

H99

H A M - L E T N E E D L E V A L V E S



Applications A general service valve of rugged design and construction. Available in stainless steel, steel or brass materials to suit a wide range of services. Capable of withstanding high pressures (10,000 psig max.), this valve is typically used in corrosive service, high pressure sampling systems, high pressure shut down systems and test stands.

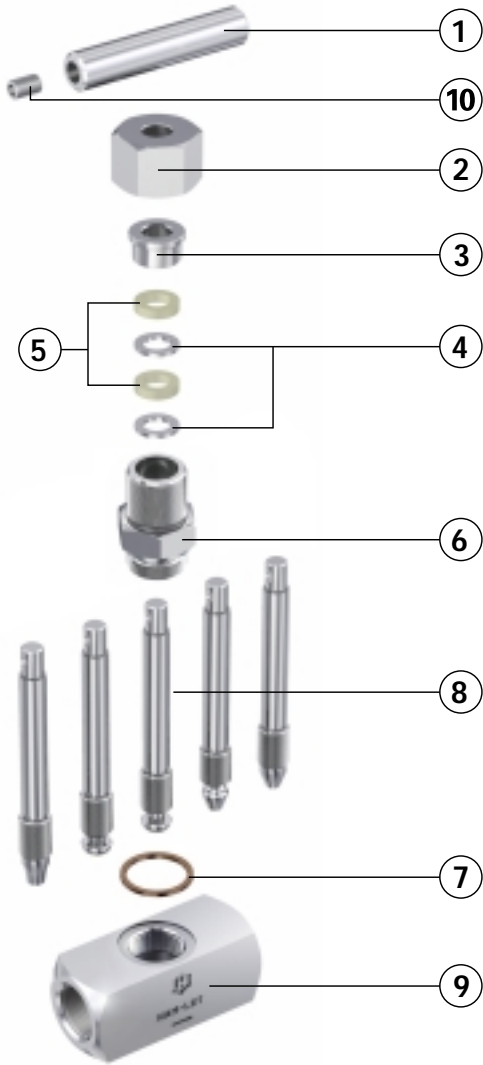
General Information:

Sizes: 1/4 : 3/8 : 1/2 : 3/4 and 1 inch

Connection:

- NPT Female
- BSP Taper Female
- Socket Weld
- Other styles - apply to factory

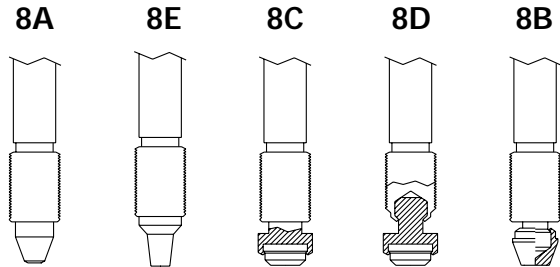
H99 SERIES Needle Valves



A	Stainless Steel Valves - Standard construction (A)
B	Brass Valves - Standard construction (B)
C	Steel Valves - Standard construction (C)

Materials of Construction

Item	Part Name	Quantity	A	B	C
1	Handle	1	316 St.St.	Brass	Steel
2	Nut	1	316 St.St.	Brass	Steel
3	Upper Gland	1	316 St.St.	Brass	Steel
4	Lower Gland	2	316 St.St..	Brass	Steel
5	Packing	1	PTFE	PTFE	PTFE
6	Bonnet	1	316 St.St.	Brass	Steel
7	Ring	1	316 St.St.	316 St.St.	316 St.St.
8A	Stem-V	1	316 St.St.	Brass	316 St.St.
8B	Stem Non rotating	1	316 St.St.	Brass	316 St.St..
8C	Stem soft seat	1	St.St/ Kel-F	St.St/ Kel-F	St.St/ Kel-F
8D	Stem soft seat not rotating	1	St.St/ Kel-F	St.St/ Kel-F	ST.ST/ Kel-F
8E	Stem rough regulating	1	St.St.	St.St	St.St
9	Body	1	316 St.St.	Brass	Steel
10	Set screw	1	316 St.St.	Brass	Steel



Max. Pressure Rating at 70°F (psig)

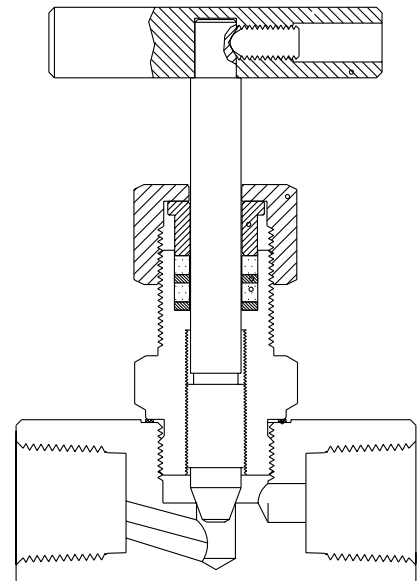
Threaded connections only*

Material	Size inch				
	1/4	3/8	1/2	3/4	1"
ST.ST.	10,000	8,000	6,000	6,000	6,000
Steel	6,000	6,000	6,000	5,000	4,000
Brass	2,500	2,500	2,500	2,500	1,500

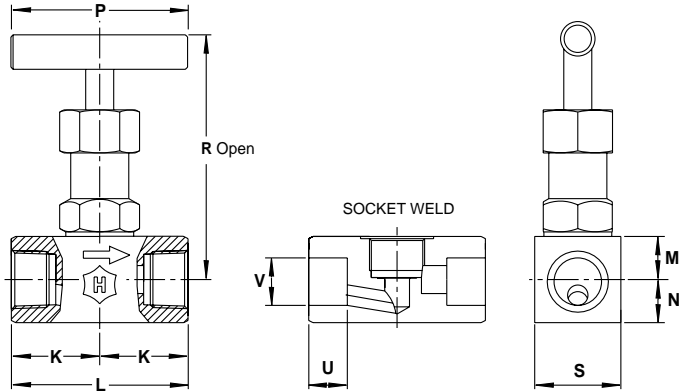
*For maximum pressure ratings for alternative styles of connections - apply to factory.

Temperature Range

	Minimum	Maximum
ST.ST.	-60°F -51°C	450°F 232°C
Steel	-20°F -30°C	300°F 185°C
Brass	-40°F -40°C	300°F 185°C



Materials of construction



Basic Ordering Number	TABLE OF DIMENSIONS																					
	Orifice		Connection size		K		L		M		N		P		R Open		S		U		V	
			Inlet	Outlet	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
H-99	4.4	0.73	1/4" NPT - F	1/4" NPT - F	35.0	1.38	70.0	2.76	15.0	0.59	15.0	0.59	64.0	2.52	100.0	3.94	30.0	1.18				
H-99	7.0	0.276	3/8" NPT - F	3/8" NPT - F	32.5	1.28	65.0	2.56	15.0	0.59	15.0	0.59	64.0	2.52	100.0	3.94	30.0	1.18				
H-99			1/2" NPT - F	1/2" NPT - F	36.0	1.42	72.0	2.83	15.0	0.59	15.0	0.59	64.0	2.52	100.0	3.94	30.0	1.18				
H-99SW	10.0	0.394	1/2" Socket Weld	1/2" Socket Weld	41.0	1.62	82.0	3.23	20.0	0.79	20.0	0.79	82.0	3.23	122.0	4.80	40.0	1.57	12.7	0.5	12.4	0.49
H-99			3/4" NPT - F	3/4" NPT - F	41.0	1.62	82.0	3.23	20.0	0.79	20.0	0.79	82.0	3.23	125.0	4.80	40.0	1.57				
H-99			1" NPT - F	1" NPT - F	44.5	1.75	89.0	3.50	25.0	0.99	25.0	0.99	82.0	3.23	130.0	5.00	50.0	1.97				

Alternative Stems Available

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

V-Stem The 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.

Soft Seat. A soft seat requires a lower seating torque than a metal stem tip. The soft seat is replaceable. N.B., maximum temperature 250oF (121oC).

Regulating Used where some degree of flow control is desired.

Flow Capacity (Cv)

1/4 inch	Orifice 4.4 mm	Cv = 0.3
3/8 : 1/2 inch	Orifice 7.0 mm	Cv = 0.9
3/4 : 1 inch	Orifice 11.5 mm	Cv = 2.2

The Cv factor is a flow coefficient expressing the rate of flow in U.S. gallons per minute of water at 60°F (16°C) with a pressure drop of 1 psi across the valve. The flow depends on the inlet and outlet pressures, temperature, specific gravity and the Cv coefficient.

For Liquids at 60°F (16°C)

$$Cv = \frac{USGPM}{\sqrt{\frac{(\Delta P)}{(SG)}}} \text{ OR } USGPM = Cv \sqrt{\frac{(\Delta P)}{(SG)}}$$

Where:

- ΔP = P₁ - P₂ in PSI
- P₁ = Inlet pressure in PSIA
- P₂ = Outlet pressure in PSIA
- USGPM = Flow in US gallons per minute
- SG = Specific gravity of liquid (water = 1at 60°F)

For Gas at 70°F (21°C)

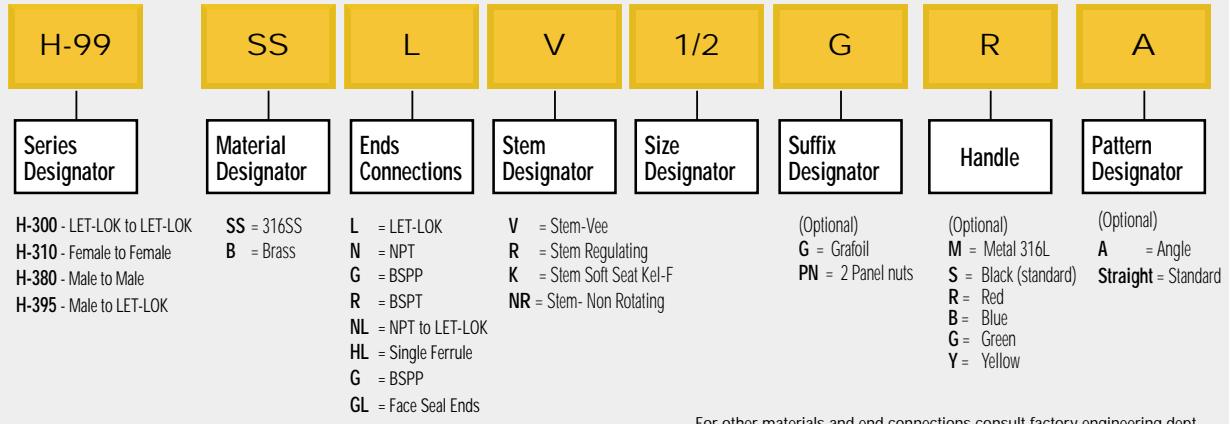
$$Cv = \frac{SCFH}{1360 \sqrt{\frac{(\Delta P)(P_1)}{(460+T)(SG)}}} \text{ OR } SCFH = 1360Cv \sqrt{\frac{(\Delta P)(P_1)}{(460+T)(SG)}}$$

Where:

- ΔP = P₁ - P₂ in PSI
- P₁ = Inlet pressure in PSIA
- P₂ = Outlet pressure in PSIA
- SCFH = Flow in standard cubic feet per hour
- SG = Specific gravity of gas (air = 1at 70°F (21°C) and 14.7 PSIA (1 ATM.)
- T = Temperature in °F

Note: Maximum ΔP for compressible fluids is $\frac{(P_1)}{2}$

How to Order



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

Warning! For Your Safety The system designer and user have the sole responsibility to select products suitable for their special application requirements to ensure the proper installation, operation and maintenance of the product. Application details, material compatibility and product ratings should all be considered in the individual selection. Improper selection or use of products can cause property damage or personal injury.

Sizing Equations

The Cv factor is a flow coefficient expressing the rate of flow in U.S. gallons per minute of water at 60°F (16°C) with a pressure drop of 1 psi across the valve. The flow depends on the inlet and outlet pressures, temperature, specific gravity and the Cv coefficient.

For Liquids at 60°F

$$Cv = \frac{USGPM}{\sqrt{\frac{(\Delta P)}{(SG)}}} \text{ OR } USGPM = Cv \sqrt{\frac{(\Delta P)}{(SG)}}$$

Where:

- ΔP = $P_1 - P_2$ in PSI
- P_1 = Inlet pressure in PSIA
- P_2 = Outlet pressure in PSIA
- USGPM** = Flow in US gallons per minute
- SG** = Specific gravity of liquid (water = 1 at 60°F)

For Gas at 70°F

$$Cv = \frac{SCFH}{1360 \sqrt{\frac{(\Delta P)(P_1)}{(460+T)(SG)}}} \text{ OR } SCFH = 1360Cv \sqrt{\frac{(\Delta P)(P_1)}{(460+T)(SG)}}$$

Where:

- ΔP = $P_1 - P_2$ in PSI
- P_1 = Inlet pressure in PSIA
- P_2 = Outlet pressure in PSIA
- SCFH** = Flow in standard cubic feet per hour
- SG** = Specific gravity of gas (air = 1 at 70°F (21°C) and 14.7 PSIA (1 ATM.))
- T** = Temperature in °F

Note: Maximum ΔP for compressible fluids is $\frac{(P_1)}{2}$