Type 300 Clamped Diaphragm Seal

When isolation of the process from an instrument is required, Ashcroft offers a comprehensive line of diaphragm seals. Seal types include threaded, flanged, in-line threaded, in-line flanged, in-line socket weld, in-line but weld, saddle and sanitary seals. Also available is a complete offering of isolation or iso-rings and isolation or iso-spools.

APPLICATIONS
- Elevated process temperatures
- Corrosive service
- Isolation of the process for safety
- Suspended solids in the process
- Sanitary connections
- Replacement of process dead leg
- Ease of cleaning between batches

FEATURES
- An elastomeric or Teflon® diaphragm is clamped securely between the top and bottom housing with clamp rings, ensuring a positive seal.
- A fill/bleed connection is standard, which permits filling the seal and instrument simultaneously after evacuation and allows the fill to flow into the completed unit.
- Available Teflon® diaphragm offers corrosion resistance to most acids, caustics, alkalies, ketones, hydrocarbons and alcohols.
- Available Viton® or Kalrez diaphragms for low pressure instruments from 10 inches of water.
- Rugged, flexible and fatigue resistant for superior service life.
- Continuous-duty design will prevent loss of process fluid if pressure instrument is removed or fails.

SPECIFICATIONS

Model Number: Type 300, 301, 302, 303

Process Connection
- Size: See Table A

Instrument Connection
- Size: ¼”, ½” NPT

Diaphragm Material: See Table B

Bottom Housing Materials: See Table C

Filling Fluid: See Table E

OPTIONS

316 stainless steel
- top housing
  Code: YT

Stainless steel clamp rings and flanged ring – includes 300 stainless steel clamping bolts (1500 psi max)
- Code: SE

300 series stainless steel clamping bolts (max pres is 1500 psi)
- Code: SB

Pipe plugs for flushing connections – pipe plugs are available in the same materials as bottom housings per Table C
- Code: PU

5000 psi pressure rating – (Type 100 only) threaded inlet only, no flushing connection (metal diaphragm only)
- Code: HP

Welded instrument to diaphragm seal
- Code: DU

Dual flushing connections (¼” NPT) (Limited to 2” thru 3” flanged seals
- Code: DB

Ring joint (Flanged seal only)
- Code: RJ

Flat face (Flanged seal only)
- Code: FF

Clean for gaseous oxygen or strong oxidizing agent applications.
- Code: 6B

HOW TO ORDER:

1. From Table A... select TYPE NUMBER based on process connection, process connection size and diaphragm type/construction. (e.g., Threaded/1’/capsule–code-10-300)
2. From Table B... select DIAPHRAGM MATERIAL. (e.g., 316L stainless steel–code S)
3. From Table C... select BOTTOM HOUSING MATERIAL. (e.g., 316 stainless steel–code S)
4. From Table D... select INSTRUMENT CONNECTION size. (e.g., ¼” NPT–code 027)
5. From Table E... select FILLING FLUID, if diaphragm seal will be attached to instrument. (e.g., Glycerin–code CG)

Coded order: 10–300TT–02T–CG
# Type 300 Clamped Diaphragm Seal

## Type 300 Series Seal Types

**Type 300 – Threaded**

$\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 NPT

**Type 301 – Threaded**

with flushing connection

$\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 NPT

**Type 302 – Raised Face Flanged**

$\frac{1}{2}$, $\frac{3}{4}$ NPT

**Type 303 – Raised Face Flanged**

1\%", 2", 3" (raised face only)

1 piece with and without flushing connection

## Table A – Process Connection/Type Number

<table>
<thead>
<tr>
<th>Process Connection Type Number</th>
<th>Process Connection Size</th>
<th>Type Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threaded-female NPT</td>
<td>$\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 NPT</td>
<td>300</td>
</tr>
<tr>
<td>Threaded-female NPT (with flushing conn.)</td>
<td>$\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 NPT</td>
<td>301</td>
</tr>
<tr>
<td>Flanged</td>
<td>$\frac{1}{2}$, $\frac{3}{4}$</td>
<td>302</td>
</tr>
<tr>
<td>Flanged (with flushing conn.)</td>
<td>$\frac{1}{2}$, $\frac{3}{4}$</td>
<td>303</td>
</tr>
</tbody>
</table>

Pressure Ratings—All 2500 psi except flanged seals are per ASME B 16.5, temperature limit determined by diaphragm, bottom housing and/or filling fluid.

## Table B – Diaphragm Material

<table>
<thead>
<tr>
<th>Material</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teflon $^{(3)}$</td>
<td>T</td>
</tr>
<tr>
<td>Viton $^{(6)}$</td>
<td>Y</td>
</tr>
<tr>
<td>Kalrez $^{(10)}$</td>
<td>K</td>
</tr>
</tbody>
</table>

## Table C – Housing Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>B</td>
</tr>
<tr>
<td>304L stainless steel</td>
<td>C</td>
</tr>
<tr>
<td>316L stainless steel</td>
<td>S</td>
</tr>
<tr>
<td>Hastelloy B</td>
<td>G</td>
</tr>
<tr>
<td>Hastelloy C 22$^{(5)}$</td>
<td>J</td>
</tr>
<tr>
<td>Hastelloy C 276$^{(5)}$</td>
<td>H</td>
</tr>
<tr>
<td>Carpenter 20</td>
<td>D</td>
</tr>
<tr>
<td>Monel &quot;400&quot;</td>
<td>M</td>
</tr>
<tr>
<td>Inconel &quot;600&quot;</td>
<td>W</td>
</tr>
<tr>
<td>Nickel</td>
<td>N</td>
</tr>
<tr>
<td>PTFE$^{(11)(12)}$</td>
<td>V</td>
</tr>
<tr>
<td>Tantalum clad SS$^{(7)}$</td>
<td>SU</td>
</tr>
<tr>
<td>Halar coated SS$^{(8)}$</td>
<td>BH</td>
</tr>
<tr>
<td>Teflon flanged steel$^{(9)}$</td>
<td>T</td>
</tr>
<tr>
<td>Kynar$^{(13)(12)}$</td>
<td>KY</td>
</tr>
<tr>
<td>Titanium$^{(10)}$</td>
<td>Ti</td>
</tr>
</tbody>
</table>

## Table D – Instrument Connection

<table>
<thead>
<tr>
<th>Size – NPT</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{1}{4}$</td>
<td>02T</td>
</tr>
<tr>
<td>$\frac{1}{2}$</td>
<td>04T</td>
</tr>
</tbody>
</table>

## Table E – Filling Fluid

<table>
<thead>
<tr>
<th>Filling</th>
<th>Service</th>
<th>Connection to Instrument</th>
<th>Temperature Range °F</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>Pressure</td>
<td>Direct Only</td>
<td>0/400</td>
<td>CG</td>
</tr>
<tr>
<td>Silicone</td>
<td>Pressure/Vacuum</td>
<td>Direct or Flexible Line</td>
<td>–40/500</td>
<td>CK, DJ</td>
</tr>
<tr>
<td>Halocarbon</td>
<td>Pressure/Vacuum in presence of strong oxidizing agent</td>
<td>Direct or Flexible Line</td>
<td>–70/500</td>
<td>CF</td>
</tr>
<tr>
<td>Syltherm</td>
<td>Pressure/Vacuum</td>
<td>Direct or Flexible Line</td>
<td>–40/750</td>
<td>HA</td>
</tr>
</tbody>
</table>

## Notes

1. 150, 300, class flanges.
2. Viton diaphragm in Types 302 and 303 limited to 2"~ 150 class flange.
3. Temp. Limits: –40/400°F
5. Use on applications where NACE standard MR-01-75 2003 is specified.
7. Type 302 only
8. Type 302 only – Temp. Limits: –40/300°F
9. Only available in 1", 1\%", & 2" 150 class, Type 302
11. Maximum Pressure/Temp. 200 psi and 180°F
12. Type 300: $\frac{1}{4}$ or $\frac{1}{2}$ NPT only. Larger sizes offered with solvent weld joint. N/A in 301 or 303 design

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BULLETIN DS-300

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Type 300 Clamped Diaphragm Seal

**Dimensions**

**Type 300 – Threaded**

\[
\begin{array}{cccc}
A & \text{mm} & B & \text{mm} & C & \text{mm} \\
3\frac{3}{4} (95) & 2\frac{1}{2} (73) & 1\frac{11}{16} (46) \\
\end{array}
\]

**Type 301 – Threaded**

\[
\begin{array}{cccc}
A & \text{mm} & B & \text{mm} & C & \text{mm} \\
3\frac{3}{4} (95) & 2\frac{1}{2} (73) & 1\frac{11}{16} (46) \\
\end{array}
\]

**Type 302 – Flanged**

\[
\begin{array}{cccc}
A & \text{mm} & B & \text{mm} & C & \text{mm} \\
3\frac{3}{4} (95) & 2\frac{1}{2} (73) & 1\frac{11}{16} (46) \\
\end{array}
\]

**Type 302 – Flanged 1” (raised face only)**

\[
\begin{array}{cccc}
A & \text{mm} & B & \text{mm} & C & \text{mm} \\
3\frac{3}{4} (95) & 2\frac{1}{2} (73) & 1\frac{11}{16} (46) \\
\end{array}
\]

**Type 302 – Flanged 1” (raised face only)**

\[
\begin{array}{cccc}
A & \text{mm} & B & \text{mm} & C & \text{mm} \\
3\frac{3}{4} (95) & 2\frac{1}{2} (73) & 1\frac{11}{16} (46) \\
\end{array}
\]

**Type 303 – Flanged**

\[
\begin{array}{cccc}
A & \text{mm} & B & \text{mm} & C & \text{mm} \\
3\frac{3}{4} (95) & 2\frac{1}{2} (73) & 1\frac{11}{16} (46) \\
\end{array}
\]

**Type 303 – Flanged**

\[
\begin{array}{cccc}
A & \text{mm} & B & \text{mm} & C & \text{mm} \\
3\frac{3}{4} (95) & 2\frac{1}{2} (73) & 1\frac{11}{16} (46) \\
\end{array}
\]
Type 300 Clamped Diaphragm Seal

**DIMENSIONS**

**Type 303 – Flanged**

1½”, 2”, 3” (raised face only)

One piece bottom housing with flushing connection

<table>
<thead>
<tr>
<th>Flange Size</th>
<th>Flange Rating #</th>
<th>A (in mm)</th>
<th>B (in mm)</th>
<th>C (in mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½” 150</td>
<td>1/2 NPT</td>
<td>5 (127)</td>
<td>3 (76)</td>
<td>2⅛ (52)</td>
</tr>
<tr>
<td>1½” 300 or 600</td>
<td>6⅛ (159)</td>
<td>3 (76)</td>
<td>2⅛ (52)</td>
<td></td>
</tr>
<tr>
<td>1½” 900 or 1500</td>
<td>7 (178)</td>
<td>3 (76)</td>
<td>2⅛ (52)</td>
<td></td>
</tr>
<tr>
<td>2” 150</td>
<td>6 (152)</td>
<td>3⅕/16 (84)</td>
<td>2¼ (60)</td>
<td></td>
</tr>
<tr>
<td>2” 300 or 600</td>
<td>6⅛ (166)</td>
<td>3⅕/16 (84)</td>
<td>2¼ (60)</td>
<td></td>
</tr>
<tr>
<td>2” 900 or 1500</td>
<td>8⅛ (215)</td>
<td>3⅕/16 (84)</td>
<td>2¼ (60)</td>
<td></td>
</tr>
<tr>
<td>3” 150</td>
<td>7⅝ (191)</td>
<td>3⅛ (79)</td>
<td>2⅛ (56)</td>
<td></td>
</tr>
<tr>
<td>3” 300 or 600</td>
<td>8⅛ (210)</td>
<td>3⅛ (79)</td>
<td>2⅛ (56)</td>
<td></td>
</tr>
<tr>
<td>3” 900</td>
<td>9⅜ (241)</td>
<td>3⅛ (79)</td>
<td>2⅛ (56)</td>
<td></td>
</tr>
<tr>
<td>3” 1500</td>
<td>10⅜ (267)</td>
<td>3⅛ (79)</td>
<td>2⅛ (56)</td>
<td></td>
</tr>
</tbody>
</table>

**Type 304 – In-Line Threaded**

¼, ½, ⅜, 1 NPT

<table>
<thead>
<tr>
<th>Process Connection</th>
<th>A (in mm)</th>
<th>B (in mm)</th>
<th>C (in mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼ NPT</td>
<td>2¼ (67)</td>
<td>2¼ (67)</td>
<td>2¼ (67)</td>
</tr>
<tr>
<td>½ NPT</td>
<td>3¼ (81)</td>
<td>3¼ (81)</td>
<td>3¼ (81)</td>
</tr>
<tr>
<td>⅜ NPT</td>
<td>3¼ (81)</td>
<td>3¼ (81)</td>
<td>3¼ (81)</td>
</tr>
<tr>
<td>1 NPT</td>
<td>3¼ (81)</td>
<td>3¼ (81)</td>
<td>3¼ (81)</td>
</tr>
</tbody>
</table>

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