Product Overview
The H5 Mini Valves facilitate safe, compact, and economical installations. They are excellent for both throttling and straight isolation.

Valve seating is interchangeable between ‘Hard’ or ‘Soft’ without changing the bonnet assembly or removing valve from the installation. This feature of the H5 greatly extends the valve life.

Features and Benefits
- **Packing below threads (O-ring bonnet)** prevents lubricant washout, thread corrosion, and keeps solids from entering thread area, which can cause galling. It also prevents process contamination.
- **Adjustable packing** – Teflon® and GRAFOIL® packed bonnets adjust easily, decreasing packing replacement downtime and increasing valve life.
- **Safety back seating** prevents stem blowout or accidental removal while in operation and provides a metal-to-metal secondary stem seal while in the full open position.
- **Chrome plating of 316 SS stem** prevents galling or freezing of stem threads when similar metals mate. CS valves use a 303 SS stem.
- **Rolled threads** provide additional thread strength. The stem, bonnet, and male NPT threads are rolled, not cut.
- **Mirror stem finish** burnished to a 16 RMS finish in the packing area enables smooth stem operation and extending packing life.
- **One-piece handle design** prevents loss of the valve handle due to vibration or during maintenance.
- **Soft or metal seat for bubble-tight shutoff** is field replaceable for easy maintenance. The V-tipped stem provides accurate flow control.
- **Extended valve life**: if soft seat becomes damaged it can be removed, leaving a metal seated valve.
H5 Specifications
6000 psig [414 barg]

Dimensions, inches [mm]

Maximum Open – Dimension A

<table>
<thead>
<tr>
<th>O-ring</th>
<th>Teflon®</th>
<th>GRAFOIL®</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>2.60</td>
<td>3.07</td>
</tr>
<tr>
<td>[50.8]</td>
<td>[66.0]</td>
<td>[78.0]</td>
</tr>
</tbody>
</table>

Notes
1. Approximate valve weight: 0.5 lb [0.23 kg]. Seat orifice size 0.136-inch [3.5 mm] diameter.
2. Valve C_v Soft Seat 0.27 maximum. Valve C_v Hard Seat 0.31 maximum.
H5 Specifications
6000 psig [414 barg]

Standard Materials – Hard Seat

<table>
<thead>
<tr>
<th>Valve</th>
<th>Body</th>
<th>Bonnet</th>
<th>Stem</th>
<th>Packing</th>
<th>Seat</th>
<th>Handle</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>A108</td>
<td>A108</td>
<td>A581-303</td>
<td>Teflon® or BUNA-N O-ring</td>
<td>Integral</td>
<td>Round</td>
</tr>
<tr>
<td>SS</td>
<td>A479-316</td>
<td>A479-316</td>
<td>A276-316</td>
<td>Teflon® or Viton® O-ring</td>
<td>Integral</td>
<td>Tee</td>
</tr>
<tr>
<td>Brass</td>
<td>B16</td>
<td>B16</td>
<td>A581-303</td>
<td>Teflon® or BUNA-N O-ring</td>
<td>Integral</td>
<td>Round</td>
</tr>
<tr>
<td>SG²</td>
<td>A479-316</td>
<td>A479-316</td>
<td>Monel® R405</td>
<td>Teflon® or Viton® O-ring</td>
<td>Integral</td>
<td>Tee</td>
</tr>
</tbody>
</table>

Standard Materials – Soft Seat

<table>
<thead>
<tr>
<th>Valve</th>
<th>Body</th>
<th>Bonnet</th>
<th>Stem</th>
<th>Packing</th>
<th>Flow Washer</th>
<th>Seat</th>
<th>Handle</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>A108</td>
<td>A108</td>
<td>A581-303</td>
<td>Teflon® or BUNA-N O-ring</td>
<td>A479-316 Delrin®</td>
<td>Round</td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>A479-316</td>
<td>A479-316</td>
<td>A276-316</td>
<td>Teflon® or Viton® O-ring</td>
<td>A479-316 PCTFE®</td>
<td>Tee</td>
<td></td>
</tr>
<tr>
<td>Brass</td>
<td>B16</td>
<td>B16</td>
<td>A581-303</td>
<td>Teflon® or BUNA-N O-ring</td>
<td>A479-316 Delrin®</td>
<td>Round</td>
<td></td>
</tr>
<tr>
<td>SG²</td>
<td>A479-316</td>
<td>A479-316</td>
<td>Monel® R405</td>
<td>Teflon® or Viton® O-ring</td>
<td>A479-316 PCTFE®</td>
<td>Tee</td>
<td></td>
</tr>
</tbody>
</table>

Notes

1. CS is zinc cobalt plated to prevent corrosion.
2. Tee handle is SS; Round handle is CS.
3. SG (Sour Gas) meets the requirements of NACE MR0175-latest revision.
4. PEEK available.
5. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.

H5 Metal and Soft Seated Flow Characteristics

Formula

**Liquids**

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

Where:

- \( Q_L = \text{Flow (gpm)} \)
- \( \rho = \text{Density of Liquid (lb/ft}^3) \)
- \( P_1 = \text{Upstream Pressure (psia)} \)
- \( P_2 = \text{Downstream Pressure (psia)} \)
- \( \rho \text{ (water)} = 62.4 \text{ lb/ft}^3 @ 60^\circ \text{F} [16^\circ \text{C}] \)
**H5 Specifications**

6000 psig [414 barg]

### Pressure vs. Temperature – CS and SS Valves

![Graph showing pressure vs. temperature for CS and SS valves]

**Notes**

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

### Pressure vs. Temperature – Brass Valves

![Graph showing pressure vs. temperature for brass valves]

**Notes** (Continued)

...
## H5 Specifications

6000 psig (414 barg)

### Pressure and Temperature Ratings

<table>
<thead>
<tr>
<th>Seat</th>
<th>Teflon® or GRAFOIL® Bonnet</th>
<th>CS and SS Valves</th>
<th>Brass Valves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td></td>
<td>6000 psig @ 200°F [414 barg @ 93°C]</td>
<td>3000 psig @ 400°F [207 barg @ 204°C]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4000 psig @ 500°F [276 barg @ 260°C]</td>
<td></td>
</tr>
<tr>
<td>Delrin® and PCTFE</td>
<td></td>
<td>3000 psig @ 200°F [207 barg @ 93°C]</td>
<td>3000 psig @ 200°F [207 barg @ 93°C]</td>
</tr>
<tr>
<td>PEEK</td>
<td></td>
<td>6000 psig @ 200°F [414 barg @ 93°C]</td>
<td>3000 psig @ 300°F [207 barg @ 149°C]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3000 psig @ 300°F [207 barg @ 149°C]</td>
<td></td>
</tr>
</tbody>
</table>

### Seat O-ring Bonnet

<table>
<thead>
<tr>
<th>Seat</th>
<th>CS and SS Valves</th>
<th>Brass Valves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td>6000 psig @ 200°F [414 barg @ 93°C]</td>
<td>3000 psig @ 200°F [207 barg @ 93°C]</td>
</tr>
<tr>
<td>Delrin® and PCTFE</td>
<td>3000 psig @ 200°F [207 barg @ 93°C]</td>
<td>3000 psig @ 200°F [207 barg @ 93°C]</td>
</tr>
<tr>
<td>PEEK</td>
<td>6000 psig @ 200°F [414 barg @ 93°C]</td>
<td>3000 psig @ 200°F [207 barg @ 93°C]</td>
</tr>
</tbody>
</table>

### Notes

1. Pressure and temperature ratings are not shown on valve body.
2. GRAFOIL® packed bonnet comes complete with ball end stem; SS only.
3. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
H5 Options

Optional Panel Mounting Nut, inches [mm]

Optional Soft Seat

Optional Phenolic Handles

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 enhance 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 Teflon® Stem Seal on page 28.

Notes

1. Available with Teflon® packed bonnet.
2. Available on all H5 products.
## H5 Specifications

### Ordering Information

<table>
<thead>
<tr>
<th>H5</th>
<th>V</th>
<th>D</th>
<th>S</th>
<th>– 22</th>
<th>– SG</th>
</tr>
</thead>
</table>

#### Packing

- **V** – Teflon® (standard for SS)
- **R** – O-ring
- **H** – GRAFOIL® (SS only)

#### Seat

- **I** – Integral
- **D** – Delrin®
- **E** – PEEK
- **K** – PCTFE® (standard for SS)

#### Material

- **B** – Brass
- **C** – CS
- **S** – SS

#### Connections (Inlet/Outlet)

- **2** – 1/4-inch F x 1/4-inch F
- **2A** – 1/4-inch F x 1/4-inch F (Angle)
- **2M** – 1/4-inch M x 1/4-inch M
- **22** – 1/4-inch M x 1/4-inch F
- **22A** – 1/4-inch M x 1/4-inch F (Angle)

#### Options

- **CLC** – Chlorine Cleaning
- **HD** – Hydrostatic Testing (100%) (MSS-SP-61)
- **MS** – Monel® Stem
- **OC** – Oxygen Cleaning
- **PHB** – Phenolic Black Handle (page 32)
- **PHG** – Phenolic Green Handle (page 32)
- **PHR** – Phenolic Red Handle (page 32)
- **PM** – Panel Mount (Teflon® packed only) (page 32)
- **SG** – Sour Gas meets the requirements of NACE MR0175-latest revision (SS only)
- **SP** – Special Requirement - please specify

### Note

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