

## Hand Valves

A miniature isolation valve with an interchangeable hard or soft seat for pressures to 6000 psig (414 barg)

### General Application

The H5 mini valves facilitate safe, compact and economical installations and are excellent for straight isolation applications.

#### TECHNICAL DATA

**Materials**

CS, 316 SS, Brass, Hastelloy®

**Seats:**

Matal or soft

**Connections**
**Inlet:**

1/4" NPT

**Outlet:**

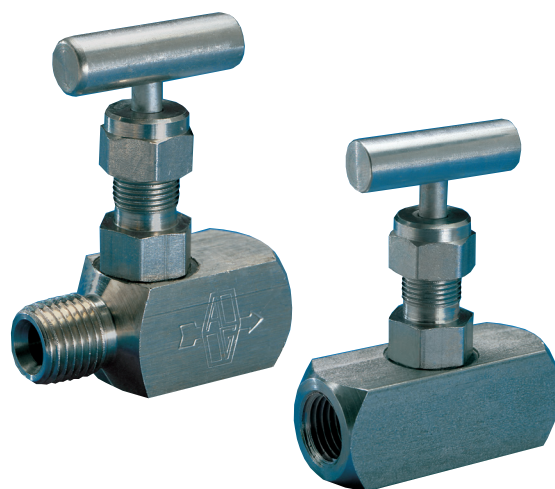
1/4" NPT

**Presuure (max):**

6000 psig (414 barg)

**Temperature (max):**

1000°F (538°C)



### Features

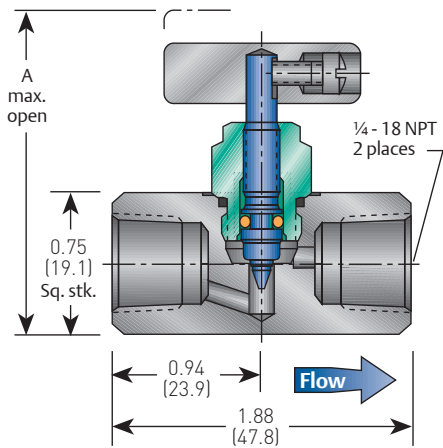
- Packing below threads (O-ring bonnet) prevents lubricant washout, thread corrosion, process contamination and eliminates galling.
- Easily adjustable packing decreases replacement downtime and increases valve life.
- Safety back seating prevents stem blowout or removal during operation and provides a metal-to-metal secondary stem seal while in the fully open position.
- ENC plated 316 SS prevents galling or freezing of stem threads.
- Rolled stem, bonnet and male NPT threads provide additional strength.
- Mirror stem finish in the packing area enables smooth operation and extends packing life.
- One-piece handle design prevents loss due to vibration or during maintenance.
- Soft or metal seat for bubble-tight shutoff is field-replaceable for easy maintenance.
- Extended valve life: damaged soft seat can be removed, leaving a metal seated valve.

# H5 SERIES

## Hand Valves

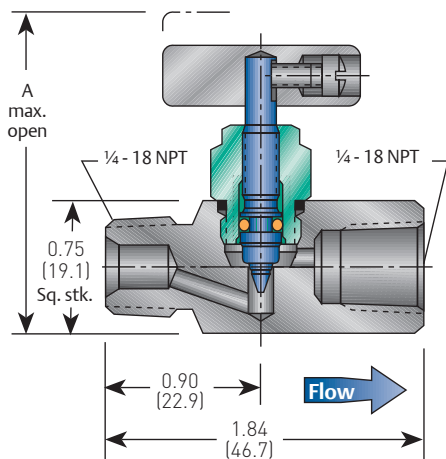
### H5 Specifications<sup>[3]</sup>

Dimension, inches (mm)



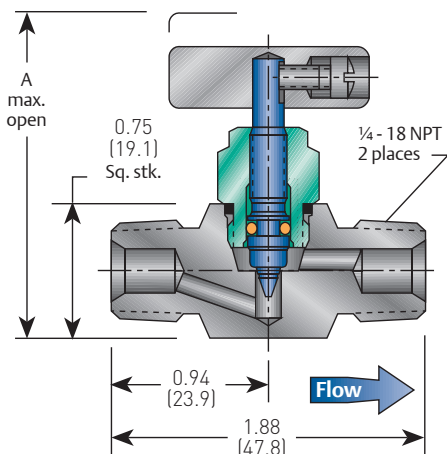
Maximum Open - Dimension A

| O-ring      | PTFE        | GRAFOIL®    |
|-------------|-------------|-------------|
| 2.00 (50.8) | 2.60 (66.0) | 3.07 (78.0) |



Maximum Open - Dimension A

| O-ring      | PTFE        | GRAFOIL®    |
|-------------|-------------|-------------|
| 2.00 (50.8) | 2.60 (66.0) | 3.07 (78.0) |



Maximum Open - Dimension A

| O-ring      | PTFE        | GRAFOIL®    |
|-------------|-------------|-------------|
| 2.00 (50.8) | 2.60 (66.0) | 3.07 (78.0) |

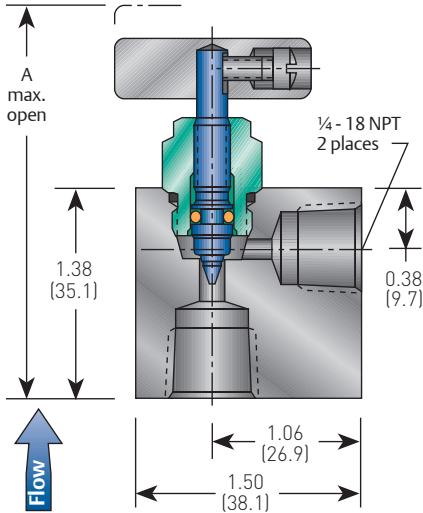
#### NOTES

1. Approximate valve weight: 0.5 lb (.23 kg). Seat orifice size 0.136 inch (3.5 mm) diameter.
2. Valve Cv soft seat 0.27 maximum.  
Valve Cv hard seat 0.31 maximum.
3. For Hastelloy® and -SG3 call factory for dimensions and weights.

Hand Valves

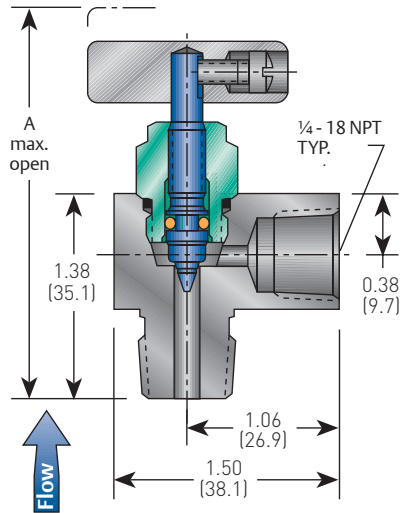
H5 Specifications<sup>[3]</sup>

Dimension, inches (mm)



Maximum Open - Dimension A

| O-ring      | PTFE        | GRAFOIL®    |
|-------------|-------------|-------------|
| 2.64 (67.1) | 3.23 (82.0) | 3.71 (94.2) |



Maximum Open - Dimension A

| O-ring      | PTFE        | GRAFOIL®    |
|-------------|-------------|-------------|
| 2.66 (67.6) | 3.26 (82.8) | 3.73 (94.7) |

NOTES

1. Approximate valve weight: 0.5 lb (.23 kg). Seat orifice size 0.136 inch (3.5 mm) diameter.
2. Valve Cv soft seat 0.27 maximum.  
Valve Cv hard seat 0.31 maximum.
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# H5 SERIES

## Hand Valves

### Bonnet Assembly Options

The H5 features the mini-valve bonnet assembly, with a compact design and a one-piece rotating stem which is 'V' tipped with a shoulder for use as a metal or soft seated valve. The stem threads are rolled and lubricated to prevent galling and reduce operating torque.

The mini-valve bonnet comes in three designs:

- An adjustable PTFE stem packed bonnet which is suitable for panel mounting via external bonnet threads.
- O-ring bonnet assemblies which use a FKM O-ring seal below the stem thread.
- A graphite-packed bonnet suitable for temperatures of up to 1000°F (538°C) which is available for SS valves only.

### Standard Materials - Metal Hard Seat

| Valve              | Body             | Bonnet           | Stem             | Packing                      | Seat     | Handle <sup>[2]</sup> |
|--------------------|------------------|------------------|------------------|------------------------------|----------|-----------------------|
| CS <sup>[1]</sup>  | A108             | A108             | A581-303         | PTFE or FKM O-ring           | Integral | Round                 |
| 316 SS             | A479-316         | A479-316         | A276-316         | PTFE, FKM O-ring or GRAFOIL® | Integral | Tee                   |
| Brass              | B16              | B16              | A581-303         | PTFE or FKM O-ring           | Integral | Round                 |
| SG <sup>[3]</sup>  | A479-316         | A479-316         | Monel® R405      | PTFE or FKM O-ring           | Integral | Tee                   |
| SG3 <sup>[6]</sup> | Hastelloy® C-276 | Hastelloy® C-276 | Hastelloy® C-276 | PTFE or FKM O-ring           | Integral | Tee                   |

### Standard Materials - Soft Seat

| Valve              | Body             | Bonnet           | Stem             | Packing            | Flow washer      | Seat                   | Handle <sup>[2]</sup> |
|--------------------|------------------|------------------|------------------|--------------------|------------------|------------------------|-----------------------|
| CS <sup>[1]</sup>  | A108             | A108             | A581-303         | PTFE or FKM O-ring | A479-316         | Delrin® <sup>[4]</sup> | Round                 |
| 316 SS             | A479-316         | A479-316         | A276-316         | PTFE or FKM O-ring | A479-316         | PCTFE <sup>[5]</sup>   | Tee                   |
| Brass              | B16              | B16              | A581-303         | PTFE or FKM O-ring | A479-316         | Delrin® <sup>[4]</sup> | Round                 |
| SG <sup>[3]</sup>  | A479-316         | A479-316         | Monel® R405      | PTFE or FKM O-ring | A479-316         | PCTFE <sup>[5]</sup>   | Tee                   |
| SG3 <sup>[6]</sup> | Hastelloy® C-276 | Hastelloy® C-276 | Hastelloy® C-276 | PTFE or FKM O-ring | Hastelloy® C-276 | PCTFE <sup>[5]</sup>   | Tee                   |

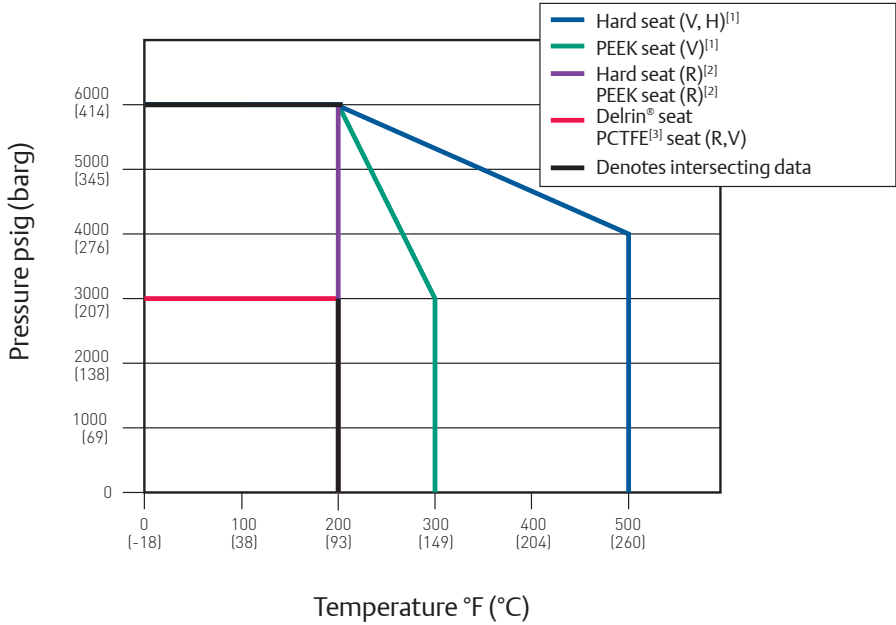
#### NOTES

1. CS is Zinc TCP plated to prevent corrosion.
2. Tee handle is SS; round handle is CS.
3. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103.
4. PEEK available.
5. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
6. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l [ppm]).

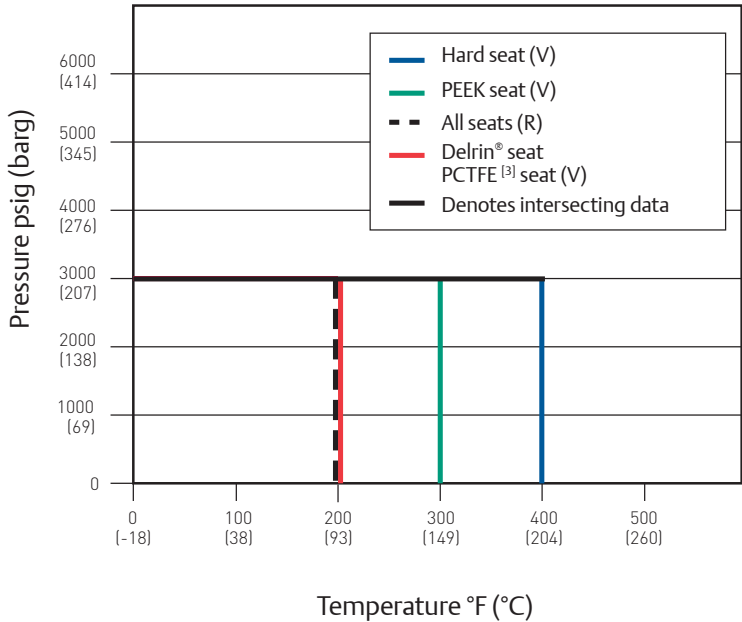
Hand Valves

Pressure vs. Temperature

Pressure vs. Temperature - CS and 316 SS valves



Pressure vs. Temperature - Brass valves



NOTES

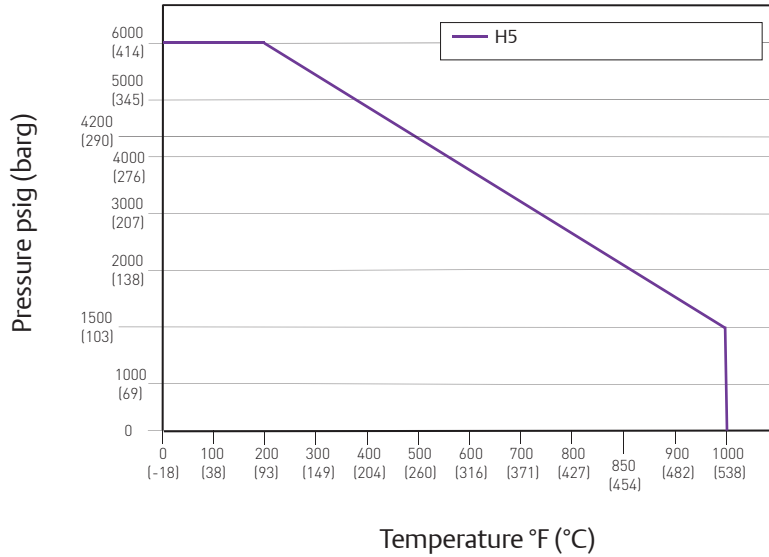
- (V or H) = with PTFE or GRAFOIL<sup>®</sup> bonnet assemblies.
- (R) = with O-ring bonnet assembly.
- PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F<sup>®</sup>.
- Minimum Temperature  
 Carbon Steel and O-ring -20°F (-29°C)  
 Delrin<sup>®</sup> Seat -40°F (-40°C)  
 Teflon<sup>®</sup> Packed 316SS, PEEK, PCTFE Seats -70°F (-57°C)

# H5 SERIES

## Hand Valves

### Pressure vs. Temperature

Pressure vs Temperature - 316 SS valves with GRAFOIL® bonnet



#### NOTES

1. (V or H) = with PTFE or GRAFOIL® bonnet assemblies.
2. (R) = with O-ring bonnet assembly.
3. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.

### Pressure and Temperature Ratings<sup>[1]</sup>

| Seat                             | PTFE bonnet   |  | GRAFOIL® bonnet <sup>[2]</sup>   |
|----------------------------------|---|--|--|
|                                  | CS and 316 SS valves  | Brass valves                           | 316 SS valves  |
| Hard                             | 6000 psig at 200°F (414 barg at 93°C)<br>4000 psig at 500°F (276 barg at 260°C) | 3000 psig at 400°F (207 barg at 204°C) | 6000 psig at 200°F (414 barg at 93°C)<br>1500 psig at 1000°F (103 barg at 538°C) |
| Delrin® and PCTFE <sup>[3]</sup> | 3000 psig at 200°F (207 barg at 93°C)   | 3000 psig at 200°F (207 barg at 93°C)  |  |
| PEEK                             | 6000 psig at 200°F (414 barg at 93°C)<br>3000 psig at 300°F (207 barg at 149°C) | 3000 psig at 300°F (207 barg at 149°C) |  |
|                                  | O-ring bonnet   |  |  |
| Hard                             | 6000 psig at 200°F (414 barg at 93°C)   | 3000 psig at 200°F (207 barg at 93°C)  |  |
| Delrin® and PCTFE <sup>[3]</sup> | 3000 psig at 200°F (207 barg at 93°C)   | 3000 psig at 200°F (207 barg at 93°C)  |  |
| PEEK                             | 6000 psig at 200°F (414 barg at 93°C)   | 3000 psig at 200°F (207 barg at 93°C)  |  |

#### NOTES

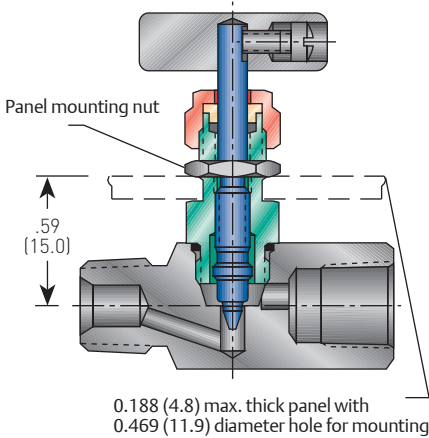
1. Pressure and temperature ratings are not shown on valve body.
2. GRAFOIL® packed bonnet; 316 SS only. 1000°F (538°C)

Hand Valves

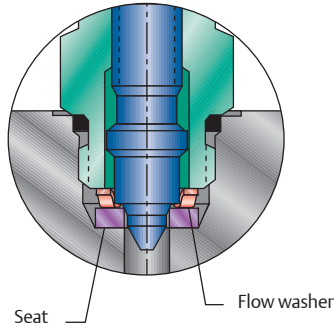
Dimension, inches (mm)

Optional Panel Mounting Nut<sup>[1]</sup>

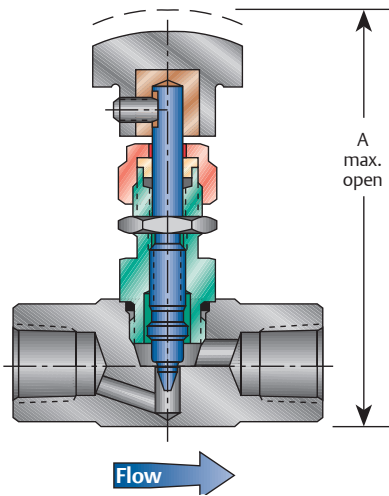
inches (mm)



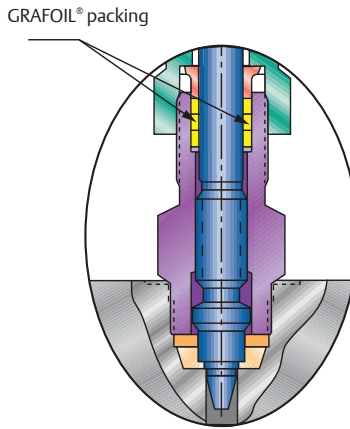
Optional Soft Seat<sup>[2]</sup>



Optional Phenolic Handles<sup>[2]</sup>



Optional GRAFOIL<sup>®</sup> Packed Bonnet



Phenolic handles are available in 1 inch (25 mm) diameter. Colors available are green, red, and black. Phenolic handles facilitate repeatable flow control, as well as enhancing the appearance of panels, sample cylinders and other associated products requiring premium performance throttling and/or isolation valves. Maximum open dimension of any H5 with Phenolic handles is calculated by adding 0.4 inch (10.2 mm) to the 'A' reference dimension for PTFE stem seal on page 2.

NOTES

- 1. Available with PTFE packed bonnet.
- 2. Available on all H5 products.

# H5 SERIES

## Hand Valves

### Selection Guide - H1

| H5           | V   | D  | S                                      | -22  | -SG  |
|--------------|---|--|--|--|--|
| BASIC SERIES | PACKING                                     | SEAT                                     | MATERIAL                               | CONNECTIONS  | OPTIONS  |
| H5           | V PTFE (standard for SS)                    | I Integral                               | B Brass (round Handle Standard)        | 2 ¼ inch FNPT (outlet) x ¼ inch FNPT (inlet)         | HD Hydrostatic testing (100%) (MSS-SP-61)  |
|              | R O-ring                                    | D Delrin®                                | C Carbon steel (round Handle Standard) | 2A ¼ inch FNPT (outlet) x ¼ inch FNPT (inlet) angle  | MS Monel® stem   |
|              | H GRAFOIL® (316 SS only) 1000°F (538°C) max | E PEEK                                   | S 316 SS (Tee Handle Standard)         | 2M ¼ inch MNPT (outlet) x ¼ inch MNPT (inlet)        | OC00 Oxygen cleaning (316 SS only)   |
|              |   | V PCTFE <sup>[1]</sup> (standard for SS) | J Hastelloy®                           | 22 ¼ inch FNPT (outlet) x ¼ inch MNPT (inlet)        | PHB Phenolic black handle  |
|              |   |  |  | 22A ¼ inch FNPT (outlet) x ¼ inch MNPT (inlet) angle | PM Panel mount (PTFE packed only)  |
|              |   |  |  |  | SG Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions ≤ 50 mg/l (ppm)) and NACE MR0103-2005 (SS only) |
|              |   |  |  |  | SG3 Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm))                               |
|              |   |  |  |  | RH Round Handle  |
|              |   |  |  |  | TH Tee Handle  |

#### NOTES

1. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
2. Delrin® is a registered trademark of E.I. du Pont de Nemours and Company.
3. GRAFOIL® is a registered trademark of GrafTech International.
4. Hastelloy® is a registered trademark of Haynes International, Inc.
5. Kel-F® is a registered trademark of 3M Company.
6. Monel® is a registered trademark of the Special Metals Corporation.