

# DADCO®

Extreme Condition Solutions

High Temperature Options



## NEW MODELS EXTEND MAXIMUM TEMPERATURE RANGE

**PED**  
2014/68/EU  
COMPLIANT

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):

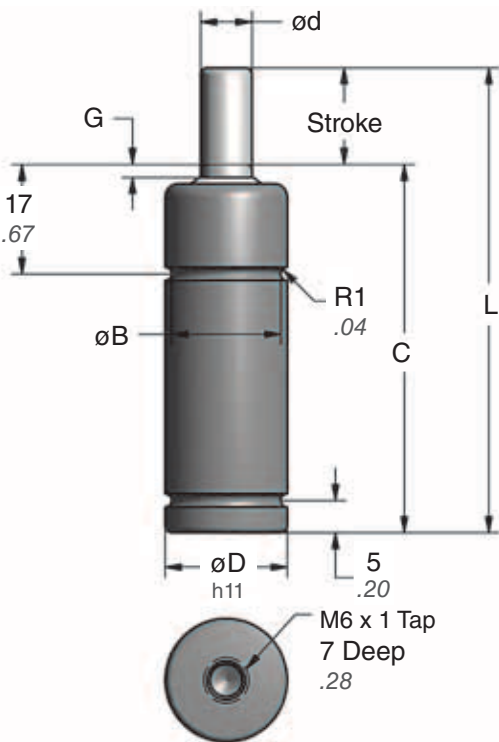
- Max Operating Temperature: 230°F (110°C)
- Max Charging Pressure: 1966 psi (136 bar)
- Best option between 160°F–230°F (71°C–110°C)
- May operate at normal operating temperature without sacrificing performance



### 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)



Model	ød mm inch	øB	øD	G	A Rod Area cm <sup>2</sup> in <sup>2</sup>
C. <b>H1</b> .090	8	.17	.19	.02	.50
C. <b>H2</b> .090	.31	.67	.748	.08	0.078
C. <b>H1</b> .180	12	.23	.25	.02	1.13
C. <b>H2</b> .180	.47	.91	.984	.08	0.175

Part Numbers		Stroke* mm inch	C	L ±0.4 ±0.015
C. __.090.015	C. __.180.015	15 .59	57 2.24	72 2.835
C. __.090.025	C. __.180.025	25 .98	67 2.64	92 3.622
C. __.090.038	C. __.180.038	38 1.50	80 3.15	118 4.646
C. __.090.050	C. __.180.050	50 1.97	92 3.62	142 5.591
C. __.090.080	C. __.180.080	80 3.15	125 4.92	205 8.071

\*Extended stroke lengths available, contact DADCO.

Note: Overall performance of high temperature products compared to standard product will vary depending on application.

### Ordering Example:

**C. H1. 090. 025. RM. BK.1500**

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)

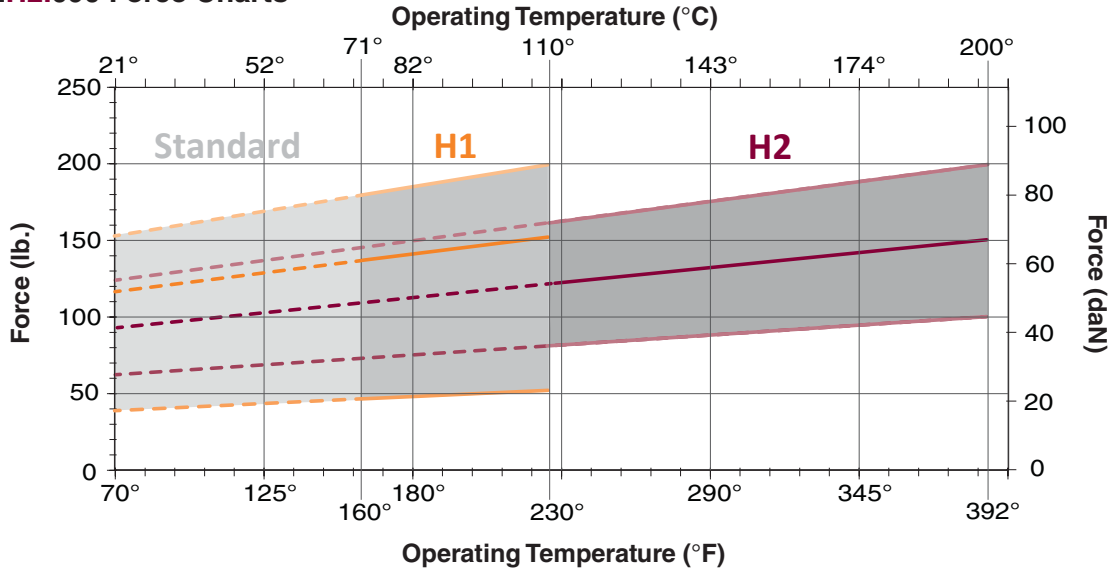
Mount Option:

Refer to page 4. Leave blank for no mount attached.

# High Temperature Options

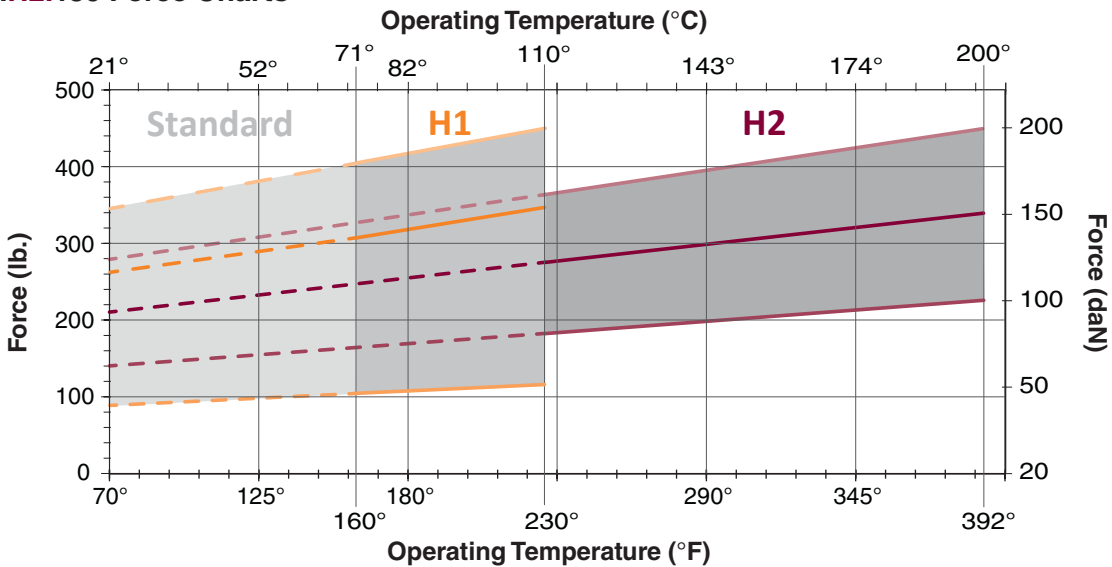
Charging pressure for DADCO's H1/H2 High Temperature Nitrogen Gas Springs must be reduced from the normal charging pressure range due to increased operating temperature. The initial pressure in the gas spring will increase to a higher pressure at the increased operating temperature; therefore the same 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.

**C.H1.090 / C.H2.090 Force Charts**



C.H1.090	Charging Pressure (psi)	Temperature (°F)			Charging Pressure (bar)	Temperature (°C)			C.H2.090	Charging Pressure (psi)	Temperature (°F)			Charging Pressure (bar)	Temperature (°C)		
		70°	160°	230°		21°	71°	110°			70°	230°	392°		21°	110°	200°
		Force On-Contact (lb.)				Force On-Contact (daN)					Force On-Contact (lb.)				Force On-Contact (daN)		
	500	39	46	51	35	17	20	23		800	62	81	100	55	28	36	45
	1500	117	137	152	103	52	61	68		1200	93	122	150	83	42	54	67
	1966	153	179	199	136	68	80	89		1592	124	162	199	110	55	72	89

**C.H1.180 / C.H2.180 Force Charts**



C.H1.180	Charging Pressure (psi)	Temperature (°F)			Charging Pressure (bar)	Temperature (°C)			C.H2.180	Charging Pressure (psi)	Temperature (°F)			Charging Pressure (bar)	Temperature (°C)		
		70°	160°	230°		21°	71°	110°			70°	230°	392°		21°	110°	200°
		Force On-Contact (lb.)				Force On-Contact (daN)					Force On-Contact (lb.)				Force On-Contact (daN)		
	500	88	103	114	35	39	46	51		800	140	183	225	55	62	81	100
	1500	263	308	342	103	117	137	152		1200	210	274	338	83	94	122	150
	1966	345	403	449	136	153	180	200		1592	279	363	449	110	124	162	200

## 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.

<b>Imperial</b>		<b>Metric</b>	
<b>P1</b> = Charging Pressure at Room Temperature (psi)		<b>P1</b> = Charging Pressure at Room Temperature (bar)	
<b>F1</b> = On-Contact Force at Room Temperature (lb-f)		<b>F1</b> = On-Contact Force at Room Temperature (daN)	
<b>F2</b> = On-Contact Force at Operating Temperature (lb-f)		<b>F2</b> = On-Contact Force at Operating Temperature (daN)	
<b>A</b> = Rod Area of Nitrogen Gas Spring (in <sup>2</sup> ) (see page 2)		<b>A</b> = Rod Area of Nitrogen Gas Spring (cm <sup>2</sup> ) (see page 2)	
<b>T</b> = Operating Temperature (°F)		<b>T</b> = Operating Temperature (°C)	
Charging Pressure:	$P1 = (F2 \div A) \times [530 \div (T + 460)]$ $P1 = F1 \div A$	Charging Pressure:	$P1 = (F2 \div A) \times [295 \div (T + 273)]$ $P1 = F1 \div A$
On-Contact Force at Room Temperature:	$F1 = P1 \times A$	On-Contact Force at Room Temperature:	$F1 = P1 \times A$

## 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**.

$$P1 = (F2 \div A) \times [530 \div (T + 460)]$$

$$P1 = (190 \div .078) \times [530 \div (230 + 460)]$$

$$P1 = 1871 \text{ psi}$$

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**.

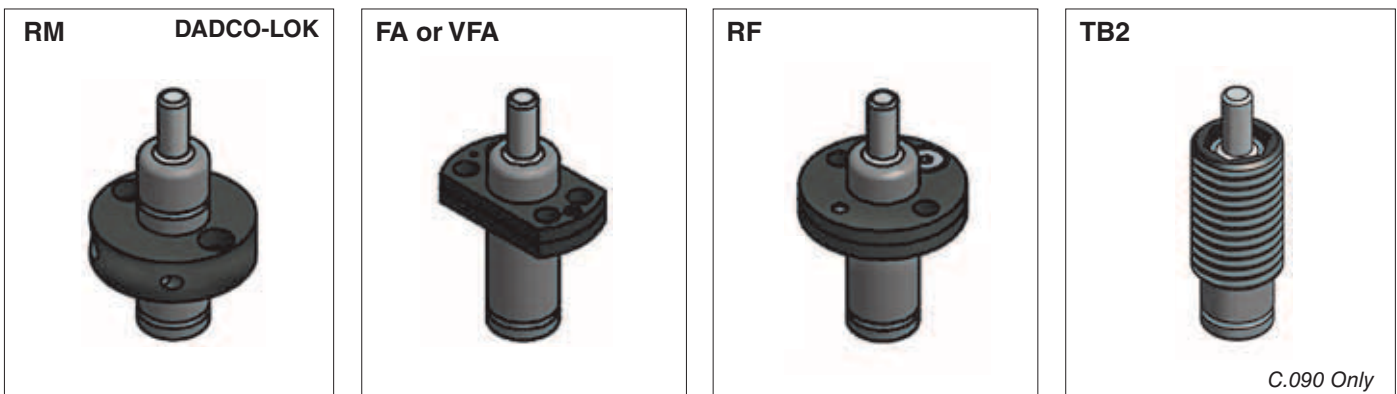
$$P1 = (F2 \div A) \times [530 \div (T + 460)]$$

$$P1 = (350 \div .175) \times [530 \div (390 + 460)]$$

$$P1 = 1248 \text{ psi}$$

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

## Mount Options



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

# DADCO®

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The global leader in nitrogen gas spring technology