

## “continuous duty” diaphragm seal, welded, with flanged connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. “Continuous duty” version as per ASME B40.2 : in case of accidental removal of the instrument or of liquid filling leak the diaphragm will place on the upper cup preventing any damage and any process liquid leak. Thanks to an exclusive calibration system the pressure gauge should stand an overpressure of 210 bar without the help of any pressure control switch. Process side are ASME/EN 1092 flanged to suit application in chemical, petrochemical, water treatment and paper industries.

### 4.700 - MGS9/7

**Pressure gauge ranges:** from -30...0 INHG to 0...2320 psi (from -1...0 to 0...160 bar) <sup>(1)</sup>.

**Filling liquid:** silicon oil (see “Options” table).

**Process fluid max temperature:** as per filling liquid (see “Options” table).

**Accuracy:** (add to instrument accuracy)  $\pm 0,5\%$  for direct mounting;  $\pm 1\%$  for capillary mounting <sup>(2)</sup>.

**Instrument connection:** AISI 304 st.st.

**Membrana saldada in:** AISI 316L st.st. (code **4**), Monel 400 (code **6**), Hastelloy C276 (code **9**), Tantalum (code **B**), Alloy 600 (code **J**), Alloy 825 (code **I**), 25.22.2 (code **U**).

**Gasket:** PTFE (max. +482°F; +250°C);

**Flanged process connection:** AISI 316L st.st (cod. **4**), AISI 316L st.st (cod. **5**), Monel 400 (cod. **6**), Hastelloy C276 (cod. **9**), Hastelloy B2 (cod. **1**); other materials available on request.

**Dimensions** <sup>(3)</sup>: DN 15...50, PN 10...160 EN 1092-1 type B; 1/2"...2" class 150...1500 RF as per ASME B16.5.

**Finishing:** EN B1 type: Ra 3,2...12,5 ASME RF type: Ra 125...250 AARH (code **RF3**).

**Bolts:** AISI304 st.st., for flange PN  $\leq 100$  or class  $\leq 600$ ; high resistance steel for flange PN  $> 100$  or class  $> 600$ .

(1) Working pressure must be less or equal to the flange rating

(2) at 68°F (20 °C) process temperature (or state temperature when ordering)

(3) other dimensions and finishing are available on request

## ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet “4”)

|                                                          |                                                                                     |
|----------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>D</b> - Direct                                        | <b>9</b> - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| <b>1</b> - Nude capillary AISI304, 36.37" max (6 mt max) | <b>6</b> - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

## FILLING FLUIDS and process fluid temperature

| Fluid                      | Vacuum                      | Pressure                    | Fluid                             | Vacuum                      | Pressure                     |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil       | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | <b>E</b> - Fluorinated liquid “E” | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C)  |
| <b>B</b> - Silicon oil “B” | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | <b>F</b> - Silicon oil “C”        | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| <b>C</b> - Silicon oil “C” | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | <b>G</b> - Mineral food oil “G”   | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C)  |
| <b>D</b> - Silicon oil “D” | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) |                                   |                             |                              |

## OPTIONS

|                                                                             |                                                                                              |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| <b>C05</b> - Helium Test                                                    | <b>S40</b> - Special calibration for pressure gauges overpressure <sup>(3) (4) (5)</sup>     |
| <b>E30</b> - Nace version MR0103/MR0175 (ISO 15156) <sup>(2)</sup>          | <b>MPP</b> - PTFE diaphragm protection, for temperature up to 302 °F (150 °C) <sup>(3)</sup> |
| <b>TS5</b> - AISI316L stainless steel washing plug, 1/4" NPT <sup>(1)</sup> | <b>P15</b> - ASTM A193/B7 - A194/2H studs, nuts and washers                                  |
| <b>P04</b> - Dye penetrant test                                             |                                                                                              |

(1) on models with AISI316L process connection only

(2) Stainless steel process connection and Monel 400 or Hastelloy C276 diaphragm

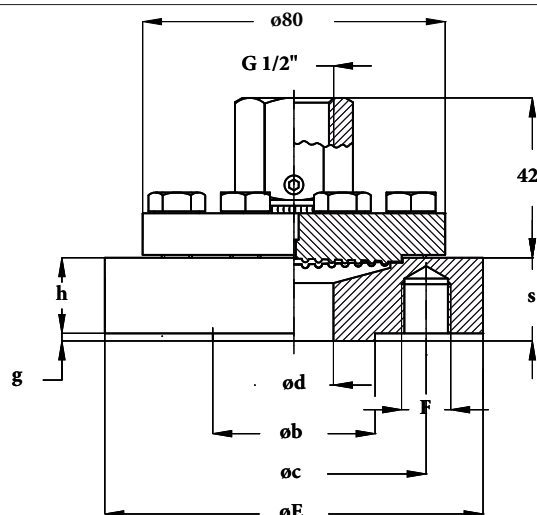
(3) Except for vacuum and compound gauges

(4) Overpressure equal to flange rating, max 3000 psi (210 bar)

(5) To be ordered with silicon oil “B” only

# "continuous duty" diaphragm seal welded, with flanged connection

# MGS9/7



## EN 1092-1:2007 STANDARD

dimensions : mm

| DN | PN-bar      | Code       | h  | E   | b   | d  | g | c   | s  | N (1) | F   |
|----|-------------|------------|----|-----|-----|----|---|-----|----|-------|-----|
| 15 | 10-16-25-40 | <b>OS0</b> | 20 | 95  | 45  | 15 | 2 | 65  | 22 | 4     | M12 |
| 15 | 63...160    | <b>OZ0</b> | 18 | 105 | 45  | 15 | 2 | 75  | 20 | 4     | M12 |
| 20 | 10-16-25-40 | <b>PS0</b> | 16 | 105 | 58  | 20 | 2 | 75  | 18 | 4     | M12 |
| 20 | 63...100    | <b>PU0</b> | 20 | 130 | 58  | 20 | 2 | 90  | 22 | 4     | M16 |
| 25 | 10-16-25-40 | <b>QS0</b> | 16 | 115 | 68  | 25 | 2 | 85  | 18 | 4     | M12 |
| 25 | 63...160    | <b>QZ0</b> | 22 | 140 | 68  | 25 | 2 | 100 | 24 | 4     | M16 |
| 40 | 10-16-25-40 | <b>SS0</b> | 18 | 150 | 88  | 40 | 3 | 110 | 21 | 4     | M16 |
| 40 | 63...100    | <b>SU0</b> | 23 | 170 | 88  | 40 | 3 | 125 | 26 | 4     | ø22 |
| 40 | 160         | <b>SZ0</b> | 25 | 170 | 88  | 40 | 3 | 125 | 28 | 4     | ø22 |
| 50 | 10-16-25-40 | <b>TS0</b> | 17 | 165 | 102 | 50 | 3 | 125 | 20 | 4     | ø18 |
| 50 | 63          | <b>TT0</b> | 23 | 180 | 102 | 50 | 3 | 135 | 26 | 4     | ø22 |
| 50 | 100         | <b>TU0</b> | 25 | 195 | 102 | 50 | 3 | 145 | 28 | 4     | ø26 |
| 50 | 160         | <b>TZ0</b> | 27 | 195 | 102 | 50 | 3 | 145 | 30 | 4     | ø26 |

1) N° threaded or free holes

## ASME B16-5:2003 STANDARD

dimensions : inches

| DN     | Classe (2) | Code       | h     | E     | b     | d     | g     | c     | s     | N <sup>(1)</sup> | F          |
|--------|------------|------------|-------|-------|-------|-------|-------|-------|-------|------------------|------------|
| 1/2"   | 150        | <b>4AA</b> | 0.87" | 3.54" | 1.37" | 0.59" | 0.08" | 2.37" | 0.94" | 4                | 1/2"-13UNC |
| 1/2"   | 300        | <b>4BA</b> | 0.81" | 3.74" | 1.37" | 0.59" | 0.08" | 2.63" | 0.89" | 4                | 1/2"-13UNC |
| 1/2"   | 600        | <b>4DA</b> | 0.81" | 3.74" | 1.37" | 0.59" | 0.28" | 2.63" | 1.08" | 4                | 1/2"-13UNC |
| 1/2"   | 900...1500 | <b>4FA</b> | 0.89" | 4.72" | 1.61" | 0.59" | 0.28" | 3.25" | 1.16" | 4                | 3/4"-10UNC |
| 3/4"   | 150        | <b>5AA</b> | 0.79" | 3.94" | 1.69" | 0.79" | 0.08" | 2.75" | 0.87" | 4                | 1/2"-13UNC |
| 3/4"   | 300        | <b>5BA</b> | 0.71" | 4.53" | 1.69" | 0.79" | 0.08" | 3.25" | 0.79" | 4                | 5/8"-11UNC |
| 3/4"   | 600        | <b>5DA</b> | 0.71" | 4.53" | 1.69" | 0.79" | 0.28" | 3.25" | 0.98" | 4                | 5/8"-11UNC |
| 3/4"   | 900...1500 | <b>5FA</b> | 1"    | 5.12" | 1.69" | 0.79" | 0.28" | 3.5"  | 1.30" | 4                | 3/4"-10UNC |
| 1"     | 150        | <b>6AA</b> | 0.63" | 4.33" | 2"    | 0.98" | 0.08" | 3.13" | 0.71" | 4                | 1/2"-13UNC |
| 1"     | 300        | <b>6BA</b> | 0.71" | 4.92" | 2"    | 0.98" | 0.08" | 3.5"  | 0.79" | 4                | 5/8"-11UNC |
| 1"     | 600        | <b>6DA</b> | 0.71" | 4.92" | 2"    | 0.98" | 0.28" | 3.5"  | 0.98" | 4                | 5/8"-11UNC |
| 1"     | 900...1500 | <b>6FA</b> | 1.14" | 5.9"  | 2"    | 0.98" | 0.28" | 4"    | 1.42" | 4                | 7/8"-9UNC  |
| 1 1/2" | 150        | <b>AAA</b> | 0.63" | 4.92" | 2.87" | 1.57" | 0.08" | 3.87" | 0.71" | 4                | 1/2"-13UNC |
| 1 1/2" | 300        | <b>ABA</b> | 0.81" | 6.1"  | 2.87" | 1.57" | 0.08" | 4.5"  | 0.89" | 4                | 3/4"-10UNC |
| 1 1/2" | 600        | <b>ADA</b> | 0.89" | 6.1"  | 2.87" | 1.57" | 0.28" | 4.5"  | 1.16" | 4                | 3/4"-10UNC |
| 1 1/2" | 900...1500 | <b>AFA</b> | 1.26" | 7.09" | 2.87" | 1.57" | 0.28" | 4.87" | 1.56" | 4                | 1"-8UNC    |
| 2"     | 150        | <b>BAA</b> | 0.69" | 5.9"  | 3.63" | 1.97" | 0.08" | 4.75" | 0.77" | 4                | ø 19       |
| 2"     | 300        | <b>BBA</b> | 0.83" | 6.5"  | 3.63" | 1.97" | 0.08" | 5"    | 0.91" | 8                | ø 19       |
| 2"     | 600        | <b>BDA</b> | 1"    | 6.5"  | 3.63" | 1.97" | 0.28" | 5"    | 1.28" | 8                | ø 19       |
| 2"     | 900...1500 | <b>BFA</b> | 1.52" | 8.46" | 3.63" | 1.97" | 0.28" | 6.51" | 1.79" | 8                | ø 26       |

1) N° threaded or free holes

2) class 150 : PN 20 bar; class 300 : PN 50 bar; class 600 : PN 100 bar; class 900...1500 : PN 150...250 bar

## "HOW TO ORDER" SEQUENCE

| Section | Model | Connection material | Diaphragm connection    | Process                | Flange finishing | Instrument connection | Assembling   | Options            |
|---------|-------|---------------------|-------------------------|------------------------|------------------|-----------------------|--------------|--------------------|
| 4       | 700   | 4, 5, 6<br>9, 1     | 4, 6, 9<br>B, J, I<br>U | OS0...TZ0<br>4AA...BFA | RF3...RF7        | 41F                   | D<br>1, 9, 6 | B...G<br>C05...P15 |

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