

Anderson Greenwood Instrumentation Hand Valves

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

General Application

A general purpose, soft and metal-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

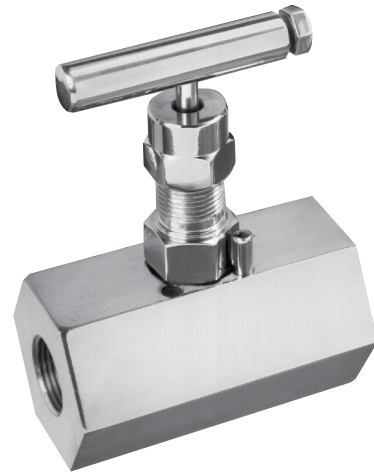
1/2", 3/4", 1" NPT

Pressure (max):

6000 psig (414 barg)

Temperature (min/max):

-313°F to 1000°F
(-192°C to 538°C)



Features

- Soft seat replaceable valve operates in dirty service with repetitive bubble-tight shutoff.
- Replaceable Metal seat valve for high temperature repeatable bubble tight shutoff with straight through bore.
- 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.

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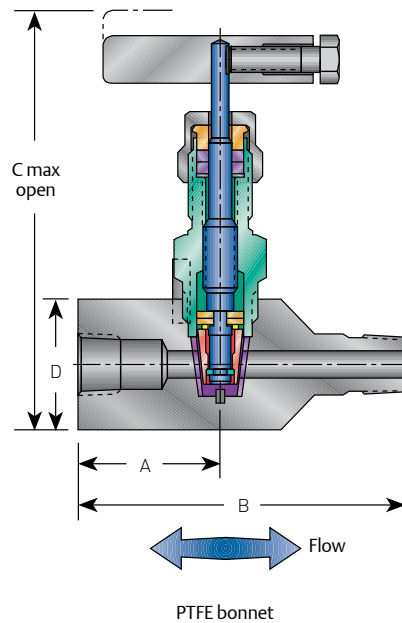
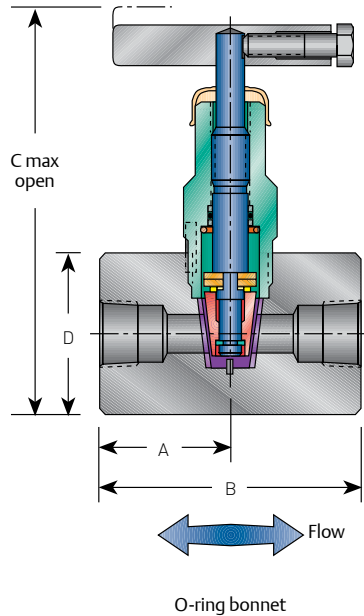
Ph: 612-331-1776
www.duncanco.com

H1 LARGE SERIES

Anderson Greenwood Instrumentation Hand Valves

H1 Specifications^[2]

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



Dimensions

End connection ^[1]	A	B	C O-ring	C PTFE	D	Valve weight lb (kg)
1/2" F x 1/2" 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)
1/2" 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)
3/4" F x 3/4" 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)
3/4" M x 3/4" 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.

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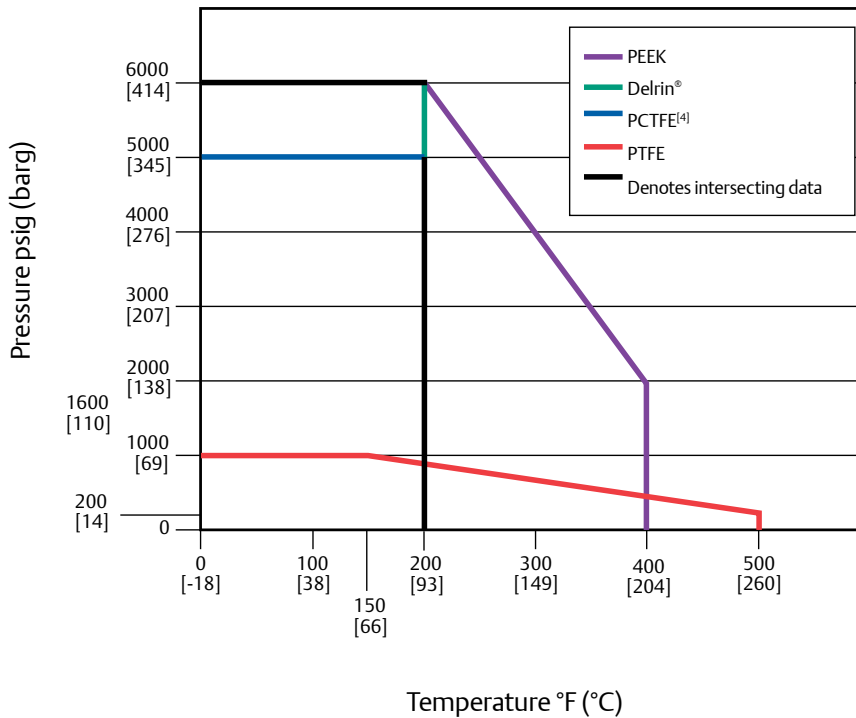
Bonnet Assemblies

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)

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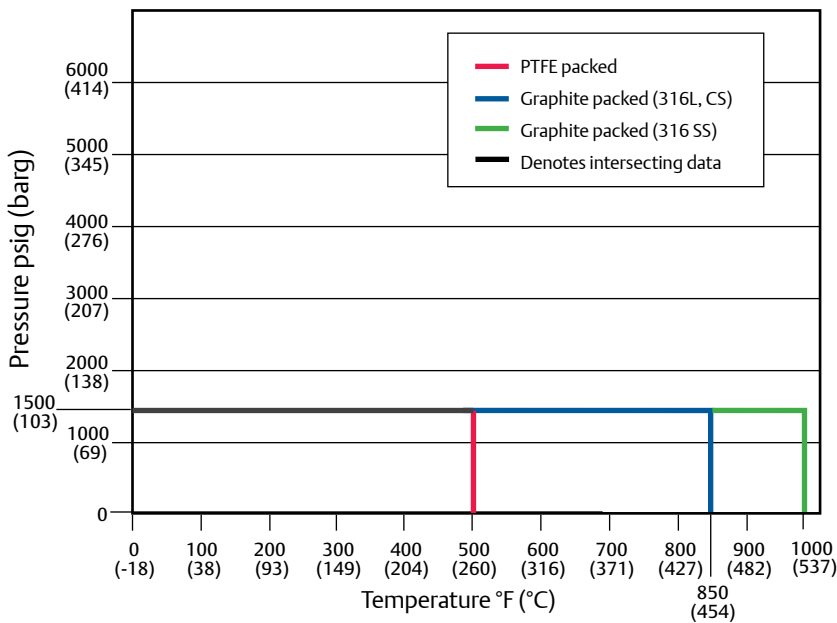
Bonnet Assemblies

H1 series valves feature an optional metal-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 or Graphite packing, which is adjustable in service. All bonnets are assembled with a bonnet locking pin to prevent accidental removal while in service.

Metal Seat

Metal seat	
PTFE packed	1500 psig at 500°F (103 barg at 260°C)
Graphite packed	1500 psig at 850°F (103 barg at 454°C)
Carbon Steel	316 SS 1500 psig at 1000°F (103 barg at 538°C)

Pressure vs. Temperature - 316SS Metal seat

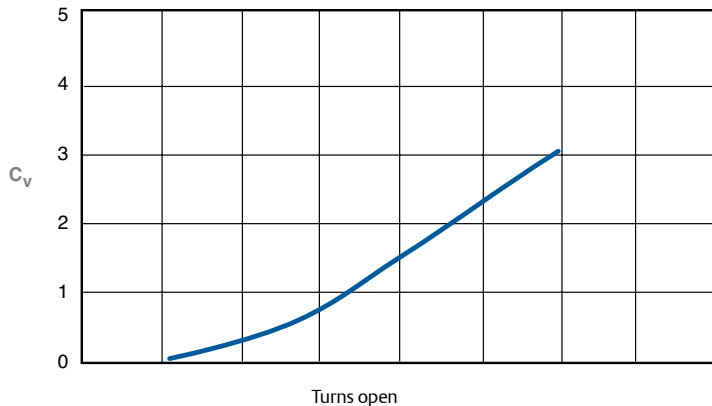


NOTE

- 316SS with 316SS metal seat with Graphite packing minimum temperature -313°F (-192°C) @ 2500 psi (172 bar)
- PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.

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Flow Characteristics



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

Liquids

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

Where:

- Q_L = Flow (gpm)
- Q_V = Flow (scfm)
- ρ = Density of liquid (lb/ft³)
- P₁ = Upstream pressure (psia)
- P₂ = 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

Gases - where P₂ > .5P₁

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

Gases - where P₂ < .5P₁

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

H1 LARGE SERIES

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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)
	H Graphite	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
		S 316SS (for PTFE or Graphite Packing 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		LT Low temperature Option for 316SS Material and Metal Seat Only (minimum temperature (-313°F (-192°C) @ 2500 psi (172 bar))

NOTE

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

