ANDERSON GREENWOOD H1 HAND VALVES

Large bore, ⅜" (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.

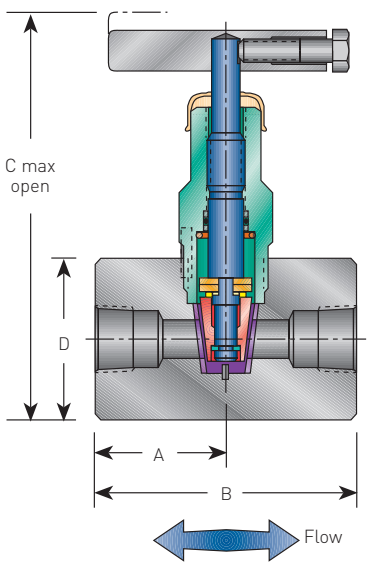
TECHNICAL DATA

Materials:	CS, SS, Hastelloy®
Seats:	Soft
Connections:	½"; ¾"; 1" NPT
Pressure (max.):	6000 psig (414 barg)
Temperature (max.):	500°F (260°C)

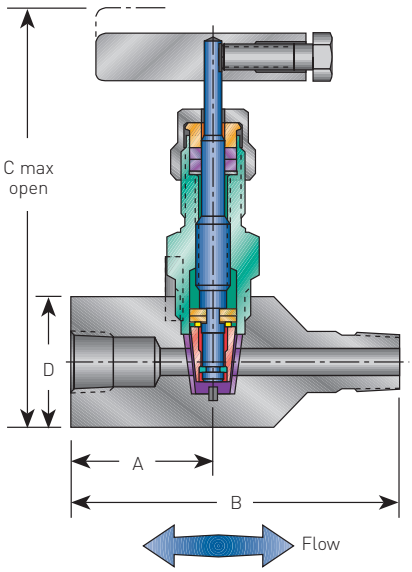
FEATURES

- 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.

H1 Specifications[2] - ⅜ 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)
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 C_v 3.0 maximum.
2. For Hastelloy® and -SG3 call factory for dimensions and weights.

H1 Specifications - ⅜ inch (9.5 mm) orifice

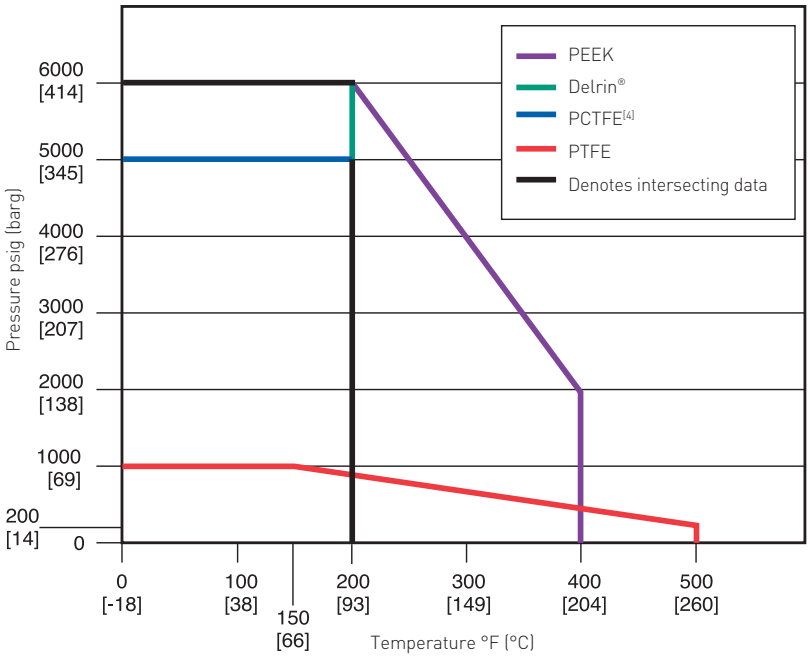
BONNET ASSEMBLIES

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

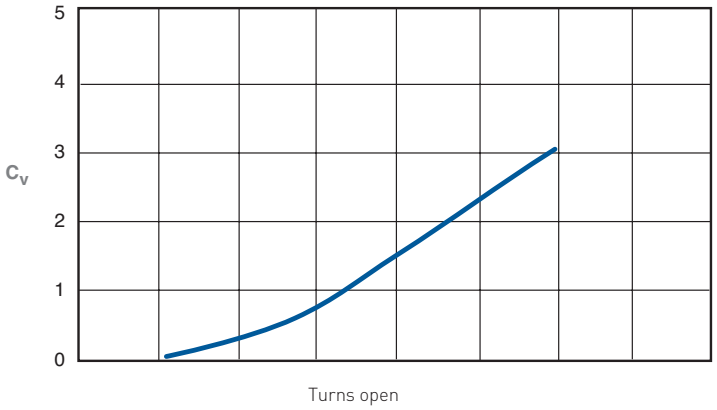
Seat	⅜ inch (9.5 mm) orifice
Delrin®	6000 psig at 200°F (414 barg at 93°C)
PCTFE[4]	5000 psig at 200°F (345 barg at 93°C)
PEEK	6000 psig at 200°F (414 barg at 93°C) 2000 psig at 400°F (138 barg at 204°C)
PTFE	1000 psig at 150°F (69 barg at 66°C) 200 psig at 500°F (14 barg at 260°C)

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 Cchloride conditions > 50 mg/l [ppm]).
6. Minimum temperature for PTFE packed valves: -70°F (-57°C).

H1 Specifications - ⅜ inch (9.5 mm) orifice

FLOW CHARACTERISTICS



⅜ 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

SELECTION GUIDE - H1 SPECIFICATIONS - ⅜ 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®.