NEW MODELS EXTEND MAXIMUM TEMPERATURE RANGE
High Temperature Options

DADCO offers a selection of Micro Nitrogen Gas Springs with high temperature components for applications where temperatures will exceed standard operating temperature. The H1 model is well suited for applications up to 230°F (110°C) while the H2 model allows for applications up to 392°F (200°C). Other gas springs may be ordered as H1 or H2; contact DADCO for assistance assessing your specific application requirements.

**Standard Model Micro (C.090 / C.180):**
- Max Operating Temperature: 160°F (71°C)
- Max Charging Pressure: 2560 psi (177 bar)
- Standard Product, stocked for fast delivery
- Full range of stroke lengths
- Backed by Gold Guarantee
- Should not operate above normal operating temperature of 160°F (71°C)

**H1 Option (C.H1.090 / C.H1.180):**
- Max Operating Temperature: 230°F (110°C)
- Max Charging Pressure: 1966 psi (136 bar)
- Best option between 160°F–230°F (71°C–110°C)
- May operate at normal operating temperature without sacrificing performance

**H2 Option (C.H2.090 / C.H2.180):**
- Max Operating Temperature: 392°F (200°C)
- Max Charging Pressure: 1592 psi (110 bar)
- Best option between 230°F–392°F (110°C–200°C)
- Highest operating temperature available
- Only recommended for applications above 230°F (110°C)

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### Model Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>( \varnothing d ) mm</th>
<th>( \varnothing B ) mm</th>
<th>( \varnothing D ) mm</th>
<th>G mm</th>
<th>Rod Area ( \text{cm}^2 )/( \text{in}^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. H1.090</td>
<td>8</td>
<td>17</td>
<td>19</td>
<td>.02</td>
<td>.50</td>
</tr>
<tr>
<td>C. H1.180</td>
<td>12</td>
<td>23</td>
<td>25</td>
<td>.02</td>
<td>1.13</td>
</tr>
<tr>
<td>C. H2.090</td>
<td>12</td>
<td>23</td>
<td>25</td>
<td>.02</td>
<td>1.13</td>
</tr>
<tr>
<td>C. H2.180</td>
<td>12</td>
<td>23</td>
<td>25</td>
<td>.02</td>
<td>1.13</td>
</tr>
</tbody>
</table>

### Part Numbers

**Ordering Example:**

**Gas Spring Series**

High Temperature Option:
- H1 or H2

**Model:**
- 090 or 180

**Stroke Length**

**Charging Pressure:**
- BK - Black Adjustable Model specify pressure. Refer to page 3.
  - H1 Range: 500-1966 psi (35-136 bar), H1 Default is 1500 psi (103 bar);
  - H2 Range: 800-1592 psi (55-110 bar), H2 Default is 1200 psi (83 bar)

**Mount Option:**
- Refer to page 4. Leave blank for no mount attached.

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Note: Overall performance of high temperature products compared to standard product will vary depending on application.
Charging pressure for DADCO’s H1/H2 High Temperature Nitrogen Gas Springs must be reduced from the normal charging pressure range due to increased operating temperature. The initial pressure in the gas spring will increase to a higher pressure at the increased operating temperature; therefore the same on-contact force will be achieved with a lower charging pressure. Refer to the charts below for the maximum, minimum and recommended charging pressure to find the resultant force on-contact. Refer to page 4 for additional charging pressure calculations and examples.
**Charging Pressure Calculation**

For those instances where the recommended or maximum charging pressures are not suitable for your application, you can use the information below to determine the required charging pressure and resultant force for your application.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Imperial</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_1$ = Charging Pressure at Room Temperature (bar)</td>
<td>$P_1$ = Charging Pressure at Room Temperature (psi)</td>
</tr>
<tr>
<td>$F_1$ = On-Contact Force at Room Temperature (daN)</td>
<td>$F_1$ = On-Contact Force at Room Temperature (lb-f)</td>
</tr>
<tr>
<td>$F_2$ = On-Contact Force at Operating Temperature (daN)</td>
<td>$F_2$ = On-Contact Force at Operating Temperature (lb-f)</td>
</tr>
<tr>
<td>$A$ = Rod Area of Nitrogen Gas Spring (cm$^2$)</td>
<td>$A$ = Rod Area of Nitrogen Gas Spring (in$^2$)</td>
</tr>
<tr>
<td>$T$ = Operating Temperature (°C)</td>
<td>$T$ = Operating Temperature (°F)</td>
</tr>
</tbody>
</table>

#### Charging Pressure:

Metric: $P_1 = \left(\frac{F_2 \div A}{295 \div (T + 273)}\right)$

Imperial: $P_1 = \left(\frac{F_2 \div A}{530 \div (T + 460)}\right)$

#### On-Contact Force at Room Temperature:

Metric: $F_1 = \frac{P_1 \times A}{1}$

Imperial: $F_1 = P_1 \times A$

### Application Examples

**H1 Option:**

C.H1.090.050 requires 190 lb-f on-contact force and will be installed in an operation that has an operating temperature of 230° F.

Using the equation given, the C.H1.090.050 will need to be ordered with a charging pressure of **1871 psi**.

Order Code: C.H1.090.050.BK.1871

**H2 Option:**

C.H2.180.050 requires 350 lb-f on-contact force and will be installed in an operation that has an operating temperature of 390° F.

Using the equation given, the C.H2.180.050 will need to be ordered with a charging pressure of **1248 psi**.

Order Code: C.H2.180.050.BK.1248

### Mount Options

- **RM**
- **DADCO-LOK**
- **FA or VFA**
- **RF**
- **TB2**

*Refer to the Micro Series Catalog for more information on individual gas spring models and mounts.*