

ANDERSON GREENWOOD H1 HAND VALVES

Large bore, $\frac{3}{8}$ " (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, SS, Hastelloy®
Seats:	Soft
Connections:	$\frac{1}{2}$ "; $\frac{3}{4}$ "; 1" NPT
Pressure (max.):	6000 psig (414 barg)
Temperature (max.):	500°F (260°C)

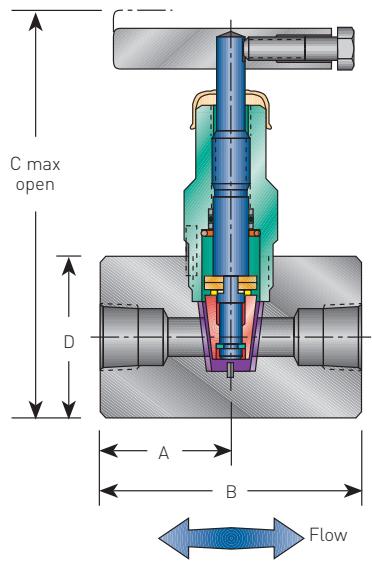
FEATURES

- 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.

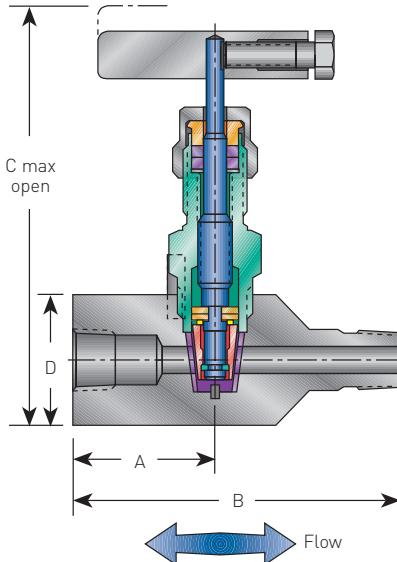
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H1 Specifications^[2] - $\frac{3}{8}$ inch (9.5 mm) diameter orifice

Dimension, inches (mm)



O-ring bonnet



PTFE bonnet

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 C_v 3.0 maximum.
2. For Hastelloy® and -SG3 call factory for dimensions and weights.

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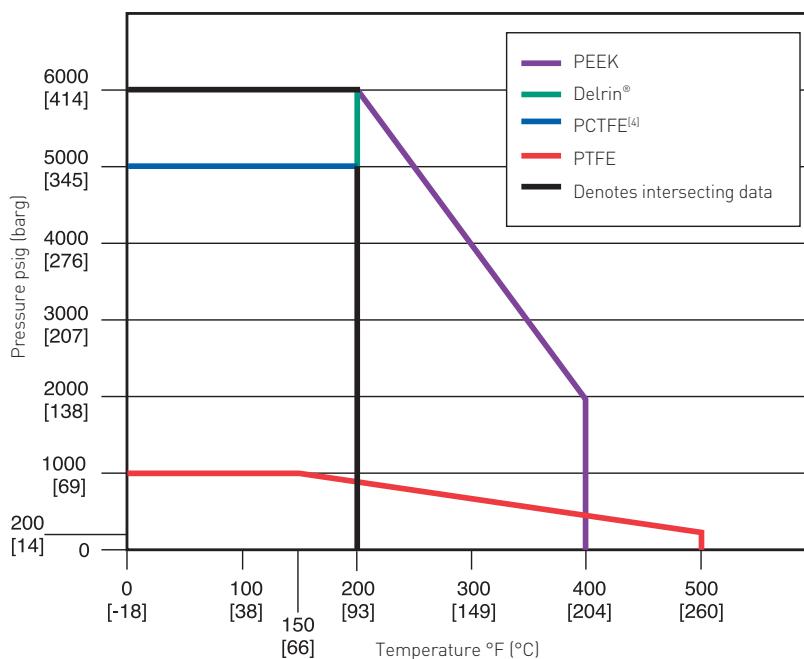
BONNET ASSEMBLIES

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 NBR O-ring with PTFE backup ring	Delrin®
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	$\frac{3}{8}$ 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)

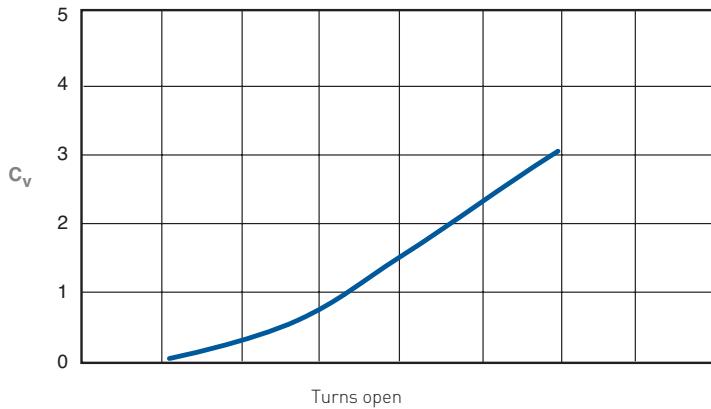
NOTES

1. CS is zinc chromate 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 chloride conditions > 50 mg/l [ppm]).
6. Minimum temperature for PTFE packed valves: -70°F (-57°C).

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FLOW CHARACTERISTICS



$\frac{3}{8}$ inch (9.5 mm) orifice, CV 3.0 maximum

LIQUIDS

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

Where:

Q_L =	Flow (gpm)
Q_V =	Flow (scfm)
ρ =	Density of liquid (lb/ft ³)
P_1 =	Upstream pressure (psia)
P_2 =	Downstream pressure (psia)
T =	Flowing temperature (°R) [°R = °F + 460]
ρ (water) =	62.4 lb/ft ³ 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 $P_2 > .5P_1$

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

GASES - where $P_2 < .5P_1$

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

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SELECTION GUIDE - H1 SPECIFICATIONS - $\frac{3}{8}$ INCH (9.5 MM) ORIFICE

Example:	H1	V	D	S	-4	B	-SG
Packing							
V	PTFE						
R	FKM O-ring with PTFE backup ring						
Seat							
D	Delrin® (standard)						
K	PCTFE ^[1]						
E	PEEK						
V	PTFE						
Material							
C	CS						
S	316 SS						
J	Hastelloy®						
Connections (bi-directional)							
4	½ inch F x ½ inch F						
48	½ inch F x 1 inch M						
6Q	¾ inch F x ¾ inch F						
66Q	¾ inch F x ¾ inch M						
8Q	1 inch F x 1 inch F						
88Q	1 inch F x 1 inch M						
Connection style							
B	Female socket weld						
C	Male socket weld						
Options							
HD	Hydro testing (MSS-SP-61)						
OC00	Oxygen clean (OC)						
OC01	Gaseous oxygen clean (GOC)						
PMI00	PMI body only						
SG	(SG) NACE edition 2003 /MR0103						
SG3	(SG) MR0175/ISO15156-3 latest						
SS	All 316 SS construction						

NOTE

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

