended by the tubing /piping standards (Reference: Let-Lok tube fittings General Information).

### Note:

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

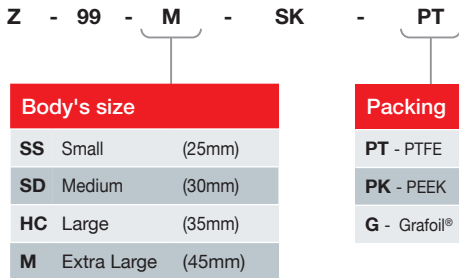
Grafoil - TM GrafTech International Holdings, Inc.

# H-99 SERIES ORDERING INFORMATION



## SEAL KIT

Included: Packing & Label



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**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.

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## HANDLE KIT

