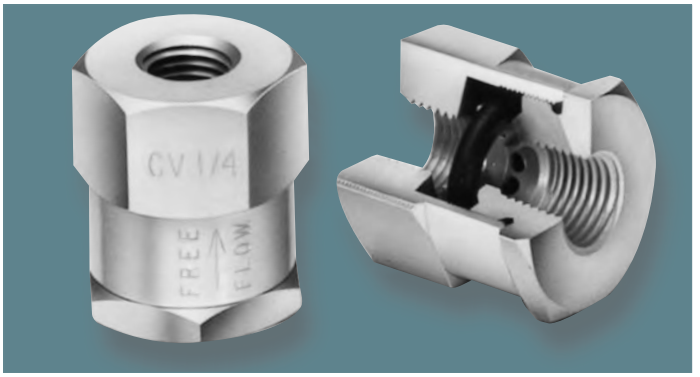
FLAIRLINE® CHECK VALVES AND FLOW CONTROLS

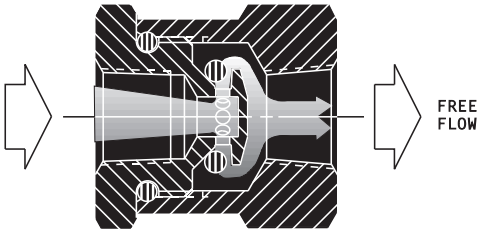
CHECK VALVES

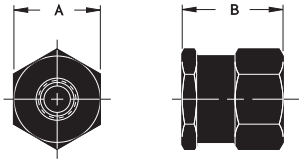
O-CHECK®

SERIES CV

Lightweight aluminum O-Check® features a dilating O-ring as the only moving part. Quick to open, quick to close, O-Check 'out-flows' the competition, will last millions of cycles (factory tests to 50 million cycles show no discernible wear) and always provides positive sealing (no bubble leakage). Standard NPTF sizes 1/8", 1/4", 3/8", 1/2" and 3/4"and orifices available for fixed flow control applications.







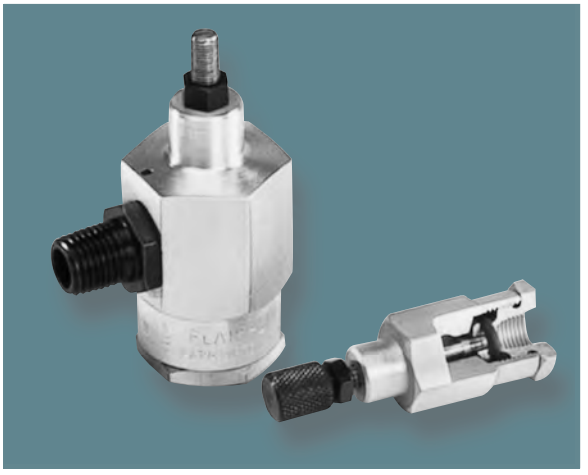
Model No.	Pipe Thread	A	B
CV-1/8	1/8-27	3/4	15/16
CV-1/4	1/4-18	1 1/8	1 5/16
CV-3/8	3/8-18	1 1/8	1 5/16
CV-1/2	1/2-14	1 5/8	1 9/16
CV-3/4	3/4-14	1 7/8	2 5/16

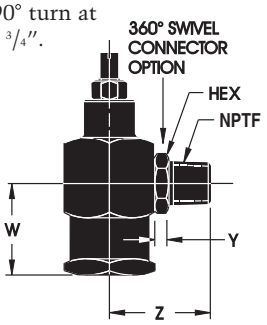
FLOW CONTROLS

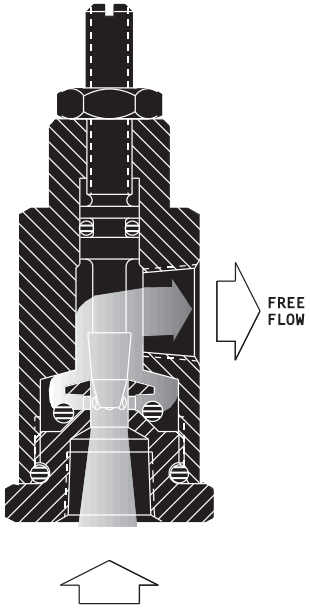
RIGHT ANGLE FLOW CONTROL

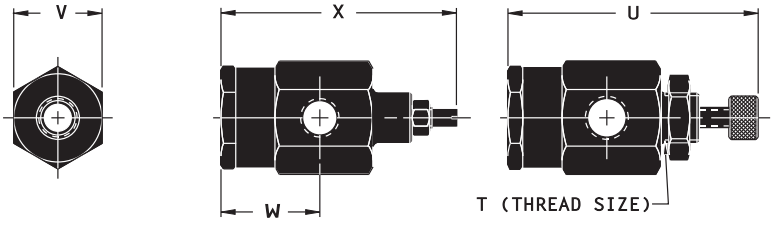
SERIES RFC

Flairline right angle flow controls incorporate O-Check as the by-pass valve. RFC permits full free flow in one direction, accurately metered flow in opposite direction. Standard metering needle design includes compound needle taper of 5° and 15° and fine adjustment stem threads (RFC 1/4 for example is 1/4"-36). Right angle design eliminates the need for pipe ell normally used to make 90° turn at cylinder port. Standard NPTF sizes 1/8", 1/4", 3/8", 1/2" and 3/4". Adjustment knobs and panel mounting available (NPTF sizes 1/8", 1/4" and 3/8" only). Optional swivel connector allows "direct" cylinder mounting and 360° rotation for ease of installation and space saving (NPTF sizes 1/8", 1/4", 3/8", and 1/2" only).



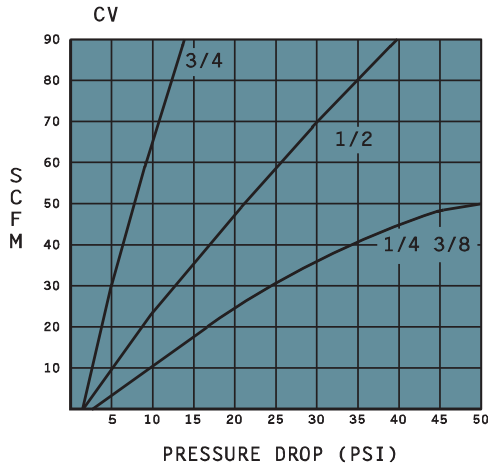


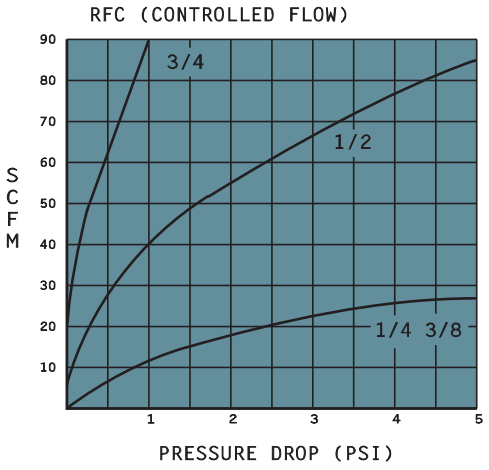


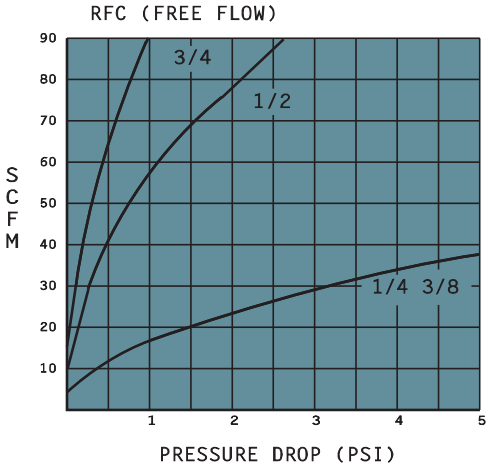


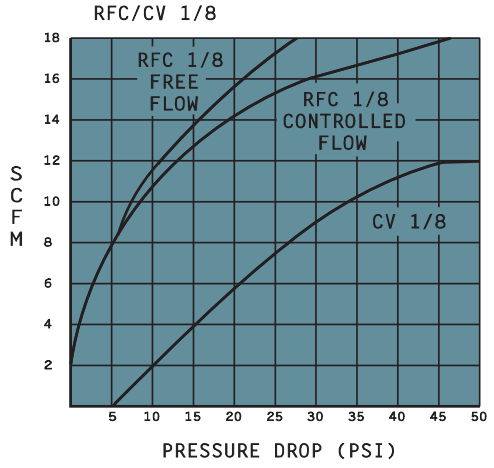
	Right Angle Flow Control Model RFC-(NPTF)							
NPTF	T	U	V	W	X	Y	Z	HEX
1/8	1/2-20	2 7/16	3/4	7/8	2 1/8	.13	.91	1/2
1/4	5/8-18	3 3/16	1 1/4	1 1/4	3	.15	1.34	3/4
3/8	5/8-18	3 3/16	1 1/4	1 1/4	3	.15	1.34	3/4
1/2			1 5/8	1 5/8	3 3/4	.28	1.84	7/8
3/4			2	1 1/4	3 3/4			

FLOW CHARTS









SPECIFICATIONS

Operating Pressure: 250 psi
Operating Temperature Range: –40° - +225°F.
Standard O-Ring Material: Buna-N (Viton available on 1/8", 1/4" and 3/8" NPTF models)
Standard Valve Body Material: Aluminum
Standard Needle Material: Brass
Standard Swivel Connector Material: Zinc-Plated Steel

FEATURES

- Flairline Valves' compact design add to the appearance of any type of equipment.
- All Flairline Valves are individually tested before they leave the factory.
- Tests up to 50 million cycles show no discernible wear and still perform "bubble-tite."

ORDERING INSTRUCTIONS

EXAMPLE: RFC 1/8 PK

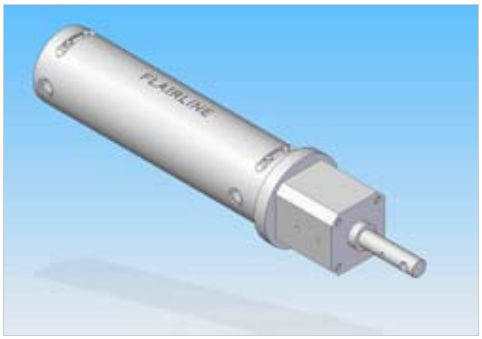
SERIES	CODE	NPTF	OPTIONS	CODE	O-RINGS	CODE
O-Check	CV	1/8 to 3/8	1/32 Orifice	031	Buna-N (Standard) Viton	V
			1/16 Orifice	063		
			3/32 Orifice	094		
		1/2 and 3/4	1/8 Orifice	125	Buna-N (Only)	
			*Contact Factory for other sizes			
Right Angle Flow Control	RFC	1/8 to 3/8	Knob	K	Buna-N (Standard) Viton	V
			Panel Mount	P		
			Knob & Panel Mt.	PK		
			Swivel	S		
			Swivel & Knob	SK		
		1/2	Swivel	S	Buna-N (Only)	
		3/4				

All specifications and dimensions are subject to change without notice.

FLAIRLINE® TORQUE REACTION AIR BALANCER (TRAC)

This product is designed to provide ergonomic assistance to operators and operations where repetitive weight lifting is required. The TRAC provides a nearly zero G lifting force for the operator assisted machining or assembly operations. The Flairline non-rotating torque cylinder counteracts the twisting load of the rod attached equipment and maintains the proper orientation for the operator. This product makes operators and processes more efficient and reduces costs. The non-rotating system is completely enclosed within the cylinder making it more compact and efficient. TRAC product is available in Light duty and Medium Duty model.

Features and Benefits are:



- Unique low friction technology
- Near Zero Gravity movement
- Built for millions of cycles
- Compact design
- Easily repairable
- Competitively priced
- Easy Mounting Cap End
- NFPA pivot mounts standard
- Rod Locking optional
- Low Maintenance

Specifications	Medium Bore	Large Bore
Bore	2.500 In. (63mm)	4.000 IN. (100mm)
Rod Diameter	.625 IN. (16mm)	1.000 IN. (25mm)
Lifting Capacity	250 lb (110kg)	700 lb (315kg)
Push / Pull Force	3.3lb - ft (1.5kg)	6.6lb-ft (3kg)
Twist / Load	102Nm	150Nm
Pressure Rating	90 psi (7 bar)	
Standard Strokes	Any stroke through 20 inches	

FLAIRLINE® BORETTI SILENCERS

Flairline offers a complete line of silencers with outstanding features and performance to quiet noisy air-operated devices and prolong the life of your air tools. The **Boretti** silencers reduce air turbulence upsteam, within the silencer and upon exhaust thus providing less irritating air exhaust and excellent muffling performance than other silencers.

Features:

- Quiet exhaust operation
- Low exit velocity
- Easy installation
- Inexpensive models
- Reduces blockage from dirty air
- 8 models from 1/8" to 1" NPT
- Miniature size available

Maximum Operating Pressure - 300 psig (20.7 bars)
Maximum Operating Temperature - 160 degree F (71 degrees C)

Pipe Size	Model No. *	Thread	Flow Factor CV	Diam. In.	Overall Length In.	Weight in Oz.
1/8	1000-1	Male	1.0	3/4	1	1/2
1/4	1000-2-F	Female	2.3	1/8	2	1-1/4
3/8	1000-3-F	Female	5.5	1-1/4	2-61/64	3
1/2	1000-34-F	Female	6.6	1-1/4	2-61/64	3
1/2	1000-4-F	Female	7.0	1-1/2	3-25/32	5-2/3
3/4	1000-46-F	Female	8.0	1-1/2	3-25/32	5-2/3
3/4	1000-86-F	Female	19.0	2	4-43/64	.715
1	1000-8-F	Female	19.8	2	4-43/64	.665

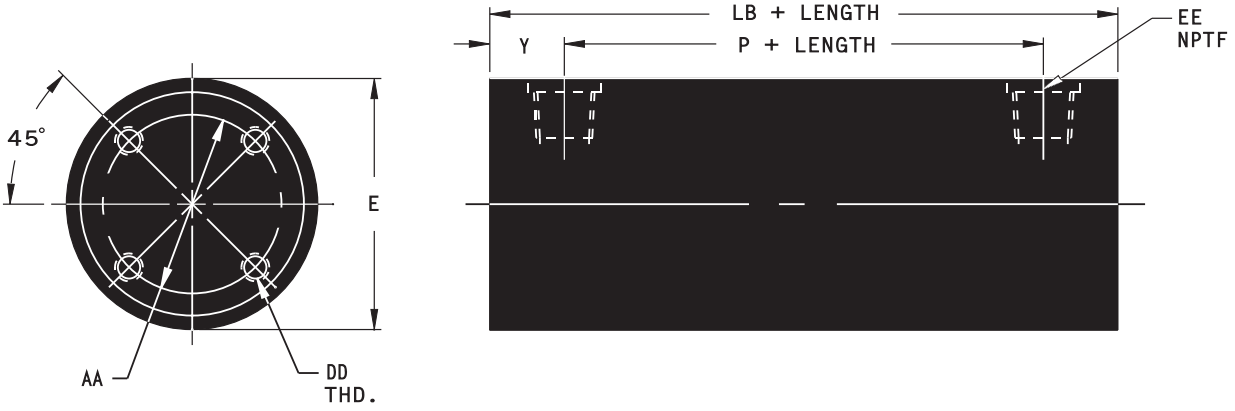
* Substitute suffix “M” for “F” for Male thread.

VOLUME CHAMBERS

Flairline offers a wide range of volume chambers for a variety of uses. These volume chambers are constructed of lightweight aluminum caps and barrels. The barrels are hard-anodized for corrosion resistance. The optional mountings are NFPA interchangeable and are made of anodized aluminum or oxided steel. See page 24 for mounting styles.

For ordering information, see page 18.

Standard Bore Sizes – 1 1/2, 2, 2 1/2, 3 1/4, 4
Length Sizes – Any length up to 130″
Pneumatic – 150 psi maximum
Hydraulic – consult factory



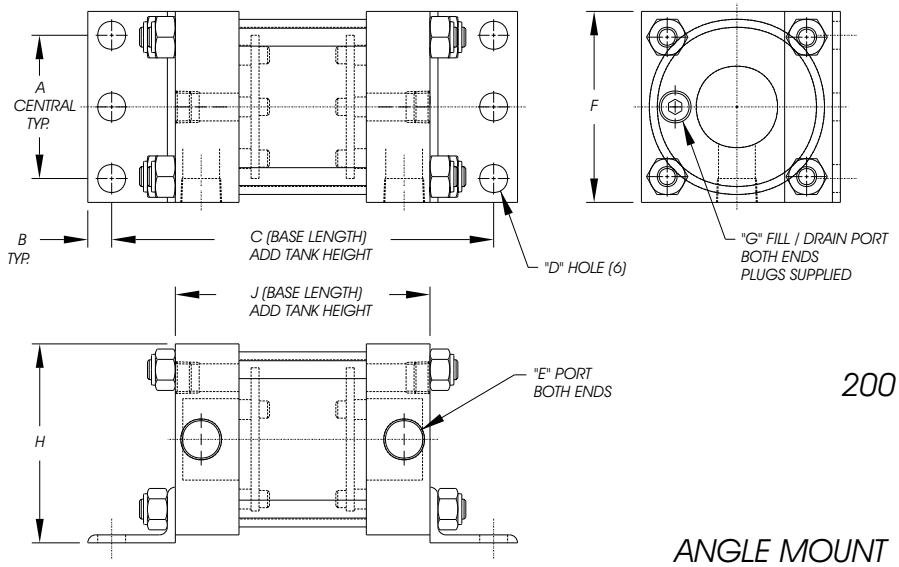
DIMENSIONAL DATA

Bore Size	DIMENSIONS						
	AA	E	DD	EE	LB	P	Y
1 1/2	1.21	1 3/4	#6-32 X 1/2	1/4-18	3 5/8	2.29	.67
2	1.60	2 1/4	1/4-20 X 5/8	1/4-18	3 5/8	2.29	.67
2 1/2	2.00	2 3/4	5/16-18 X 3/4	1/4-18	3 3/4	2.42	.67
3 1/4	2.62	3 1/2	3/8-16 X 7/8	1/2-14	4 1/4	2.44	.91
4	2.62	4 1/4	3/8-16 X 7/8	1/2-14	4 1/4	2.44	.91

VOLUME DATA

Bore Size	DIMENSIONS	
	Basic Volume (add to total)	Add per 1.0 inch of length
1 1/2	1.95 in^3	1.77 in^3
2	3.35 in^3	3.14 in^3
2 1/2	4.14 in^3	4.91 in^3
3 1/4	8.45 in^3	8.30 in^3
4	11.29 in^3	12.57 in^3

FLAIRLINE® Air/Oil Tanks AO Series



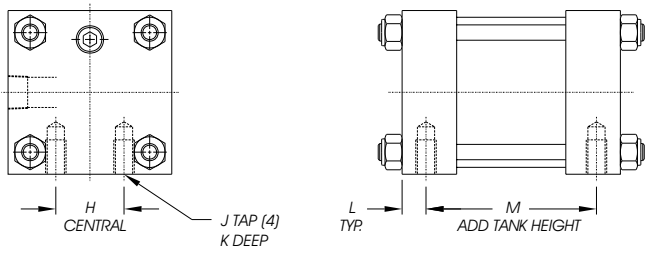
200 PSI MAXIMUM RATING

ANGLE MOUNT

BORE SIZE	AREA	*GALS./ INCH	DIM. A	DIM. B	DIM. C	DIA. D	PORT E	DIM. F	PORT G	DIM. H	DIM. J
2.000	3.14	.0135	1.75	.38	4.00	.44	3/8	2.50	1/4	2.69	2.00
2.500	4.90	.0212	2.25	.38	4.00	.44	3/8	3.00	1/4	3.13	2.00
3.250	8.29	.0358	2.75	.50	5.00	.56	1/2	3.75	3/8	3.81	2.50
4.000	12.56	.0544	3.50	.50	5.00	.56	1/2	4.50	1/2	4.50	2.50
5.000	19.63	.0849	4.25	.63	5.25	.69	1/2	5.50	1/2	5.50	2.50
6.000	28.27	.1223	5.25	.63	5.75	.81	3/4	6.50	3/4	6.50	3.00
8.000	50.26	.2175	7.13	.69	6.63	.81	3/4	8.50	3/4	8.50	3.00

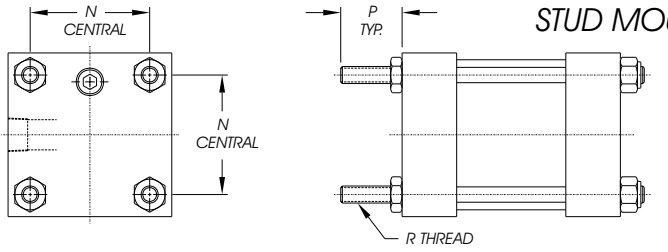
** THIS IS TOTAL INTERNAL VOLUME, NOT RECOMMENDED USABLE OIL CAPACITY.*

TAPPED MOUNT



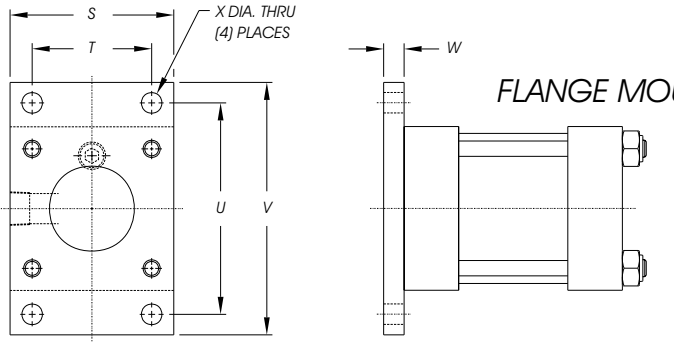
BORE SIZE	DIM. H	THREAD J	DIM. K	DIM. L	DIM. M
2.000	.88	5/16-18	.50	.44	1.13
2.500	1.25	3/8-16	.63	.44	1.13
3.250	1.50	1/2-13	.81	.56	1.38
4.000	2.06	1/2-13	.81	.56	1.38
5.000	2.69	5/8-11	1.0	.56	1.38
6.000	3.25	3/4-10	1.19	.69	1.63
8.000	4.50	3/4-10	1.25	.69	1.63

STUD MOUNT



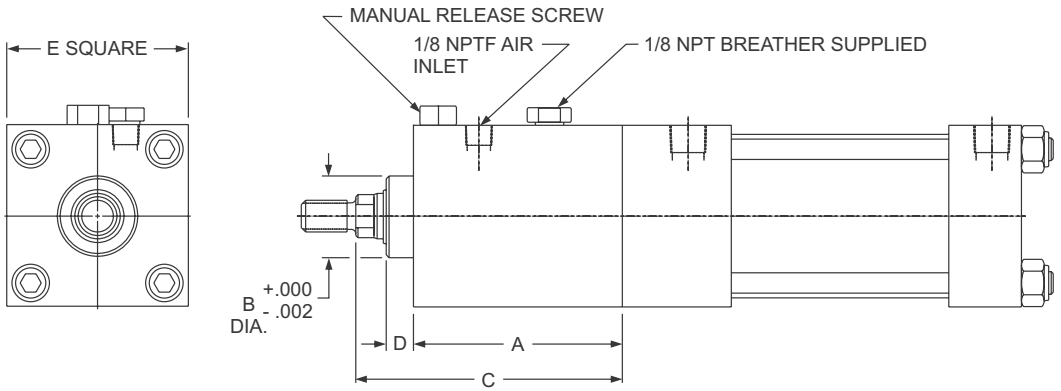
BORE SIZE	DIM. N	DIM. P	THREAD R
2.000	1.84	1.13	5/16-24
2.500	2.19	1.13	5/16-24
3.250	2.76	1.38	3/8-24
4.000	3.32	1.38	3/8-24
5.000	4.10	1.81	1/2-20
6.000	4.88	1.81	1/2-20
8.000	6.44	2.31	5/8-18

FLANGE MOUNT



BORE SIZE	DIM. S	DIM. T	DIM. U	DIM. V	DIM. W	DIA. X
2.000	2.50	1.84	3.38	4.13	.38	.38
2.500	3.00	2.19	3.88	4.63	.38	.38
3.250	3.75	2.76	4.69	5.50	.63	.44
4.000	4.50	3.32	5.44	6.25	.63	.44
5.000	5.50	4.10	6.63	7.63	.63	.56
6.000	6.50	4.88	7.63	8.63	.75	.56
8.000	NOT AVAILABLE					

FLAIRLINE® ROD LOCK | DIMENSIONAL DATA



T, TL, TLS, TS SERIES CONSTRUCTION
REFER TO CATALOG FL-16 FOR DIMENSIONS NOT SHOWN

			*PART NUMBERS		DIMENSION					
BORE/ROD COMBINATION	RATED FORCE	MANUAL RELEASE TORQUE)(FT-LBS)	BASE	WITH MANUAL RELEASE OPTION	A STANDARD	A WITH MANUAL RELEASE OPTION	B	C	D	E
1.500/.625	180	2	LK1563	LK1563MR	2.400	2.625	1.124	3.375	.375	2.00
2.000/.625	314	5	LK2063	LK2063MR	2.440	2.875	1.124	3.625	.375	2.50
2.000/1.000	250	5	LK2010	LK2010MR	3.375	3.875	1.499	4.875	.500	2.50
2.500/.625	491	7	LK2563	LK2563MR	2.540	2.875	1.124	3.750	.500	3.00
2.500/1.000	491	7	N/A	LK2510MR	N/A	4.000	1.499	5.000	.500	3.00
3.250/1.000	830	17	LK3210	LK3210MR	4.000	4.500	1.499	5.500	.500	3.75
3.250/1.375	830	17	N/A	LK3213MR	N/A	4.875	1.999	6.125	.625	3.75
4.000/1.000	1256	45	LK4010	LK4010MR	4.000	4.875	1.499	5.875	.500	4.50
4.000/1.375	1256	45	LK4013	LK4013MR	4.188	5.125	1.999	6.500	.750	4.50
5.000/1.000	1963	72	LK5010	LK5010MR	4.438	5.375	1.499	6.375	.500	5.50
5.000/1.375	1963	72	LK5013	LK5013MR	4.188	5.750	1.999	7.125	.750	5.50
6.000/1.375	2830	135	LK6013	LK6013MR	5.340	6.375	1.999	7.750	.750	6.50
6.000/1.750	2830	135	LK6017	LK6017MR	N/A	6.875	2.374	8.750	.875	6.50
**8.000/1.375	5026	160	N/A	LK8013MR	N/A	6.625	1.999	8.250	.750	8.50
**8.000/1.750	5026	160	N/A	LK8017MR	N/A	7.125	2.374	9.000	.875	8.50

*Base locks are supplied without manual release option and have brushed aluminum finish. Locks with manual release option are supplied with black anodize coating.

**The 8 inch bore locks are held on with tie rods. Refer to catalog for clearance dimensions for the tie rod nuts.

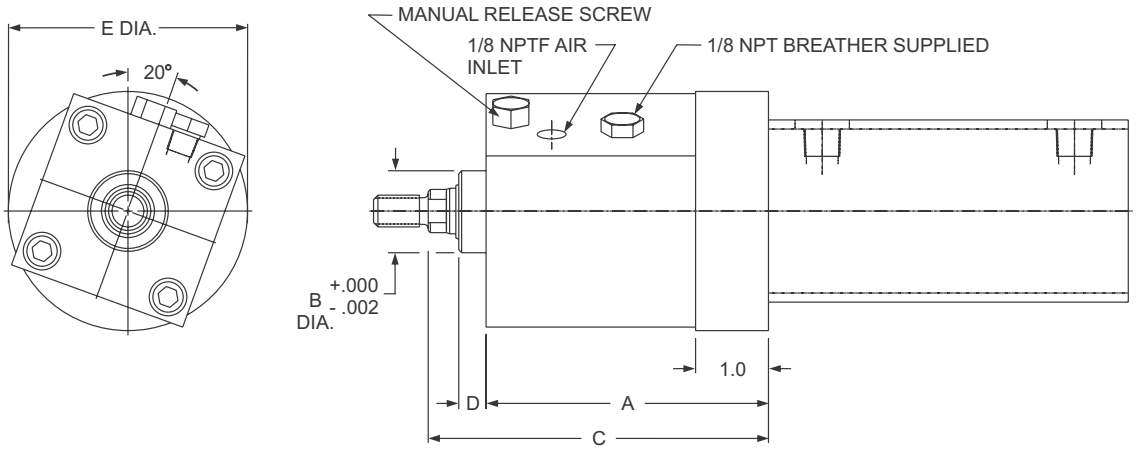
Standard mounting configuration to tie rod cylinder requires head to be threaded (FC1 mount).

Not all NFPA mounting configurations will work with rod lock attached. Contact factory for questions regarding mount styles.

Rod locks used with low-friction style cylinders do not increase running friction of cylinders.

TO ORDER FLAIRLINE CYLINDERS WITH ROD LOCKS INSTALLED, THE ROD LOCK PART NUMBER MUST BE INCLUDED AT THE END OF THE STANDARD CYLINDER DESCRIPTION. EXAMPLE: TL 2-1/2 x 10, MP2, LK2563MR

FLAIRLINE® ROD LOCK | DIMENSIONAL DATA



FI, OI, OILF SERIES CONSTRUCTION
REFER TO CATALOG FL-32 FOR DIMENSIONS NOT SHOWN

			*PART NUMBERS		DIMENSION					
BORE/ROD COMBINATION	RATED FORCE	MANUAL RELEASE TORQUE (ft-lbs)	BASE	WITH MANUAL RELEASE OPTION	A STANDARD	A WITH MANUAL RELEASE OPTION	B	C	D	E
1.500/.625	180	2	LK1563AP	LK1563APMR	3.400	3.625	1.124	4.375	.375	2.84
2.000/.625	314	5	LK2063AP	LK2063APMR	3.440	3.875	1.124	4.625	.375	3.54
2.500/.625	491	7	LK2563AP	LK2563APMR	3.540	3.875	1.124	4.750	.500	4.25
3.250/1.000	830	17	LK3210AP	LK3210APMR	5.000	5.500	1.499	6.500	.500	5.31
4.000/1.000	1256	45	LK4010AP	LK4010APMR	5.000	5.875	1.499	6.875	.500	6.38

* Base locks are supplied without manual release option and have brushed aluminum finish. Locks with manual release option are supplied with black anodize coating. Adaptor plate is zinc coated.

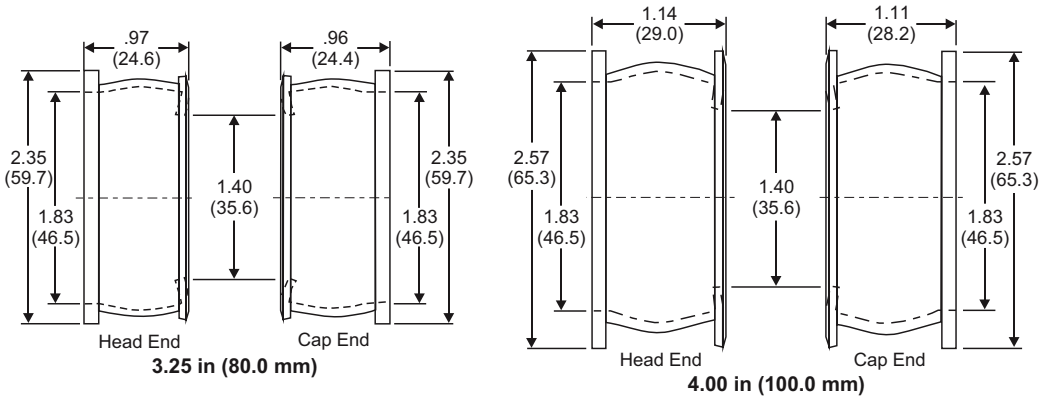
To add rod locks to existing cylinders in the field please contact factory.

Not all NFPA mounting configurations will work with rod lock attached. Contact factory for questions regarding mount styles.

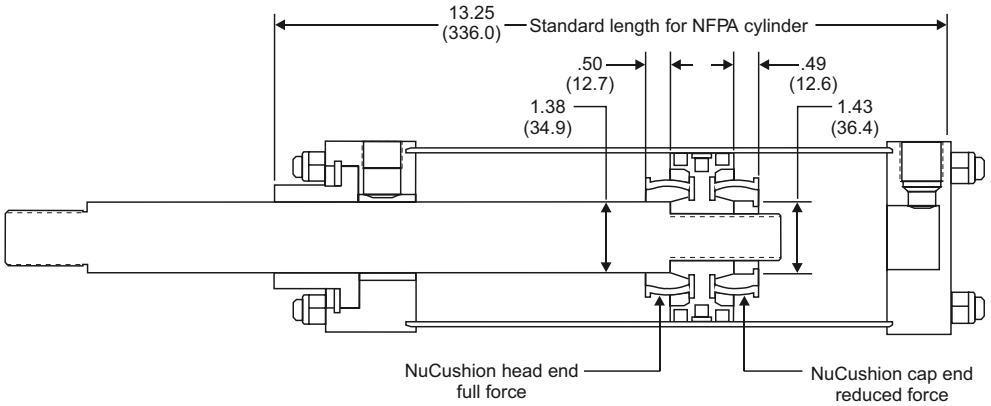
Rod locks used with low-friction style cylinders do not increase running friction of cylinders.

Rod locks can be used on different bore/rod combinations other than those listed. Contact factory with your requirements.

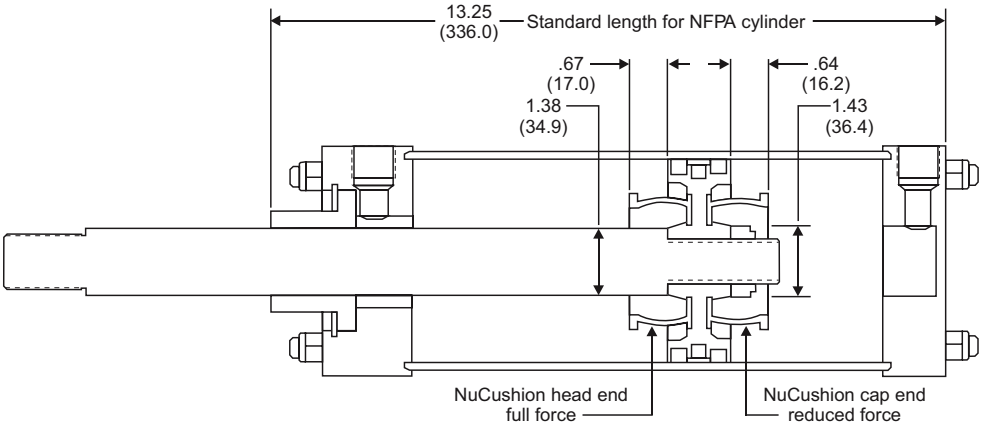
TO ORDER FLAIRLINE CYLINDERS WITH ROD LOCKS INSTALLED, THE ROD LOCK PART NUMBER MUST BE INCLUDED AT THE END THE STANDARD CYLINDER DESCRIPTION.
EXAMPLE: OILF 2-1/2 x 20, HC, MP4, LK2563APMR



NuCushions Installed in Flairline NFPA Pneumatic Cylinders



Flairline NFPA cylinder with NuCushions, 3.25 in (80.0 mm) bore x 8.00 in (200.0 mm) stroke



Flairline NFPA cylinder with NuCushions, 4.00 in (100.0 mm) bore x 8.00 in (200.0 mm) stroke

NuCushion Specifications for Flairline NFPA Cylinders						
Bore in (mm)	**Rod Size in (mm)**		**Velocity fps (mps)**		**Force lbs (N)**	
	Small	**Large**	**Min.**	**Max.**	**Min.**	**Max.**
3.25 (80.0)	1.00 (25.4)	1.37 (34.8)	0.50 (0.1)	2.50 (0.8)	250 (1,112.0)	560 (2,491.0)
4.00 (100.0)	1.00 (25.4)	1.37 (34.8)	0.50 (0.1)	2.50 (0.8)	375 (1,688.1)	850 (3,780.1)