

DANLY DIE SET



DANLY NITROGEN GAS SPRINGS

Product Applications

The Danly family of nitrogen gas springs can be used confidently in a wide range of applications previously considered marginal or unsuitable.

With our stainless steel rod construction and new seal technology, these gas springs can be used in more severe and corrosive operating environments than ever before. Improved scraper functionality minimizes the damaging impact of die fluids and contaminants. Extended service life and less machine down-time for gas spring replacement can be expected with the use of this unique family of nitrogen gas springs.

Product and Service Philosophy

Danly is committed to provide outstanding products, technical support and service to its customers at competitive prices. Our goal is to increase our customers' competitiveness and to establish long term relationships based upon performance that exceeds expectations. An important reflection of that philosophy is our commitment to maintaining product availability from stock at several nationwide locations. This helps assure our customers of selection and delivery that meets their requirements.

Progress Through Innovation

Danly Die Set's family of nitrogen gas springs is designed to improve manufacturing productivity and operational effectiveness.

Addressing the needs and concerns expressed by customers in many industries, our family of gas springs offers the following:

- **Increased Output**
- **No Preloading Required**
- **Longer Service Life**
- **Interchangeability with Most Competitive Products**
- **Application Flexibility:**
 - Stand Alone, Adjustable Flange Mounted, Top Flange Mounted, Bottom Flange Mounted, Lug Mounted and Side Mounted**
 - Drop-In or Hose System**
- **Lower Maintenance Cost**

This family of nitrogen gas springs is offered in Stand Alone, Adjustable Flange Mounted, Top Flange Mounted, Bottom Flange Mounted, Lug Mounted and Side Mounted configurations. These optional configurations utilize the same gas spring and design components and provide greater flexibility for mounting and use. Depending upon the particular gas spring model, stroke travel ranges of 1/2 inch to 6 inches are offered.

All Danly nitrogen gas springs, with the exception of the 250 & 300 Series, offer the capability of operating in either a stand alone or hosed environment. The nitrogen gas springs can be easily converted from one system to the other. See pages 39-41 for further details.

Product Innovation

The Danly family of nitrogen gas springs incorporates industry leading product innovations and product quality improvements. These product features include stainless steel rod construction, leading edge seal technology, rust inhibiting coating, fewer component parts and improved scraper functionality.

Stainless steel rod construction and rust inhibiting coatings avoid pitting and chrome flaking in severe applications and eliminate rusting. New seal technology increases gas spring service life. Fewer component parts reduce points of potential failure and increase operational reliability. Improved scraper functionality and location allow run-off of die fluids and contaminants and contributes to longer service life.

These gas springs are interchangeable with most competitive products. Application flexibility is enhanced since most gas springs are manufactured with threaded holes to accommodate applications requiring connections for monitoring, controlling or relieving pressure during operations.

Maintenance and renovation of gas springs are simplified through the use of replacement part kits. Repair and renovation services are offered to customers who wish to have such activities handled by Danly.

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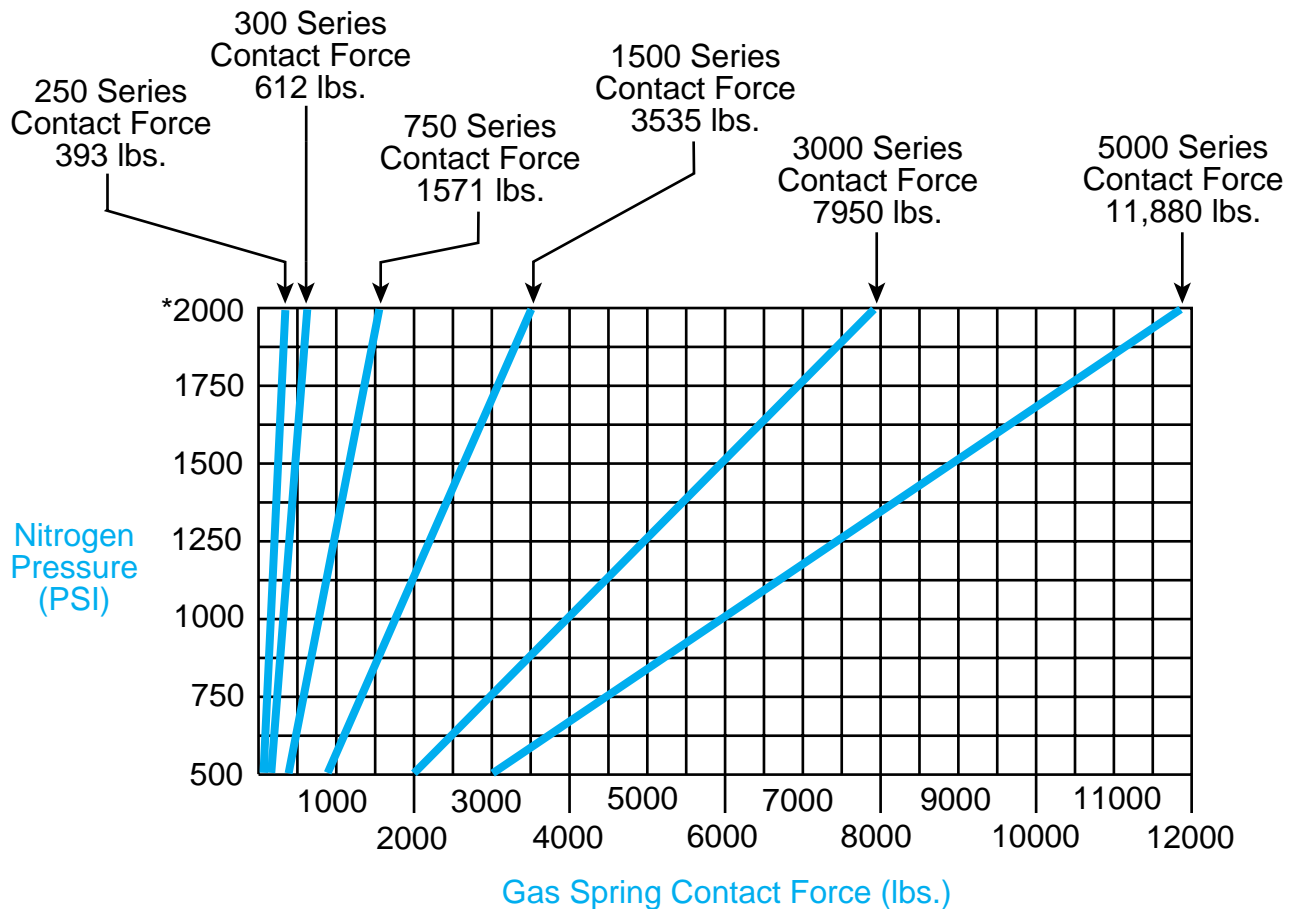
All cylinders are manufactured by NI-Tech, Inc.. Patent No. 5,437,436.

Selecting a Nitrogen Gas Spring

Gas spring selection should be determined by the requirements of the specific application. The type, size and number of gas springs required may be affected by production quantities, space limitations, part form or tool characteristics.

To help in selecting gas springs suitable for your application, the chart shown below reflects the range of contact forces generated by the Danly family of stand alone and flange mounted gas springs at various levels of pressure (PSI).

Contact Force Calculation Chart



*Standard pressure in all Danly stand alone and mounted flange gas springs at the time of shipment is 2000 PSI. The force generated at "full stroke" will increase approximately 25% over the contact force indicated above.

Alternate pressures, not exceeding 2000 PSI, may be specified at the time of ordering.

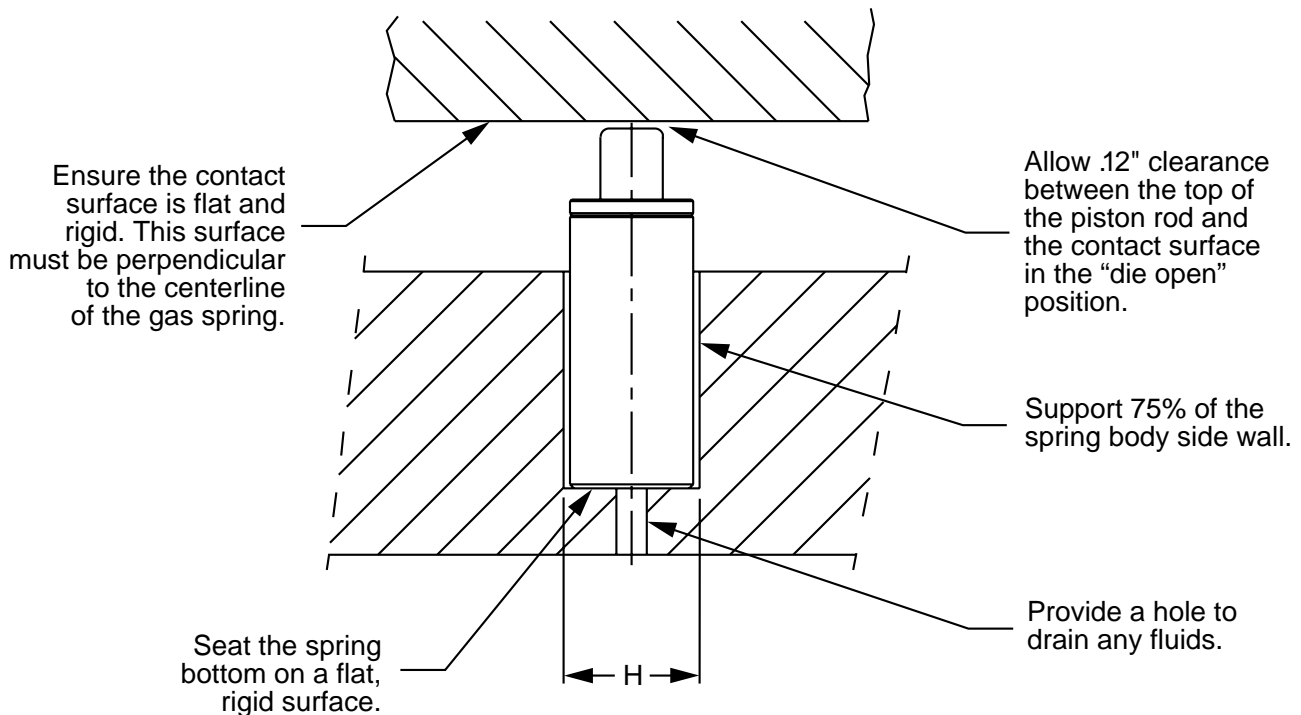
SA Model



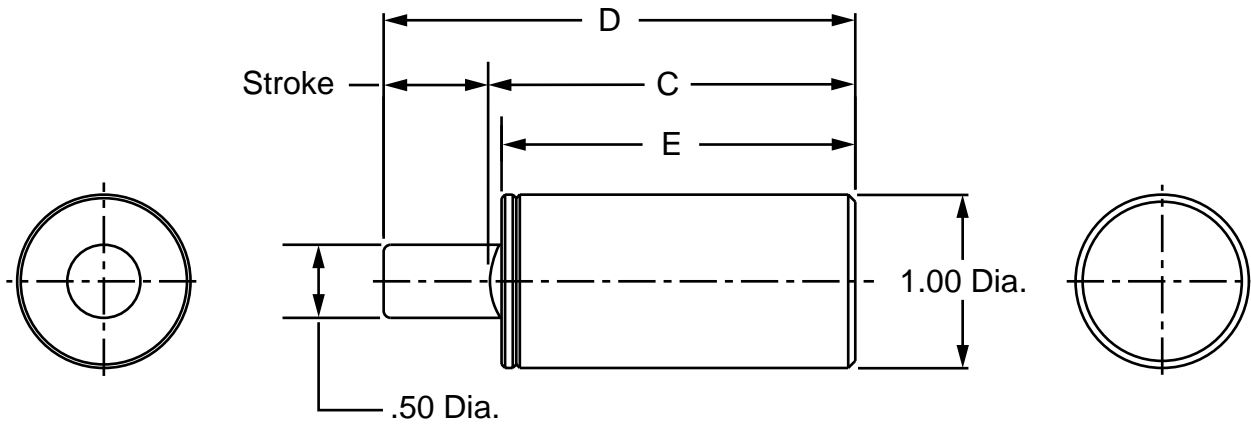
Hole Diameters for SA Gas Springs	
MODEL NUMBER	H
SA250	1.030 \pm .010
SA300	1.500 \pm .010
SA750	2.000 \pm .010
SA1500	3.000 \pm .010
SA3000	3.750 \pm .010
SA5000	4.750 \pm .010

Installation and Use

Danly nitrogen gas springs can be installed with the piston rod in any position. To take full advantage of our product capabilities and experience longer service life, we recommend the following practices be adopted:

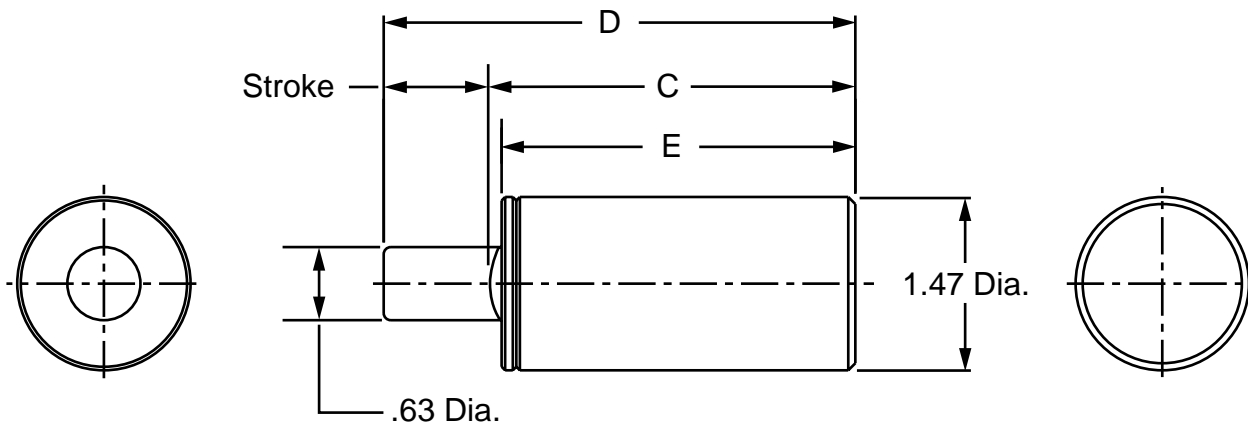


SA250



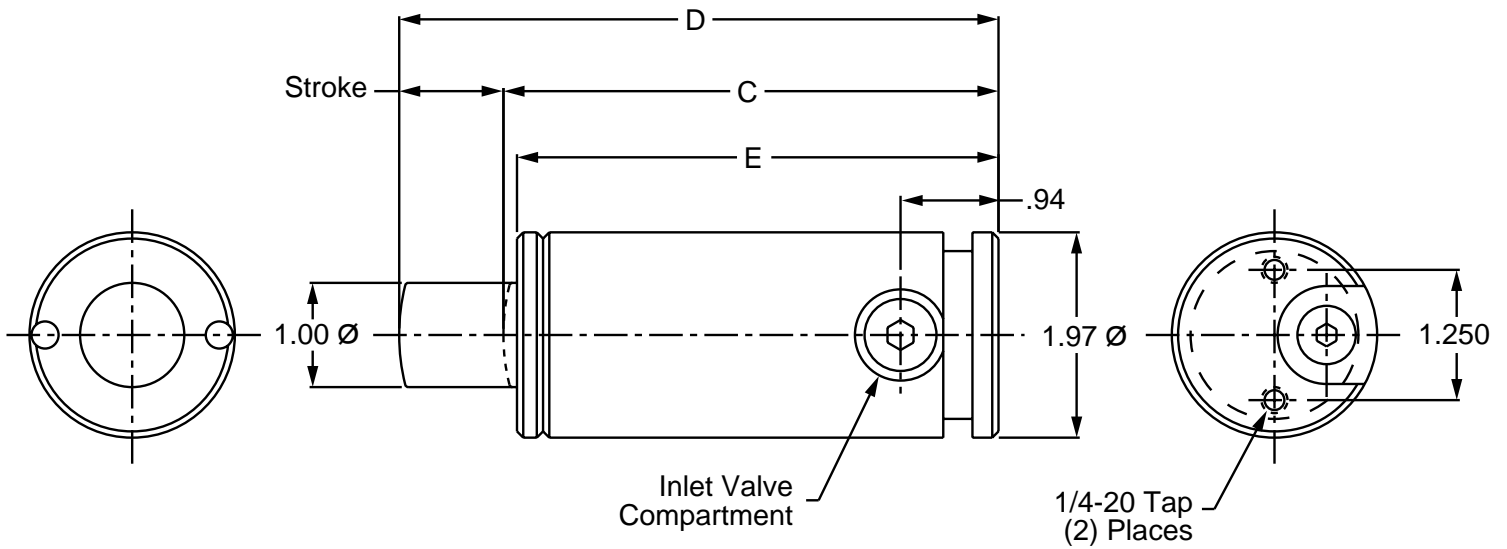
CATALOG NUMBER	STROKE	C	D	E
SA250-0.5	0.5	2.12	2.62	2.09
SA250-1.0	1.0	2.62	3.62	2.59
SA250-1.5	1.5	3.12	4.62	3.09
SA250-2.0	2.0	3.62	5.62	3.59
SA250-2.5	2.5	4.12	6.62	4.09
SA250-3.0	3.0	4.62	7.62	4.59
SA250-3.5	3.5	5.12	8.62	5.09
SA250-4.0	4.0	5.62	9.62	5.59

SA300



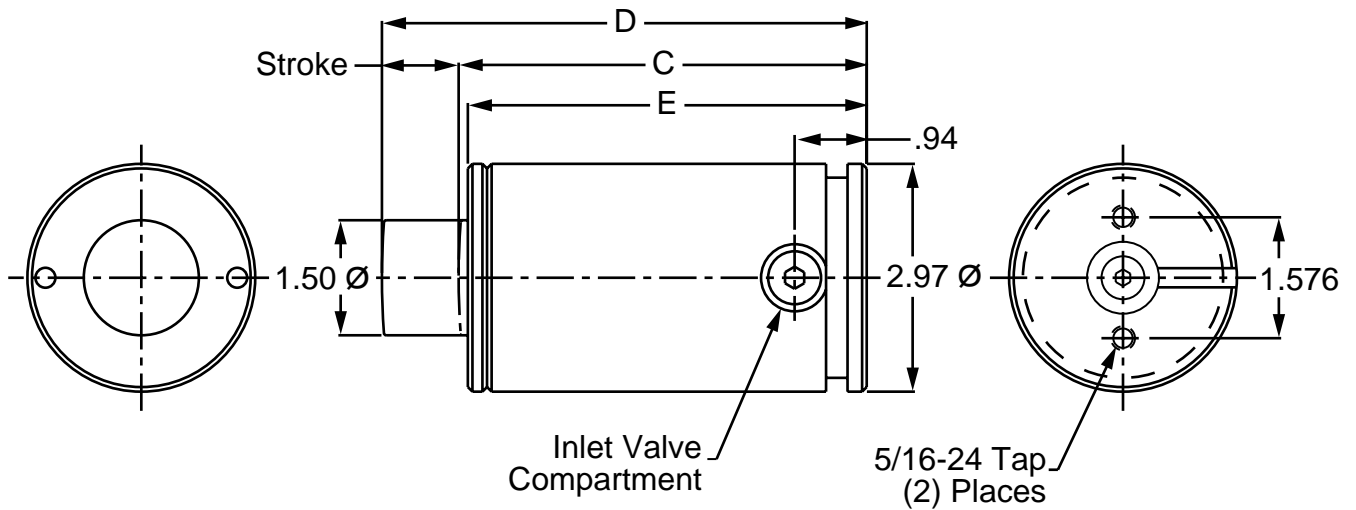
CATALOG NUMBER	STROKE	C	D	E
SA300-0.5	0.5	2.50	3.00	2.47
SA300-1.0	1.0	3.00	4.00	2.97
SA300-1.5	1.5	3.50	5.00	3.47
SA300-2.0	2.0	4.00	6.00	3.97
SA300-2.5	2.5	4.50	7.00	4.47
SA300-3.0	3.0	5.00	8.00	4.97
SA300-3.5	3.5	5.50	9.00	5.47
SA300-4.0	4.0	6.00	10.00	5.97

SA750



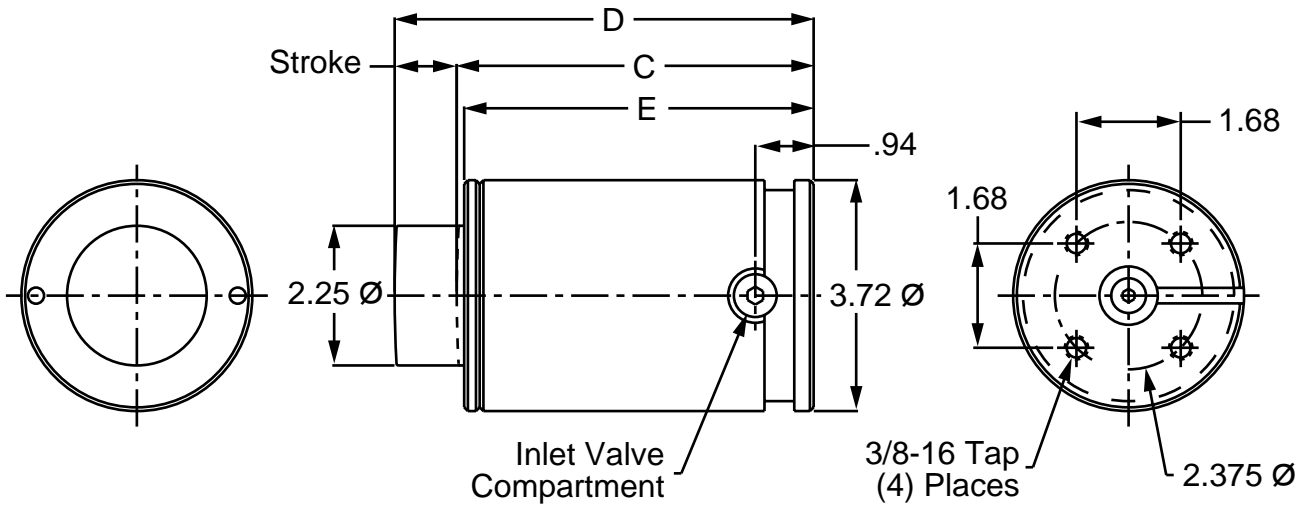
CATALOG NUMBER	STROKE	C	D	E
SA750-0.5	0.5	4.25	4.75	4.12
SA750-1.0	1.0	4.75	5.75	4.62
SA750-1.5	1.5	5.25	6.75	5.12
SA750-2.0	2.0	5.75	7.75	5.62
SA750-2.5	2.5	6.25	8.75	6.12
SA750-3.0	3.0	6.75	9.75	6.62
SA750-3.5	3.5	7.25	10.75	7.12
SA750-4.0	4.0	7.75	11.75	7.62
SA750-4.5	4.5	8.25	12.75	8.12
SA750-5.0	5.0	8.75	13.75	8.62
SA750-5.5	5.5	9.25	14.75	9.12
SA750-6.0	6.0	9.75	15.75	9.62

SA1500



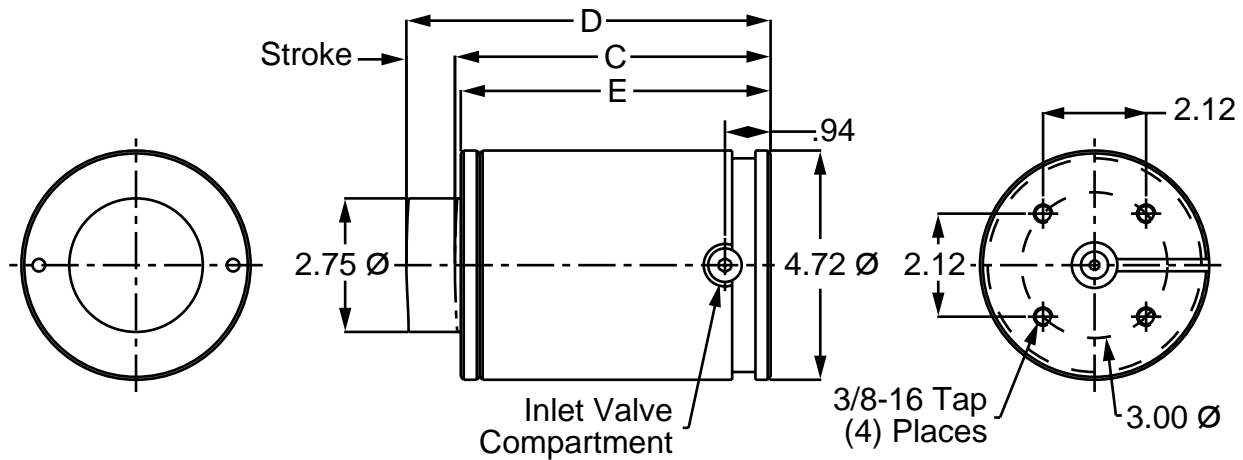
CATALOG NUMBER	STROKE	C	D	E
SA1500-0.5	0.5	4.82	5.32	4.70
SA1500-1.0	1.0	5.32	6.32	5.20
SA1500-1.5	1.5	5.82	7.32	5.70
SA1500-2.0	2.0	6.32	8.32	6.20
SA1500-2.5	2.5	6.82	9.32	6.70
SA1500-3.0	3.0	7.32	10.32	7.20
SA1500-3.5	3.5	7.82	11.32	7.70
SA1500-4.0	4.0	8.32	12.32	8.20
SA1500-4.5	4.5	8.82	13.32	8.70
SA1500-5.0	5.0	9.32	14.32	9.20
SA1500-5.5	5.5	9.82	15.32	9.70
SA1500-6.0	6.0	10.32	16.32	10.20

SA3000



CATALOG NUMBER	STROKE	C	D	E
SA3000-0.5	0.5	5.25	5.75	5.13
SA3000-1.0	1.0	5.75	6.75	5.63
SA3000-1.5	1.5	6.25	7.75	6.13
SA3000-2.0	2.0	6.75	8.75	6.63
SA3000-2.5	2.5	7.25	9.75	7.13
SA3000-3.0	3.0	7.75	10.75	7.63
SA3000-3.5	3.5	8.25	11.75	8.13
SA3000-4.0	4.0	8.75	12.75	8.63
SA3000-4.5	4.5	9.25	13.75	9.13
SA3000-5.0	5.0	9.75	14.75	9.63
SA3000-5.5	5.5	10.25	15.75	10.13
SA3000-6.0	6.0	10.75	16.75	10.63

SA5000



CATALOG NUMBER	STROKE	C	D	E
SA5000-0.5	0.5	6.00	6.50	5.88
SA5000-1.0	1.0	6.50	7.50	6.38
SA5000-1.5	1.5	7.00	8.50	6.88
SA5000-2.0	2.0	7.50	9.50	7.38
SA5000-2.5	2.5	8.00	10.50	7.88
SA5000-3.0	3.0	8.50	11.50	8.38
SA5000-3.5	3.5	9.00	12.50	8.88
SA5000-4.0	4.0	9.50	13.50	9.38
SA5000-4.5	4.5	10.00	14.50	9.88
SA5000-5.0	5.0	10.50	15.50	10.38
SA5000-5.5	5.5	11.00	16.50	10.88
SA5000-6.0	6.0	11.50	17.50	11.38

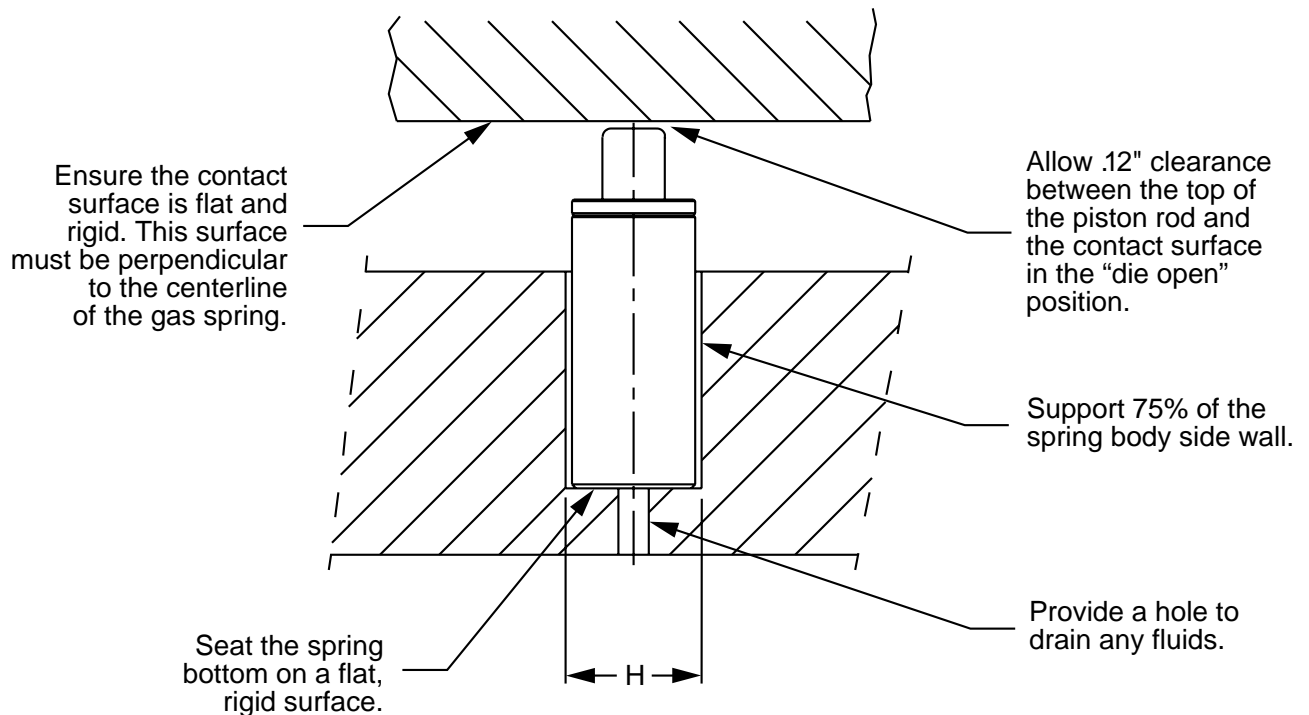
SAS Model



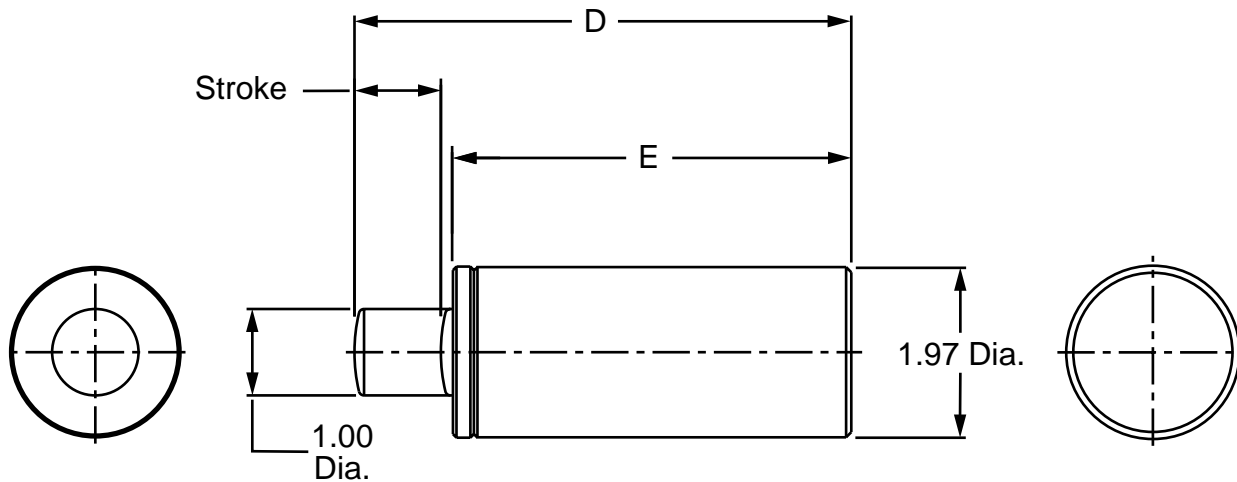
Hole Diameters for SAS Gas Springs	
MODEL NUMBER	H
SAS750	2.000 \pm .010

Installation and Use

Danly nitrogen gas springs can be installed with the piston rod in any position. To take full advantage of our product capabilities and experience longer service life, we recommend the following practices be adopted:



SAS750



CATALOG NUMBER	STROKE	D	E
SAS750-0.5	0.5	3.00	2.50
SAS750-1.0	1.0	4.00	3.00
SAS750-1.5	1.5	5.00	3.50
SAS750-2.0	2.0	6.00	4.00
SAS750-2.5	2.5	7.00	4.50
SAS750-3.0	3.0	8.00	5.00
SAS750-3.5	3.5	9.00	5.50
SAS750-4.0	4.0	10.00	6.00

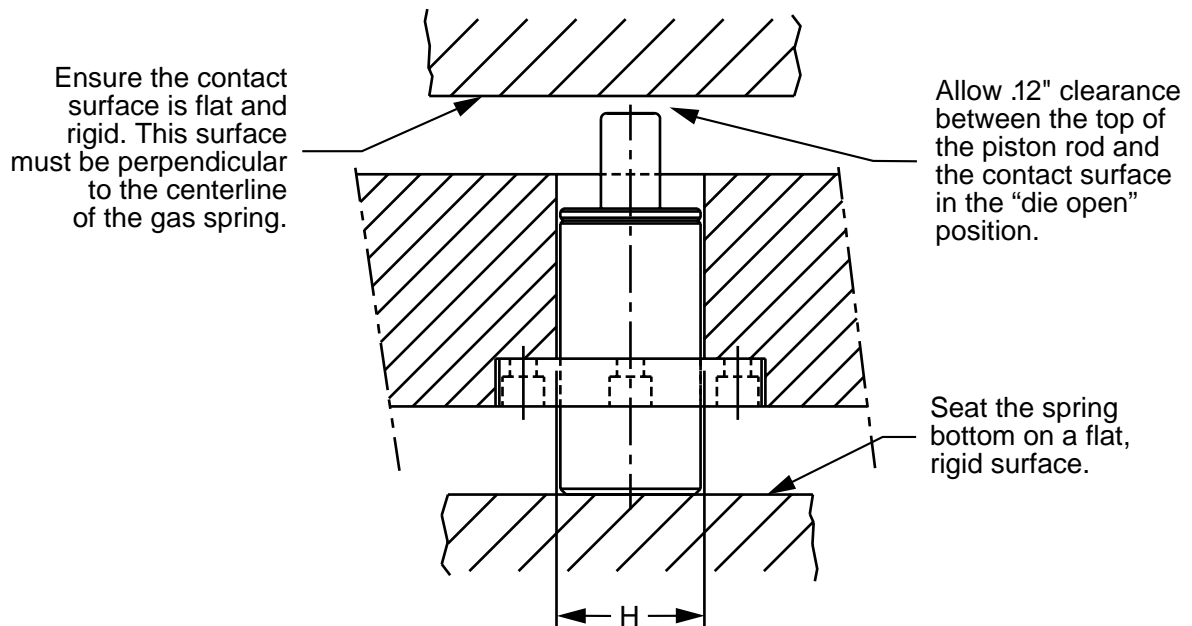
AF Model



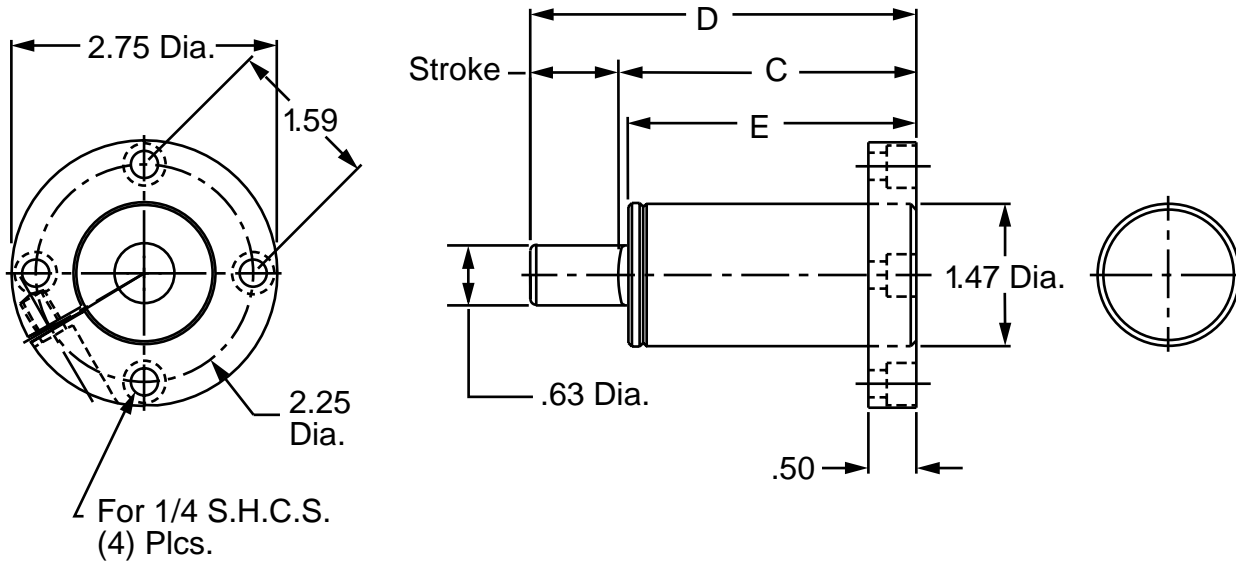
Hole Diameters for AF Gas Springs	
MODEL NUMBER	H
AF300	1.500 ^{±.010}

Installation and Use

Danly nitrogen gas springs can be installed with the piston rod in any position. To take full advantage of our product capabilities and experience longer service life, we recommend the following practices be adopted:



AF300



CATALOG NUMBER	STROKE	C	D	E
AF300-0.5	0.5	2.50	3.00	2.47
AF300-1.0	1.0	3.00	4.00	2.97
AF300-1.5	1.5	3.50	5.00	3.47
AF300-2.0	2.0	4.00	6.00	3.97
AF300-2.5	2.5	4.50	7.00	4.47
AF300-3.0	3.0	5.00	8.00	4.97
AF300-3.5	3.5	5.50	9.00	5.47
AF300-4.0	4.0	6.00	10.00	5.97

A mount for this unit is furnished with each gas spring you purchase from this page. To order additional or replacement mounts, you may do so by specifying a quantity and the following part number: AF300.

NOTE: With this adjustable flange mounted gas spring, the flange is adjustable anywhere along the gas spring body.

TF Model

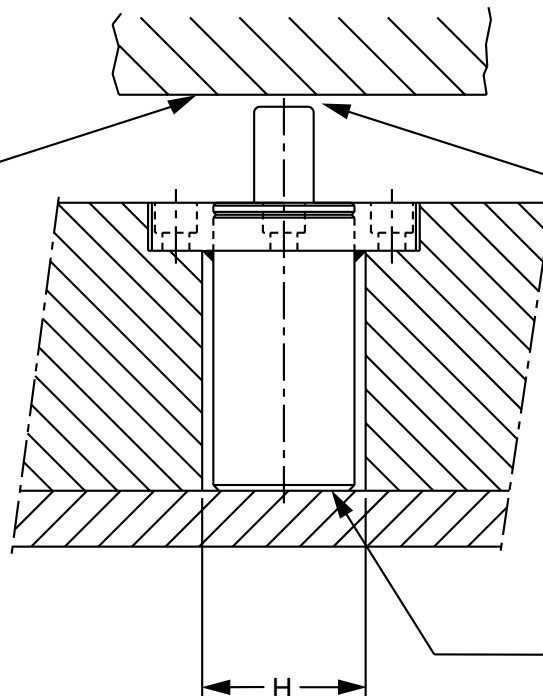


Hole Diameters for TF Gas Springs	
MODEL NUMBER	H
TF750	2.000 \pm .010
TF1500	3.000 \pm .010
TF3000	3.750 \pm .010
TF5000	4.750 \pm .010

Installation and Use

Danly nitrogen gas springs can be installed with the piston rod in any position. To take full advantage of our product capabilities and experience longer service life, we recommend the following practices be adopted:

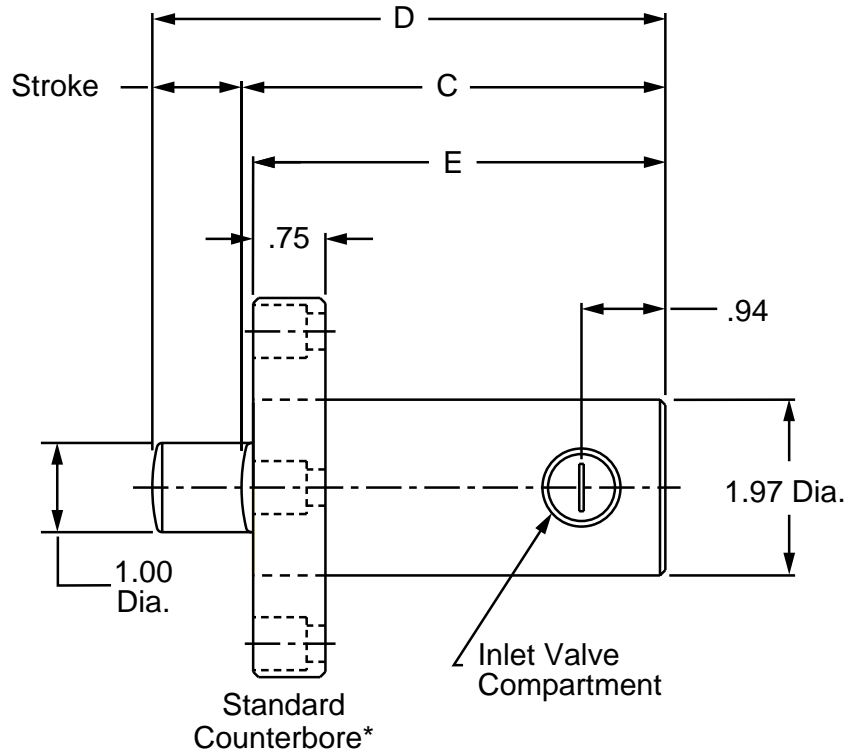
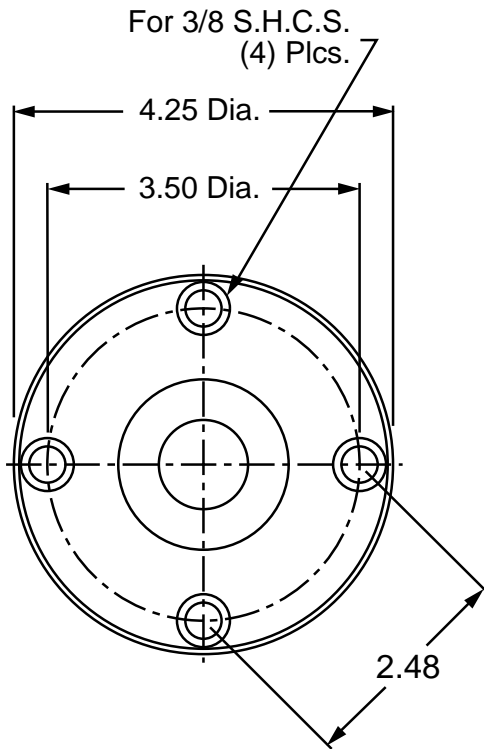
Ensure the contact surface is flat and rigid. This surface must be perpendicular to the centerline of the gas spring.



Allow .12" clearance between the top of the piston rod and the contact surface in the "die open" position.

Seat the spring bottom on a flat, rigid surface.

TF750



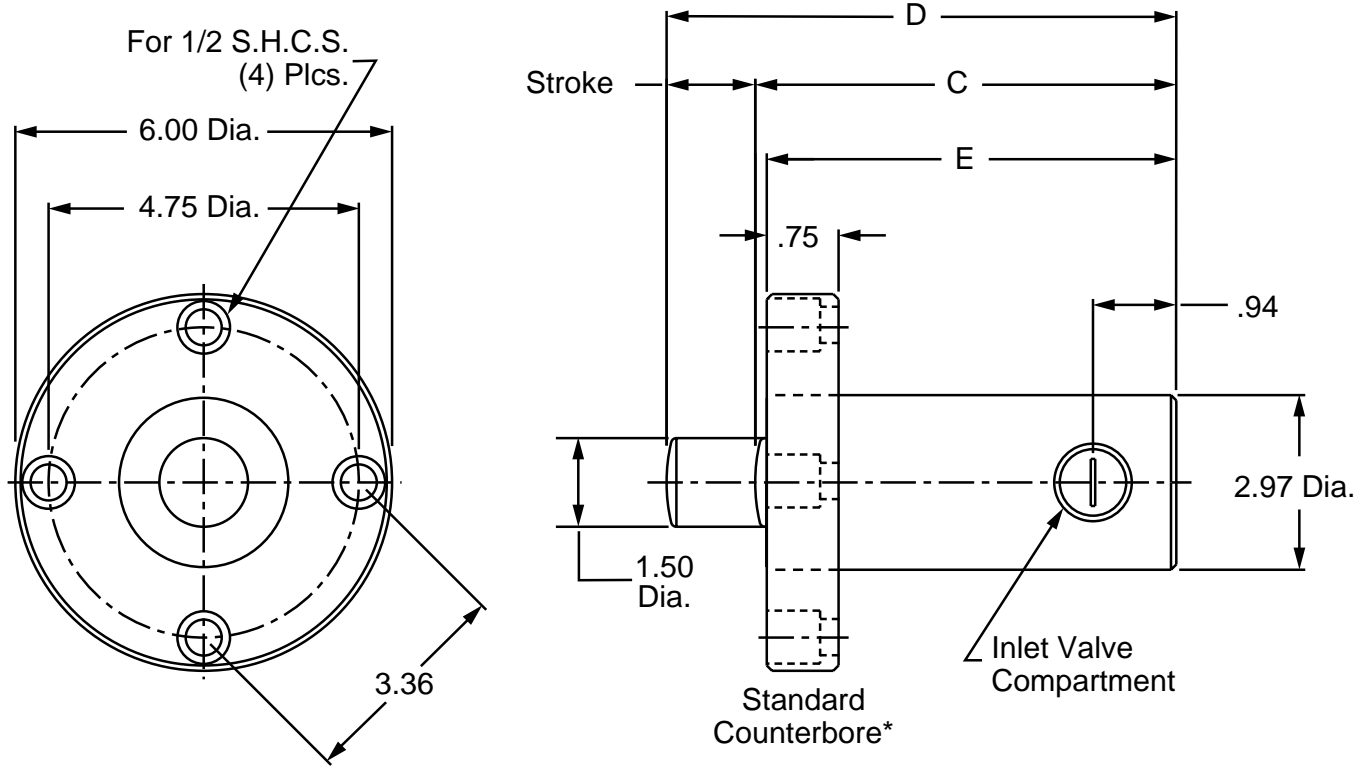
CATALOG NUMBER	STROKE	C	D	E
TF750-0.5	0.5	4.25	4.75	4.12
TF750-1.0	1.0	4.75	5.75	4.62
TF750-1.5	1.5	5.25	6.75	5.12
TF750-2.0	2.0	5.75	7.75	5.62
TF750-2.5	2.5	6.25	8.75	6.12
TF750-3.0	3.0	6.75	9.75	6.62
TF750-3.5	3.5	7.25	10.75	7.12
TF750-4.0	4.0	7.75	11.75	7.62
TF750-4.5	4.5	8.25	12.75	8.12
TF750-5.0	5.0	8.75	13.75	8.62
TF750-5.5	5.5	9.25	14.75	9.12
TF750-6.0	6.0	9.75	15.75	9.62

*All units are shipped with the standard counterbore unless otherwise specified.

For Counterbore Opposite:
Add **CO** to end of the Catalog No.

For No Counterbore:
Add **NC** to end of the Catalog No.

TF1500



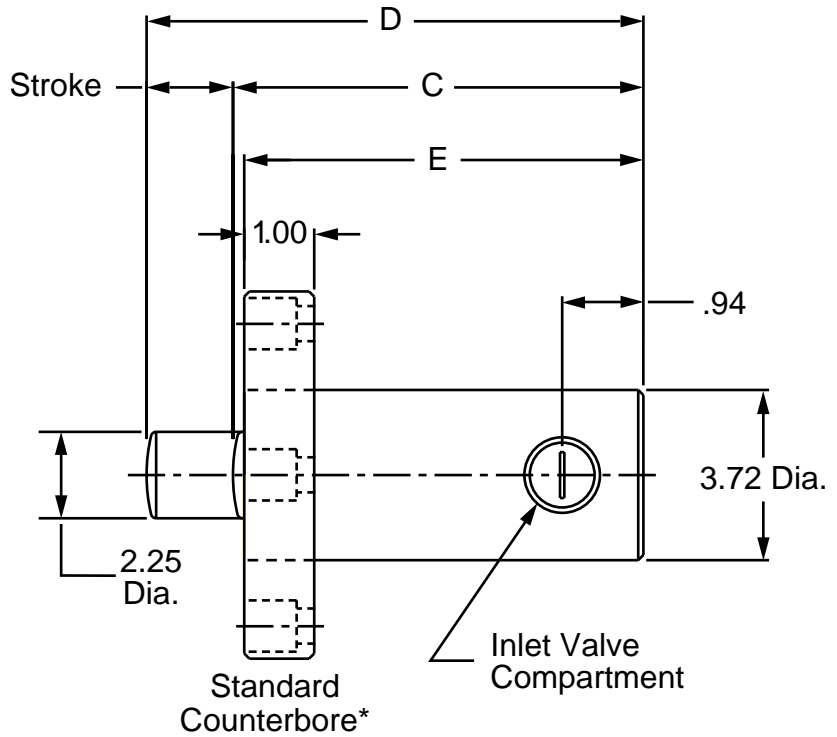
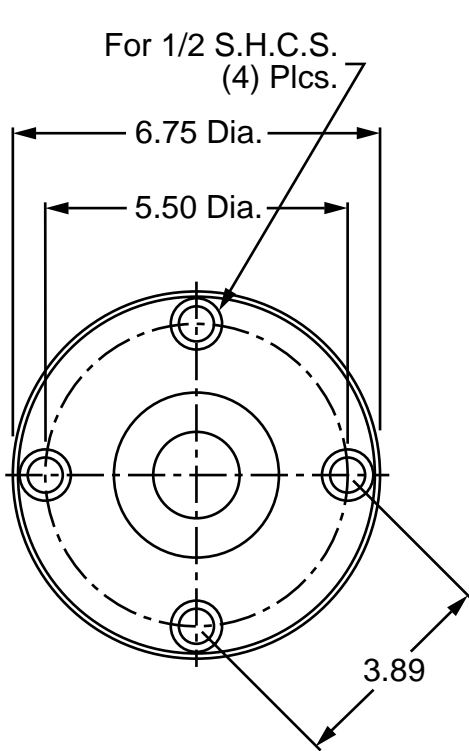
CATALOG NUMBER	STROKE	C	D	E
TF1500-0.5	0.5	4.82	5.32	4.70
TF1500-1.0	1.0	5.32	6.32	5.20
TF1500-1.5	1.5	5.82	7.32	5.70
TF1500-2.0	2.0	6.32	8.32	6.20
TF1500-2.5	2.5	6.82	9.32	6.70
TF1500-3.0	3.0	7.32	10.32	7.20
TF1500-3.5	3.5	7.82	11.32	7.70
TF1500-4.0	4.0	8.32	12.32	8.20
TF1500-4.5	4.5	8.82	13.32	8.70
TF1500-5.0	5.0	9.32	14.32	9.20
TF1500-5.5	5.5	9.82	15.32	9.70
TF1500-6.0	6.0	10.32	16.32	10.20

*All units are shipped with the standard counterbore unless otherwise specified.

For Counterbore Opposite:
Add **CO** to end of the Catalog No.

For No Counterbore:
Add **NC** to end of the Catalog No.

TF3000



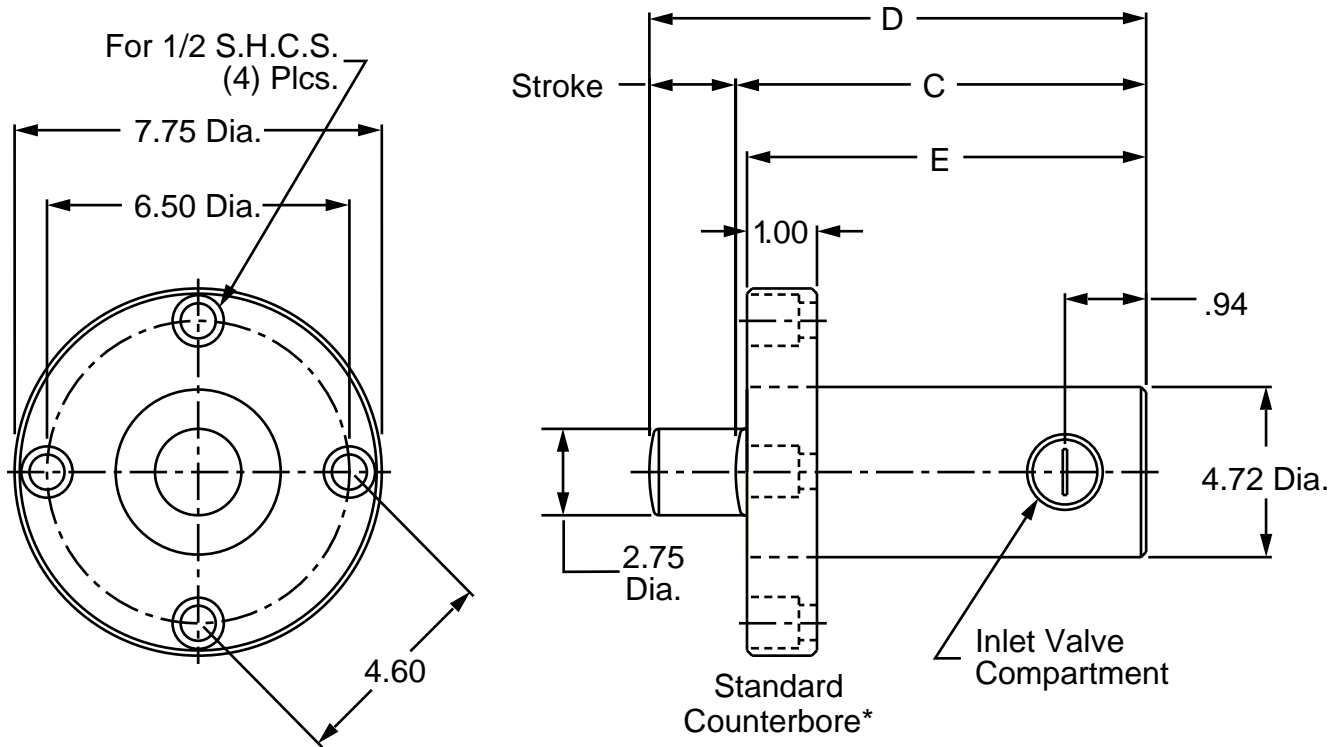
CATALOG NUMBER	STROKE	C	D	E
TF3000-0.5	0.5	5.25	5.75	5.13
TF3000-1.0	1.0	5.75	6.75	5.63
TF3000-1.5	1.5	6.25	7.75	6.13
TF3000-2.0	2.0	6.75	8.75	6.63
TF3000-2.5	2.5	7.25	9.75	7.13
TF3000-3.0	3.0	7.75	10.75	7.63
TF3000-3.5	3.5	8.25	11.75	8.13
TF3000-4.0	4.0	8.75	12.75	8.63
TF3000-4.5	4.5	9.25	13.75	9.13
TF3000-5.0	5.0	9.75	14.75	9.63
TF3000-5.5	5.5	10.25	15.75	10.13
TF3000-6.0	6.0	10.63	16.75	10.63

*All units are shipped with the standard counterbore unless otherwise specified.

For Counterbore Opposite:
Add **CO** to end of the Catalog No.


For No Counterbore:
Add **NC** to end of the Catalog No.


TF5000



CATALOG NUMBER	STROKE	C	D	E
TF5000-0.5	0.5	6.00	6.50	5.88
TF5000-1.0	1.0	6.50	7.50	6.38
TF5000-1.5	1.5	7.00	8.50	6.88
TF5000-2.0	2.0	7.50	9.50	7.38
TF5000-2.5	2.5	8.00	10.50	7.88
TF5000-3.0	3.0	8.50	11.50	8.38
TF5000-3.5	3.5	9.00	12.50	8.88
TF5000-4.0	4.0	9.50	13.50	9.38
TF5000-4.5	4.5	10.00	14.50	9.88
TF5000-5.0	5.0	10.50	15.50	10.38
TF5000-5.5	5.5	11.00	16.50	10.88
TF5000-6.0	6.0	11.50	17.50	11.38

*All units are shipped with the standard counterbore unless otherwise specified.

 For Counterbore Opposite:
Add **CO** to end of the Catalog No.

 For No Counterbore:
Add **NC** to end of the Catalog No.

BF Model

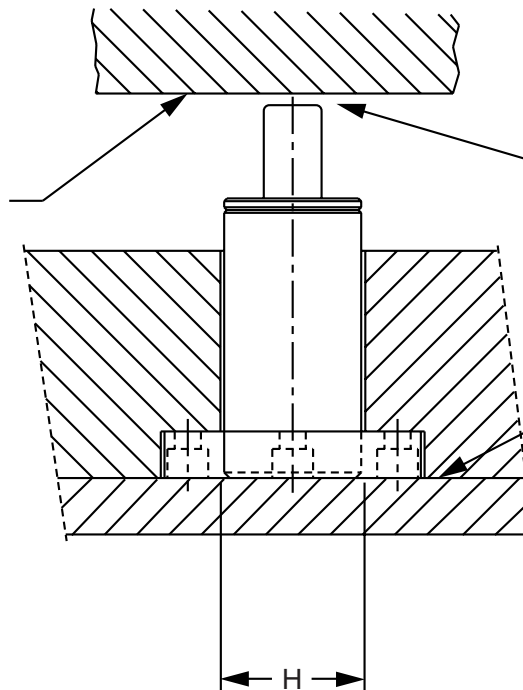


Hole Diameters for BF Gas Springs	
MODEL NUMBER	H
BF750	2.000 \pm .010
BF1500	3.000 \pm .010
BF3000	3.750 \pm .010
BF5000	4.750 \pm .010

Installation and Use

Danly nitrogen gas springs can be installed with the piston rod in any position. To take full advantage of our product capabilities and experience longer service life, we recommend the following practices be adopted:

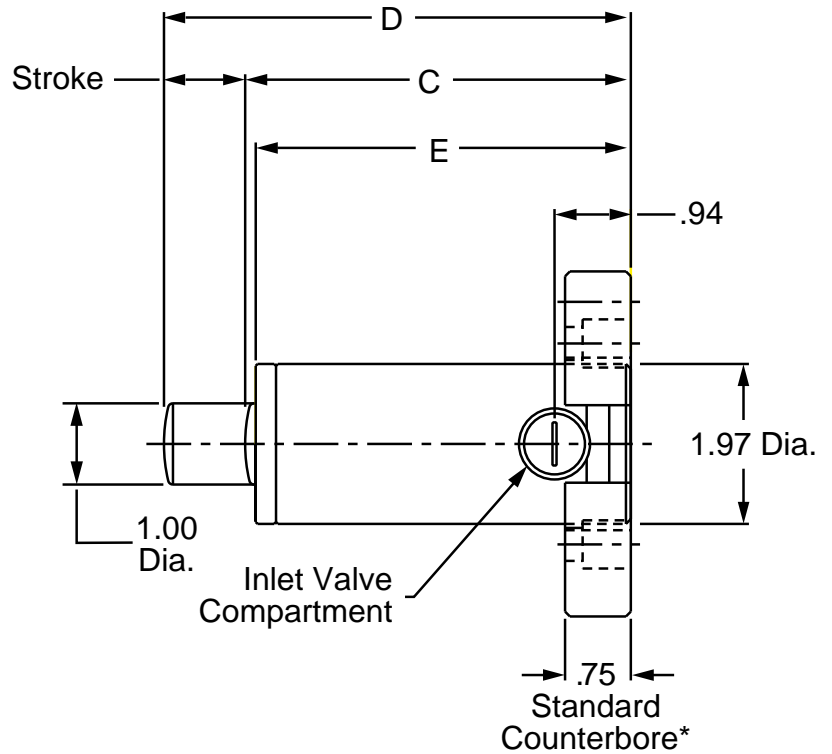
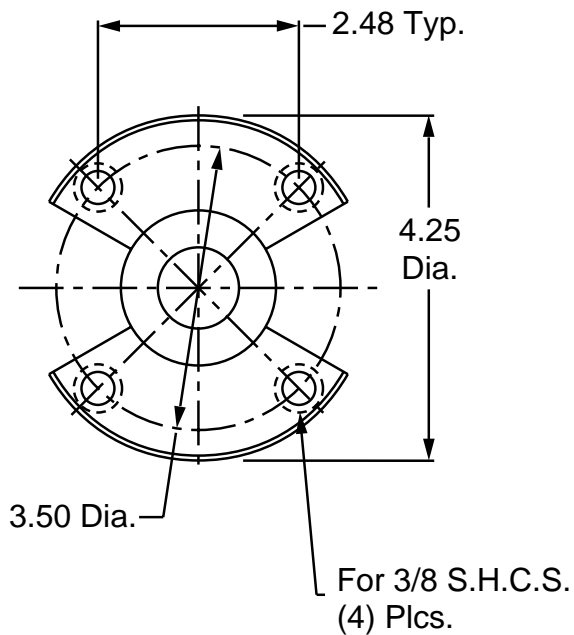
Ensure the contact surface is flat and rigid. This surface must be perpendicular to the centerline of the gas spring.



Allow .12" clearance between the top of the piston rod and the contact surface in the "die open" position.

Seat the spring bottom on a flat, rigid surface.

BF750



CATALOG NUMBER	STROKE	C	D	E
BF750-0.5	0.5	4.25	4.75	4.12
BF750-1.0	1.0	4.75	5.75	4.62
BF750-1.5	1.5	5.25	6.75	5.12
BF750-2.0	2.0	5.75	7.75	5.62
BF750-2.5	2.5	6.25	8.75	6.12
BF750-3.0	3.0	6.75	9.75	6.62
BF750-3.5	3.5	7.25	10.75	7.12
BF750-4.0	4.0	7.75	11.75	7.62
BF750-4.5	4.5	8.25	12.75	8.12
BF750-5.0	5.0	8.75	13.75	8.62
BF750-5.5	5.5	9.25	14.75	9.12
BF750-6.0	6.0	9.75	15.75	9.62

*All units are shipped with the standard counterbore unless otherwise specified.

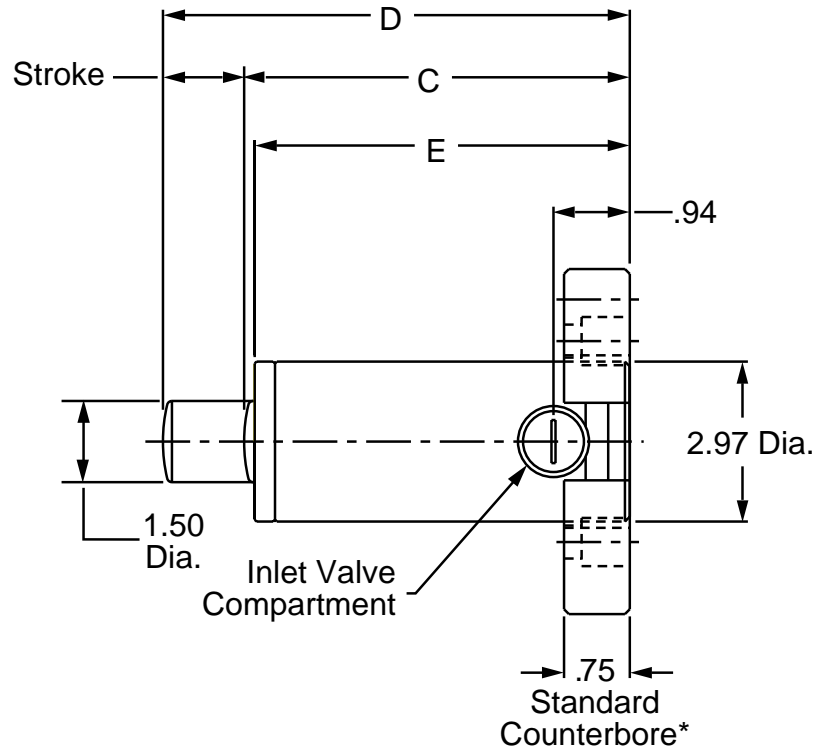
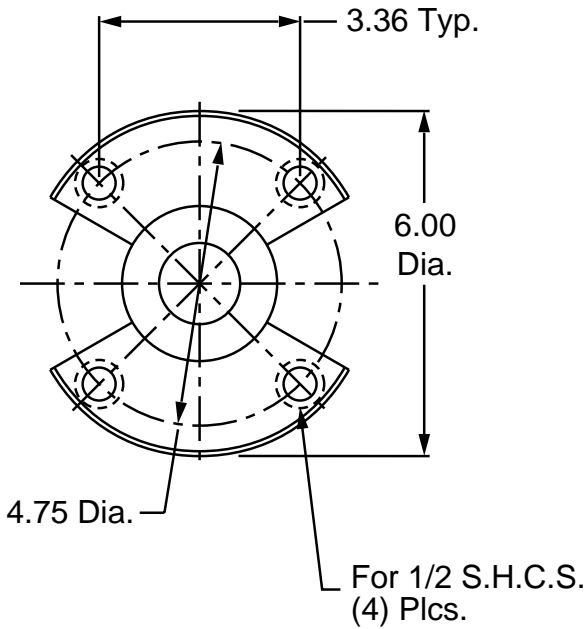


A two piece bottom flange mount is furnished with each gas spring you purchase from this page. To order additional or replacement bottom flanges, you may do so by specifying a quantity and the following part number: BF750.

Bottom Flange Mount Nitrogen Gas Springs



BF1500



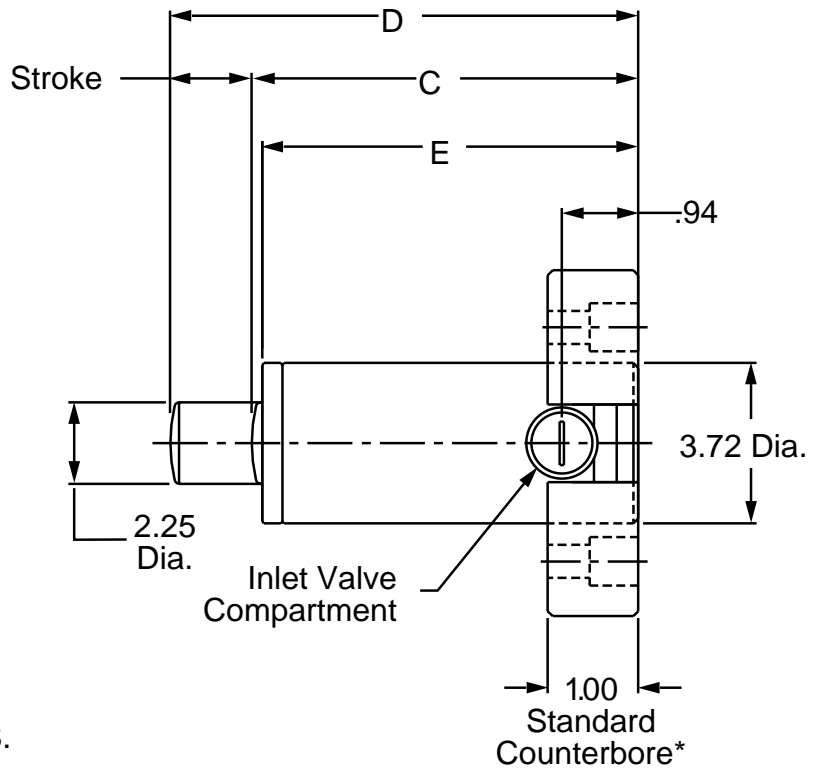
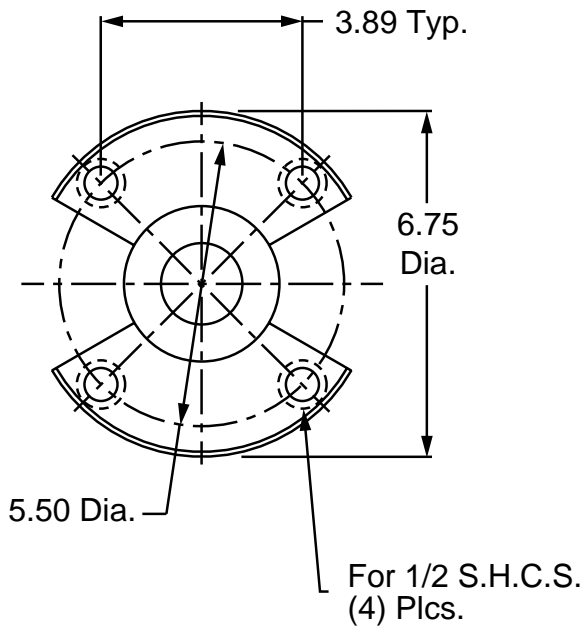
CATALOG NUMBER	STROKE	C	D	E
BF1500-0.5	0.5	4.82	5.32	4.70
BF1500-1.0	1.0	5.32	6.32	5.20
BF1500-1.5	1.5	5.82	7.32	5.70
BF1500-2.0	2.0	6.32	8.32	6.20
BF1500-2.5	2.5	6.82	9.32	6.70
BF1500-3.0	3.0	7.32	10.32	7.20
BF1500-3.5	3.5	7.82	11.32	7.70
BF1500-4.0	4.0	8.32	12.32	8.20
BF1500-4.5	4.5	8.82	13.32	8.70
BF1500-5.0	5.0	9.32	14.32	9.20
BF1500-5.5	5.5	9.82	15.32	9.70
BF1500-6.0	6.0	10.32	16.32	10.20

*All units are shipped with the standard counterbore unless otherwise specified.



A two piece bottom flange mount is furnished with each gas spring you purchase from this page. To order additional or replacement bottom flanges, you may do so by specifying a quantity and the following part number: BF1500.

BF3000



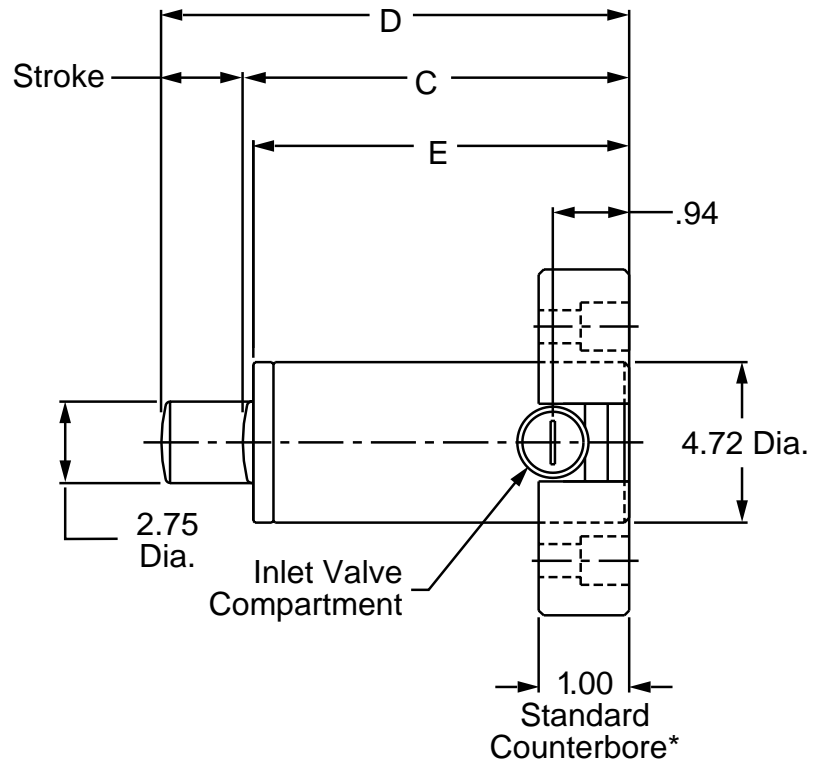
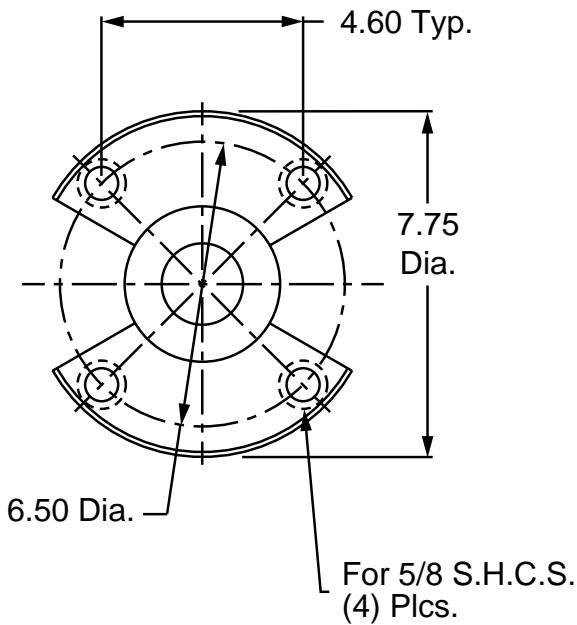
CATALOG NUMBER	STROKE	C	D	E
BF3000-0.5	0.5	5.25	5.75	5.13
BF3000-1.0	1.0	5.75	6.75	5.63
BF3000-1.5	1.5	6.25	7.75	6.13
BF3000-2.0	2.0	6.75	8.75	6.63
BF3000-2.5	2.5	7.25	9.75	7.13
BF3000-3.0	3.0	7.75	10.75	7.63
BF3000-3.5	3.5	8.25	11.75	8.13
BF3000-4.0	4.0	8.75	12.75	8.63
BP3000-4.5	4.5	9.25	13.75	9.13
BF3000-5.0	5.0	9.75	14.75	9.63
BF3000-5.5	5.5	10.25	15.75	10.13
BF3000-6.0	6.0	10.75	16.75	10.63

*All units are shipped with the standard counterbore unless otherwise specified.



A two piece bottom flange mount is furnished with each gas spring you purchase from this page. To order additional or replacement bottom flanges, you may do so by specifying a quantity and the following part number: BF3000.

BF5000



CATALOG NUMBER	STROKE	C	D	E
BF5000-0.5	0.5	6.00	6.50	5.88
BF5000-1.0	1.0	6.50	7.50	6.38
BF5000-1.5	1.5	7.00	8.50	6.88
BF5000-2.0	2.0	7.50	9.50	7.38
BF5000-2.5	2.5	8.00	10.50	7.88
BF5000-3.0	3.0	8.50	11.50	8.38
BF5000-3.5	3.5	9.00	12.50	8.88
BF5000-4.0	4.0	9.50	13.50	9.38
BF5000-4.5	4.5	10.00	14.50	9.88
BF5000-5.0	5.0	10.50	15.50	10.38
BF5000-5.5	5.5	11.00	16.50	10.88
BF5000-6.0	6.0	11.50	17.50	11.38

*All units are shipped with the standard counterbore unless otherwise specified.



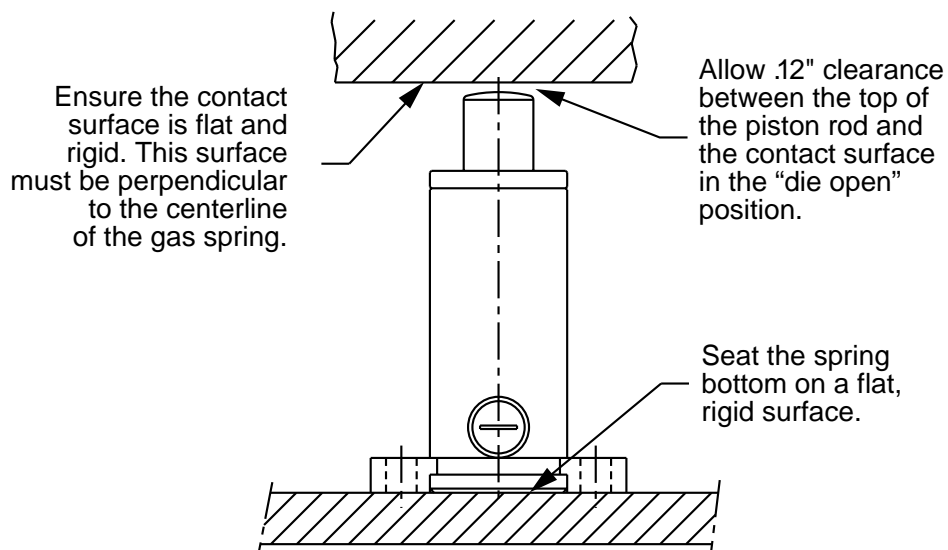
A two piece bottom flange mount is furnished with each gas spring you purchase from this page. To order additional or replacement bottom flanges, you may do so by specifying a quantity and the following part number: BF5000.

ML Model

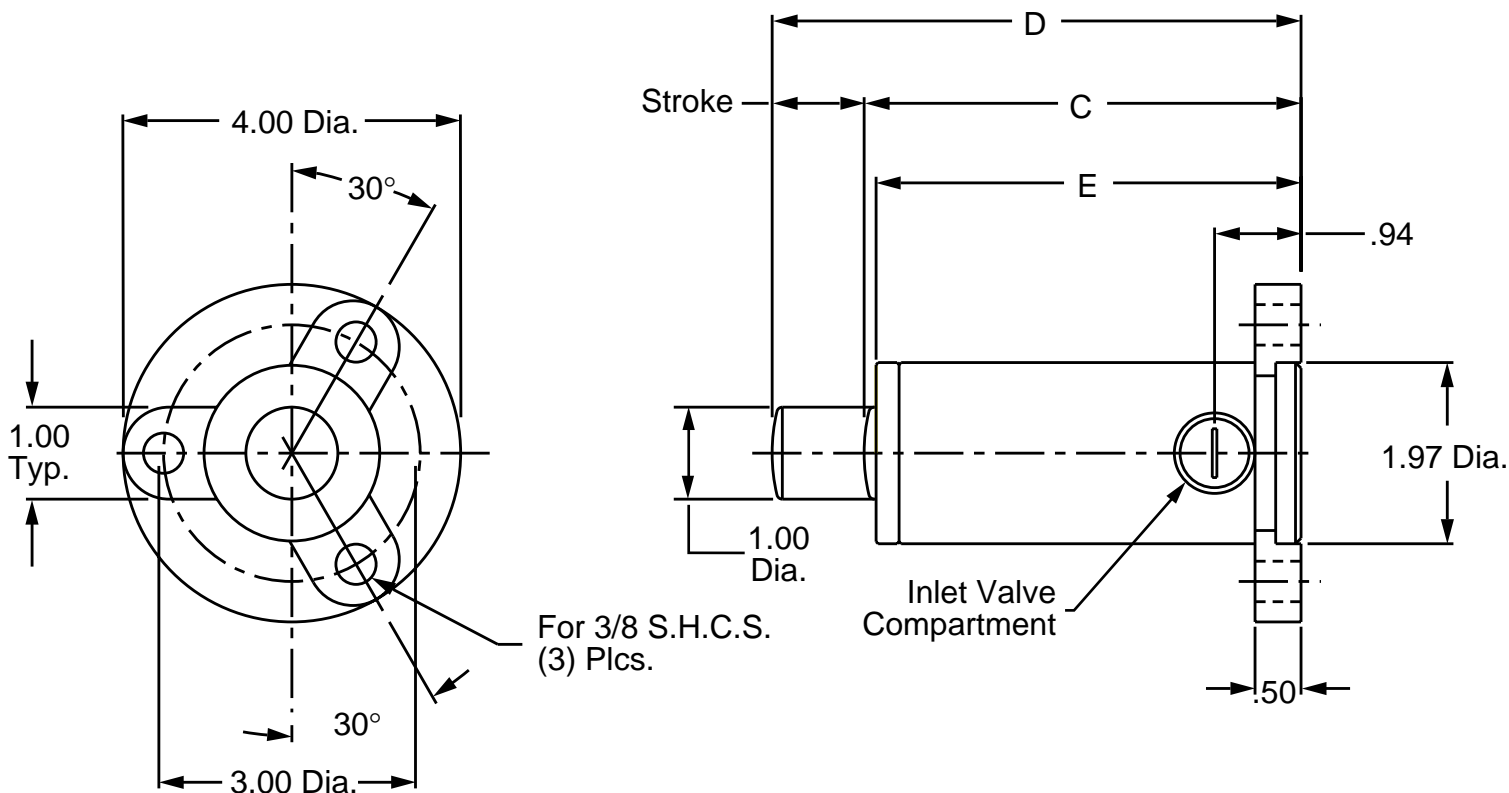


Installation and Use

Danly nitrogen gas springs can be installed with the piston rod in any position. To take full advantage of our product capabilities and experience longer service life, we recommend the following practices be adopted:



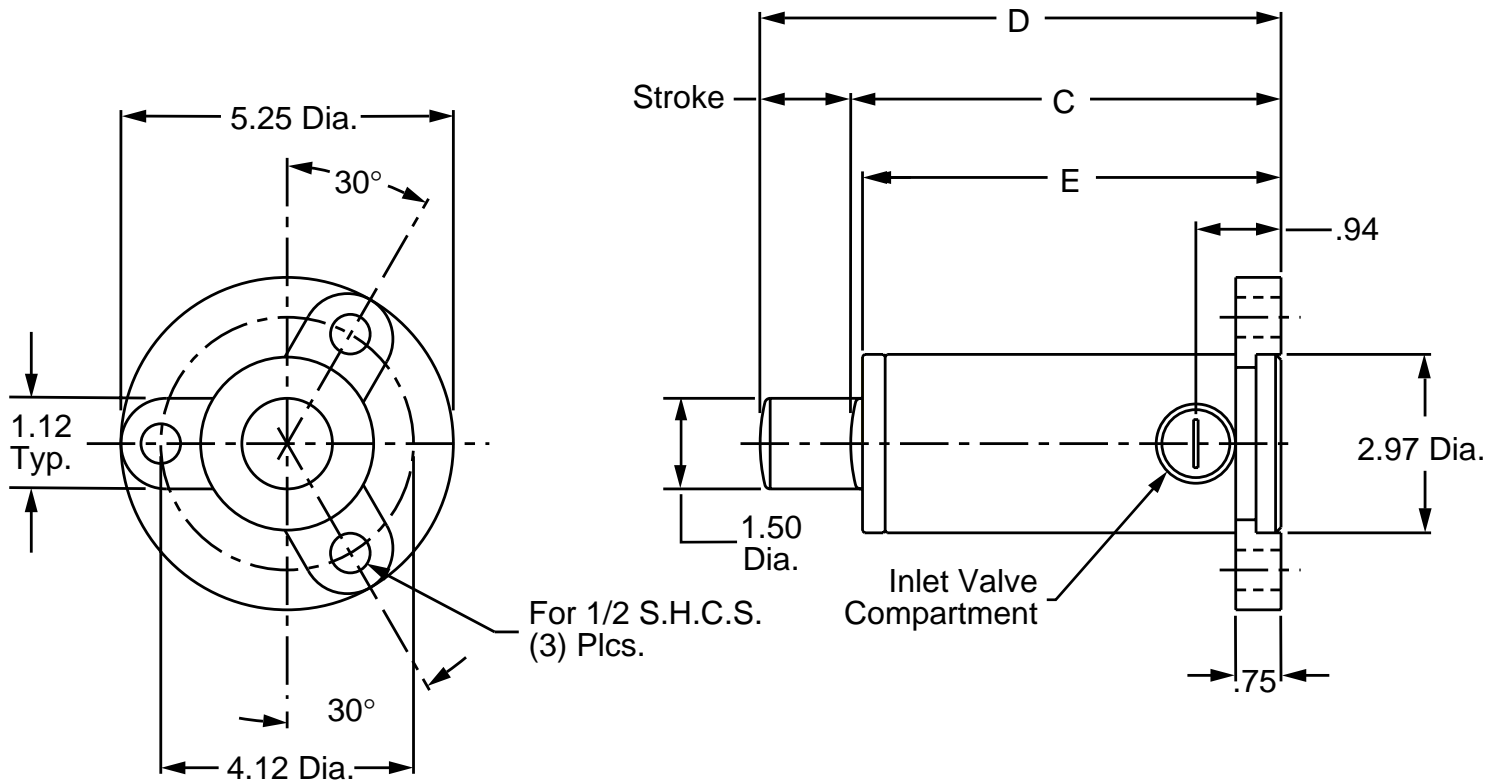
ML750



CATALOG NUMBER	STROKE	C	D	E
ML750-0.5	0.5	4.25	4.75	4.12
ML750-1.0	1.0	4.75	5.75	4.62
ML750-1.5	1.5	5.25	6.75	5.12
ML750-2.0	2.0	5.75	7.75	5.62
ML750-2.5	2.5	6.25	8.75	6.12
ML750-3.0	3.0	6.75	9.75	6.62
ML750-3.5	3.5	7.25	10.75	7.12
ML750-4.0	4.0	7.75	11.75	7.62
ML750-4.5	4.5	8.25	12.75	8.12
ML750-5.0	5.0	8.75	13.75	8.62
ML750-5.5	5.5	9.25	14.75	9.12
ML750-6.0	6.0	9.75	15.75	9.62

Three lug mounts are furnished with each gas spring you purchase from this page. To order additional or replacement mounts, you may do so by specifying a quantity and the following part number: ML750.

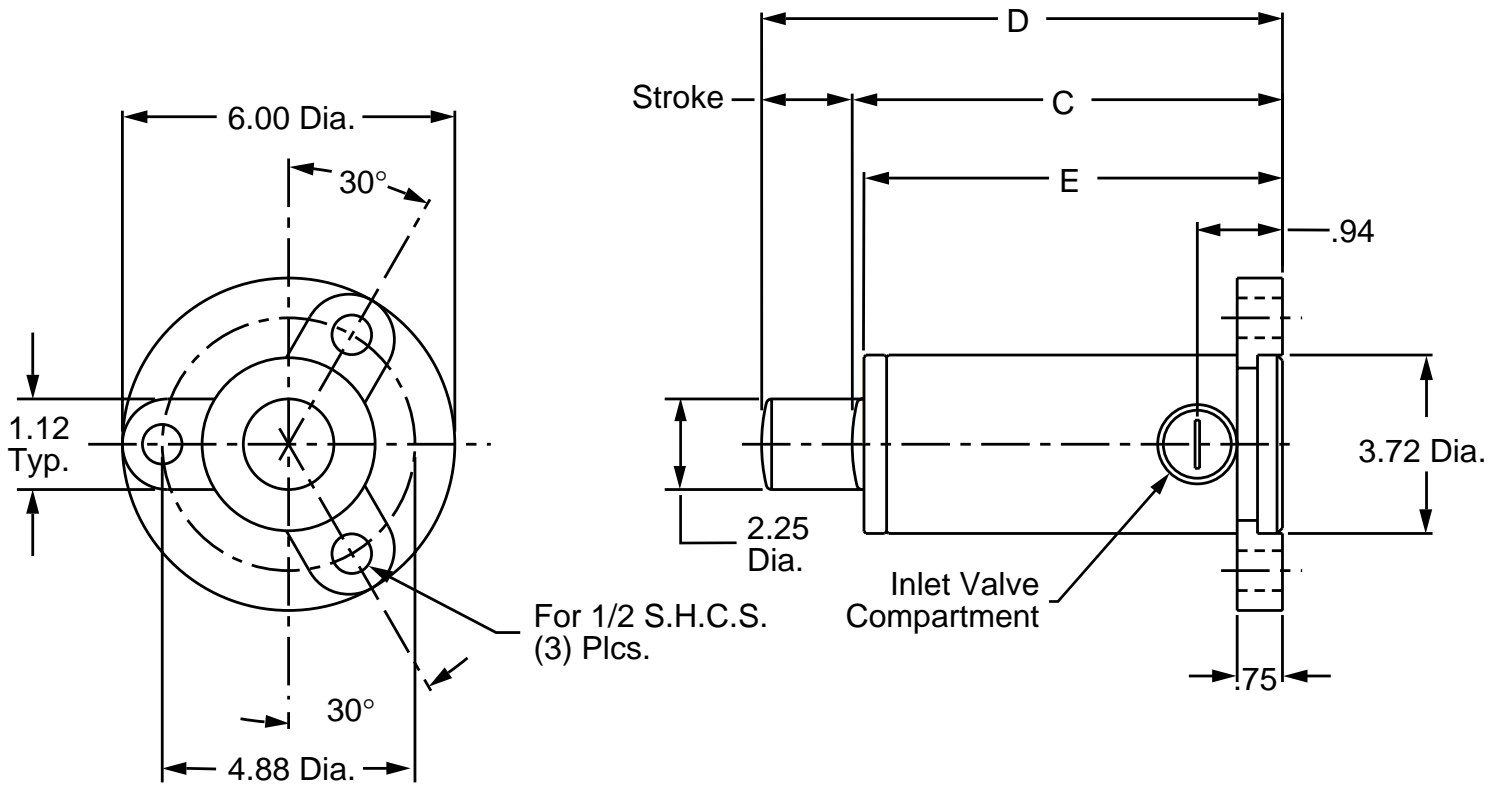
ML1500



CATALOG NUMBER	STROKE	C	D	E
ML1500-0.5	0.5	4.82	5.32	4.70
ML1500-1.0	1.0	5.32	6.32	5.20
ML1500-1.5	1.5	5.82	7.32	5.70
ML1500-2.0	2.0	6.32	8.32	6.20
ML1500-2.5	2.5	6.82	9.32	6.70
ML1500-3.0	3.0	7.32	10.32	7.20
ML1500-3.5	3.5	7.82	11.32	7.70
ML1500-4.0	4.0	8.32	12.32	8.20
ML1500-4.5	4.5	8.82	13.32	8.70
ML1500-5.0	5.0	9.32	14.32	9.20
ML1500-5.5	5.5	9.82	15.32	9.70
ML1500-6.0	6.0	10.32	16.32	10.20

Three lug mounts are furnished with each gas spring you purchase from this page. To order additional or replacement mounts, you may do so by specifying a quantity and the following part number: ML1500.

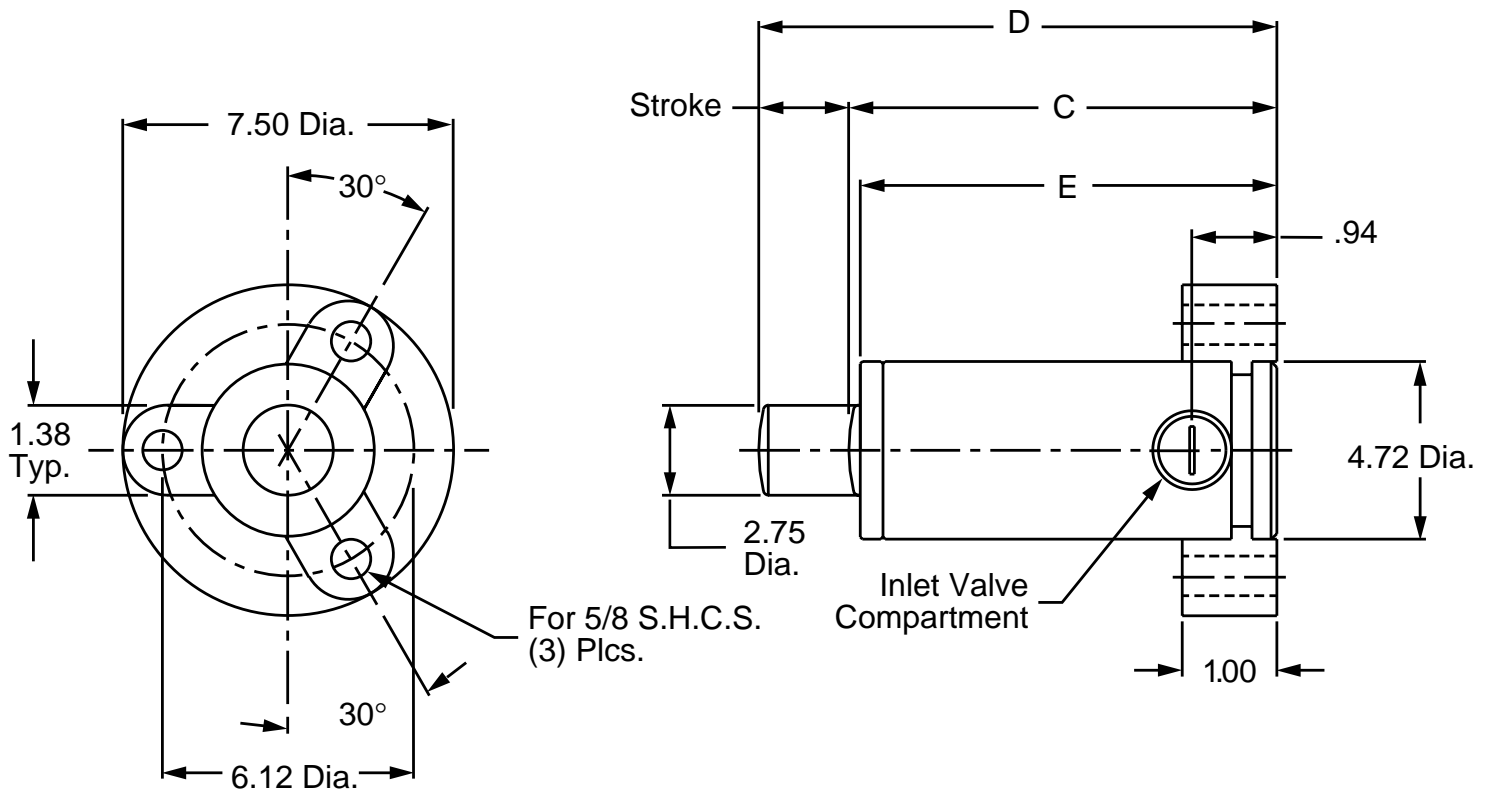
ML3000



CATALOG NUMBER	STROKE	C	D	E
ML3000-0.5	0.5	5.25	5.75	5.13
ML3000-1.0	1.0	5.75	6.75	5.63
ML3000-1.5	1.5	6.25	7.75	6.13
ML3000-2.0	2.0	6.75	8.75	6.63
ML3000-2.5	2.5	7.25	9.75	7.13
ML3000-3.0	3.0	7.75	10.75	7.63
ML3000-3.5	3.5	8.25	11.75	8.13
ML3000-4.0	4.0	8.75	12.75	8.63
ML3000-4.5	4.5	9.25	13.75	9.13
ML3000-5.0	5.0	9.75	14.75	9.63
ML3000-5.5	5.5	10.25	15.75	10.13
ML3000-6.0	6.0	10.75	16.75	10.63

Three lug mounts are furnished with each gas spring you purchase from this page. To order additional or replacement mounts, you may do so by specifying a quantity and the following part number: ML3000.

ML5000



CATALOG NUMBER	STROKE	C	D	E
ML5000-0.5	0.5	6.00	6.50	5.88
ML5000-1.0	1.0	6.50	7.50	6.38
ML5000-1.5	1.5	7.00	8.50	6.88
ML5000-2.0	2.0	7.50	9.50	7.38
ML5000-2.5	2.5	8.00	10.50	7.88
ML5000-3.0	3.0	8.50	11.50	8.38
ML5000-3.5	3.5	9.00	12.50	8.88
ML5000-4.0	4.0	9.50	13.50	9.38
ML5000-4.5	4.5	10.00	14.50	9.88
ML5000-5.0	5.0	10.50	15.50	10.38
ML5000-5.5	5.5	11.00	16.50	10.88
ML5000-6.0	6.0	11.50	17.50	11.38

Three lug mounts are furnished with each gas spring you purchase from this page. To order additional or replacement mounts, you may do so by specifying a quantity and the following part number: ML5000.

SD Model

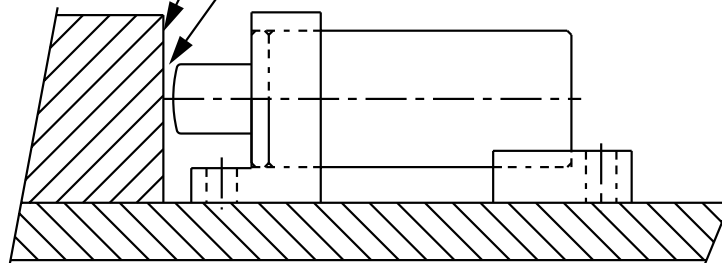


Installation and Use

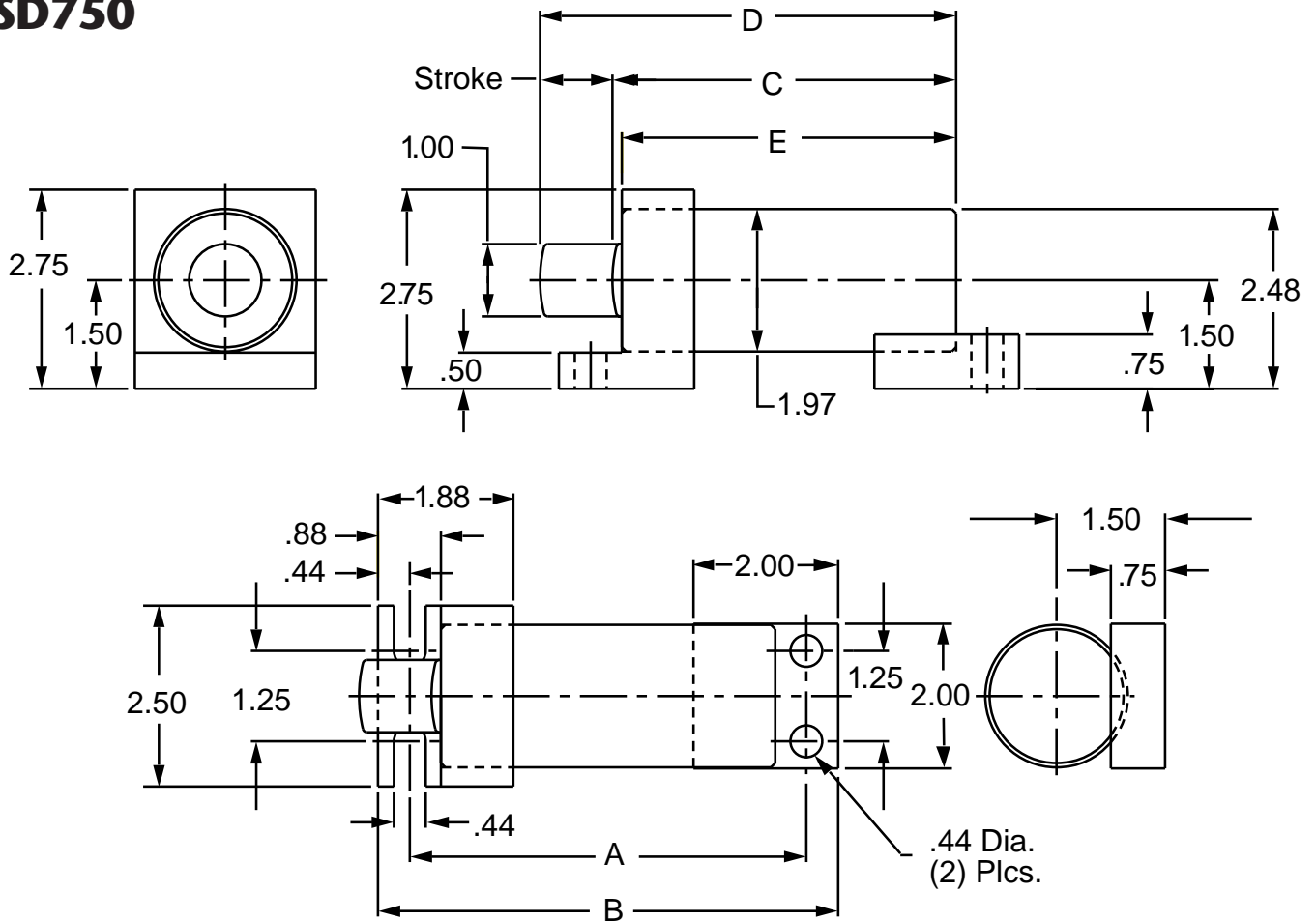
Danly nitrogen gas springs can be installed with the piston rod in any position. To take full advantage of our product capabilities and experience longer service life, we recommend the following practices be adopted:

Ensure the contact surface is flat and rigid. This surface must be perpendicular to the centerline of the gas spring.

Allow .12" clearance between the top of the piston rod and the contact surface in the "die open" position.

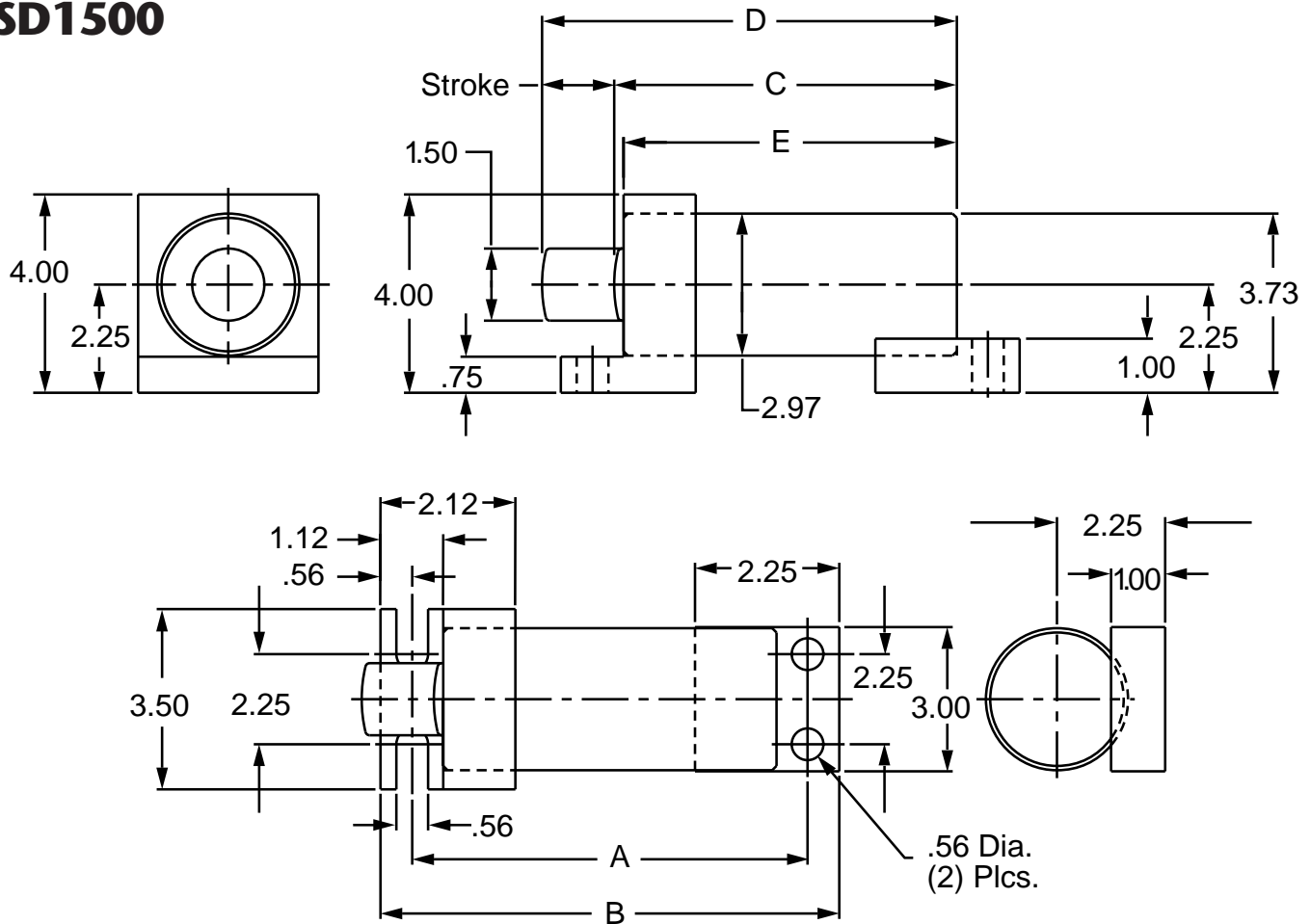


SD750



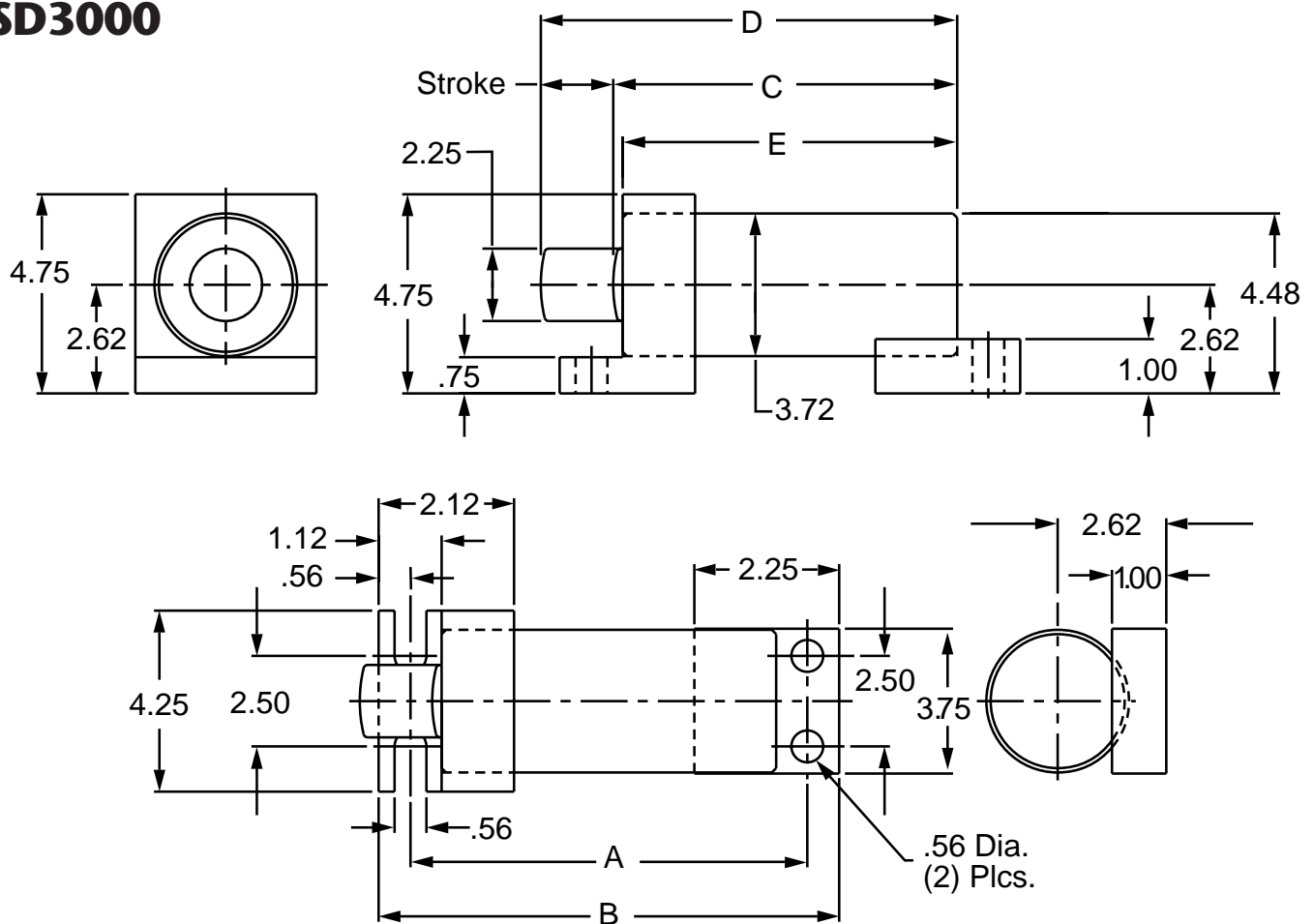
CATALOG NUMBER	STROKE	A	B	C	D	E
SD750-0.5	0.5	4.99	5.87	4.25	4.75	4.12
SD750-1.0	1.0	5.49	6.37	4.75	5.75	4.62
SD750-1.5	1.5	5.99	6.87	5.25	6.75	5.12
SD750-2.0	2.0	6.49	7.37	5.75	7.75	5.62
SD750-2.5	2.5	6.99	7.87	6.25	8.75	6.12
SD750-3.0	3.0	7.49	8.37	6.75	9.75	6.62
SD750-3.5	3.5	7.99	8.87	7.25	10.75	7.12
SD750-4.0	4.0	8.49	9.37	7.75	11.75	7.62
SD750-4.5	4.5	8.99	9.87	8.25	12.75	8.12
SD750-5.0	5.0	9.49	10.37	8.75	13.75	8.62
SD750-5.5	5.5	9.99	10.87	9.25	14.75	9.12
SD750-6.0	6.0	10.49	11.37	9.75	15.75	9.62

SD1500



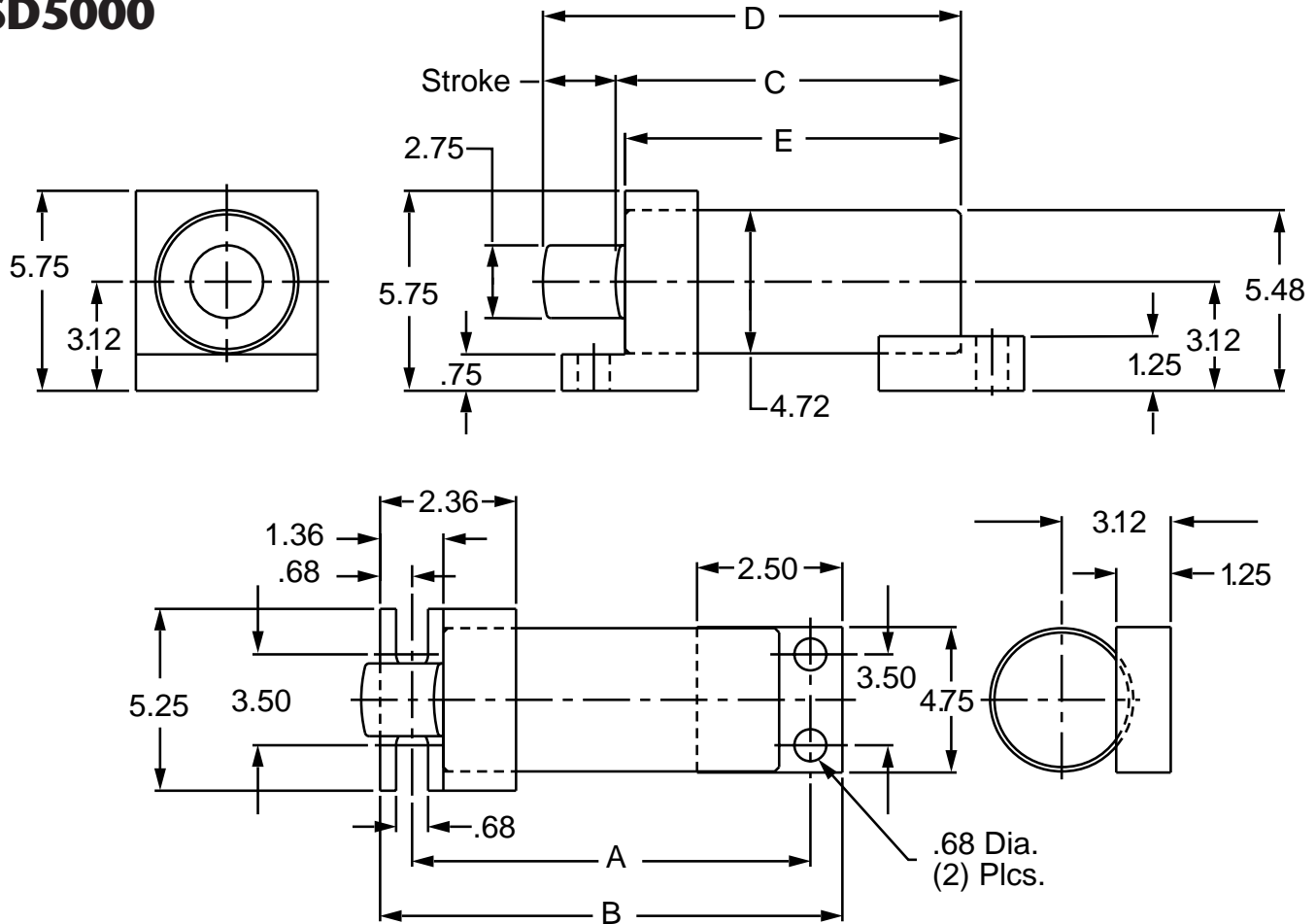
CATALOG NUMBER	STROKE	A	B	C	D	E
SD1500-0.5	0.5	5.82	6.94	4.82	5.32	4.70
SD1500-1.0	1.0	6.32	7.44	5.32	6.32	5.20
SD1500-1.5	1.5	6.82	7.94	5.82	7.32	5.70
SD1500-2.0	2.0	7.32	8.44	6.32	8.32	6.20
SD1500-2.5	2.5	7.82	8.94	6.82	9.32	6.70
SD1500-3.0	3.0	8.32	9.44	7.32	10.32	7.20
SD1500-3.5	3.5	8.82	9.94	7.82	11.32	7.70
SD1500-4.0	4.0	9.32	10.44	8.32	12.32	8.20
SD1500-4.5	4.5	9.82	10.94	8.82	13.32	8.70
SD1500-5.0	5.0	10.32	11.44	9.32	14.32	9.20
SD1500-5.5	5.5	10.82	11.94	9.82	15.32	9.70
SD1500-6.0	6.0	11.32	12.44	10.32	16.32	10.20

SD3000



CATALOG NUMBER	STROKE	A	B	C	D	E
SD3000-0.5	0.5	6.25	7.37	5.25	5.75	5.13
SD3000-1.0	1.0	6.75	7.87	5.75	6.75	5.63
SD3000-1.5	1.5	7.25	8.37	6.25	7.75	6.13
SD3000-2.0	2.0	7.75	8.87	6.75	8.75	6.63
SD3000-2.5	2.5	8.25	9.37	7.25	9.75	7.13
SD3000-3.0	3.0	8.75	9.87	7.75	10.75	7.63
SD3000-3.5	3.5	9.25	10.37	8.25	11.75	8.13
SD3000-4.0	4.0	9.75	10.87	8.75	12.75	8.63
SD3000-4.5	4.5	10.25	11.37	9.25	13.75	9.13
SD3000-5.0	5.0	10.75	11.87	9.75	14.75	9.63
SD3000-5.5	5.5	11.25	12.37	10.25	15.75	10.13
SD3000-6.0	6.0	11.75	12.87	10.75	16.75	10.63

SD5000



CATALOG NUMBER	STROKE	A	B	C	D	E
SD5000-0.5	0.5	7.24	8.60	6.00	6.50	5.88
SD5000-1.0	1.0	7.74	9.10	6.50	7.50	6.38
SD5000-1.5	1.5	8.24	9.60	7.00	8.50	6.88
SD5000-2.0	2.0	8.74	10.10	7.50	9.50	7.38
SD5000-2.5	2.5	9.24	10.60	8.00	10.50	7.88
SD5000-3.0	3.0	9.74	11.10	8.50	11.50	8.38
SD5000-3.5	3.5	10.24	11.60	9.00	12.50	8.88
SD5000-4.0	4.0	10.74	12.10	9.50	13.50	9.38
SD5000-4.5	4.5	11.24	12.60	10.00	14.50	9.88
SD5000-5.0	5.0	11.74	13.10	10.50	15.50	10.38
SD5000-5.5	5.5	12.24	13.60	11.00	16.50	10.88
SD5000-6.0	6.0	12.74	14.10	11.50	17.50	11.38

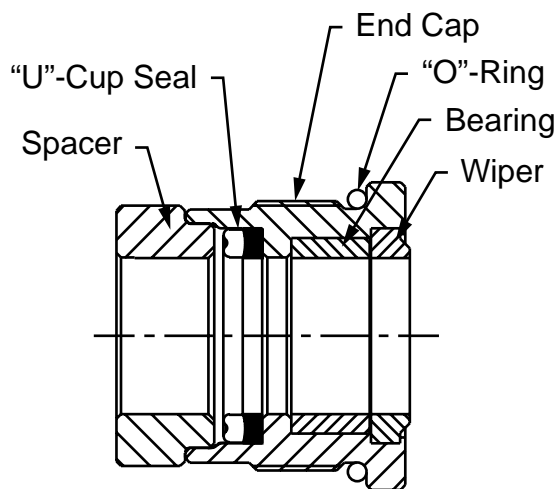
Replacement part kits extend the service life of your nitrogen gas springs. For economy and convenience, two styles of replacement part kits are available. To order, indicate the Series of Danly gas spring, then the suffix KG for a complete parts assembly, or K for individual replacement components.

For example, Replacement Part Kit 300KG is an assembly ready for installation as a unit in any 300 Series unit from any of the six model families. Replacement Part Kit 300K

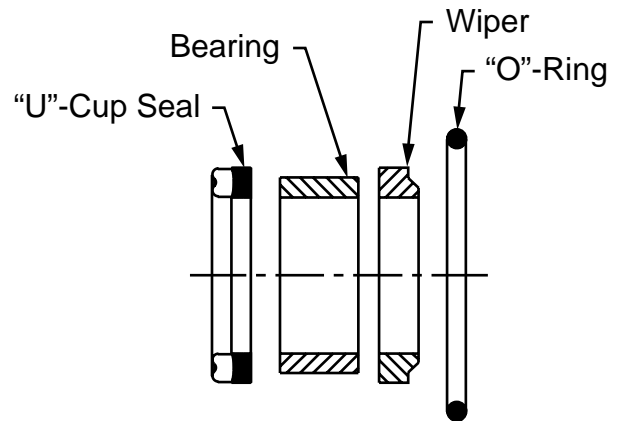
consists of individual component parts which must be re-assembled. These replacement parts would also be suitable for any 300 Series Model gas spring unit. The 300KG kit would generally be used where the end cap or bearing is not reusable or reassembly of individual component parts is to be avoided.

Danly offers repair services as an option to in-house repair and renovation. The components included in each replacement part kit are listed below.

**Example:
PRE-ASSEMBLED KIT 300KG**



**Example:
UNASSEMBLED 300K**



Not Shown: Inlet Valve, 1 oz. Bottle of Oil, Instruction Pamphlet

SERIES	PRE-ASSEMBLED KIT PART NUMBER	REPLACEMENT KIT PART NUMBER
250	250KG	250K
300	300KG	300K
750	750KG	750K
1500	1500KG	1500K
3000	3000KG	3000K
5000	5000KG	5000K

Below are listed parts that are needed to repair and charge gas springs.

WRENCHES

- 5481A1 Spanner wrench for series 300 springs
- 5481A2 Spanner wrench for series 750, 1500, 3000 & 5000 springs

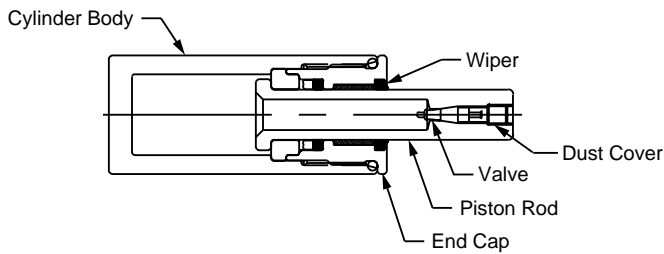
CHARGING ADAPTERS

- CA1 Charging adapter for series 250 & 300 springs
- CA2 Charging adapter for series 750, 1500, 3000 & 5000 springs

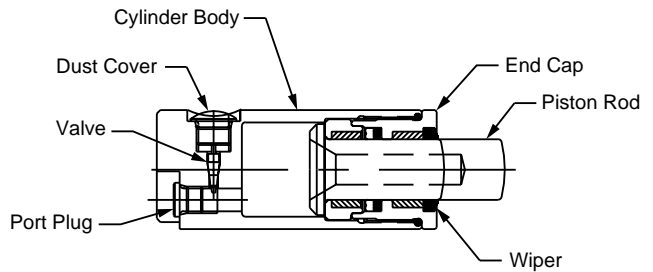
General Precautions

For maximum life, Danly recommends that you use no more than 90% of the stroke in your application. All Danly nitrogen gas springs can travel the full stroke, the best performance is usually seen when a minimum of 10% of stroke is reserved.

As stated previously, side load from the press or the die construction will cause accelerated wear on the bearing seal and the piston rod. This should be avoided whenever possible.



Series 250, 300



Series 750, 1500, 3000, 5000

Exhausting the gas springs

Always wear safety goggles.

When exhausting the 250 and 300 models, make sure the gas springs are upright with the port directed upward to prevent the loss of lubricant. On the 750 through 5000 series, place the gas spring horizontally with the port up to prevent the loss of lubricant when exhausting.

Remove the dust cover from the gas spring. (On the 250 and 300 series it is the Allen screw in the top of the piston. On the 750 through 5000 series it is the slotted plug at the base of the gas spring body.)

Keeping hands and face clear, depress the stem of the needle valve with a screwdriver or an Allen wrench until all gas is exhausted.

CAUTION: Before servicing the gas spring, verify that all gas has been exhausted by fully compressing the piston rod into the gas spring body by hand.

If you cannot depress the piston rod manually, repeat the above steps. If it is still not possible, contact your Danly Representative.

Charging the gas springs

Make sure that the piston rod is in the fully extended position.

Connect the charging assembly to the gas spring where the dust cover was.

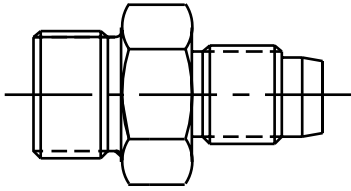
Charge the gas spring to the desired pressure.

CAUTION: The highest recommended and approved pressure is 2000 psi.

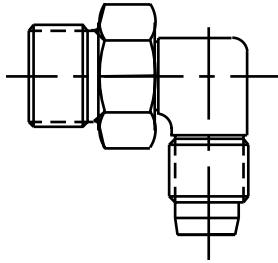
Test the gas spring for leaks by submerging into a tank of water and checking for bubbles.

After charging and testing, remove the charging assembly and replace the dust cover.

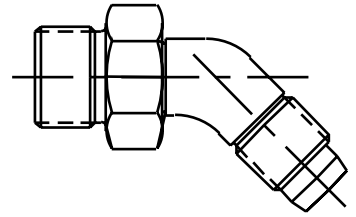
GAS SPRING TO HOSE FITTINGS



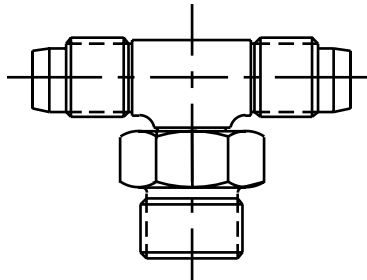
Straight cylinder to hose fitting: **6F50X-S**



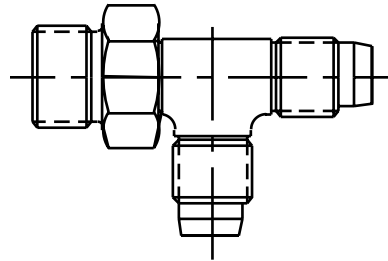
90° cylinder to hose fitting: **6C50X-S**



45° cylinder to hose fitting: **6V50X-S**

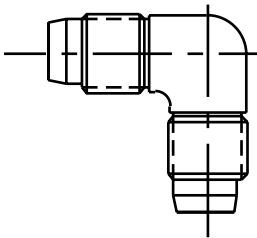


"T" hose to cylinder fitting: **6S50X-S**

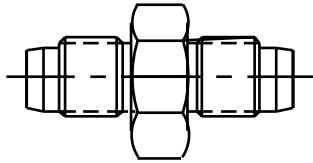


"T" cylinder to hose fitting: **6R50X-S**

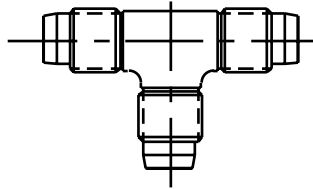
HOSE TO HOSE FITTINGS



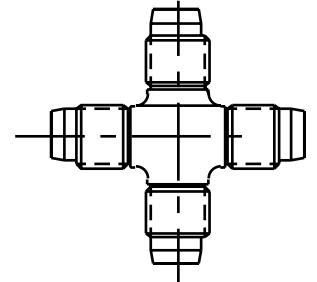
90° hose fitting: **6ETX-S**



Straight hose to hose fitting: **6HTX-S**

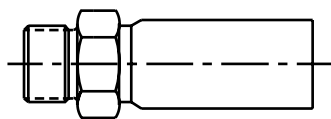


"T" hose to hose fitting: **6JTX-S**



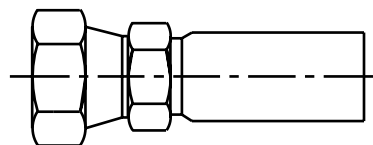
4-way hose to hose fitting: **6KTX-S**

SWIVELS



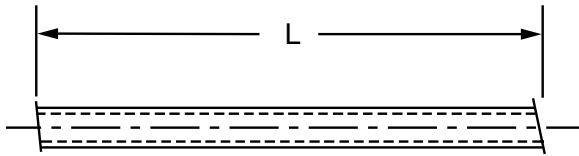
1/4" male hose swivel: **10555-6-4**

3/8" male hose swivel: **10555-6-6**

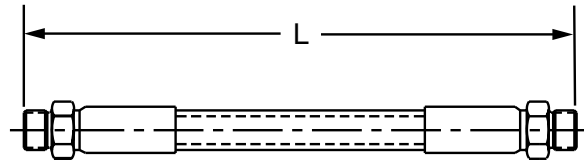


1/4" female hose swivel: **10655-6-4**

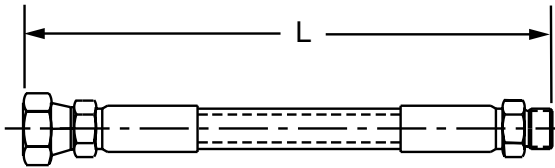
3/8" female hose swivel: **10655-6-6**



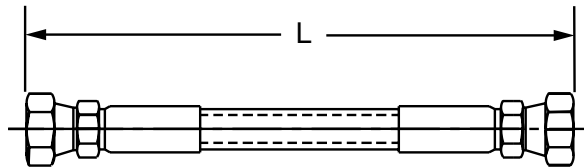
1/4" hose: **540N-4**
 3/8" hose: **540N-6**



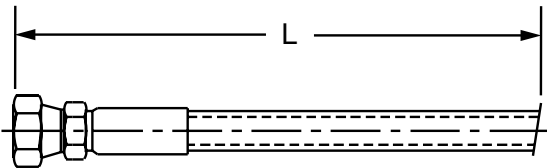
1/4" hose with 1/4" male swivels: **540N0505-6-6-4**
 3/8" hose with 3/8" male swivels: **540N0505-6-6-6**



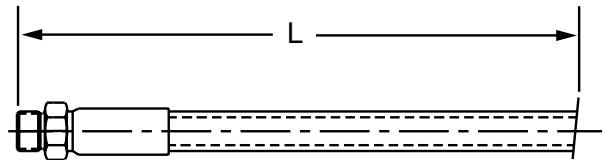
1/4" hose with 1/4" male & female swivel: **540N0605-6-6-4**
 3/8" hose with 3/8" male & female swivel: **540N0605-6-6-6**



1/4" hose with 1/4" female swivel: **540N0606-6-6-4**
 3/8" hose with 3/8" female swivel: **540N0606-6-6-6**

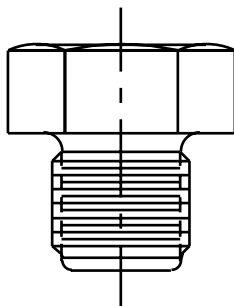


1/4" hose with female swivel: **540N06-6-4**
 3/8" hose with female swivel: **540N06-6-6**

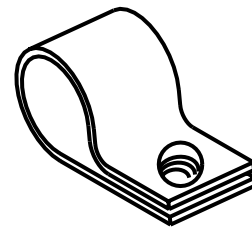


1/4" hose with male swivel: **540N05-6-4**
 3/8" hose with male swivel: **540N05-6-6**

All of the above hoses sold in foot lengths (L). Please specify desired length in feet at time of order.

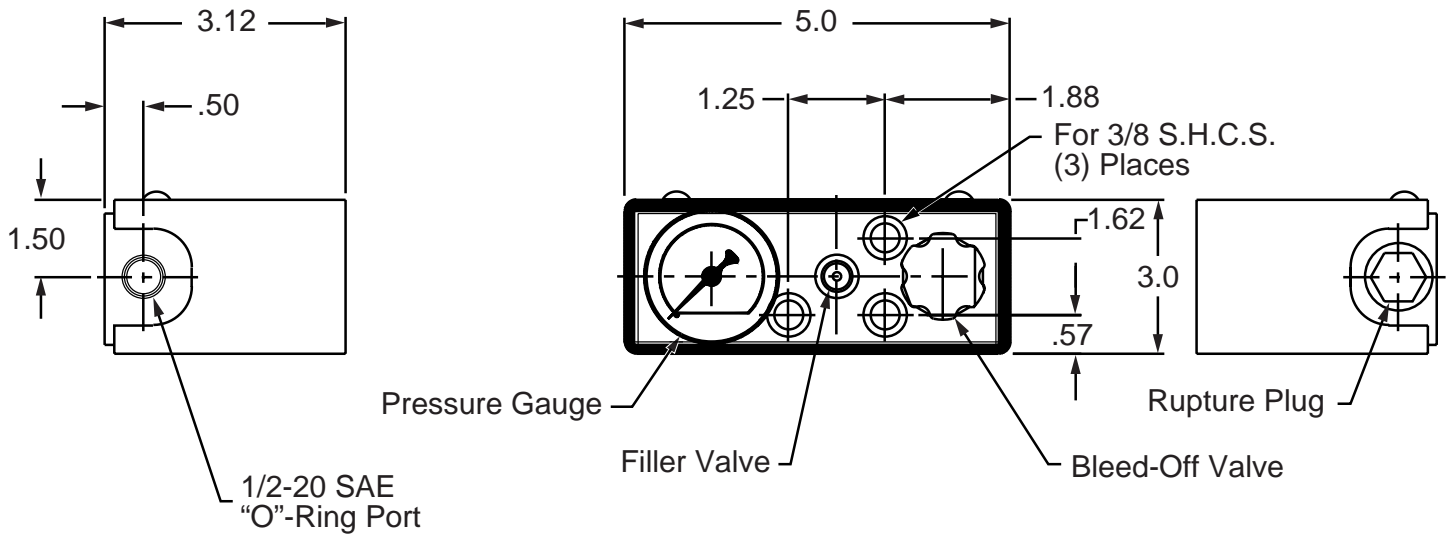


Rupture plug: **4362-01**



Hose clips for 1/4" hose: **CL-9**
 Hose clips for 3/8" hose: **CL-12**

The SYSTEM CONTROL PANEL (part #SC-1) is used for filling and discharging a series of gas springs. The SYSTEM CONTROL PANEL is mounted outside the die and is constructed of high strength aluminum and protected with a steel housing. The SYSTEM CONTROL PANEL (SC-1) is equipped with a 5000 PSI liquid filled 1 1/2" diameter face gauge, bleed-off valve, filler valve (threaded) and for safety, a rupture plug. The threaded filler valve is standard, for a quick-disconnect filler valve order SYSTEM CONTROL PANEL. A port plug is provided in the unused port.



1. **CHANGES:** Buyer agrees not to make changes to the materials, specifications or to the delivery schedule set forth on the face hereof without the prior written consent of Seller.
2. **PAYMENT:** All amounts payable shall be paid in United States funds. Should Seller at any time consider that conditions do not warrant shipment on the terms of payment stated in this contract, Seller shall have the right to change the terms of payment and/or require payment as a condition of shipment, notifying Buyer whenever this right is exercised. Seller shall not be required to proceed or continue with performance of Buyer's order while Buyer is in default under this or any other contract with Seller or upon the dissolution, liquidation, suspension of business or insolvency of Buyer or the commencement of any proceeding under any bankruptcy or debtor law by or against Buyer. If progress payments are specified herein, Seller may suspend production, shipment or delivery until all such payments then due are paid in full by Buyer. Acceptance by Buyer of each delivery shall constitute a separate contract with respect to the amount thereof. Seller may recover for each shipment as a separate transaction, without reference to any other shipment.
3. **EXCUSABLE FAILURE TO PERFORM:** Failure of Seller to make delivery when due, if such failure is due to any contingency beyond the control of Seller such as, but not limited to, acts of God, bad weather, strikes or other labor disturbances, shortages of or inability to obtain raw materials, utilities, fuel, transportation or equipment, fire, floods, explosions or other casualties, wars or civil disturbances, insurrection or riots, breakage or accident to machinery or equipment, compliance with any federal, state or local law, order or regulation or any other cause beyond such control (including a failure of any supplier or contractor to perform) interfering with the manufacturing or shipment of the materials affected shall not subject Seller to any liability to Buyer.
4. **TAXES:** In the event that Seller may be required to pay any excise, sale or use taxes, duties or other charges or increases upon the manufacture, sale or transportation of the materials sold not now specifically included in the price on the face hereof, Buyer shall reimburse Seller for same.
5. **TRANSPORTATION:** If Buyer requires a means of transportation, other than that selected by Seller, any extra cost incurred by reason of using such other means shall be paid by Buyer. If freight is included in the contract price and the present freight rates are changed, Seller shall receive the benefit of any increase and Buyer shall receive the benefit of any reduction.
6. **TITLE:** Title and risk of loss to all materials sold shall pass to Buyer upon Seller's delivery to carrier at point of shipment (whether or not Seller pays any part of the freight) or if Seller stores the materials for the account of Buyer at Seller's facility, then title and risk of loss shall pass to Buyer at the time of storage.
7. **INSPECTION AND REPLACEMENT:** Buyer shall inspect the materials and accept or reject same within forty-eight (48) hours after delivery of the materials at Buyer's facility. If the materials shall appear not to conform to the contract, Buyer shall notify Seller of such condition and allow Seller a reasonable opportunity to inspect the material. No materials shall be returned by Buyer without Seller's prior written consent. If the materials furnished to Buyer shall fail to conform to the contract, Seller shall furnish instructions to Buyer for the replacement of such nonconforming material at Seller's expense.
8. **WARRANTY:** Seller warrants that all new materials of its manufacture delivered to the original Buyer by Seller shall conform to the written specifications of Buyer and shall be free from defects in material or workmanship under normal use and service for a period of six (6) months from date of shipment. Seller makes no warranty with respect to materials which are manufactured by others. Any materials not manufactured by Seller are sold only under such warranty as the manufacturer gives to Seller. Seller makes no guaranty as to the enforceability of such warranty but shall use reasonable

efforts to assist Buyer in asserting a claim under such warranty of the manufacturer. Buyer's exclusive remedy is to secure repair or replacement at Seller's option, of any portion of the materials of its manufacture, which, upon prior inspection by Seller, shall prove to have been defective. Upon notification by Buyer, Seller will either request that the materials be returned F.O.B. Seller's plant or Seller may elect to make inspection at Buyer's plant. Materials found defective by Seller during such warranty period will be replaced F.O.B. Seller's plant. The provisions of this warranty shall not apply to materials which have been subject to accident, overloading, misuse or negligence by Buyer, its agent, employees, contractors or invitees, or which shall have been installed, maintained, repaired, or altered by other than Seller in any way so as, in the reasonable judgment of Seller, to affect adversely its performance and condition, nor to the replacement of parts required for normal maintenance services, nor to deterioration due to normal wear and tear. THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

9. **LIABILITY:** In no event shall Seller be liable to Buyer for consequential, special or incidental damages. In the event that the materials do not conform to the contract, Buyer's exclusive remedy, whether in contract, negligence, special liability or otherwise, is to secure repair or replacement of the materials as specified in Paragraph 7 above. In all other events, Seller's liability for damages to Buyer under this contract shall in no case exceed so much of the purchase price as is applicable to that portion of the particular shipment with respect to which damages are claimed.
10. **INFRINGEMENT:** If a claim is made or an action is brought or threatened for infringement of any patent, trademark, tradename or copyright, or any related litigation, arising out of the manufacture or sale of the materials in accordance, in whole or in part, with the designs or specifications of Buyer, Buyer shall indemnify Seller against any and all damages, liabilities, losses, and expenses, including reasonable attorneys' fees, incurred by Seller in connection with such claim or action and shall defend such action at Buyer's expense if requested by Seller.
11. **SELLER'S PROPERTY:** All jigs, fixtures, dies, tools, patterns or other special equipment charged by Seller to Buyer shall remain the property of Seller. All designs, drawings, specifications or other technical information disclosed by Seller to Buyer and any modifications or improvements thereof shall (i) be the property of Seller and shall be treated as confidential by Buyer and shall not be disclosed to others without the prior written approval of Seller, (ii) be used by Buyer only in connection with its use of the materials sold by Seller, (iii) not be used by Buyer for the production of materials by Buyer or any third party without the prior written consent of Seller and (iv) be delivered to Seller at its written request upon completion or termination of this order provided, however, that this confidentiality obligation shall not apply to information which is made available to the general public.
12. **ASSIGNMENT:** This contract is not assignable by Buyer in whole or in part without the prior written consent of Seller.
13. **ENTIRE AGREEMENT:** No statement of agreement, oral or written, made prior to or at the signing hereof, shall vary or modify the written terms hereof. Neither party shall claim any modification, waiver or release from any provision by mutual agreement unless such agreement is in writing signed by the other party. No modification or addition to this contract shall be affected by the acknowledgement or acceptance by Seller of any purchase order or other documents submitted by Buyer containing additional or different terms or conditions.
14. **APPLICABLE LAW:** This contract and the respective rights and obligations of the parties shall be governed by and construed according to the laws of the state from which the materials are shipped.

Custom Order Fax Form



If you would like Danly to determine which nitrogen gas spring would replace your current brand, or to order a custom size, please fill out this form and fax. From the information below, we will provide a price and delivery quotation for a quality unit that meets your specifications.

Date: _____

P.O. Number: _____

Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Fax: _____

Current gas spring model _____

Current gas spring series _____

Stroke travel distance _____

Mounting style _____

Is your current cylinder: self-contained
 hosed system

Quantity: _____

Please fill in the following dimensions
(please print clearly):

A (piston rod diameter): _____

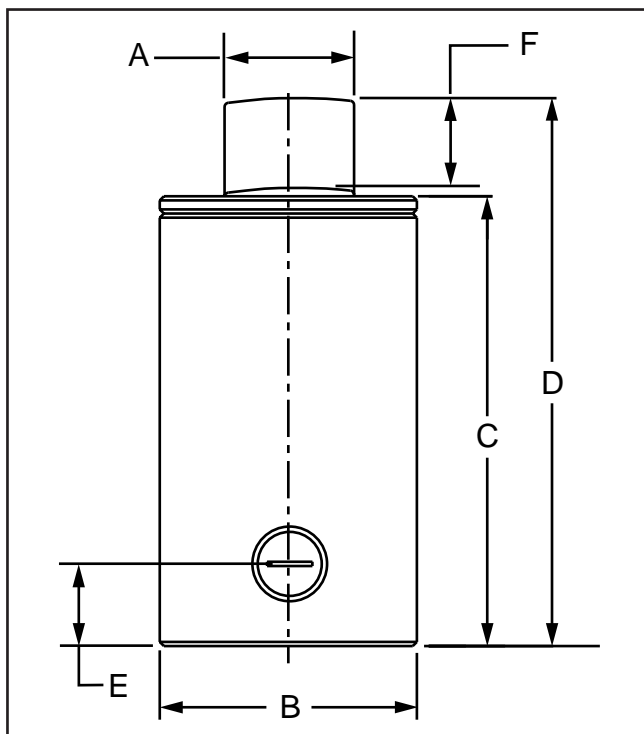
B (cylinder diameter): _____

C (length of spring body): _____

D (length of spring body
with rod in extended position): _____

E (distance to inlet valve
compartment, if applicable): _____

F (stroke) _____



Provide sketch of mount, if needed, and fax on separate sheet of paper.

Special notes or instructions: _____

FAX TO: 1-800-833-2659



Die Sets and Diemakers' Supplies



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2115 South 54th Avenue
Chicago, IL 60804-2284

www.danly.com

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