Hand Valves

Large bore, 3/8” (9.5 mm) diameter orifice, general purpose soft-seated hand valve for pressures to 6000 psig (414 barg)

General Application

A general purpose, soft-seated hand valve designed for safe, repetitive bubble-tight closure, simple maintenance and a long, reliable cycle life which is available to meet NACE requirements.

TECHNICAL DATA

Materials
CS, 316 SS, Hastelloy®

Seats:
Soft

Connections
1/2”, 3/4”, 1” NPT

Presuure (max):
6000 psig (414 barg)

Temperature (min/max):
-70°F to 500°F
(-57°C to 260°C)

Features

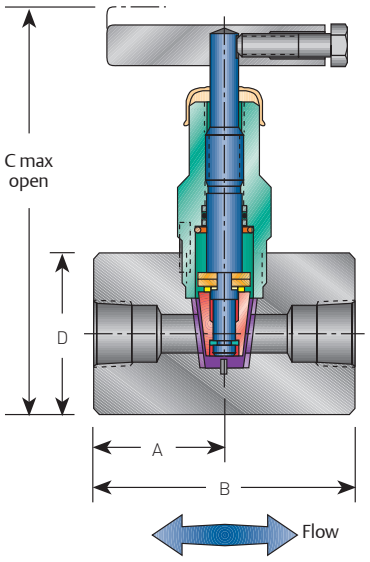
- Soft seat replaceable valve operates in dirty service with repetitive bubble-tight shutoff.
- Packing below threads prevents lubricant washout, thread corrosion, process contamination and eliminates galling.
- Dust cover protects stem from lubricant contamination.
- Safety back seating prevents stem blowout or accidental removal and provides a metal-to-metal secondary stem seal while in the fully open position.
- ENC plated 316 SS stem prevents galling or freezing of stem threads. CS valves use a 303 SS stem for 'hard-to-soft' contact, to prevent galling.
- Rolled stem and bonnet threads provide additional strength.
- Mirror stem finish in the packing area provides smooth operation and extends packing life.
- Straight-through flow path means high flow capacity, bi-directional flow and rodding capabilities.
- Metal-to-metal body-to-bonnet seal in constant compression prevents bonnet thread corrosion, eliminates possible tensile breakage and gives a reliable seal point.

H1 LARGE SERIES

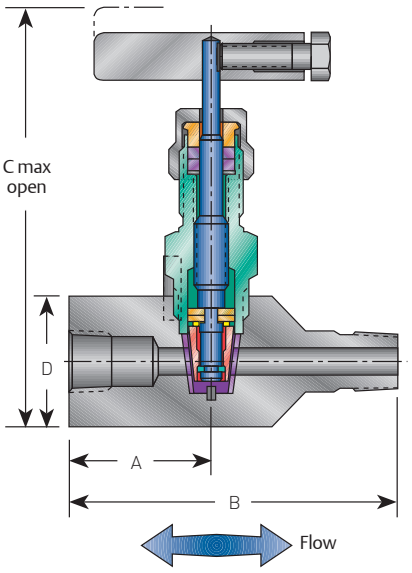
Hand Valves

H1 Specifications[2]

Dimension, inches (mm) - 3/8 inch (9.5 mm) diameter orifice



O-ring bonnet



PTFE bonnet

Dimensions

End connection[1]	A	B	C O-ring	C PTFE	D	Valve weight lb (kg)
½" F x ½" F	1.50 (38.1)	3.00 (76.2)	5.76 (146.3)	5.49 (139.4)	1.75 sq (44.5)	3.6 (1.6)
½" M x 1" F	1.88 (47.6)	4.38 (111.3)	5.76 (146.3)	5.49 (139.4)	1.75 sq (44.5)	3.6 (1.6)
¾" F x ¾" F	2.00 (50.8)	4.00 (101.6)	6.26 (159.0)	6.00 (152.4)	2.25 hex (57.2)	5.4 (2.5)
¾" M x ¾" F	2.00 (50.8)	5.00 (127.0)	6.26 (159.0)	6.00 (152.4)	2.25 hex (57.2)	5.4 (2.5)
1" F x 1" F	2.00 (50.8)	4.00 (101.6)	6.26 (159.0)	6.00 (152.4)	2.25 hex (57.2)	5.4 (2.5)
1" M x 1" F	2.00 (50.8)	5.00 (127.0)	6.26 (159.0)	6.00 (152.4)	2.25 hex (57.2)	5.4 (2.5)

NOTES
1. Valve Cv 3.0 maximum.
2. For Hastelloy® and -SG3 call factory for dimensions and weights.

Hand Valves

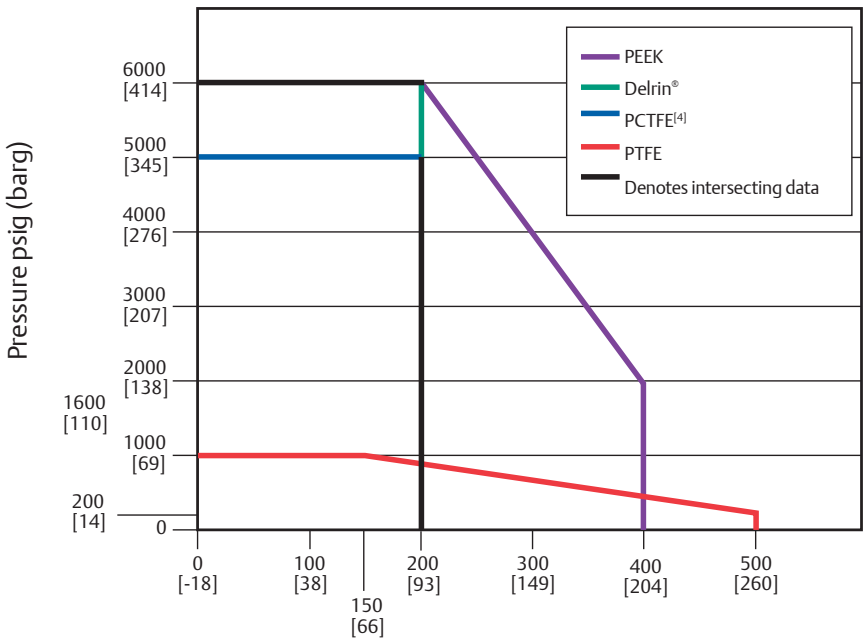
Bonnet Assemblies

H1 series valves feature a soft-seated bonnet assembly which has a rotating stem and non-rotating plug. The stem threads are rolled and lubricated to prevent galling and reduce operating torque. It is available with a PTFE packing, which is adjustable in service or with a FKM O-ring and PTFE back-up ring. All bonnets are assembled with a bonnet locking pin to prevent accidental removal while in service.

Standard Materials

Valve	Body and bonnet	Stem	Packing	Seat[2]
CS[1]	A108[1]	A581-303	PTFE or FKM O-ring with PTFE backup ring	Delrin®
316 SS	A479-316	A276-316	PTFE or FKM O-ring with PTFE backup ring	Delrin®
SG[3]	A479-316	Monel® R405	PTFE or FKM O-ring with PTFE backup ring	Delrin®
SG3[5]	Hastelloy® C-276	Hastelloy® C-276	PTFE or FKM O-ring with PTFE backup ring	Delrin®

Pressure vs. Temperature



Pressure and Temperature Ratings

Seat	3/8 inch (9.5 mm) orifice
Delrin®	6000 psig at 200°F (414 barg at 93°C)
PCTFE[4]	5000 psig at 200°F (345 barg at 93°C)
PEEK	6000 psig at 200°F (414 barg at 93°C)
	2000 psig at 400°F (138 barg at 204°C)
PTFE	1000 psig at 150°F (69 barg at 66°C)
	200 psig at 500°F (14 barg at 260°C)

NOTES

1. CS is zinc TCP plated to prevent corrosion.
2. PCTFE, PEEK, and PTFE are available.
3. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103.
4. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
5. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for Cchloride conditions > 50 mg/l [ppm]).
6. Minimum temperature for PTFE packed valves: -70°F (-57°C) for PEEK, PCTFE and PTFE Seats Delrin® Seats -40°F (-40°C). Carbon Steel or O-Ring -20°F (-29°C)

H1 LARGE SERIES

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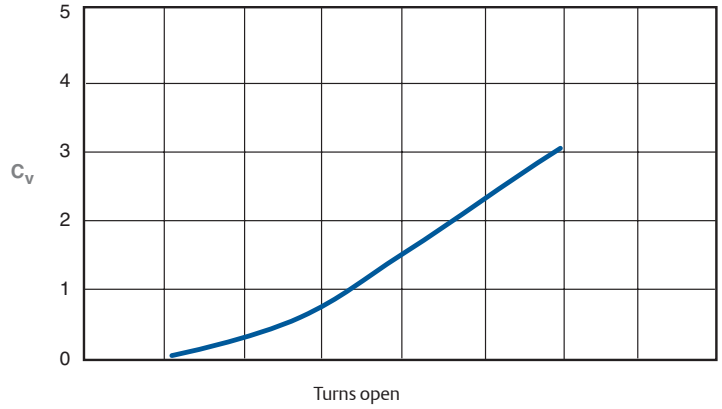
Flow Characteristics



3/8 inch (9.5 mm) orifice, CV 3.0 maximum

Liquids

$$Q_L = C_V \sqrt{\frac{(P_1 - P_2)\ (62.4)}{p}}$$

Gases - where $P_2 > .5P_1$

$$Q_V = 23.18\ C_V \sqrt{\frac{(P_1 - P_2)\ P_2}{(\mathrm{S.G})\mathrm{T}}}$$

Gases - where $P_2 < .5P_1$

$$Q_V = \frac{(11.59)\, P_1\, C_V}{\sqrt{\mathrm{S.G}\ (\mathrm{T})}}$$

Where:

Q_L =	Flow (gpm)
Q_v =	Flow (scfm)
ρ =	Density of liquid (lb/ft³)
P_1 =	Upstream pressure (psia)
P_2 =	Downstream pressure (psia)
T =	Flowing temperature (°R) (°R = °F + 460)
ρ (water) =	62.4 lb/ft³ at 60°F (16°C)
S.G =	Specific gravity of gas (M.W. of air/28.96)
S.G air =	1000
S.G nitrogen =	0.967
S.G oxygen =	1.105
S.G helium =	0.138
S.G hydrogen =	0.0696

Hand Valves

Selection Guide - H1

3/8 inch (9.5mm) orifice

H1	V	D	S	-4	B	-SG
BASIC SERIES	**PACKING**	**SEAT**	**MATERIAL**	**CONNECTIONS (BI-DIRECTIONAL)**	**CONNECTION STYLE**	**OPTIONS**
H1	**V** PTFE	**D** Delrin® (standard)	**C** CS	**4** ½ inch F x ½ inch F	**B** Female socket weld	**HD** Hydro testing (MSS-SP-61)
	R FKM O-ring with PTFE backup ring	**K** PCTFE[1]	**S** 316 SS	**44** ½ inch F x ½ inch M	**C** Male socket weld	**OC00** Oxygen clean (OC)
		E PEEK	**J** Hastelloy®	**46** ½ inch F x ¾ inch M		**OC01** Gaseous oxygen clean (GOC)
		V PTFE		**48** ½ inch F x 1 inch M		**PMI00** PMI body only
				6Q ¾ inch F x ¾ inch F		**SG** Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions ≤ 50 mg/l (ppm)) and NACE MR0103-2005 (SS only)
				66Q ¾ inch F x ¾ inch M		**SG3** Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm))
				8Q 1 inch F x 1 inch F		**SS** All 316 SS construction
				88Q 1 inch F x 1 inch M		

NOTE

1. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.