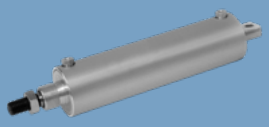
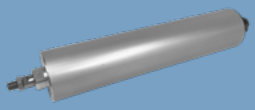
FLAIRLINE

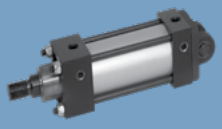
PRODUCT CATALOG



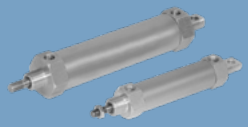
Round Body Repairable Cylinders



NFPA Interchangeable Round Body Cylinders

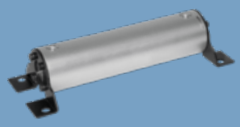


NFPA Tie-Rod Cylinders

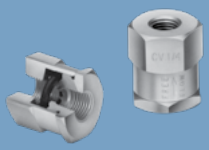


Miniature (Digit) Cylinders

Flow Controls



Volume Chambers & Air Oil Tanks



Check Valves

Boretti Silencers

AMERICAN MADE

MONNIER COMPANIES

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FLAIRLINE

INTRODUCTION

FLAIRLINE

About Us

The durability, reliability, and unique key design of Flairline's products allow the company to exceed the needs and application requirements of its customers. This ability, paired with the cost-effectiveness of Flairline's repairable products, allows the company to provide unmatched service.

Flairline is an established, innovative manufacturer of a wide array of pneumatic and low-pressure hydraulic linear actuators, check valves and flow controls for a multitude of industries.

Custom Solutions

Our unique ability to provide custom solutions has become a cornerstone of Flairline and has established us as a respected industry leader. This ability, combined with the cylinders' unique key design, allows Flairline to provide heavy duty, repairable, economical, and custom solutions for a variety of applications. At Flairline, custom solutions become standard.

The following list is just a few unique engineered products that we have designed and/or modified to meet customers' needs:

- **Submersible low pressure hydraulic cylinders**
- **Puncture-Pin cylinders**
- **Torque Reaction actuators**
- **Multi-sensor cylinders**
- **High performance single-acting cylinders**
- **Low Friction actuators**
- **High performance tie-rod cylinders**

Markets Served

Flairline prides itself on the versatility of its products. The company successfully serves many industries including the following:

- **Food Processing**
- **Fabrication**
- **Ergonomic Assembly**
- **Transportation**
- **Medical**
- **Pharmaceutical**
- **Farming**
- **Dairy**
- **Car Wash**
- **Material Handling**
- **Printing**
- **Packaging**
- **Plastics**
- **And More**

FLAIRLINE WARRANTY

Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

INTRODUCTION

FLAIRLINE

Round Body Cylinders

Flairline offers a broad range of round body cylinders, including the original line, digit series, and NFPA interchangeable cylinders. Carefully constructed with components manufactured to exact tolerances, our products are thoroughly tested to provide outstanding performance and reliability. The machined aluminum components and thick wall sections of our extruded aluminum barrels make Flairline's cylinders the lightweight line with heavy-duty features.

NFPA Tie Rod

Flairline's NFPA Tie Rod series features a machined aluminum construction, providing medium duty cylinders at a lightweight cost. Floating cushion seals with relief grooves offer fast breakaway and positive cushioning. The industry-leading low friction model (TL) operates with minimum breakaway force of 1/2 to 3 psi.

Borrieti Silencers

Boretti Silencers maximize noise reduction of cylinders, valves, and air tools. Borrieti Silencers feature high-flow with low back pressure.

Check Valves

Flairline's lightweight check valves feature a dilating o-ring as the only moving part. This allows quick actuation and millions of trouble-free cycles. Five standard NPT sizes from 1/8" - 3/4" are available, all of which are available with Buna or Viton Seals for high temperature applications. The O-Check design is unique within the industry, and it successfully provides high flow, requires no maintenance, and lengthens the useful life of the valve.

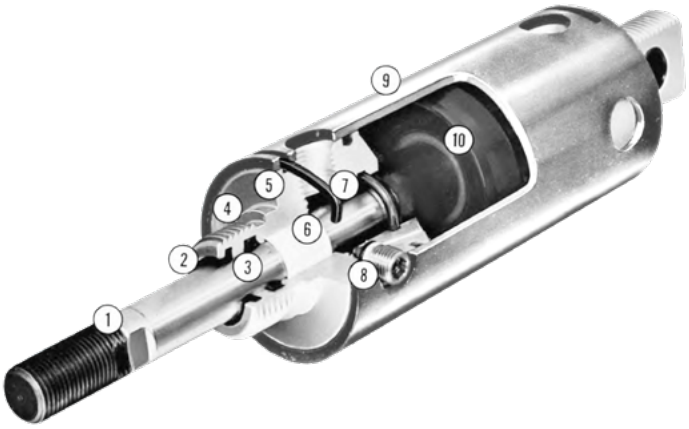
Flow Controls

Flairline's flow control valves incorporate the unique O-Check design for rapid opening and closing without any other moving parts. This unique feature allows free flow in one direction and accurately metered flow in the opposite direction. The right-angle design eliminates additional 90-degree piping to the cylinder port. Standard metering needle design includes compound needle taper of 5 and 15 degrees and fine adjustment stem threads. Five NPT sizes between 1/8" & 3/4" are available, as are adjustment knobs and panel mounting. Optional swivel mounts allow 360 degree rotation for ease of installation.

ROUND BODY CYLINDER CONSTRUCTION

FLAIRLINE

1. Chrome-plated, high-strength, steel **Piston Rods** are corrosion resistant, rugged and durable. Wrench flats behind full rod diameter threads permit easy clevis mounting.
2. High-quality elastomer **Rod Wiper** protects rod seal by preventing contaminants from entering cylinder during retract stroke. Resilient synthetic rubber will not scratch rod.
3. Pressure-energized, U-cup type **Rod Seal** is wear compensating, low friction provides positive sealing.
4. Extra-large **Mounting Threads** and **Machined Grooves** make on-the-job mounting installation fast and secure.
5. Lightweight aluminum **Head** and **Caps** for long corrosion-resistant life.
6. Extra-long, low-friction nylon **Rod Bearing** 'gives' rather than wears under normal side loading. When necessary, service is easy; only the bearing is replaced, not the head. Permanent bronze rod bearing is featured on D and DM type cylinders for the extra side load capability.
7. Heads and caps are held to barrel by means of a **Circumflex Key**. The large square steel locking device requires no special installation tools. Service to head or cap can be done without disassembling the entire cylinder.
8. **Adjustable Cushions** available on 2" bore and larger. Under 2" bore cylinders have fixed cushions.
9. Precision-drawn, lightweight aluminum **Barrels** are hard-anodized inside and out for corrosion and abrasion resistance. Fine I.D. micro-finish provides long life and positive sealing.
10. Several **Piston** styles are offered for various application requirements.



Durability

Flairline's repairable lightweight economical cylinders will out last and out perform competitive non-repairable cylinders.

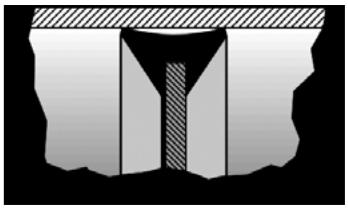
All Flairline cylinders are permanently lubricated for life.

PISTON TYPES

FLAIRLINE

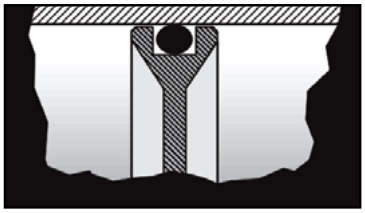
Series **F, O/OLF, H, D, M & DM**

F TYPE



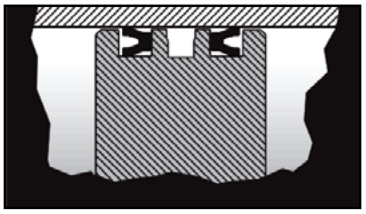
- Pressure energized, wear compensating double lip type. 'Uni-piston' seal (Buna N). Rubber bonded to a plated disc to ensure positive sealing.

O/OLF TYPE



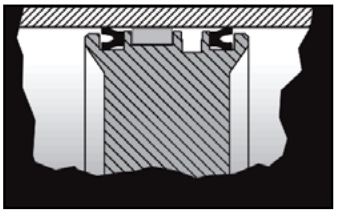
- Dynamic O-ring piston seal (Buna N standard; Viton available only on Series O.)
- Proven to be reliable.
- OLF is a low friction model.

H TYPE



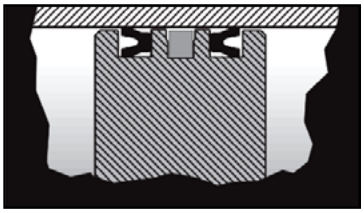
- Pressure energized, wear compensating U-cup piston seals (Buna N standard; Viton available.)

D TYPE



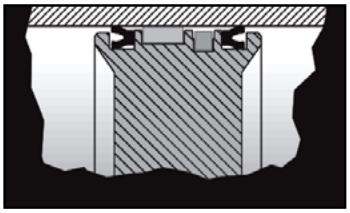
- Pressure energized, wear compensating U-cup piston seals (Buna N standard; Viton available.)
- An acetal wear ring (bearing) prevents metal contact when side laoding contact.

M TYPE



- Pressure energized, wear compensating U-cup piston seals (Buna N standard; Viton available.)
- Piston includes magnet.

DM TYPE



- Pressure energized, wear compensating U-cup piston seals (Buna N standard; Viton available.)
- Piston includes magnet.
- An acetal wear ring (bearing) prevents metal to metal contact when side loading.

Standard Bore Sizes: 1⅛", 1½", 2", 2½", 3¾", 4". **Stroke Sizes:** Any stroke up to 130".
Cushions Available: Either/both ends. **Pneumatic Only:** 150 psi maximum.

MAINTENANCE

Disassembly, Head End

Remove any fittings from the cylinder ports; wrap the **Barrel** in heavy cloth to prevent damage. Place the cap end of the cylinder **Barrel** in a vise.

As you rotate the **Head** counter-clockwise, use a screwdriver to lift the end of the **Circumflex Key** clear of the slot **(FIGURE 1).**

Continue rotation of the **Head**, and the **Circumflex Key** will feed out of the slot **(FIGURE 2).**

Gripping the rod, pull forward. The **Head**, **Rod**, and **Piston** will all come out of the **Barrel (FIGURE 4).**

Screw the **Head** off the **Rod Threads** for ease of clearing **Rod Packing**.

Cap End

Slide the **Head** end back into the barrel to support the **Barrel** and follow the same procedure as above to remove the **Circumflex Key** from the cap end **(FIGURE 3).** If the cylinder has been used in wet or moist external conditions for a long period, the **Circumflex Key** may be corroded. If this is the case, apply penetrating oil into the lock slots prior to disassembly.

FIGURE 1

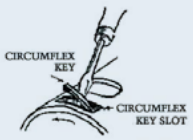


FIGURE 2

FIGURE 3

FIGURE 4

Assembly

Replace the **Piston** (if necessary), **Rod Packings** and **Wiper** and all static seals. Clean the I.D. of the tube thoroughly. Lubricate the **Rod Packings** and the O.D. of the **Piston** prior to assembly. To reassemble the cylinder, follow the above procedure, except the heads will be turned clockwise after the **Circumflex Key** is engaged in the tang hole in the circumflex groove of the head. Turn clockwise until the **Circumflex Key** is completely into the groove and the cylinder head is aligned with the port hole in the **Barrel**. To get the head end over the **Rod Threads** without damaging the packing and wiper, wrap **Rod Threads** with tape.

FLAIRLINE WARRANTY

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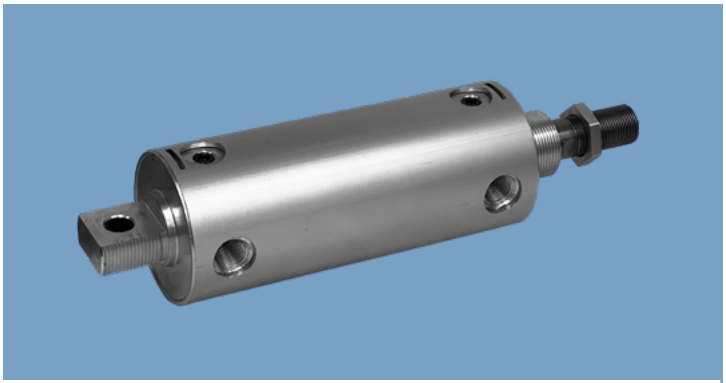
THE ORIGINAL LINE

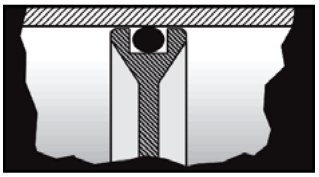
FLAIRLINE

Series **F**, **O/OLF**, **H** & **D**

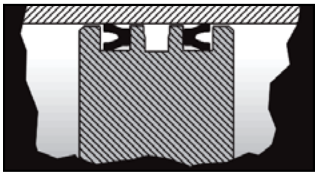


AVAILABLE IN FOUR PISTON TYPES

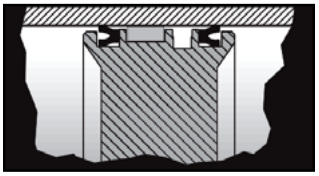
F TYPE



O/OLF TYPE



H TYPE



D TYPE

Features

- Standard Bore Sizes: 1 1/8, 1 1/2, 2, 2 1/2, 3 1/4, 4
- Stroke Sizes: Any stroke up to 130”
- Cushions available: either/both ends

Information

The Original Line is a family of double-acting cylinders, which can be used in nearly all types of applications where lightweight, economical, and durable actuators are required.

- Operating systems can be pneumatic or low pressure hydraulic
- OLF low friction series is ideal for applications where low minimum breakaway force is required
- D series is optimal for handling side load conditions
- Precision machined components and durable seals permit continuous operation in any environment

Specifications

- **Maximum Pressure:**
  Pneumatic: 150 psi
  Hydraulic: Consult Factory
- **Operating Temperature:**
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

FLAIRLINE WARRANTY

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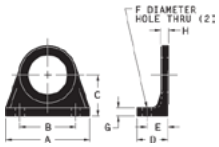
THE ORIGINAL LINE

FLAIRLINE

Series F, O/OLF, H & D

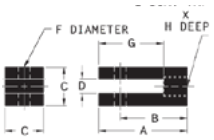
Mounting Accessories



FOOT BRACKET

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-32-225	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
1 1/2	1-32-3	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
2, 2 1/2	1-32-4	3 1/4	2 1/4	1 13/16	1 1/32	11/16	11/32	1/4	1/4
3 1/4, 4	1-32-65	5 1/2	4	2 3/4	1 23/32	1 3/32	15/32	1/2	1/2

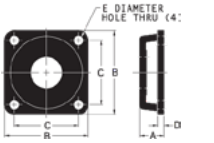
Mounting Nut included.



ROD CLEVIS

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-35-225	2 5/16	1 3/4	1	3/8	1/2-20	5/16	1 11/16	11/16
1 1/2, 2, 2 1/2	1-35-3	2 3/8	1 3/4	1	17/32	5/8-18	7/16	1 11/16	11/16
3 1/4, 4	1-35-65	3 3/8	2 5/8	1 1/2	21/32	1-14	1/2	1 9/16	1 1/4

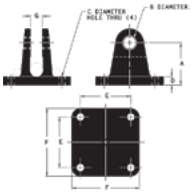
Connecting Pin included.



FLANGE BRACKET

Bore Size	No.	Dimensions				
		A	B	C	D	E
1 1/8	1-33-225	15/16	2 1/2	2	1/4	9/32
1 1/2, 2, 2 1/2	1-33-4	15/16	3 1/4	2 1/2	1/4	11/32
3 1/4, 4	1-33-65	1 19/32	5 1/4	4	1/2	15/32

Mounting Nut included.



SWIVEL BRACKET

Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1 1/8, 1 1/2	1-34-3	1 1/4	5/16	9/32	5/16	1 3/4	2 1/4	17/32
2, 2 1/2	1-34-4	1 7/8	7/16	11/32	3/8	2 1/4	3	17/32
3 1/4, 4	1-34-65	2 7/8	1/2	15/32	1/2	3	4	25/32

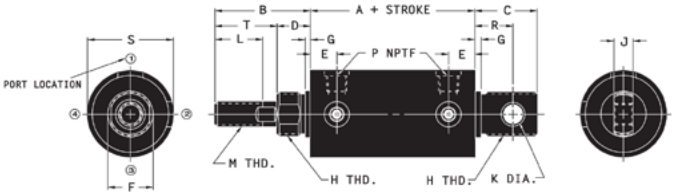
Connecting Pin included.

MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1 1/8	1-38-16	11/32	1 3/8
1 1/2, 2, 2 1/2	1-38-20	19/32	1 5/8
3 1/4, 4	1-38-28	11/16	2 1/4

Rod nut included on all F, O, H, D, M & DM type cylinders.

Dimensions



Notes: AH + STROKE (Series H/D).
For Series H/D add 1.0" to A dimension.

Dimension Reference	Cylinder Bore					
	1 1/8"	1 1/2"	2"	2 1/2"	3 1/4"	4"
A	2 25/32	3 5/16	3 5/16	3 5/16	4 11/16	4 11/16
B	2 1/8	2 1/2	2 1/2	2 1/2	3 19/32	3 19/32
C	1 1/16	1 1/4	1 5/8	1 5/8	1 11/16	1 11/16
D	5/8	7/8	7/8	7/8	1 7/32	1 7/32
E	19/32	11/16	11/16	11/16	31/32	31/32
F	1 1/16	1 3/16	1 3/16	1 3/16	1 11/16	1 11/16
G	1/8	5/32	5/32	5/32	5/32	5/32
H	1-14	1 1/8-12	1 1/8-12	1 1/8-12	1 5/8-12	1 5/8-12
J	1/2	1/2	1/2	1/2	3/4	3/4
K	5/16	5/16	7/16	7/16	1/2	1/2
L	1 1/8	1 1/4	1 1/4	1 1/4	1 7/8	1 7/8
M*	1/2-20	5/8-18	5/8-18	5/8-18	1-14	1-14
P-NPTF	1/8	1/4	1/4	1/4	1/2	1/2
R	11/16	7/8	1	1	1	1
S	1 3/8	1 3/4	2 1/4	2 3/4	3 1/2	4 1/4
T	1 1/2	1 5/8	1 5/8	1 5/8	2 3/8	2 3/8

THE ORIGINAL LINE

FLAIRLINE

Series F, O/OLF, H & D

Ordering Information

F 2 X 6 T = 5 1/2 H NT

PISTON	BORE SIZE	STROKE LENGTH
F O OLF H D	1 ⅛ 1 ½ 2 2 ½ 3 ¼ 4	Any length in inch increments or fraction thereof up to and including 130”

SPECIAL OPTIONS	
CUSHIONS	
HEAD ONLY	H
CAP ONLY	C
BOTH	HC
METAL ROD SCRAPER	MRS
EXTRA INLET PORT(S)	Indicate location(s) (PP2, PP3, PP4) in cap or head end
TANG AT 90° FROM STANDARD	TANG 90°
NO TANG	NT
STAINLESS STEEL CIRCUMFLEX KEYS	SS KEYS
STOP TUBES	CONSULT FACTORY
CUSTOM T DIMENSION (ROD EXTENSION)	T = Dimension
SPECIAL L DIMENSION (THREAD LENGTH)	L = Dimension
SPECIAL M DIMENSION (THREAD SIZE)	M = Size or Plain Rod End
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	M = Size and depth
STAINLESS STEEL RODS	SS ROD

Replacement Parts

PK KIT F 2

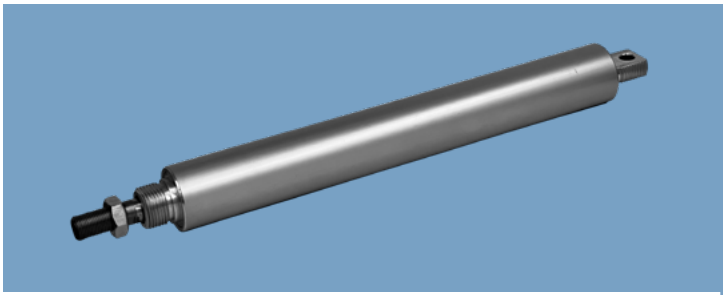
PISTON	BORE SIZE
F O OLF H D	1 ⅛ 1 ½ 2 2 ½ 3 ¼ 4

PROUD TO BE
MADE IN AMERICA

SINGLE-ACTING CYLINDERS

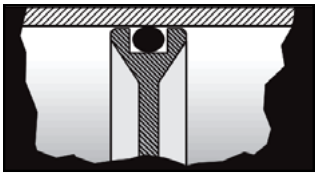
FLAIRLINE

Series **FSR**, **OSR**, **HSR** & **DSR**

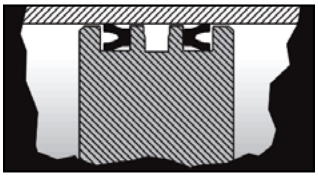


AVAILABLE IN FOUR PISTON TYPES

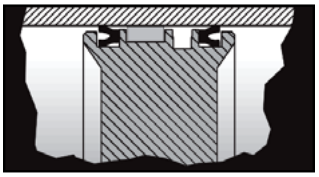
F TYPE For **FSR**



O TYPE For **OSR**



H TYPE For **HSR**



D TYPE For **DSR**

Features

- Standard Bore Sizes: 2, 2 1/2, 3 1/4, 4
- Stroke Sizes: 1" to 6" (1" increments)
  (Consult factory for larger stroke requirements)
- Cushions available: head end when normally extended, cap end when normally retracted

Information

The Flairline single-acting cylinder offers the same quality, performance and features as the double-acting model.

- Actuated by pressurizing only one port, a spring provides the required force to return the piston rod to its normal position
- Single actuation conserves energy and can minimize control valve expense

Specifications

- **Maximum Pressure:**
  Pneumatic: 150 psi
  Hydraulic: Consult Factory
- **Operating Temperature:**
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

FLAIRLINE WARRANTY

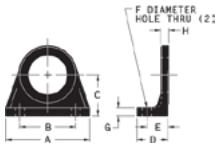
Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

SINGLE-ACTING CYLINDERS

FLAIRLINE

Series **FSR, OSR, HSR & DSR**

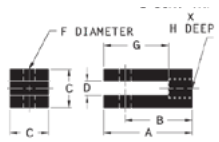
Mounting Accessories



FOOT BRACKET

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1⅛	1-32-225	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
1½	1-32-3	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
2, 2½	1-32-4	3 1/4	2 1/4	1 13/16	1 1/32	11/16	11/32	1/4	1/4
3¼, 4	1-32-65	5 1/2	4	2 3/4	1 23/32	1 3/32	15/32	1/2	1/2

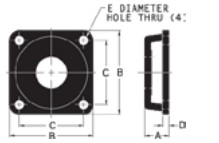
Mounting Nut included.



ROD CLEVIS

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1⅛	1-35-225	2 5/16	1 3/4	1	3/8	1/2-20	5/16	1 11/16	11/16
1½, 2, 2½	1-35-3	2 3/8	1 3/4	1	17/32	5/8-18	7/16	1 11/16	11/16
3¼, 4	1-35-65	3 3/8	2 5/8	1 1/2	21/32	1-14	1/2	1 9/16	1 1/4

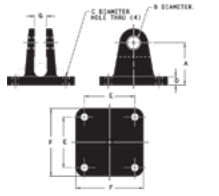
Connecting Pin included.



FLANGE BRACKET

Bore Size	No.	Dimensions				
		A	B	C	D	E
1⅛	1-33-225	15/16	2 1/2	2	1/4	9/32
1½, 2, 2½	1-33-4	15/16	3 1/4	2 1/2	1/4	11/32
3¼, 4	1-33-65	1 19/32	5 1/4	4	1/2	15/32

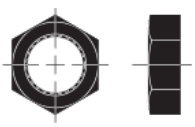
Mounting Nut included.



SWIVEL BRACKET

Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1⅛, 1½	1-34-3	1 1/4	5/16	9/32	5/16	1 3/4	2 1/4	17/32
2, 2½	1-34-4	1 7/8	7/16	11/32	3/8	2 1/4	3	17/32
3¼, 4	1-34-65	2 7/8	1/2	15/32	1/2	3	4	25/32

Connecting Pin included.

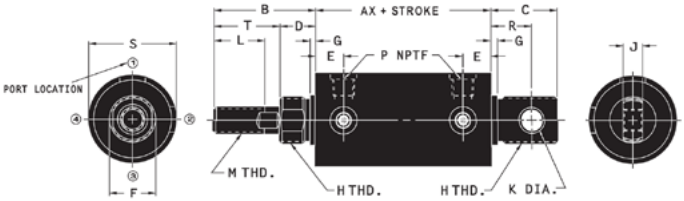


MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1⅛	1-38-16	11/32	1 3/8
1½, 2, 2½	1-38-20	19/32	1 5/8
3¼, 4	1-38-28	11/16	2 1/4

Rod nut included on all F, O, H, D, M & DM type cylinders.

Dimensions



Note: Series HSR and DSR adds 1" to all AX dimensions.

Dimension Reference	Cylinder Bore					
	1 1/8"	1 1/2"	2"	2 1/2"	3 1/4"	4"
AX	2 25/32	3 5/16	3 5/16	3 5/16	4 11/16	4 11/16
B	2 1/8	2 1/2	2 1/2	2 1/2	3 19/32	3 19/32
C	1 1/16	1 1/4	1 5/8	1 5/8	1 11/16	1 11/16
D	5/8	7/8	7/8	7/8	1 7/32	1 7/32
E	19/32	11/16	11/16	11/16	31/32	31/32
F	1 1/16	1 3/16	1 3/16	1 3/16	1 11/16	1 11/16
G	1/8	5/32	5/32	5/32	5/32	5/32
H	1-14	1 1/8-12	1 1/8-12	1 1/8-12	1 5/8-12	1 5/8-12
J	1/2	1/2	1/2	1/2	3/4	3/4
K	5/16	5/16	7/16	7/16	1/2	1/2
L	1 1/8	1 1/4	1 1/4	1 1/4	1 7/8	1 7/8
M*	1/2-20	5/8-18	5/8-18	5/8-18	1-14	1-14
P-NPTF	1/8	1/4	1/4	1/4	1/2	1/2
R	11/16	7/8	1	1	1	1
S	1 3/8	1 3/4	2 1/4	2 3/4	3 1/2	4 1/4
T	1 1/2	1 5/8	1 5/8	1 5/8	2 3/8	2 3/8
AX Dimension Chart Including Stroke Lengths						
1" or Less	6 25/32	7 5/16	7 5/16	7 5/16	8 11/16	8 11/16
Over 1" to 1 1/2"	7 25/32	8 5/16	8 5/16	8 5/16	9 11/16	9 11/16
Over 1 1/2" to 2 1/2"	8 25/32	9 5/16	9 5/16	9 5/16	10 11/16	10 11/16
Over 2 1/2" to 3"	9 25/32	10 5/16	10 5/16	10 5/16	11 11/16	11 11/16
Over 3" to 3 1/2"	10 25/32	11 5/16	11 5/16	11 5/16	12 11/16	12 11/16
Over 3 1/2" to 4"	11 25/32	12 5/16	12 5/16	12 5/16	13 11/16	13 11/16
Over 4 1/2" to 5 1/2"	11 25/32	14 5/16	14 5/16	14 5/16	15 11/16	15 11/16
Over 5 1/2" to 6"	11 25/32	16 5/16	16 5/16	16 5/16	17 11/16	17 11/16

SINGLE-ACTING CYLINDERS

FLAIRLINE

Series **FSR**, **OSR**, **HSR** & **DSR**

Ordering Information

FSR - R 2 X 6 T = 5 1/2 H NT

PISTON

FSR
OSR
HSR
DSR

BORE SIZE

2
2 ½
3 ¼
4

SPRING RETURN

NORMALLY EXTENDED	E
NORMALLY RETRACTED	R

STROKE LENGTH

STROKE SIZES:
1" TO 6"

SPECIAL OPTIONS

CUSHIONS	
HEAD (ONLY WHEN NORMALLY EXTENDED)	H
CAP (ONLY WHEN NORMALLY RETRACTED)	C
METAL ROD SCRAPER	MRS
EXTRA INLET PORT(S)	Indicate location(s) (PP2, PP3, PP4) in cap or head end
TANG AT 90° FROM STANDARD	TANG 90°
NO TANG	NT
STAINLESS STEEL CIRCUMFLEX KEYS	SS KEYS
STOP TUBES	CONSULT FACTORY
VITON PACKING	VITON
CUSTOM T DIMENSION (ROD EXTENSION)	T = Dimension
SPECIAL L DIMENSION (THREAD LENGTH)	L = Dimension
SPECIAL M DIMENSION (THREAD SIZE)	M = Size or Plain Rod End
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	M = Size and depth
STAINLESS STEEL RODS	SS ROD

Replacement Parts

PK KIT FSR 2

PISTON

FSR
OSR
HSR
DSR

BORE SIZE

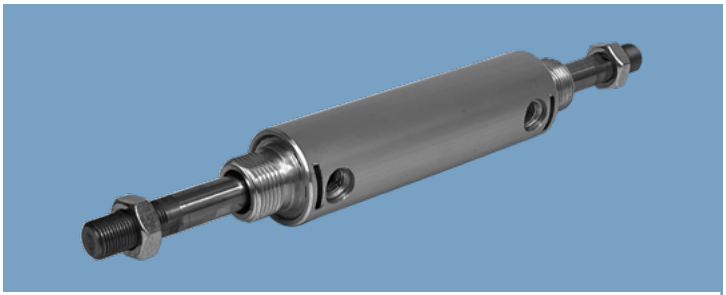
2
2 ½
3 ¼
4

PROUD TO BE
MADE IN AMERICA

DOUBLE-ACTING DOUBLE-ENDED CYLINDERS

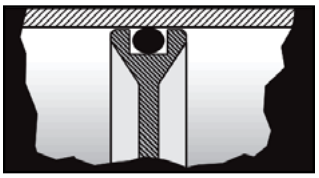
FLAIRLINE

Series **FDE**, **ODE**, **HDE** & **DDE**

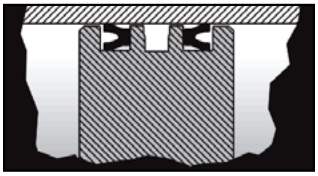


AVAILABLE IN FOUR PISTON TYPES

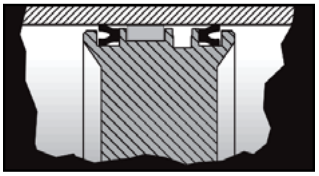
F TYPE For **FDE**



O TYPE For **ODE**



H TYPE For **HDE**



D TYPE For **DDE**

Features

- Standard Bore Sizes: 1 1/8, 1 1/2, 2, 2 1/2, 3 1/4 & 4 (FDE only available up to 2 1/2 bore size)
- Stroke Sizes: Any stroke up to 130”
- Cushions available: either/both ends

Information

The double-acting double-ended cylinders can be used in nearly all types of applications where lightweight, economical, and durable actuators are required.

- Double-ended cylinders allow equal force and speed in either direction
- A large selection of rod mounting attachments permit work at both ends
- Customizable attachments are available

Specifications

- **Maximum Pressure:**
  Pneumatic: 150 psi
  Hydraulic: Consult Factory
- **Operating Temperature:**
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

FLAIRLINE WARRANTY

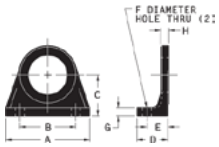
Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

DOUBLE-ACTING DOUBLE-ENDED CYLINDERS

FLAIRLINE

Series **FDE, ODE, HDE & DDE**

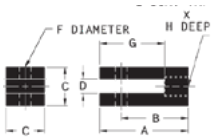
Mounting Accessories



FOOT BRACKET

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-32-225	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
1 1/2	1-32-3	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
2, 2 1/2	1-32-4	3 1/4	2 1/4	1 13/16	1 1/32	11/16	11/32	1/4	1/4
3 1/4, 4	1-32-65	5 1/2	4	2 3/4	1 23/32	1 3/32	15/32	1/2	1/2

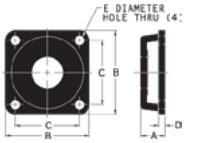
Mounting Nut included.



ROD CLEVIS

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-35-225	2 5/16	1 3/4	1	3/8	1/2-20	5/16	1 11/16	11/16
1 1/2, 2, 2 1/2	1-35-3	2 3/8	1 3/4	1	17/32	5/8-18	7/16	1 11/16	11/16
3 1/4, 4	1-35-65	3 3/8	2 5/8	1 1/2	21/32	1-14	1/2	1 9/16	1 1/4

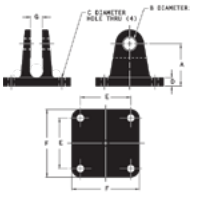
Connecting Pin included.



FLANGE BRACKET

Bore Size	No.	Dimensions				
		A	B	C	D	E
1 1/8	1-33-225	15/16	2 1/2	2	1/4	9/32
1 1/2, 2, 2 1/2	1-33-4	15/16	3 1/4	2 1/2	1/4	11/32
3 1/4, 4	1-33-65	1 19/32	5 1/4	4	1/2	15/32

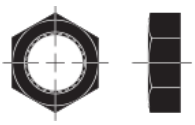
Mounting Nut included.



SWIVEL BRACKET

Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1 1/8, 1 1/2	1-34-3	1 1/4	5/16	9/32	5/16	1 3/4	2 1/4	17/32
2, 2 1/2	1-34-4	1 7/8	7/16	11/32	3/8	2 1/4	3	17/32
3 1/4, 4	1-34-65	2 7/8	1/2	15/32	1/2	3	4	25/32

Connecting Pin included.

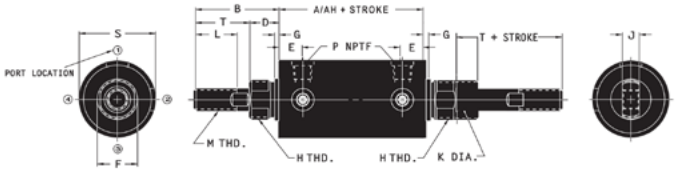


MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1 1/8	1-38-16	11/32	1 3/8
1 1/2, 2, 2 1/2	1-38-20	19/32	1 5/8
3 1/4, 4	1-38-28	11/16	2 1/4

Rod nut included on all F, O, H, D, M & DM type cylinders.

Dimensions



Note: For HDE/DDE use AH Dimension in place of A dimension.

Dimension Reference	Cylinder Bore					
	1 1/8"	1 1/2"	2"	2 1/2"	3 1/4"	4"
A	2 25/32	3 5/16	3 5/16	3 5/16	4 11/16	4 11/16
B	2 1/8	2 1/2	2 1/2	2 1/2	3 19/32	3 19/32
D	5/8	7/8	7/8	7/8	1 7/32	1 7/32
E	19/32	11/16	11/16	11/16	31/32	31/32
F	1 1/16	1 3/16	1 3/16	1 3/16	1 11/16	1 11/16
G	1/8	5/32	5/32	5/32	5/32	5/32
H	1-14	1 1/8-12	1 1/8-12	1 1/8-12	1 5/8-12	1 5/8-12
J	1/2	1/2	1/2	1/2	3/4	3/4
K	5/16	5/16	7/16	7/16	1/2	1/2
L	1 1/8	1 1/4	1 1/4	1 1/4	1 7/8	1 7/8
M*	1/2-20	5/8-18	5/8-18	5/8-18	1-14	1-14
P-NPTF	1/8	1/4	1/4	1/4	1/2	1/2
S	1 3/8	1 3/4	2 1/4	2 3/4	3 1/2	4 1/4
T	1 1/2	1 5/8	1 5/8	1 5/8	2 3/8	2 3/8
AH	3 25/32	4 5/16	4 5/16	4 5/16	5 11/16	5 11/16

DOUBLE-ACTING DOUBLE-ENDED CYLINDERS

FLAIRLINE

Series **FDE**, **ODE**, **HDE** & **DDE**

Ordering Information

FDE 2 X 6 T = 5 1/2 H NT

PISTON
FDE
ODE
HDE
DDE

STROKE LENGTH
Any length in inch increments or fraction thereof up to and including 130"

BORE SIZE			
FDE	ODE	HDE	DDE
1 1/8	1 1/8	1 1/8	1 1/8
1 1/2	1 1/2	1 1/2	1 1/2
2	2	2	2
2 1/2	2 1/2	2 1/2	2 1/2
	3 1/4	3 1/4	3 1/4
	4	4	4

SPECIAL OPTIONS	
CUSHIONS	
HEAD (ONE END ONLY)	**H**
BOTH	**HH**
METAL ROD SCRAPER	**MRS**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
TANG AT 90° FROM STANDARD	**TANG 90°**
NO TANG	**NT**
STAINLESS STEEL CIRCUMFLEX KEYS	**SS KEYS**
STOP TUBES	**CONSULT FACTORY**
VITON PACKING	**VITON**
CUSTOM T DIMENSION (ROD EXTENSION)	**T = Dimension**
SPECIAL L DIMENSION (THREAD LENGTH)	**L = Dimension**
SPECIAL M DIMENSION (THREAD SIZE)	**M = Size or Plain Rod End**
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	**M = Size and depth**
STAINLESS STEEL RODS	**SS ROD**

Replacement Parts

PK KIT FDE 2

PISTON
FDE
ODE
HDE
DDE

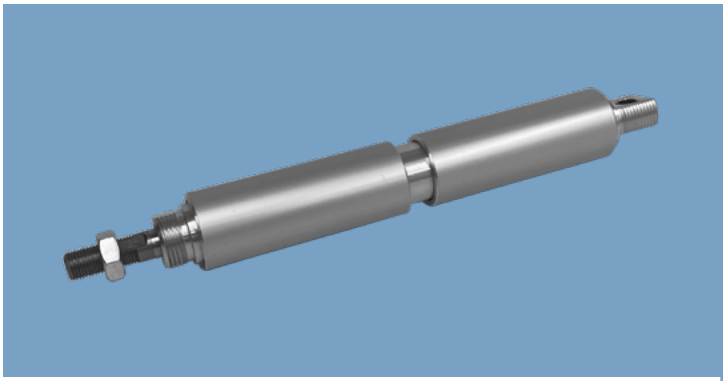
BORE SIZE
1 1/8
1 1/2
2
2 1/2
3 1/4
4

PROUD TO BE
MADE IN AMERICA

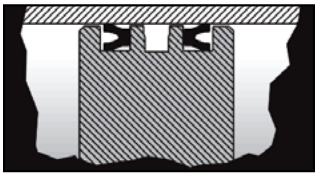
TANDEM CYLINDERS

FLAIRLINE

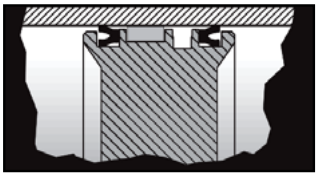
Series **FT** & **DT**



AVAILABLE IN TWO PISTON TYPES



H TYPE For **FT**



D TYPE For **DT**

Features

- Standard Bore Sizes: 1 1/2, 2, 2 1/2, 3 1/4, 4
- Stroke Sizes: Any stroke up to 130”
- Cushions available: either/both ends (not standard on center head)
- Used to multiply force without increasing pressure or bore size

Information

Tandem models consist of two double acting cylinders mounted in line with the pistons connected to a common piston rod. Perfect when a large amount of force is required in a small-diameter cylinder.

- Double-ended models available

Specifications

- **Maximum Pressure:**
  Pneumatic: 150 psi
  Hydraulic: Consult Factory
- **Operating Temperature:**
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

FLAIRLINE WARRANTY

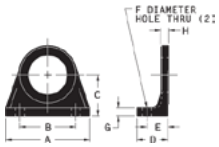
Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

TANDEM CYLINDERS

FLAIRLINE

Series **FT** & **DT**

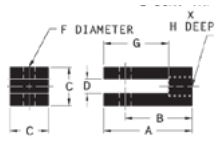
Mounting Accessories



FOOT BRACKET

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1⅛	1-32-225	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
1½	1-32-3	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
2, 2½	1-32-4	3 1/4	2 1/4	1 13/16	1 1/32	11/16	11/32	1/4	1/4
3¼, 4	1-32-65	5 1/2	4	2 3/4	1 23/32	1 3/32	15/32	1/2	1/2

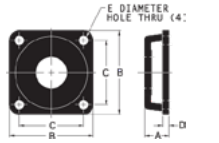
Mounting Nut included.



ROD CLEVIS

Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1⅛	1-35-225	2 5/16	1 3/4	1	3/8	½-20	5/16	1 11/16	11/16
1½, 2, 2½	1-35-3	2 3/8	1 3/4	1	17/32	5/8-18	7/16	1 11/16	11/16
3¼, 4	1-35-65	3 3/8	2 5/8	1 1/2	21/32	1-14	1/2	1 9/16	1 1/4

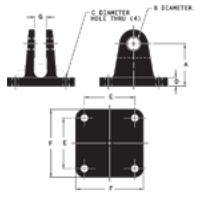
Connecting Pin included.



FLANGE BRACKET

Bore Size	No.	Dimensions				
		A	B	C	D	E
1⅛	1-33-225	15/16	2½	2	1/4	9/32
1½, 2, 2½	1-33-4	15/16	3¼	2½	1/4	11/32
3¼, 4	1-33-65	1 19/32	5¼	4	½	15/32

Mounting Nut included.



SWIVEL BRACKET

Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1⅛,1½	1-34-3	1¼	5/16	9/32	5/16	1¾	2¼	17/32
2, 2½	1-34-4	1 7/8	7/16	11/32	3/8	2¼	3	17/32
3¼, 4	1-34-65	2 7/8	½	15/32	½	3	4	25/32

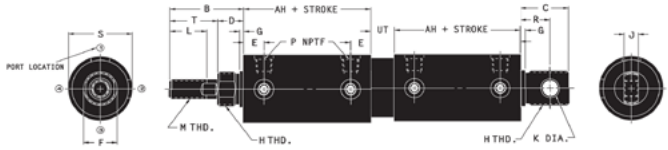
Connecting Pin included.

MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1⅛	1-38-16	11/32	1 3/8
1½, 2, 2½	1-38-20	19/32	1 5/8
3¼, 4	1-38-28	11/16	2¼

Rod nut included on all F, O, H, D, M & DM type cylinders.

Dimensions



Dimension Reference	Cylinder Bore					
	1 1/8"	1 1/2"	2"	2 1/2"	3 1/4"	4"
B	2 1/8	2 1/2	2 1/2	2 1/2	3 19/32	3 19/32
C	1 1/16	1 1/4	1 5/8	1 5/8	1 11/16	1 11/16
D	5/8	7/8	7/8	7/8	1 7/32	1 7/32
E	19/32	11/16	11/16	11/16	31/32	31/32
F	1 1/16	1 3/16	1 3/16	1 3/16	1 11/16	1 11/16
G	1/8	5/32	5/32	5/32	5/32	5/32
H	1-14	1 1/8-12	1 1/8-12	1 1/8-12	1 5/8-12	1 5/8-12
J	1/2	1/2	1/2	1/2	3/4	3/4
K	5/16	5/16	7/16	7/16	1/2	1/2
L	1 1/8	1 1/4	1 1/4	1 1/4	1 7/8	1 7/8
M*	1/2-20	5/8-18	5/8-18	5/8-18	1-14	1-14
P-NPTF	1/8	1/4	1/4	1/4	1/2	1/2
R	11/16	7/8	1	1	1	1
S	1 3/8	1 3/4	2 1/4	2 3/4	3 1/2	4 1/4
T	1 1/2	1 5/8	1 5/8	1 5/8	2 3/8	2 3/8
AH	3 25/32	4 5/16	4 5/16	4 5/16	5 11/16	5 11/16
UT	—	3/4	3/4	3/4	1 1/8	1 1/8

TANDEM CYLINDERS

FLAIRLINE

Series **FT** & **DT**

Ordering Information

FT 2 X 6 T = 5 1/2 H NT

PISTON	BORE SIZE	STROKE LENGTH
FT DT	1 ½ 2 2 ½ 3 ¼ 4	Any length in inch increments or fraction thereof up to and including 130”

SPECIAL OPTIONS	
CUSHIONS (ROD END ONLY)	
HEAD	**H**
CAP	**C**
BOTH	**HC**
METAL ROD SCRAPER	**MRS**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
TANG AT 90° FROM STANDARD	**TANG 90°**
NO TANG	**NT**
STAINLESS STEEL CIRCUMFLEX KEYS	**SS KEYS**
STOP TUBES	**CONSULT FACTORY**
VITON PACKING	**VITON**
CUSTOM T DIMENSION (ROD EXTENSION)	**T = Dimension**
SPECIAL L DIMENSION (THREAD LENGTH)	**L = Dimension**
SPECIAL M DIMENSION (THREAD SIZE)	**M = Size or Plain Rod End**
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	**M = Size and depth**
STAINLESS STEEL RODS	**SS ROD**

Replacement Parts

PK KIT FT 2

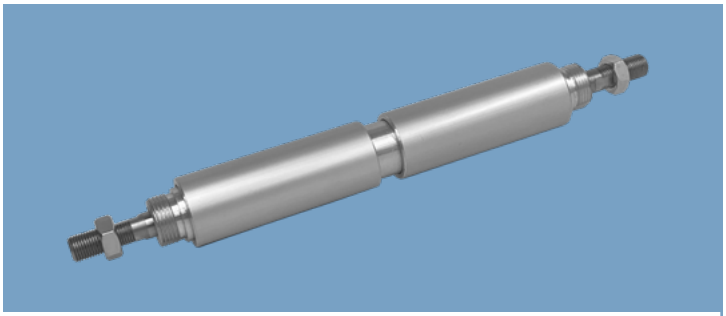
PISTON	BORE SIZE
FT DT	1 ½ 2 2 ½ 3 ¼ 4

PROUD TO BE
MADE IN AMERICA

CAP-TO-CAP CYLINDERS

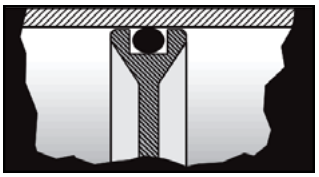
FLAIRLINE

Series **FCC, OCC, HCC & DCC**

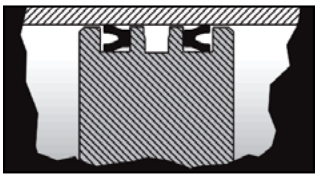


AVAILABLE IN FOUR PISTON TYPES

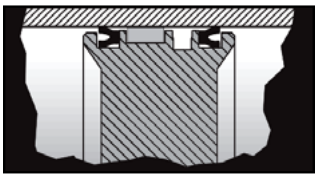
F TYPE For **FCC**



O TYPE For **OCC**



H TYPE For **HCC**



D TYPE For **DCC**

Features

- Standard Bore Sizes:
  1 1/8, 1 1/2, 2, 2 1/2, 3 1/4, 4
- Stroke Sizes: Any combined stroke up to 130”
- Cushions available: either/both ends

Information

Cap-to-cap models incorporate two F, O, H, or D type cylinders joined at the cap end by a common center section. This is a very flexible product to accurately achieve three positions with the same stroke, or four positions with a different stroke, depending on application.

Specifications

- **Maximum Pressure:**
  Pneumatic: 150 psi
  Hydraulic: Consult Factory
- **Operating Temperature:**
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

FLAIRLINE WARRANTY

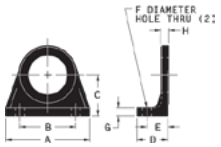
Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

CAP-TO-CAP CYLINDERS

FLAIRLINE

Series **FCC, OCC, HCC & DCC**

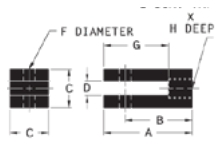
Mounting Accessories



Mounting Nut included.

FOOT BRACKET

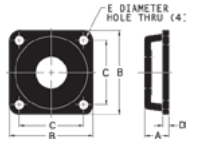
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-32-225	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
1 1/2	1-32-3	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
2, 2 1/2	1-32-4	3 1/4	2 1/4	1 13/16	1 1/32	11/16	11/32	1/4	1/4
3 1/4, 4	1-32-65	5 1/2	4	2 3/4	1 23/32	1 3/32	15/32	1/2	1/2



Connecting Pin included.

ROD CLEVIS

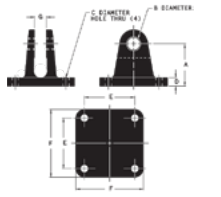
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-35-225	2 5/16	1 3/4	1	3/8	1/2-20	5/16	1 11/16	11/16
1 1/2, 2, 2 1/2	1-35-3	2 3/8	1 3/4	1	17/32	5/8-18	7/16	1 11/16	11/16
3 1/4, 4	1-35-65	3 3/8	2 5/8	1 1/2	21/32	1-14	1/2	1 9/16	1 1/4



Mounting Nut included.

FLANGE BRACKET

Bore Size	No.	Dimensions				
		A	B	C	D	E
1 1/8	1-33-225	15/16	2 1/2	2	1/4	9/32
1 1/2, 2, 2 1/2	1-33-4	15/16	3 1/4	2 1/2	1/4	11/32
3 1/4, 4	1-33-65	1 19/32	5 1/4	4	1/2	15/32



Connecting Pin included.

SWIVEL BRACKET

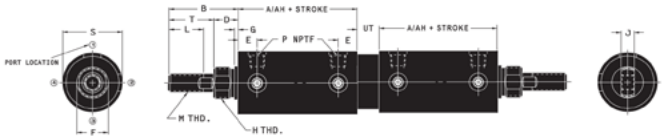
Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1 1/8, 1 1/2	1-34-3	1 1/4	5/16	9/32	5/16	1 3/4	2 1/4	17/32
2, 2 1/2	1-34-4	1 7/8	7/16	11/32	3/8	2 1/4	3	17/32
3 1/4, 4	1-34-65	2 7/8	1/2	15/32	1/2	3	4	25/32

Rod nut included on all F, O, H, D, M & DM type cylinders.

MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1 1/8	1-38-16	11/32	1 3/8
1 1/2, 2, 2 1/2	1-38-20	19/32	1 5/8
3 1/4, 4	1-38-28	11/16	2 1/4

Dimensions



Notes: Series FCC and OCC correspond to A dimensions. For HCC/DCC use AH Dimension in place of A dimension.

Dimension Reference	Cylinder Bore					
	1 1/8"	1 1/2"	2"	2 1/2"	3 1/4"	4"
A	2 25/32	3 5/16	2 1/2	3 5/16	3 5/16	4 11/36
B	2 1/8	2 1/2	2 1/2	2 1/2	3 19/32	3 19/32
C	1 1/16	1 1/4	1 5/8	1 5/8	1 11/16	1 11/16
D	5/8	7/8	7/8	7/8	1 7/32	1 7/32
E	19/32	11/16	11/16	11/16	31/32	31/32
F	1 1/16	1 3/16	1 3/16	1 3/16	1 11/16	1 11/16
G	1/8	5/32	5/32	5/32	5/32	5/32
H	1-14	1 1/8-12	1 1/8-12	1 1/8-12	1 5/8-12	1 5/8-12
J	1/2	1/2	1/2	1/2	3/4	3/4
K	5/16	5/16	7/16	7/16	1/2	1/2
L	1 1/8	1 1/4	1 1/4	1 1/4	1 7/8	1 7/8
M*	1/2-20	5/8-18	5/8-18	5/8-18	1-14	1-14
P-NPTF	1/8	1/4	1/4	1/4	1/2	1/2
R	11/16	7/8	1	1	1	1
S	1 3/8	1 3/4	2 1/4	2 3/4	3 1/2	4 1/4
T	1 1/2	1 5/8	1 5/8	1 5/8	2 3/8	2 3/8
AH	3 25/32	4 5/16	4 5/16	4 5/16	5 11/16	5 11/16
UC	1/2	1/2	1/2	1/2	15/16	15/16

CAP-TO-CAP CYLINDERS

FLAIRLINE

Series **FCC, OCC, HCC & DCC**

Ordering Information

FCC 2 X 6 T = 5 1/2 H NT

PISTON	BORE SIZE	STROKE LENGTH
FCC OCC HCC DCC	1 1/8 1 1/2 2 2 1/2 3 1/4 4	Any length in inch increments or fraction thereof up to and including 130"

SPECIAL OPTIONS	
CUSHIONS	
HEAD ONLY	**H**
CAP ONLY	**C**
BOTH	**HC**
METAL ROD SCRAPER	**MRS**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
TANG AT 90° FROM STANDARD	**TANG 90°**
STAINLESS STEEL CIRCUMFLEX KEYS	**SS KEYS**
STOP TUBES	**CONSULT FACTORY**
VITON PACKING	**VITON**
CUSTOM T DIMENSION (ROD EXTENSION)	**T = Dimension**
SPECIAL L DIMENSION (THREAD LENGTH)	**L = Dimension**
SPECIAL M DIMENSION (THREAD SIZE)	**M = Size or Plain Rod End**
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	**M = Size and depth**
STAINLESS STEEL RODS	**SS ROD**

Replacement Parts

PK KIT FCC 2

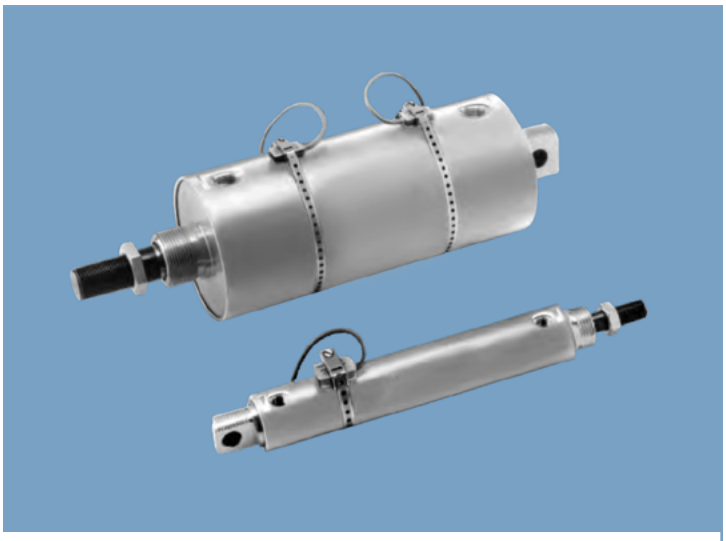
PISTON	BORE SIZE
FCC OCC HCC DCC	1 1/8 1 1/2 2 2 1/2 3 1/4 4

PROUD TO BE
MADE IN AMERICA

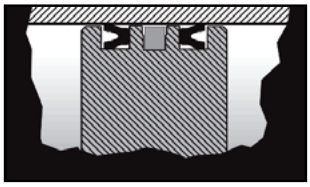
MAGNETIC PISTON CYLINDERS

FLAIRLINE

Series **M**, **DM**, **MSR** & **DMSR**, **MDE** & **DMDE**, **MT** & **DMT**, **MCC** & **DMCC**

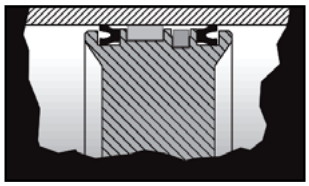


AVAILABLE IN TWO PISTON TYPES



M TYPE

For **M**, **MSR**, **MDE**, **MT** & **MCC**



DM TYPE

For **DM**, **DMSR**, **DMDE**, **DMT** & **DMCC**

Information

Flairline's magnetic piston cylinders allow for automated stroke sequencing with the same quality features common to other Flairline cylinder products.

- Standard Construction: hard anodized aluminum barrels, aluminum heads and end caps, chrome-plated rods, nylon rod bearings (bronze rod bearings on DM series Cylinders)
- A complete line of universal mounting accessories
- Magnetic switch options include Reed and Hall effect types
- Stainless steel mounting bands allow for switch mounting customization

FLAIRLINE WARRANTY

Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

MAGNETIC PISTON CYLINDERS

FLAIRLINE

Series **M**, **DM**, **MSR** & **DMSR**, **MDE** & **DMDE**, **MT** & **DMT**, **MCC** & **DMCC**

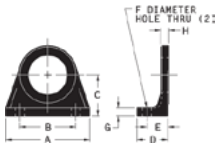
Features

- Standard Bore Sizes: 1 1/8, 1 1/2, 2, 2 1/2, 3 1/4, 4
- MSR/DMSR - Spring Returned
  MDE/DMDE - Double Ended
  MT/DMT - Tandem
- Stroke Sizes: Any stroke up to 130”
- Cushions available: either/both ends

Specifications

- Maximum Pressure:
  Pneumatic: 150 psi
  Hydraulic: Consult Factory
- Operating Temperature:
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)
- Pistons complete with a factory installed magnet

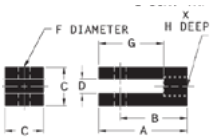
Mounting Accessories



Mounting Nut included.

FOOT BRACKET

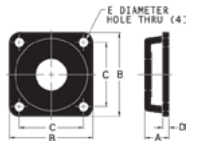
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-32-225	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
1 1/2	1-32-3	2 5/8	1 3/4	1 9/32	1	11/16	9/32	1/4	1/4
2, 2 1/2	1-32-4	3 1/4	2 1/4	1 13/16	1 1/32	11/16	11/32	1/4	1/4
3 1/4, 4	1-32-65	5 1/2	4	2 3/4	1 23/32	1 3/32	15/32	1/2	1/2



Connecting Pin included.

ROD CLEVIS

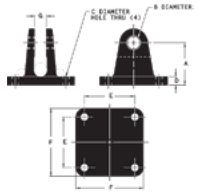
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	1-35-225	2 5/16	1 3/4	1	3/8	1/2-20	5/16	1 11/16	11/16
1 1/2, 2, 2 1/2	1-35-3	2 3/8	1 3/4	1	17/32	5/8-18	7/16	1 11/16	11/16
3 1/4, 4	1-35-65	3 3/8	2 5/8	1 1/2	21/32	1-14	1/2	1 9/16	1 1/4



Mounting Nut included.

FLANGE BRACKET

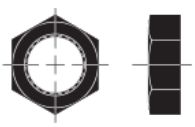
Bore Size	No.	Dimensions				
		A	B	C	D	E
1 1/8	1-33-225	15/16	2 1/2	2	1/4	9/32
1 1/2, 2, 2 1/2	1-33-4	15/16	3 1/4	2 1/2	1/4	11/32
3 1/4, 4	1-33-65	1 19/32	5 1/4	4	1/2	15/32



Connecting Pin included.

SWIVEL BRACKET

Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1 1/8, 1 1/2	1-34-3	1 1/4	5/16	9/32	5/16	1 3/4	2 1/4	17/32
2, 2 1/2	1-34-4	1 7/8	7/16	11/32	3/8	2 1/4	3	17/32
3 1/4, 4	1-34-65	2 7/8	1/2	15/32	1/2	3	4	25/32



Rod nut included on all F, O, H, D, M & DM type cylinders.

MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1 1/8	1-38-16	11/32	1 3/8
1 1/2, 2, 2 1/2	1-38-20	19/32	1 5/8
3 1/4, 4	1-38-28	11/16	2 1/4

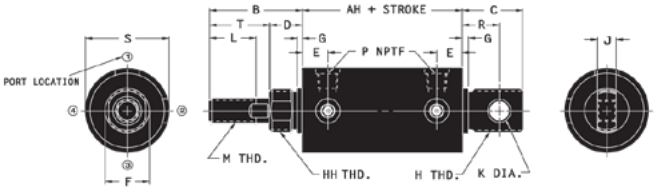
MAGNETIC PISTON CYLINDERS

FLAIRLINE

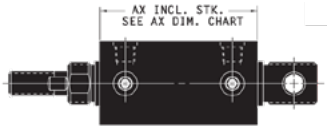
Series **M, DM, MSR & DMSR, MDE & DMDE, MT & DMT, MCC & DMCC**

Dimensions

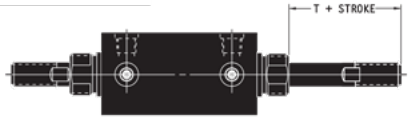
SERIES M/DM



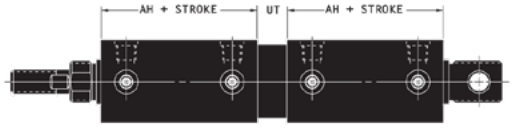
SERIES MSR/DMSR



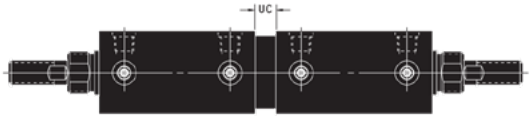
SERIES MDE/DMDE



SERIES MT/DMT



SERIES MCC/DMCC



Dimension Reference	Cylinder Bore					
	1 1/8"	1 1/2"	2"	2 1/2"	3 1/4"	4"
A	2 25/32	3 5/16	3 5/16	3 5/16	4 11/16	4 11/16
B	2 1/8	2 1/2	2 1/2	2 1/2	3 19/32	3 19/32
C	1 1/16	1 1/4	1 5/8	1 5/8	1 11/16	1 11/16
D	5/8	7/8	7/8	7/8	1 7/32	1 7/32
E	19/32	11/16	11/16	11/16	31/32	31/32
F	1 1/16	1 3/16	1 3/16	1 3/16	1 11/16	1 11/16
G	1/8	5/32	5/32	5/32	5/32	5/32
H	1-14	1 1/8-12	1 1/8-12	1 1/8-12	1 5/8-12	1 5/8-12
J	1/2	1/2	1/2	1/2	3/4	3/4
K	5/16	5/16	7/16	7/16	1/2	1/2
L	1 1/8	1 1/4	1 1/4	1 1/4	1 7/8	1 7/8
M*	1/2-20	5/8-18	5/8-18	5/8-18	1-14	1-14
P-NPTF	1/8	1/4	1/4	1/4	1/2	1/2
R	11/16	7/8	1	1	1	1
S	1 3/8	1 3/4	2 1/4	2 3/4	3 1/2	4 1/4
T	1 1/2	1 5/8	1 5/8	1 5/8	2 3/8	2 3/8
AH	3 25/32	4 5/16	4 5/16	4 5/16	5 11/16	5 11/16
UC	1/2	1/2	1/2	1/2	15/16	15/16
UT	—	3/4	3/4	3/4	1 1/8	1 1/8

AX Dimension Chart Including Stroke Lengths

ME Stroke Lengths	Cylinder Bore					
	1 1/8"	1 1/2"	2"	2 1/2"	3 1/4"	4"
1" or Less	6 25/32	7 5/16	7 5/16	7 5/16	8 11/16	8 11/16
Over 1" to 1 1/2"	7 25/32	8 5/16	8 5/16	8 5/16	9 11/16	9 11/16
Over 1 1/2" to 2 1/2"	8 25/32	9 5/16	9 5/16	9 5/16	10 11/16	10 11/16
Over 2 1/2" to 3"	9 25/32	10 5/16	10 5/16	10 5/16	11 11/16	11 11/16
Over 3" to 3 1/2"	10 25/32	11 5/16	11 5/16	11 5/16	12 11/16	12 11/16
Over 3 1/2" to 4"	11 25/32	12 5/16	12 5/16	12 5/16	13 11/16	13 11/16
Over 4 1/2" to 5 1/2"	11 25/32	14 5/16	14 5/16	14 5/16	15 11/16	15 11/16
Over 5 1/2" to 6"	11 25/32	16 5/16	16 5/16	16 5/16	17 11/16	17 11/16

MAGNETIC PISTON CYLINDERS

FLAIRLINE

Series **M, DM, MSR & DMSR, MDE & DMDE, MT & DMT, MCC & DMCC**

Ordering Information

M 2-CR 2 X 6 T = 5 1/2 H NT

PISTON

- M
- DM
- MDE
- DMDE
- MT
- DMT
- MCC
- DMCC

BORE SIZE

- 1 1/8
- 1 1/2
- 2
- 2 1/2
- 3 1/4
- 4

STROKE LENGTH

Any length in inch increments or fraction thereof **up to and including 130"**

SWITCHES

REED SWITCH	**Indicate Quantity - CR**
HALL EFFECT SWITCH (SOURCING)	**Indicate Quantity - HP**
HALL EFFECT SWITCH (SINKING)	**Indicate Quantity - HN**

Note: Reference switch options on the last page of the section.

Note: MSR/DMSR ordering information on the next page.

SPECIAL OPTIONS

CUSHIONS	
MT/MCC & DMT/DMCC (ROD END ONLY)	
HEAD	**H**
CAP	**C**
BOTH	**HC**
METAL ROD SCRAPER	**MRS**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
TANG AT 90° FROM STANDARD	**TANG 90°**
NO TANG	**NT**
STAINLESS STEEL CIRCUMFLEX KEYS	**SS KEYS**
STOP TUBES	**CONSULT FACTORY**
VITON PACKING	**VITON**
CUSTOM T DIMENSION (ROD EXTENSION)	**T = Dimension**
SPECIAL L DIMENSION (THREAD LENGTH)	**L = Dimension**
SPECIAL M DIMENSION (THREAD SIZE)	**M = Size or Plain Rod End**
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	**M = Size and depth**

Replacement Parts

PK KIT M 2

PISTON

- M
- DM
- MDE
- DMDE
- MT
- DMT
- MCC
- DMCC

BORE SIZE

- 1 1/8
- 1 1/2
- 2
- 2 1/2
- 3 1/4
- 4

MAGNETIC PISTON CYLINDERS

FLAIRLINE

Series **M, DM, MSR & DMSR, MDE & DMDE, MT & DMT, MCC & DMCC**

Ordering Information

MSR-E 2-CR 2 X 6 T = 5 1/2

PISTON

MSR
DMSR

SPRING RETURN

NORMALLY EXTENDED	-E
NORMALLY RETRACTED	-R

SWITCHES

REED SWITCH	Indicate Quantity - CR
HALL EFFECT SWITCH (SOURCING)	Indicate Quantity - HP
HALL EFFECT SWITCH (SINKING)	Indicate Quantity - HN

NOTE: Reference switch options on the last page of the section.

BORE SIZE

1 1/8
1 1/2
2
2 1/2
3 1/4
4

STROKE LENGTH

Any length in inch increments or fraction thereof **up to and including 130"**

SPECIAL OPTIONS

CUSHIONS	
HEAD (ONLY WHEN NORMALLY EXTENDED)	H
CAP (ONLY WHEN NORMALLY RETRACTED)	C
METAL ROD SCRAPER	MRS
EXTRA INLET PORT(S)	Indicate location(s) (PP2, PP3, PP4) in cap or head end
TANG AT 90° FROM STANDARD	TANG 90°
NO TANG	NT
STAINLESS STEEL CIRCUMFLEX KEYS	SS KEYS
STOP TUBES	CONSULT FACTORY
VITON PACKING	VITON
CUSTOM T DIMENSION (ROD EXTENSION)	T = Dimension
SPECIAL L DIMENSION (THREAD LENGTH)	L = Dimension
SPECIAL M DIMENSION (THREAD SIZE)	M = Size or Plain Rod End
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	M = Size and depth
STAINLESS STEEL RODS	SS ROD

Replacement Parts

PK KIT MSR 2

PISTON

MSR
DMSR

BORE SIZE

1 1/8
1 1/2
2
2 1/2
3 1/4
4

PROUD TO BE
MADE IN AMERICA

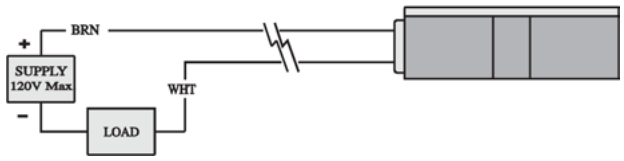
MAGNETIC PISTON CYLINDERS

FLAIRLINE

Series **M**, **DM**, **MSR** & **DMSR**, **MDE** & **DMDE**, **MT** & **DMT**, **MCC** & **DMCC**

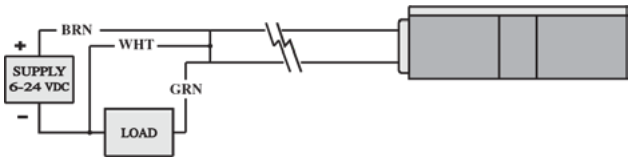
Switch Options

Reed Switch - Part No. 43-CR



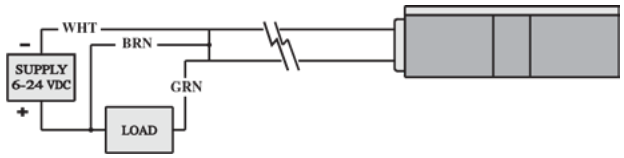
Warning: Do not exceed 24 VDC.
Permanent damage to sensor may occur.

Hall Effect Switch - Sourcing - Part No. 43-HP



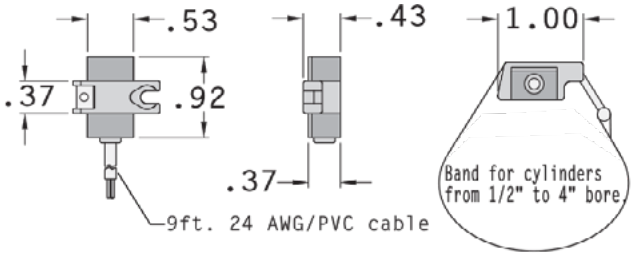
Warning: Do not exceed 24 VDC.
Permanent damage to sensor may occur.

Hall Effect Switch - Sinking - Part No. 43-HN



Warning: Do not exceed 24 VDC.
Permanent damage to sensor may occur.

Mounting Band - Included with Switches



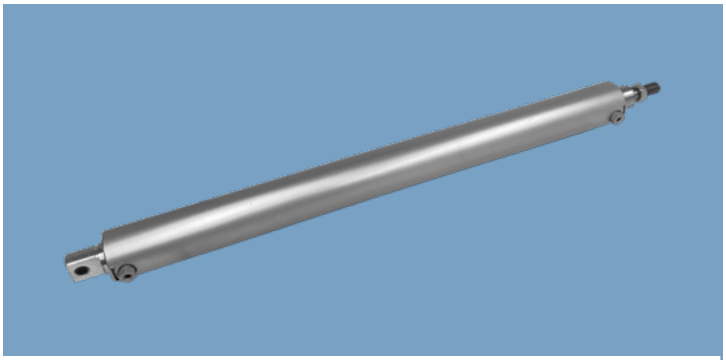
Sensor Types and Technical Data

Part No.	Description	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Max Volt. Drop	Sensitivity
43CR	Reed Switch MOV, LED	SPST Normally Open	5-120 VDC/VAC 50/60 Hz	0.5 Amp Max. 0.005 Amp Min.	12 Watts Max	0.5ms Operate	3.5 Volts	85 Gauses
43HP	Half Effect Sourcing	Normally Open PNP Output	6-24 VDC	0.5 Amp Max	12 Watts Max	1.5ms Operate 0.5ms Operate	0.5 Volts	85 Gauses
43HN	Half Effect LED Sinking	Normally Open NPN Output	6-24 VDC	0.5 Amp Max	12 Watts Max	1.5ms Operate 0.5ms Operate	0.5 Volts	85 Gauses

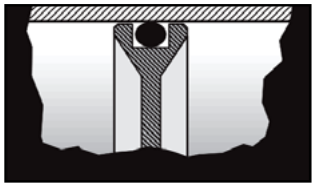
COMPETITIVE INTERCHANGE CYLINDERS

FLAIRLINE

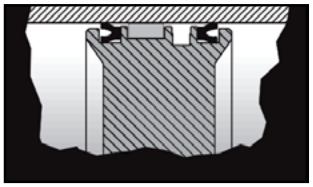
Series **I** & **IDE**, **DI** & **DIDE**, **DIM** & **DIMDE**, **SI** & **SIDE**, **DSI** & **DSIDE**, **DSIM** & **DSIMDE**
CSI, **CDSI**, **CDSI** & **CDSIM**, **CDSIDE** & **CDSIMDE**



AVAILABLE IN TWO PISTON TYPES



O TYPE
For **I**, **S I**& **CSI**



D TYPE
For **DI**, **DSI**, **IDE**, **CDSI** & **CDSIDE**

Specifications

- Maximum Pressure:
  Pneumatic: 150 psi
  Hydraulic: Consult Factory
- Operating Temperature:
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

Information

Flairline's interchange series includes pneumatic and hydraulic cylinders that are dimensionally interchangeable with several competitive cylinders. The Interchange series can be installed into many existing applications without any rework or engineering revisions.

- Double-acting and double-acting double-ended models are available

Features

- Standard Bore Sizes: 1 1/8, 1 1/2, 2, 2 1/2, 3
  CSI Series also available with 4" bore
- Stroke Sizes: Any stroke up to 130"
- Cushions are available for all Interchange cylinders
- External dimensions may be identical with several competitors
- Available for use in pneumatic or hydraulic applications
- Suitable for wherever lightweight, economical and durable actuators are required
- DIM, DSIM & CDSIM avalible with magnetic switches.

FULL DIMENSIONS FOR DOUBLE ACTING AND DOUBLE ENDED CYLINDERS ARE LISTED ON THE NEXT PAGE.

FLAIRLINE WARRANTY

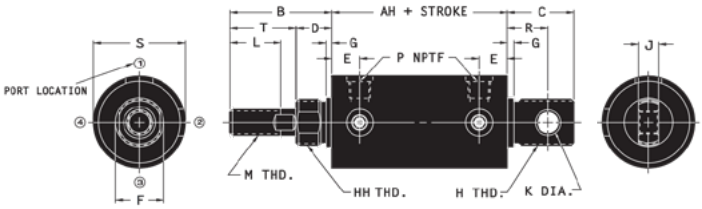
COMPETITIVE INTERCHANGE CYLINDERS

FLAIRLINE

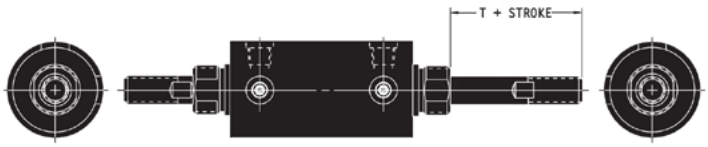
Series I & IDE, DI & DIDE, DIM & DIMDE, SI & SIDE, DSI & DSIDE, DSIM & DSIMDE
CSI, CDSI, CDSI & CDSIM, CDSIDE & CDSIMDE

Dimensions

DOUBLE ACTING CYLINDERS



DOUBLE ENDED CYLINDERS



"G" through "T" Same data for all series listed

G	H	HH	J	K	L	M*	P	R	S	T
1/8	3/4-16	3/4 - 16	3/8	1/4	7/8	3/8 - 16	1/8	11/16	1 3/8	1
7/32	1 1/16-18	1 1/16 - 18	1/2	5/16	1 1/4	1/2 - 13	1/4	7/8	1 3/4	1 7/16
7/32	1 1/16-18	1 1/16 - 18	1/2	5/16	1 1/4	5/8 - 11	1/4	7/8	2 1/4	1 7/16
11/32	1 3/8-12	1 3/8 - 12	5/8	7/16	1 1/2	3/4 - 10	3/8	1 3/8	2 3/4	1 11/16
11/32	1 3/8-12	1 3/8 - 12	5/8	7/16	1 1/2	3/4 - 10	3/8	1 3/8	3 1/4	1 11/16

Series I & IDE

Bore	A	B	C	D	E	F
1 1/8	2 1/32	1 3/4	31/32	3/4	27/64	3/4
1 1/2	2 5/8	2 7/16	1 1/4	1	33/64	1 1/16
2	2 5/8	2 7/16	1 1/4	1	33/64	1 1/16
2 1/2	2 7/8	2 15/16	2	1 1/4	9/16	1 7/16
3	2 7/8	2 15/16	2	1 1/4	9/16	1 7/16

Series DI, DIM, DIDE & DIMDE

Bore Size	A	B	C	D	E	F
1 1/8	3 1/32	1 3/4	31/32	3/4	27/64	3/4
1 1/2	3 5/8	2 7/16	1 1/4	1	33/64	1 1/16
2	3 5/8	2 7/16	1 1/4	1	33/64	1 1/16
2 1/2	3 7/8	2 15/16	2	1 1/4	9/16	1 7/16
3	3 7/8	2 15/16	2	1 1/4	9/16	1 7/16

Series SI & SIDE

Bore Size	A	B	C	D	E	F
1 1/8	2 1/16	1 5/8	1	5/8	27/64	3/4
1 1/2	2 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2	2 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2 1/2	2 7/8	2 11/16	2	1	9/16	1 3/8
3	2 7/8	2 11/16	2	1	9/16	1 3/8

Series DSI, DSIM, DSIDE & DSIMDE

Bore Size	A	B	C	D	E	F
1 1/8	3 1/16	1 5/8	1	5/8	27/64	3/4
1 1/2	3 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2	3 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2 1/2	3 7/8	2 11/16	2	1	9/16	1 3/8
3	3 7/8	2 11/16	2	1	9/16	1 3/8

Series CSI & CDSI

Bore Size	A	B	C	D	E	F
1 1/8	2 1/16	1 5/8	1	5/8	27/64	3/4
1 1/2	2 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2	2 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2 1/2	2 7/8	2 11/16	2	1	9/16	1 3/8
3	2 7/8	2 11/16	2	1	9/16	1 3/8
4	5		2 3/16	1 1/8	9/16	1 3/4

Series CDSI, CDSIM, CDSIDE & CDSIMDE

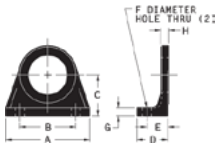
Bore Size	A	B	C	D	E	F
1 1/8	3 1/16	1 5/8	1	5/8	27/64	3/4
1 1/2	3 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2	3 5/8	2 5/16	1 1/4	7/8	33/64	1 1/16
2 1/2	3 7/8	2 11/16	2	1	9/16	1 3/8
3	3 7/8	2 11/16	2	1	9/16	1 3/8
4	5		2 3/16	1 1/8	9/16	1 3/4

COMPETITIVE INTERCHANGE CYLINDERS

FLAIRLINE

Series I & IDE, DI & DIDE, DIM & DIMDE, SI & SIDE, DSI & DSIDE, DSIM & DSIMDE
CSI, CDSI, CDSI & CDSIM, CDSIDE & CDSIMDE

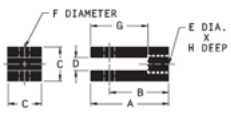
Mounting Accessories



Mounting Nut included.

FOOT BRACKET

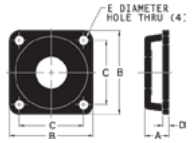
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	2-32-225	1 5/8	1	1 9/32	1	5/8	17/64	1/4	1/4
1 1/2, 2 CAP END	2-32-4	3	1 11/16	1 1/2	1 17/32	57/64	9/32	5/16	5/16
1 1/2, 2 HEAD END	2-32-4A	3	1 11/16	1 1/2	1 17/32	57/64	9/32	5/16	5/16
2 1/2, 3	2-32-6	4	2 1/4	2	2 3/32	1 7/32	13/32	3/8	3/8



Connecting Pin included.

ROD CLEVIS

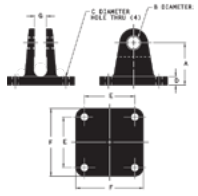
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	2-35-225	1 3/4	1 13/32	3/4	5/16	3/8-16	1/4	1	3/4
1 1/2	2-35-3	2 1/4	1 3/4	1	3/8	1/2-13	5/16	1 3/16	1 1/16
2	2-35-4	2 1/4	1 3/4	1	3/8	5/8-11	5/16	1 3/16	1 1/16
2 1/2, 3	2-35-6	2 11/16	2 1/16	1 1/8	1/2	3/4-10	7/16	1 3/4	1 3/16



Mounting Nut included.

FLANGE BRACKET

Bore Size	No.	Dimensions				
		A	B	C	D	E
1 1/8	2-33-225	11/16	2 1/2	2	1/4	9/32
1 1/2, 2 CAP END	2-33-4	19/32	3 1/4	2 1/2	5/16	9/32
1 1/2, 2 HEAD END	2-33-4A	19/32	3 1/4	2 1/2	5/16	9/32
2 1/2, 3	2-33-6	23/32	4 1/2	3 3/8	3/8	13/32



Connecting Pin included.

SWIVEL BRACKET

Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1 1/8	2-34-225	1 7/32	1/4	9/32	5/16	1 3/4	2 1/4	3/8
1 1/2, 2	2-34-4	1 3/4	5/16	9/32	5/16	2 1/4	3	1/2
2 1/2, 3	2-34-6	2 3/8	7/16	3/32	3/8	3	4	5/8

Rod nut included on all F, O, H, D, M & DM type cylinders.

MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1 1/8	2-38-12	3/8	1 1/16
1 1/2, 2 CAP (H Dimension)	2-38-18	15/16	1 7/16
1 1/2, 2 HEAD (H Dimension)	1-38-16	11/32	1 3/8
2 1/2, 3	2-38-24	25/32	2 1/16

Ordering Information

I 2 X 6 T = 5 1/2 H NT

PISTON
- I
- IDE
- DI
- DIDE
- SI
- SIDE
- DSI
- CSI
- CDSI
- CDSIDE

BORE SIZE
- 1 1/8
- 1 1/2
- 2
- 2 1/2
- 3 1/4
- 4

STROKE LENGTH
Any length in inch increments or fraction thereof **up to and including 130"**

SPECIAL OPTIONS

CUSHIONS: HEAD, CAP, BOTH	**H, C, HC**
CUSHIONS: (DOUBLE-ENDED CYLINDERS) ONE END, BOTH	**H, HH**
METAL ROD SCRAPER (not available for 1-18" bore)	**MRS**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
TANG AT 90° FROM STANDARD	**TANG 90°**
NO TANG	**NT**
STAINLESS STEEL CIRCUMFLEX KEYS	**SS KEYS**
STOP TUBES	**CONSULT FACTORY**
VITON PACKING	**VITON**
CUSTOM T DIMENSION (ROD EXTENSION)	**T = Dimension**
SPECIAL L DIMENSION (THREAD LENGTH)	**L = Dimension**
SPECIAL M DIMENSION (THREAD SIZE)	**M = Size or Plain Rod End**
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	**M = Size and depth**
STAINLESS STEEL RODS	**SS ROD**

Note: Magnetic Interchange cylinder's ordering information on the next page.

Replacement Parts

PK KIT I 2

PISTON
- I
- IDE
- DI
- DIDE
- SI
- SIDE
- DSI
- CSI
- CDSI
- CDSIDE

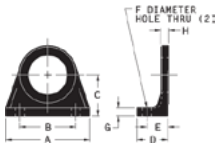
BORE SIZE
- 1 1/8
- 1 1/2
- 2
- 2 1/2
- 3 1/4
- 4

COMPETITIVE INTERCHANGE CYLINDERS

FLAIRLINE

Series I & IDE, DI & DIDE, DIM & DIMDE, SI & SIDE, DSI & DSIDE, DSIM & DSIMDE
CSI, CDSI, CDSI & CDSIM, CDSIDE & CDSIMDE

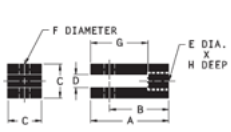
Mounting Accessories



Mounting Nut included.

FOOT BRACKET

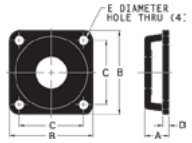
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	2-32-225	1 5/8	1	1 9/32	1	5/8	17/64	1/4	1/4
1 1/2, 2 CAP END	2-32-4	3	1 11/16	1 1/2	1 17/32	57/64	9/32	5/16	5/16
1 1/2, 2 HEAD END	2-32-4A	3	1 11/16	1 1/2	1 17/32	57/64	9/32	5/16	5/16
2 1/2, 3	2-32-6	4	2 1/4	2	2 3/32	1 7/32	13/32	3/8	3/8



Connecting Pin included.

ROD CLEVIS

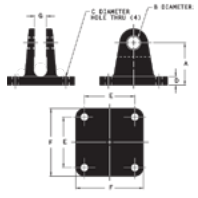
Bore Size	No.	Dimensions							
		A	B	C	D	E	F	G	H
1 1/8	2-35-225	1 3/4	1 13/32	3/4	5/16	3/8-16	1/4	1	3/4
1 1/2	2-35-3	2 1/4	1 3/4	1	3/8	1/2-13	5/16	1 3/16	1 1/16
2	2-35-4	2 1/4	1 3/4	1	3/8	5/8-11	5/16	1 3/16	1 1/16
2 1/2, 3	2-35-6	2 11/16	2 1/16	1 1/8	1/2	3/4-10	7/16	1 3/4	1 3/16



Mounting Nut included.

FLANGE BRACKET

Bore Size	No.	Dimensions				
		A	B	C	D	E
1 1/8	2-33-225	11/16	2 1/2	2	1/4	9/32
1 1/2, 2 CAP END	2-33-4	19/32	3 1/4	2 1/2	5/16	9/32
1 1/2, 2 HEAD END	2-33-4A	19/32	3 1/4	2 1/2	5/16	9/32
2 1/2, 3	2-33-6	23/32	4 1/2	3 3/8	3/8	13/32



Connecting Pin included.

SWIVEL BRACKET

Bore Size	No.	Dimensions						
		A	B	C	D	E	F	G
1 1/8	2-34-225	1 7/32	1/4	9/32	5/16	1 3/4	2 1/4	3/8
1 1/2, 2	2-34-4	1 3/4	5/16	9/32	5/16	2 1/4	3	1/2
2 1/2, 3	2-34-6	2 3/8	7/16	3/32	3/8	3	4	5/8

Rod nut included on all F, O, H, D, M & DM type cylinders.

MOUNTING NUT

Bore Size	No.	Dimensions	
		Height	Across Flats
1 1/8	2-38-12	3/8	1 1/16
1 1/2, 2 CAP (H Dimension)	2-38-18	15/16	1 7/16
1 1/2, 2 HEAD (H Dimension)	1-38-16	11/32	1 3/8
2 1/2, 3	2-38-24	25/32	2 1/16

Ordering Information

DIM 2-CR 2 X 6 T = 5 1/2 H NT

PISTON	BORE SIZE	STROKE LENGTH
DIM DIMDE DSIM DSIMDE CDSIM CDSIMDE	1 1/8 1 1/2 2 2 1/2 3 1/4 4	Any length in inch increments or fraction thereof **up to and including 130"**

SWITCHES

REED SWITCH	**Indicate Quantity - CR**
HALL EFFECT SWITCH (SOURCING)	**Indicate Quantity - HP**
HALL EFFECT SWITCH (SINKING)	**Indicate Quantity - HN**

NOTE: Reference switch options on the following page.

SPECIAL OPTIONS

CUSHIONS: HEAD, CAP, BOTH	**H, C, HC**
CUSHIONS: (DOUBLE-ENDED CYLINDERS) ONE END, BOTH	**H, HH**
METAL ROD SCRAPER (not available for 1-18" bore)	**MRS**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
TANG AT 90° FROM STANDARD	**TANG 90°**
NO TANG	**NT**
STAINLESS STEEL CIRCUMFLEX KEYS	**SS KEYS**
STOP TUBES	**CONSULT FACTORY**
VITON PACKING	**VITON**
CUSTOM T DIMENSION (ROD EXTENSION)	**T = Dimension**
SPECIAL L DIMENSION (THREAD LENGTH)	**L = Dimension**
SPECIAL M DIMENSION (THREAD SIZE)	**M = Size or Plain Rod End**
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	**M = Size and depth**
STAINLESS STEEL RODS	**SS ROD**

Replacement Parts

PK KIT DIM 2

PISTON	BORE SIZE
DIM DIMDE DSIM DSIMDE CDSIM CDSIMDE	1 1/8 1 1/2 2 2 1/2 3 1/4 4

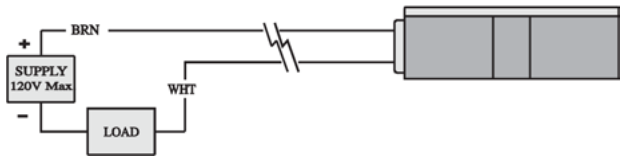
COMPETITIVE INTERCHANGE CYLINDERS

FLAIRLINE

Series I & IDE, DI & DIDE, DIM & DIMDE, SI & SIDE, DSI & DSIDE, DSIM & DSIMDE
CSI, CDSI, CDSI & CDSIM, CDSIDE & CDSIMDE

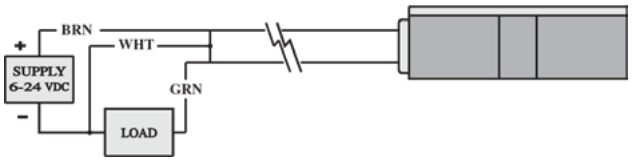
Switch Options

Reed Switch - Part No. 43-CR



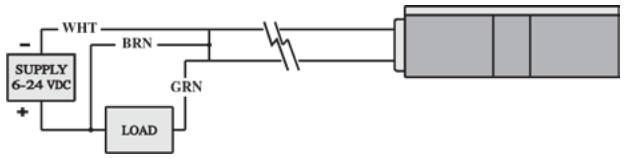
Warning: Do not exceed 24 VDC.
Permanent damage to sensor may occur.

Hall Effect Switch - Sourcing - Part No. 43-HP



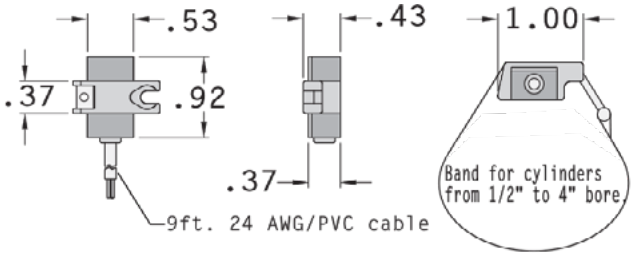
Warning: Do not exceed 24 VDC.
Permanent damage to sensor may occur.

Hall Effect Switch - Sinking - Part No. 43-HN



Warning: Do not exceed 24 VDC.
Permanent damage to sensor may occur.

Mounting Band - Included with Switches



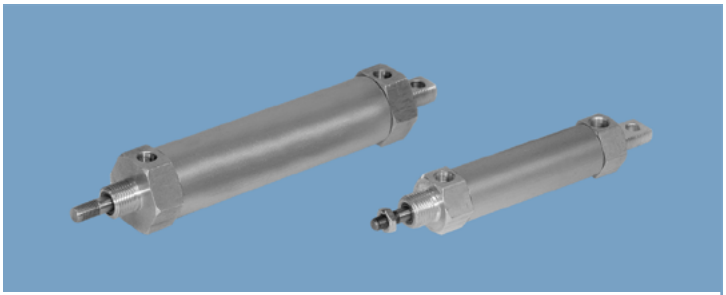
Sensor Types and Technical Data

Part No.	Description	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Max Volt. Drop	Sensitivity
43CR	Reed Switch MOV, LED	SPST Normally Open	5-120 VDC/VAC 50/60 Hz	0.5 Amp Max. 0.005 Amp Min.	12 Watts Max	0.5ms Operate	3.5 Volts	85 Gauses
43HP	Half Effect Sourcing	Normally Open PNP Output	6-24 VDC	0.5 Amp Max	12 Watts Max	1.5ms Operate 0.5ms Operate	0.5 Volts	85 Gauses
43HN	Half Effect LED Sinking	Normally Open NPN Output	6-24 VDC	0.5 Amp Max	12 Watts Max	1.5ms Operate 0.5ms Operate	0.5 Volts	85 Gauses

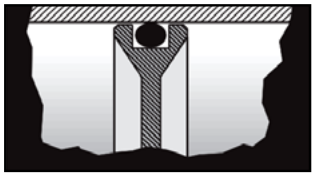
MINIATURE (DIGIT-AIR) CYLINDERS

FLAIRLINE

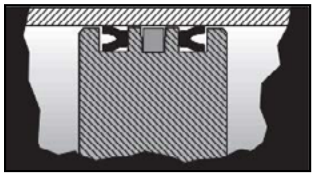
Series **MTM**, **MSM**, **MTMR**, **MSMR**, **FTM**, **FSM**, **FTMR** & **FSMR**



AVAILABLE IN TWO PISTON TYPES



O TYPE
For **FTM**, **FSM**, **FTMR** & **FSMR**



M TYPE
For **MTM**, **MSM**, **MTMR** & **MSMR**

Specifications

- Maximum Pressure:
  Pneumatic: 200 psi
  Hydraulic: 200 psi
- Operating Temperature:
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
- Hard anodized aluminum barrels
- Aluminum heads and end caps
- Stainless steel rods
- Bronze rod bearings

Information

Flairline's Digit-Air models are small bore cylinders that reduce replacement costs, maintenance labor, and machine downtime.

- Standard Construction: anodized aluminum barrels, aluminum heads and caps, O type piston, bronze rod bearings, and stainless steel rods
- FSM/MSM models for head to nose mounting
- FTM/MTM models for cap end universal swivel mounting
- FTMR/MTMR and FSMR/MSMR models for harsh working conditions
- MSM/MTM/MTMR feature magnetic piston cylinders with hall/reed effect switches.

Features

- Standard Bore Sizes: 1/2, 3/4, 1 1/8
- Stroke Sizes: 1/2" to 36"
- Cushions available:
  MTM/MSM: Either/both ends
  MTMR/MSMR: Either/both ends
  FTM/FSM: Either/both ends
  FTMR/FSMR: Normally extended: head end only. Normally retracted: cap end only

FLAIRLINE WARRANTY

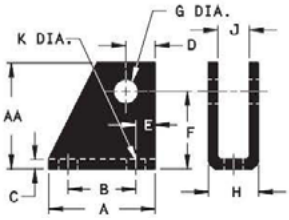
Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

MINIATURE (DIGIT-AIR) CYLINDERS

FLAIRLINE

Series **MTM**, **MSM**, **MTMR**, **MSMR**, **FTM**, **FSM**, **FTMR** & **FSMR**

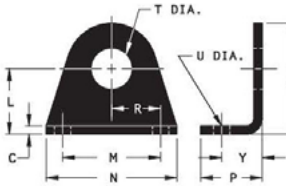
Series **FTM**, **FSM**, **MTM**, **MSM**, **FTMR**, **FSMR**, **MTMR** & **MSMR** Mounting:



SWIVEL BRACKET

BORE SIZE	NUMBER
1/2, 3/4	6/4 - 34
1 1/8	9 - 34

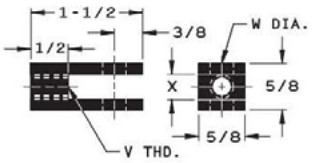
Connecting Pin Included.



FOOT BRACKET

BORE SIZE	NUMBER
1/2, 3/4	6/4 - 32
1 1/8	9 - 32

Mounting Nut Included.



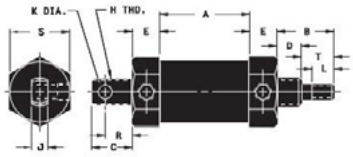
ROD CLEVIS

BORE SIZE	NUMBER
1/2, 3/4	6/4 - 35
1 1/8	9 - 35

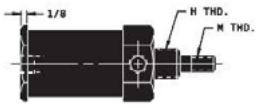
Connecting Pin Included.

BORE SIZE	1/2, 3/4	1 1/8
A	1 3/8	1 3/8
AA	1 1/8	1 3/8
B	7/8	7/8
C	1/8	1/8
D	3/8	3/8
E	1/4	1/4
F	3/4	1
G	1/4	5/16
H	21/32	21/32
J	13/32	13/32
K	1/4	1/4
L	3/4	1
M	1	1 1/2
N	1 3/8	2
P	3/4	15/16
R	1/2	3/4
S	1 1/4	1 11/16
T	5/8	5/8
U	3/16	1/4
V	1/4 - 28	5/16 - 24
W	1/4	5/16
X	11/32	11/32
Y	1/2	5/8

Dimensions



SERIES MTM/MTMR
SWIVEL MOUNT
CYLINDERS



SERIES MSM/MSMR
NOSE MOUNT
CYLINDERS

BORE SIZE	1/2	3/4	1 1/8
A	2 1/16	1 9/16	1 9/16
B	1 1/4	1 1/4	1 5/16
C	13/16	13/16	15/16
D	1/2	1/2	9/16
E	9/16	9/16	5/8
H	1/2 - 20	5/8 - 18	5/8 - 18
J	1/4	1/4	3/8
K	1/4	1/4	5/16
L	1/2	1/2	1/2
M	1/4 -28	1/4 -28	5/16 -24
R	9/16	9/16	5/8
S	3/4	1	1 3/8
T	3/4	3/4	3/4

Note:
FOR SERIES MTM & MSM DOUBLE-ACTING: A + STROKE
FOR SERIES MTMR & MSMR SPRING RETURN: A + (STROKE X 2)
FOR SERIES MTMR & MSMR UP TO 1/2" STROKE SPRING RETURN: A + (STROKE +1")

For cylinders with bumpers, contact factory for stock stroke sizes and add 1/2" to Dimension "A" for each bumper. For cylinders with switches, contact factory for number of switches each stock stroke size can accommodate.

MINIATURE (DIGIT-AIR) CYLINDERS

FLAIRLINE

Series **MTM, MSM, MTMR, MSMR, FTM, FSM, FTMR & FSMR**

Ordering Information

FTM 1/2 X 3 T=5 1/2 H NT

PISTON

FTM
FSM

BORE SIZE

1/2
3/4
1 1/8

STROKE LENGTH

Up to 12"
Consult factory
for longer sizes

SPECIAL OPTIONS

BUMPERS	
HEAD ONLY	H
CAP ONLY	C
BOTH	HC
VITON PACKING	Viton
STOP TUBES	Consult Factory
CUSTOM T DIMENSION (ROD EXTENSION)	T = Dimension
SPECIAL L DIMENSION (THREAD LENGTH)	L = Dimension
SPECIAL M DIMENSION (THREAD SIZE)	M = (Size or plain rod end)
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	M = Size and depth

Replacement Parts

PK KIT FTM 1/2

PISTON

FTM
FSM

BORE SIZE

1/2
3/4
1 1/8

Ordering Information

MTM 2-CR 1/2 X 3 T=5 1/2 H NT

PISTON

MTM
MSM

BORE SIZE

1/2
3/4
1 1/8

STROKE LENGTH

Up to 12"
Consult factory
for longer sizes

SWITCHES

REED SWITCH	Indicate Quantity - CR
HALL EFFECT SWITCH (SOURCING)	Indicate Quantity - HP
HALL EFFECT SWITCH (SINKING)	Indicate Quantity - HN

NOTE: Reference switch options on the last page of section.

SPECIAL OPTIONS

BUMPERS	
HEAD ONLY	H
CAP ONLY	C
BOTH	HC
VITON PACKING	Viton
STOP TUBES	Consult Factory
CUSTOM T DIMENSION (ROD EXTENSION)	T = Dimension
SPECIAL L DIMENSION (THREAD LENGTH)	L = Dimension
SPECIAL M DIMENSION (THREAD SIZE)	M = (Size or plain rod end)
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	M = Size and depth

Replacement Parts

PK KIT MTM 1/2

PISTON

MTM
MSM

BORE SIZE

1/2
3/4
1 1/8

MINIATURE (DIGIT-AIR) CYLINDERS

FLAIRLINE

Series **MTM, MSM, MTMR, MSMR, FTM, FSM, FTMR & FSMR**

Ordering Information

FTMR-E 1/2 X 3 T=5 1/2 H NT

PISTON
FTMR
FSMR

BORE SIZE
1/2
3/4
1 1/8

SPRING RETURN

NORMALLY EXTENDED	-E
NORMALLY RETRACTED	-R

STROKE LENGTH
Up to 12"
Consult factory for longer sizes

SPECIAL OPTIONS

BUMPERS	
HEAD ONLY	H
CAP ONLY	C
BOTH	HC
VITON PACKING	Viton
STOP TUBES	Consult Factory
CUSTOM T DIMENSION (ROD EXTENSION)	T = Dimension
SPECIAL L DIMENSION (THREAD LENGTH)	L = Dimension
SPECIAL M DIMENSION (THREAD SIZE)	M = (Size or plain rod end)
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	M = Size and depth

Replacement Parts

PK KIT FTMR-E 1/2

PISTON
FTMR
FSMR

BORE SIZE
1/2
3/4
1 1/8

SPRING RETURN

NORMALLY EXTENDED	-E
NORMALLY RETRACTED	-R

Ordering Information

MTMR-E 2-CR 1/2 X 3 T=5 1/2 H NT

PISTON
MTMR
MSMR

BORE SIZE
1/2
3/4
1 1/8

STROKE LENGTH
Up to 12"
Consult factory for longer sizes

SPRING RETURN

NORMALLY EXTENDED	-E
NORMALLY RETRACTED	-R

SWITCHES

REED SWITCH	Indicate Quantity - CR
HALL EFFECT SWITCH (SOURCING)	Indicate Quantity - HP
HALL EFFECT SWITCH (SINKING)	Indicate Quantity - HN

NOTE: Reference switch options on the last page of section.

SPECIAL OPTIONS

BUMPERS	
HEAD ONLY	H
CAP ONLY	C
BOTH	HC
VITON PACKING	Viton
STOP TUBES	Consult Factory
CUSTOM T DIMENSION (ROD EXTENSION)	T = Dimension
SPECIAL L DIMENSION (THREAD LENGTH)	L = Dimension
SPECIAL M DIMENSION (THREAD SIZE)	M = (Size or plain rod end)
SPECIAL M DIMENSION (TAPPED HOLE IN ROD END)	M = Size and depth

Replacement Parts

PK KIT MTMR-E 1/2

PISTON
MTMR
MSMR

BORE SIZE
1/2
3/4
1 1/8

SPRING RETURN

NORMALLYEXTENDED	-E
NORMALLY RETRACTED	-R

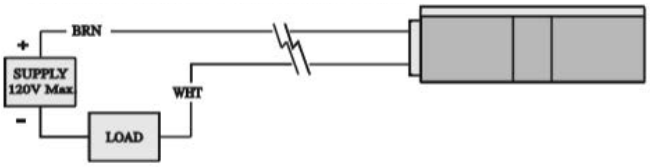
MINIATURE (DIGIT-AIR) CYLINDERS

FLAIRLINE

Series **MTM**, **MSM**, **MTMR**, **MSMR**, **FTM**, **FSM**, **FTMR** & **FSMR**

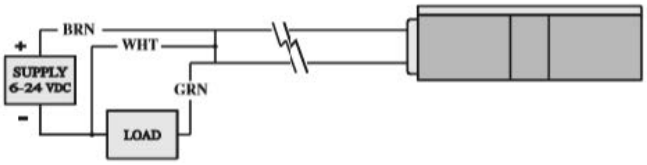
Series **MTM**, **MSM**, **MTMR** & **MSMR** Magnetic Switch Options:

REED SWITCH: PART NO. 43-CR



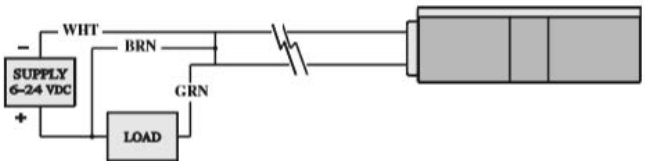
WARNING: DO NOT EXCEED RATINGS.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH - SOURCING PART NO. 43-HP



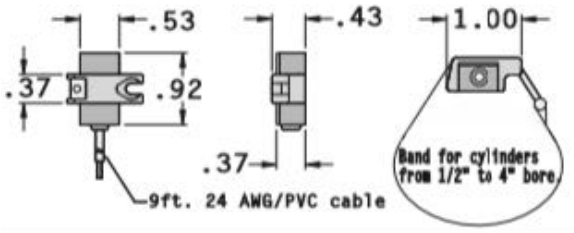
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH - SINKING PART NO. 43-HN



WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

MOUNTING BAND - Included with Switches



SENSOR TYPES & TECHNICAL DATA

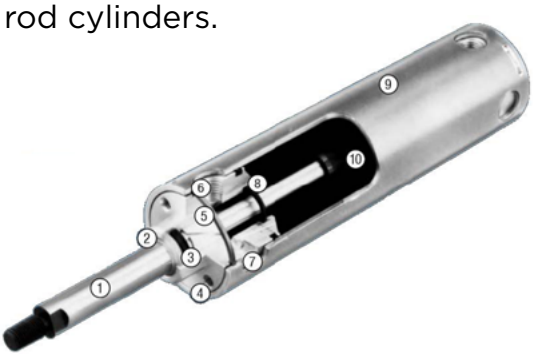
PART NO.	43-CR	43-HP	43-HN
Description	Reed Switch MOV, LED	Half Effect, LED, Sourcing	Half Effect, LED, Sinking
Function	SPTS Normally Open	Normally Open PNP Output	Normally Open NPN Output
Switching Voltage	5 - 120 VDC/VAC 50/60 Hz	6 - 24 VDC	6 - 24 VDC
Switching Current	0.5 Amp Max 0.005 Amp Min	0.5 Amp Max	0.5 Amp Max
Switching Power	10 Watts Max	2 Watts Max	2 Watts Max
Switching Speed	0.5ms operate 0.1ms release	1.5p operate 0.5p release	1.5p operate 0.5p release
Max Volt Drop	3.5 Volts	0.5 Volts	0.5 Volts
Sensitivity	85 Gauss	85 Gauss	85 Gauss

NFPA INTERCHANGEABLE CYLINDER

FLAIRLINE

Only the Tie Rods are missing

NFPA Interchangeable Cylinders are round body cylinders compatible with NFPA mounts. These cylinders offer a lightweight, low maintenance alternative to standard NFPA cylinders with tie rods. Heavy-duty features provide millions of cycles trouble-free with a reduced cost compared to standard NFPA tie rod cylinders.



1. Chrome-plated, high-strength, steel **Piston Rods** are corrosion resistant, rugged and durable. Three NFPA rod end options are offered. Optional stainless steel is available upon request.

2. High-quality elastomer **Rod Wiper** protects **Rod Seal** by preventing contaminants from entering cylinder during retract stroke. Resilient synthetic rubber will not scratch rod.

3. Pressure-energized, U-cup type **Rod Seal** is wear compensating, low friction provides positive sealing.

4. Lightweight aluminum **Head** and **Caps** for long corrosion-resistant life.

5. Extra-long, low-friction nylon **Rod Bearing** 'gives' rather than wears under normal side loading. When necessary, service is easy; only the bearing is replaced, not the head.

6. **Heads** and **Caps** are held to tube by means of a **Circumflex Key**. The larger square steel locking device requires no special installation tools. Services to **Head** or **Cap** can be one without disassembling the entire cylinder.

7. **Adjustable Cushions** available on 2" bore and larger. Under 2" bore cylinders have fixed cushions.

8. **Cushion Seal** "check valve" offers fast break-away, self-aligning, positive cushioning for faster stroking and reduced cylinder wear.

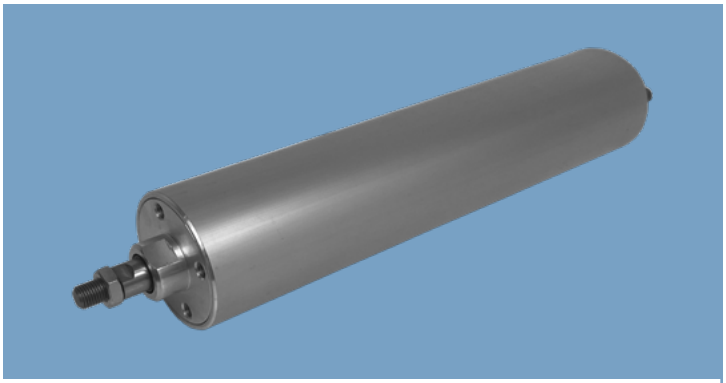
9. Precision-drawn, lightweight aluminum **Barrels** are hard-anodized inside and out for corrosion and abrasion resistance. Fine I.D. micro-finish provides long life and positive sealing.

10. Several **Piston** styles are offered for various application requirements.

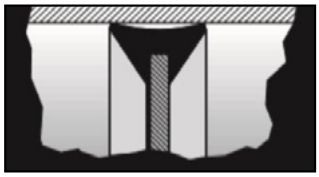
All Flairline cylinders are permanently lubricated for life.

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

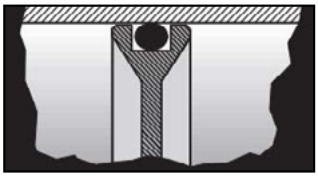
FLAIRLINE



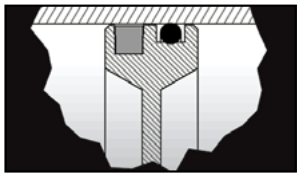
AVAILABLE IN THREE PISTON TYPES



F TYPE



O TYPE



OIM TYPE

Features

- Standard Bore Sizes: 1 1/2, 2, 2 1/2, 3 1/4, 4
- Stroke Sizes: Any stroke up to 130”
- Cushions available
- OIM available with magnetic switches

Information

Flairline NFPA interchangeable double-acting cylinders can be used as drop-in replacements for NFPA tie-rod cylinders. Dimensions, mounting options, and performance are identical to NFPA products.

- Operating systems can be pneumatic or low pressure hydraulic
- OILF cylinders provide low friction pneumatic service for use in low-pressure applications where a low minimum breakaway is required
- OIM model feature magnetic piston cylinders with hall/reed effect switches

Specifications

- Maximum Pressure:
  Pneumatic: 150 psi
  Hydraulic: 200 psi
- Operating Temperature:
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

*__Note:__ Viton seals are for OI series only

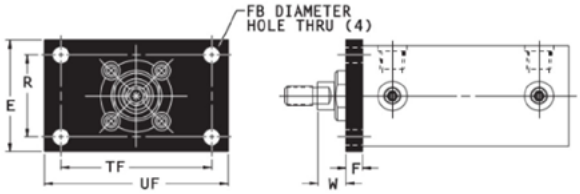
FLAIRLINE WARRANTY

Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

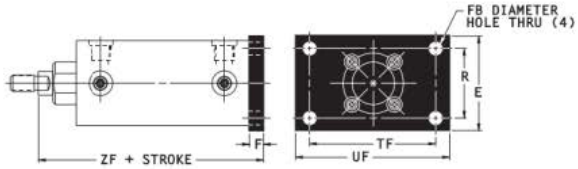
FLAIRLINE

MOUNTING STYLES FOR NFPA INTERCHANGE CYLINDERS



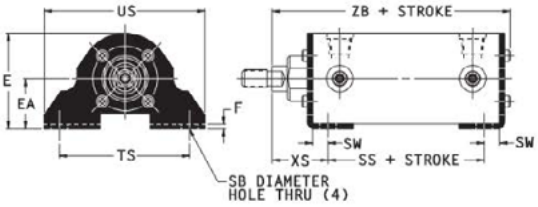
Front Flange Mount (NFPA MF1)

BORE SIZE	DIMENSIONS						
	E	F	FB	R	TF	UF	W
1 1/2	2	3/8	9/32	1.43	2.75	3 3/8	5/8
2	2 1/2	3/8	11/32	1.84	3.38	4 1/8	5/8
2 1/2	3	3/8	11/32	2.19	3.88	4 5/8	5/8
3 1/4	3 3/4	5/8	13/32	2.76	4.69	5 1/2	3/4
4	4 1/2	5/8	13/32	3.32	5.44	6 1/4	3/4



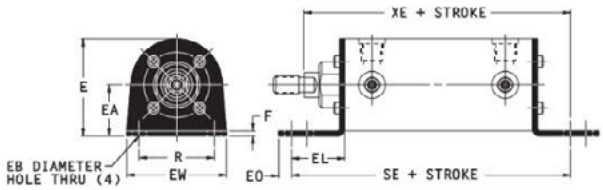
Rear Flange Mount (NFPA MF2)

BORE SIZE	DIMENSIONS						
	E	F	FB	R	TF	UF	ZF
1 1/2	2	3/8	9/32	1.43	2.75	3 3/8	5
2	2 1/2	3/8	11/32	1.84	3.38	4 1/8	5
2 1/2	3	3/8	11/32	2.19	3.88	4 5/8	5 1/8
3 1/4	3 3/4	5/8	13/32	2.76	4.69	5 1/2	3 1/2
4	4 1/2	5/8	13/32	3.32	5.44	6 1/4	4 1/4



Side Lug Mounts (NFPA MS2)

BORE SIZE	DIMENSIONS									
	E	EA	F	SB	SS	SW	TS	US	XS	ZB
1 1/2	1 7/8	1	1/8	13/32	2 7/8	3/8	2 3/4	3 1/2	1 3/8	4.92
2	2 3/8	1 1/4	1/8	13/32	2 7/8	3/8	3 1/4	4	1 3/8	4.95
2 1/2	2 7/8	1 1/2	3/16	13/32	3	3/8	3 3/4	4 1/2	1 3/8	5.19
3 1/4	3 5/8	1 7/8	1/4	17/32	3 1/4	1/2	4 3/4	5 3/4	1 7/8	6.19
4	4 3/8	2 1/4	5/16	17/32	3 1/4	1/2	5 1/2	6 1/2	1 7/8	6.25



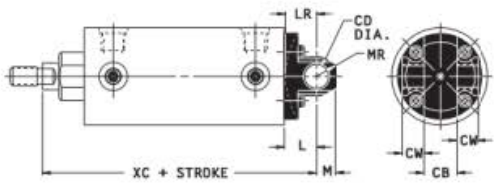
End Lug Mounts (NFPA MS7)

BORE SIZE	DIMENSIONS									
	E	EA	EB	EL	EO	EW	F	R	SE	XE
1 1/2	1 7/8	1	9/32	1 1/8	1/4	2	1/8	1.43	5 1/2	5 3/8
2	2 3/8	1 1/4	11/32	1 5/16	5/16	2 7/16	1/8	1.84	5 7/8	5 9/16
2 1/2	2 7/8	1 1/2	11/32	1 7/16	7/16	3	3/16	2.19	6 1/4	6 13/16
3 1/4	3 5/8	1 7/8	13/32	1 1/2	3/8	3 1/2	1/4	2.76	6 5/8	6 1/2
4	4 3/8	2 1/4	13/32	1 5/8	3/8	4 1/4	5/16	3.32	6 7/8	6 5/8

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

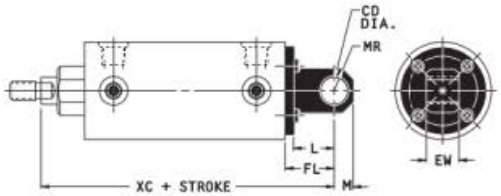
FLAIRLINE

MOUNTING STYLES FOR NFPA INTERCHANGE CYLINDERS



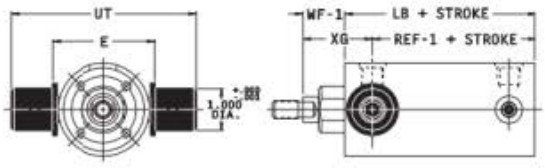
Clevis Mount (NFPA MP1)

BORE SIZE	DIMENSIONS							
	CB	CD	CW	L	LR	M	MR	XC
1 1/2	3/4	1/2	1/2	3/4	9/16	7/16	1/2	5 3/8
2	3/4	1/2	1/2	3/4	3/4	7/16	1/2	5 3/8
2 1/2	3/4	1/2	1/2	3/4	3/4	7/16	1/2	5 1/2
3 1/4	1 1/4	3/4	5/8	1 1/4	1 1/8	5/8	3/4	6 7/8
4	1 1/4	3/4	5/8	1 1/4	1 1/8	5/8	3/4	6 7/8



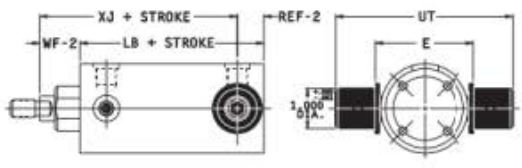
Pivot Mount (NFPA MP4)

BORE SIZE	DIMENSIONS						
	CD	EW	FL	L	M	MR	XC
1 1/2	1/2	3/4	1 1/8	15/16	7/16	1/2	5 3/4
2	1/2	3/4	1 1/8	15/16	7/16	1/2	5 3/4
2 1/2	1/2	3/4	1 1/8	15/16	7/16	1/2	5 3/4
3 1/4	3/4	1 1/4	1 7/8	1 3/8	5/8	3/4	5 7/8
4	3/4	1 1/4	1 7/8	1 3/8	5/8	3/4	7 1/2



Head Trunnion Mount (NFPA MT1)

BORE SIZE	DIMENSIONS					
	E	LB	REF-1	UT	WF-1	XG
2	2 1/2	3 5/8	2.96	4 1/2	1.08	1 3/4
2 1/2	3	3 3/4	3.08	5	1.08	1 3/4
3 1/4	3 3/4	4 1/4	3.41	5 3/4	1.41	2 1/4
4	4 1/2	4 1/4	3.41	6 1/2	1.41	2 1/4



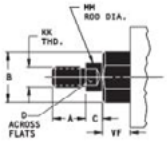
Head Trunnion Mount (NFPA MT2)

BORE SIZE	DIMENSIONS					
	E	LB	REF-2	UT	WF-2	XJ
2	2 1/2	3 5/8	.66	4 1/2	1.16	4 1/4
2 1/2	3	3 3/4	.66	5	1.16	4 1/4
3 1/4	3 3/4	4 1/4	.91	5 3/4	1.66	5
4	4 1/2	4 1/4	.91	6 1/2	1.66	5

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

FLAIRLINE

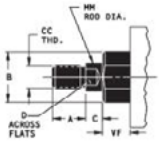
ROD END STYLES FOR NFPA INTERCHANGE CYLINDERS



SMALL MALE (NFPA SM)*

BORE SIZE	DIMENSIONS						
	A	B	C	D	KK	MM	VF
1½, 2, 2½	¾	1⅛	⅜	½	7/16-20	⅝	⅝
3¼, 4	1⅛	1½	½	⅞	¾-16	1	⅞

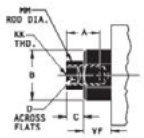
*Standard on all Flairline NFPA interchangeable cylinders. When ordering, if no rod end style is specified, style SM will be supplied. Rod eye and rod clevis fir style SM. Rod nut included.



INTERMEDIATE MALE (NFPA IM)*

BORE SIZE	DIMENSIONS						
	A	B	C	CC	D	MM	VF
1½, 2, 2½	¾	1⅛	⅜	½-20	½	⅝	⅝
3¼, 4	1⅛	1½	½	⅞-14	⅞	1	⅞

*Optional. Rod Nut Included.

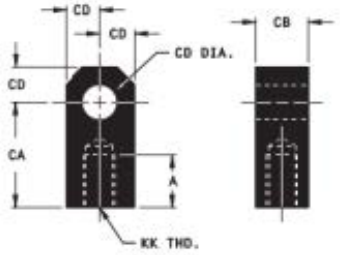


SHORT FEMALE (NFPA SF)*

BORE SIZE	DIMENSIONS						
	A	B	C	D	KK	MM	VF
1½, 2, 2½	¾	1⅛	⅜	½	7/16-20	⅝	⅝
3¼, 4	1⅛	1½	½	⅞	¾-16	1	⅞

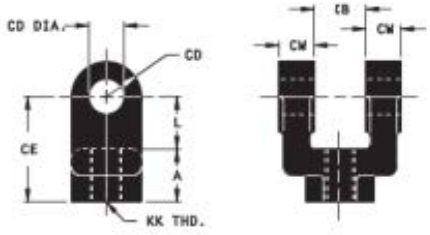
*Optional.

ACCESSORIES FOR NFPA INTERCHANGEABLE CYLINDERS



ROD EYE

BORE SIZE	DIMENSIONS					
	NO.	A	CA	CB	CD	KK
1½, 2, 2½	4-34-3	¾	1½	¾	½	7/16 - 20
3¼, 4	4-34-65	1⅛	2 1/16	1¼	¾	¾ - 16



ROD CLEVIS*

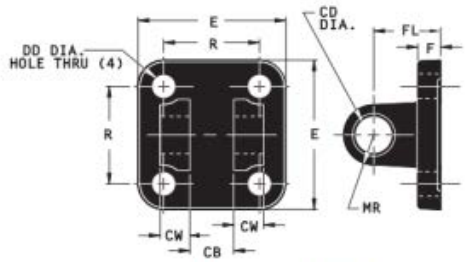
BORE SIZE	DIMENSIONS							
	NO.	A	CB	CD	CE	CW	L	KK
1½, 2, 2½	4-35-3	¾	¾	½	1½	½	¾	7/16 - 20
3¼, 4	4-35-65	1⅛	1¼	¾	2⅜	⅝	1¾	¾ - 16

*Pivot Pin Included.

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

FLAIRLINE

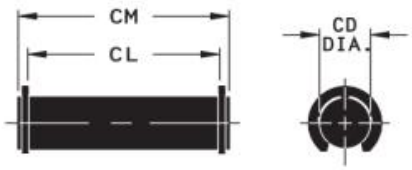
ACCESSORIES FOR NFPA INTERCHANGEABLE CYLINDERS



CLEVIS BRACKET

BORE SIZE	DIMENSIONS									
	NO.	CB	CD	CW	DD	E	F	FL	MR	R
1½, 2, 2½	4-34 -3	¾	½	½	13/32	2 ½	⅜	1⅛	½	1 5/8
3¼, 4	4-34 -65	1⅛	¾	⅝	17/32	3 ½	⅝	1⅞	¾	2 9/16

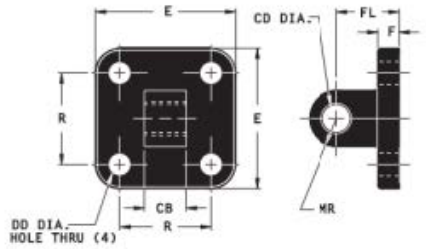
Pivot Pin inluded.



PIVOT PIN

BORE SIZE	DIMENSIONS			
	NO.	CD	CL	CM
1½, 2, 2½	BKT. PIN F 3¼, 4	½	1⅞	2 1/16
3¼, 4	PIVOT PIN FI 3¼, 4	¾	2 9/16	2⅞

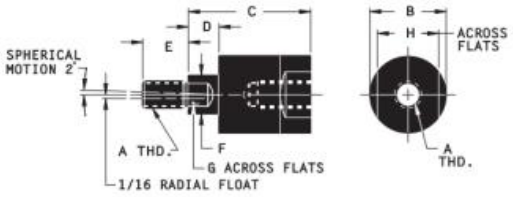
Snap Rings included.



PIVOT BRACKET

BORE SIZE	DIMENSIONS								
	NO.	CB	CD	DD	E	F	FL	MR	R
1½, 2, 2½	4-37 -3	¾	½	13/32	2½	⅜	1⅛	½	1 5/8
3¼, 4	4-37 -65	1⅛	¾	17/32	3½	⅝	1⅞	¾	2 9/16

See Optional Pivot Pin below



ALIGNMENT COUPLER*

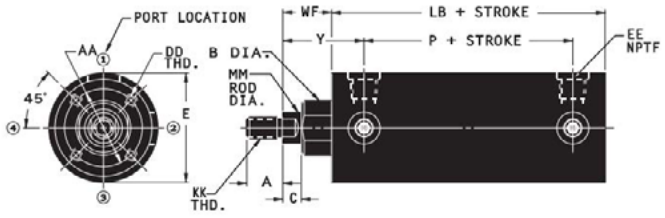
PART NO.	DIMENSIONS								Max. Pull at Yield
	A	B	C	D	E	F	G	H	
4-39-3	7/16 -20	1¼	2	½	¾	⅝	½	1	10,000
4-39-3A	½ -20	1¼	2	½	¾	⅝	½	1	14,000
4-39-65	¾ -16	1¾	2 5/16	½	1⅛	31/32	3/16	1½	34,000
4-39-65A	⅞ -14	1¾	2 5/16	½	1⅛	31/32	3/16	1½	39,000

*Alignment couplers improve bearing and seal life by preventing excessive binding and friction caused by misalignment. Flairline alignment couplers also allow a greater assembly tolerances then would typically be required which help simplify cylinder installation. Alignment couplers work equally well in “push or “pull” applications and are available for all Flairline cylinders.

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

FLAIRLINE

Dimensions



DIMENSION REFERENCE	CYLINDER BORE				
	1 1/2	2	2 1/2	3 1/4*	4*
A	3/4	3/4	3/4	1 1/8	1 1/8
AA	1.21	1.60	2.00	2.62	2.62
B	1 1/8	1 1/8	1 1/8	1 1/2	1 1/2
C	3/8	3/8	3/8	1/2	1/2
DD	6-32	1/4-20	5/16-18	3/8-16	3/8-16
E	1 3/4	2 1/4	2 3/4	3 1/2	4 1/4
EE-NPTF	1/4-18	1/4-18	1/4-18	1/2-14	1/2-14
KK	7/16-20	7/16-20	7/16-20	3/4-16	3/4-16
LB	3 1/2	3 5/8	3 3/4	4 1/4	4 1/4
LD	4 1/8	4 1/8	4 1/4	4 3/4	4 3/4
MM	5/8	5/8	5/8	1	1
P	2.29	2.29	2.42	2.44	2.44
PI	2.79	2.79	2.92	2.94	2.94
WF	1	1	1	1 3/8	1 3/8
Y	1.67	1.67	1.67	2.28	2.28
ZM	6 1/8	6 1/8	6 1/4	7 1/2	7 1/2

Ordering Information

FI 2 x 6 MF1 T = 5 1/2 H NT

PISTON

FI
OI
OILF
FIDE
OIDE

BORE SIZE

1 1/2
2
2 1/2
3 1/4
4

STROKE LENGTH

Any length in inch increments or fraction thereof up to and including 130"

MOUNTING STYLES

Front Flange Mount	MF1
Rear Flange Mount	MF2
Side Lug Mount	MS2
End lug Mount	MS7
Clevis Mount	MP1
Pivot Mount	MP4
Head Trunnion Mount	MT1
Head Trunnion Mount	MT2

SPECIAL OPTIONS

Cushions	
Head Only	H
Cap Only	C
Both	HC
Metal Rod Scraper (not available on 3 1/4 or 4" bore)	(respectively) MRS
Extra Inlet Port(s)	Indicate location(s) (PP2, PP3, PP4) in cap or head end
Inlet ports	Indicate location(s) (PP2, PP3, PP4) in cap or head end
Stainless Steel Circumflex Keys	SS Keys
Viton Packing (OI and OIDE only)	Viton
Stop Tubes	Consult Factory
Rod End Styles	IM or SF
Intermediate Male or Short Female	
Rod Extension "C"	C = Dimension
Thread Length "A"	A = Dimension
Male Thread Size	XX = (size or plain rod end)
Female Thread Size	XX = (size and depth – unless otherwise specified, all other dimensions will be Short Female
Stainless Steel Rods	SS Rod

*MT1 and MT2 not available on 1 1/2 bore cylinders.
Note: See next page for OIM cylinder.

Replacement Parts

PK KIT FI 2

PISTON

FI
OI
OILF
FIDE
OIDE

BORE SIZE

1 1/2
2
2 1/2
3 1/4
4

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

FLAIRLINE

Ordering Information

OIM 2-CR 2 x 6 MF1 T = 5 1/2 H NT

PISTON
OIM

BORE SIZE
1 1/2
2
2 1/2
3 1/4
4

SWITCHES	
REED SWITCH	Indicate Quantity - CR
HALL EFFECT SWITCH (SOURCING)	Indicate Quantity - HP
HALL EFFECT SWITCH (SINKING)	Indicate Quantity - HN

MOUNTING STYLES	
FRONT FLANGE MOUNT	MF1
REAR FLANGE MOUNT	MF2
SIDE LUG MOUNT	MS2
END LUG MOUNT	MS7
CLEVIS MOUNT	MP1
PIVOT MOUNT	MP4
HEAD TRUNNION MOUNT	MT1
HEAD TRUNNION MOUNT	MT2

STROKE LENGTH
Any length in inch increments or fraction thereof up to and including 130”

SPECIAL OPTIONS	
CUSHIONS	
HEAD ONLY	H
CAP ONLY	C
BOTH	HC
METAL ROD SCRAPER (NOT AVAILABLE ON 3 1/4 OR 4” BORE)	(respectively) MRS
EXTRA INLET PORT(S)	Indicate location(s) (PP2, PP3, PP4) in cap or head end
INLET PORTS	Indicate location(s) (PP2, PP3, PP4) in cap or head end
STAINLESS STEEL CIRCUMFLEX KEYS	SS Keys
VITON PACKING (OI ONLY)	Viton
STOP TUBES	Consult Factory
ROD END STYLES INTERMEDIATE MALE OR SHORT FEMALE	IM or SF
ROD EXTENSION “C”	C = Dimension
THREAD LENGTH “A”	A = Dimension
MALE THREAD SIZE	XX = (size or plain rod end)
FEMALE THREAD SIZE	XX = (size and depth – unless otherwise specified, all other dimensions will be Short Female
STAINLESS STEEL RODS	SS Rod

*MT1 and MT2 not available on 1 1/2 bore cylinders.

Replacement Parts

PK KIT OIM 2

PISTON
OIM

BORE SIZE
1 1/2
2
2 1/2
3 1/4
4

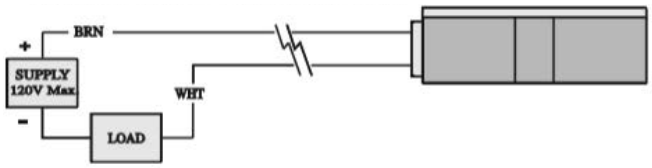
PROUD TO BE
MADE IN AMERICA

NFPA INTERCHANGEABLE DOUBLE-ACTING CYLINDERS

FLAIRLINE

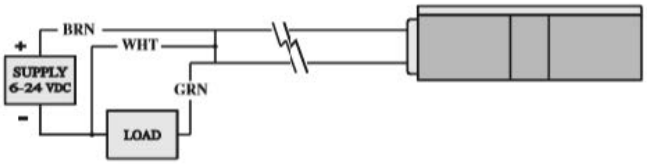
Series **FI**, **OI** & **OLF** Magnetic Switch Options:

REED SWITCH: PART NO. 43-CR



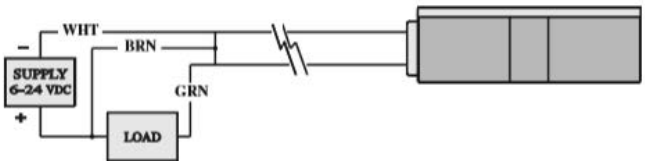
WARNING: DO NOT EXCEED RATINGS.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH - SOURCING PART NO. 43-HP



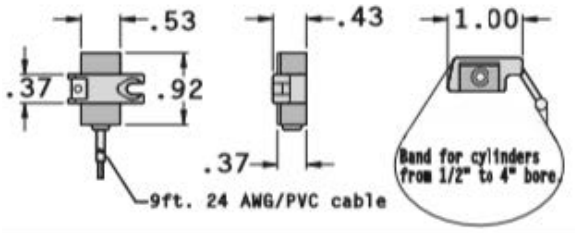
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH - SINKING PART NO. 43-HN



WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

MOUNTING BAND - Included with Switches

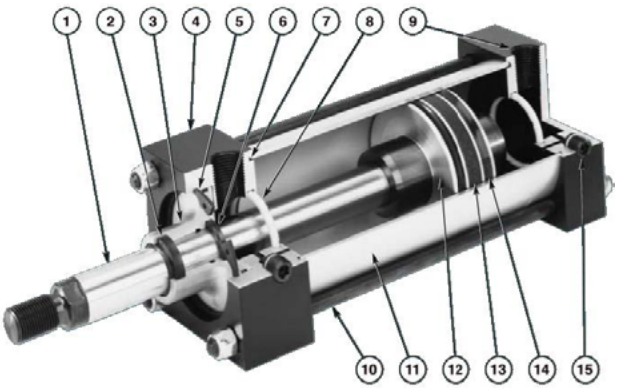


SENSOR TYPES & TECHNICAL DATA

PART NO.	43-CR	43-HP	43-HN
Description	Reed Switch MOV, LED	Half Effect, LED, Sourcing	Half Effect, LED, Sinking
Function	SPTS Normally Open	Normally Open PNP Output	Normally Open NPN Output
Switching Voltage	5 - 120 VDC/VAC 50/60 Hz	6 - 24 VDC	6 - 24 VDC
Switching Current	0.5 Amp Max 0.005 Amp Min	0.5 Amp Max	0.5 Amp Max
Switching Power	10 Watts Max	12 Watts Max	12 Watts Max
Switching Speed	0.5ms operate 0.1ms release	1.5p operate 0.5p release	1.5p operate 0.5p release
Max Volt Drop	3.5 Volts	0.5 Volts	0.5 Volts
Sensitivity	85 Gauss	85 Gauss	85 Gauss

HEAVY DUTY NFPA CYLINDERS

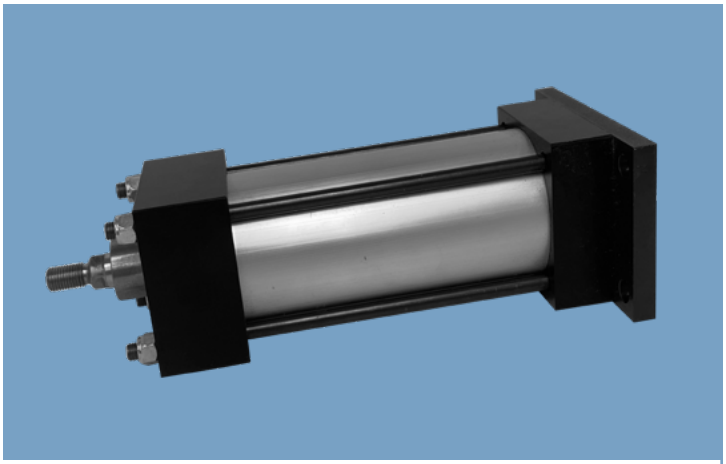
FLAIRLINE



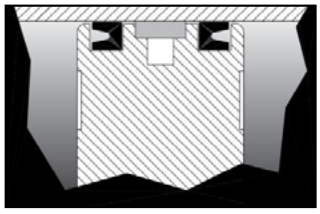
1. Chrome-plated, high-strength, steel **Piston Rods** are corrosion resistant, rugged and durable.
2. Urethane, double lip **Rod Wiper** aggressively wipes contaminants from rod protecting rod seal and cylinder.
3. 660 bronze **Rod Bearing** provides maximum rod support and low friction for normal to high-load conditions. Lube reservoir allows longer bearing and seal life without maintenance.
4. **Head** and **Cap** are machined, aluminum precision blocks for accurate mounting surfaces. Black anodized for corrosion resistance.
5. Steel **Retaining Ring** for strength, coated for corrosion resistance, allows easy removal of rod bearing and seals without disassembly of cylinder.
6. Pressure-energized, wear compensating U-cup **Rod Seal** provides positive sealing.
7. **Barrel Seals** offer O-ring design for positive sealing.
8. Floating **Cushion Seal** “check valve” offers fast break-a-way, self-aligning, positive cushioning for faster cycle time and reduced cylinder wear.
9. N.P.T.F. **Ports** standard.
10. **Tie Rods** are pre-stressed, high strength steel for maximum fatigue capacity and have rolled threads for added strength. Black oxide finish provides corrosion resistance.
11. Precision-drawn, lightweight aluminum **Barrel** is hard anodized inside and out for corrosion and abrasion resistance. Fine I.D. micro-finish provides long life and positive sealing.
12. Aluminum **Piston** is threaded to rod, permanently locked with aerobic adhesive and secured with lock nut. Optional magnet is installed under wear ring.
13. Specially formulated acetal **Wear Ring** increases cylinder life by eliminating metal to metal contact.
14. Pressure-energized, wear compensating, U-cup **Piston Seals** provide positive sealing.
15. Adjustable **Cushion Needles** have fine thread metering, are captive and flush (cushions not available on head-end of 1 1/2 bore cylinders with oversize rods).

HEAVY DUTY NFPA CYLINDERS

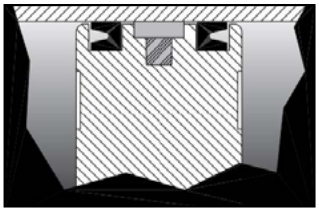
FLAIRLINE



AVAILABLE IN TWO PISTON TYPES



T TYPE



TM TYPE

Information

Flairline double-acting NFPA cylinders are built to NFPA standards and can be used for all types of applications where economical and durable actuators are required.

- Operating systems can be pneumatic or hydraulic
- Precision components and sealing elements permit continuous operation in any environment
- Models TS and TLS feature oversized rods with a unique seal configuration
- TL and TLS are low friction models for minimal break away force
- Models TM feature magnetic pistons cylinders

ALSO AVALIBLE IN DOUBLE ENDED

- Rod extensions allow for work to be done at both nds because the force and speed are equal in both directions
- TSDE cylinders feature oversized rods

FLAIRLINE WARRANTY

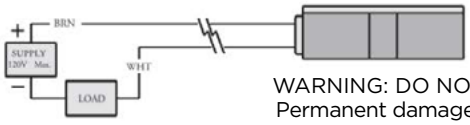
Flairline warrants each product against defects in material and workmanship for a period of one year from the date of manufacturing providing its use was in accordance with Flairline recommendations. If the product fails to perform as warranted, Flairline will, at its option, repair or replace the product free of charge. The company will not be liable for incidental or consequential damages. We make no other warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose.

HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

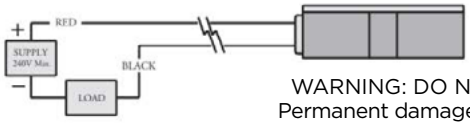
Series **TM** & **TSM** Magnetic Switch Options:

REED SWITCH: PART NO. 43-CRT



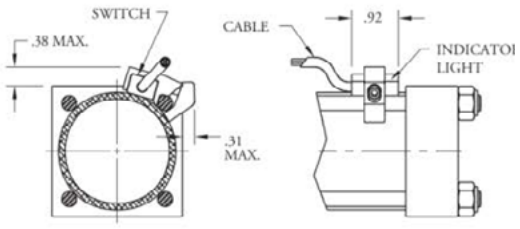
WARNING: DO NOT EXCEED RATINGS.
Permanent damage to sensor may occur.

REED SWITCH: PART NO. 43-CRR



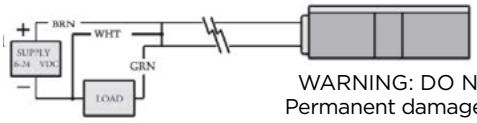
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

Mounting Clamp - Included with Switches



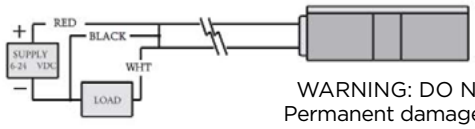
For use on 1 1/2 through 2 1/2 bore cylinders.
(43-CRT, 43-HPT & 43-HNT

HALL EFFECT SWITCH NO. 43-HPT



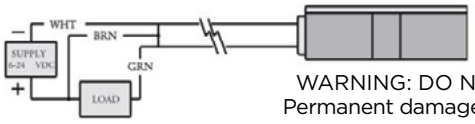
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH NO. 43-HPP



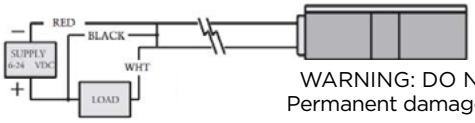
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH NO. 43-HNT



WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH NO. 43-HNN



WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

Power Supply Polarity MUST be observed for proper operation. FAILURE TO OBSERVE POLARITY WILL CAUSE DAMAGE TO SWITCH.
Temperature Range - operational from -30° to +80°C. Shock - operational up to 30G (11msec.) /Reeds only. Not applicable for Halls.
Vibration - operational up to 20G (10-55Hz) /Reeds only. Not applicable for Halls.

SENSOR TYPES & TECHNICAL DATA

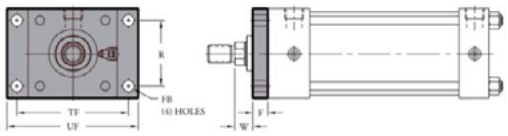
PART NO.	43-CRT	43-CRR	43-HPT	43-HNT	43-HPP	43-HNN
Description	Reed Switch MOV, LED	Reed Switch MOV, LED	Hall Effect, LED Sourcing	Hall Effect, LED Sinking	Hall Effect, LED Sourcing	Hall Effect, LED Sinking
Function	SPTS Normally Open	SPTS Normally Open	Normally Open PNP Output	Normally Open NPN Output	Normally Open PNP Output	Normally Open NPN Output
Switching Voltage	5 - 120 VDC/VAC 50/60 Hz	5 - 240 VDC/VAC 50/60 Hz	6-24 VDC	6-24 VDC	6-24 VDC	6-24 VDC
Switching Current	0.5 Amp Max 0.005 Amp Min	1 Amp Max .005 Amp Min	0.5 Amp Max	0.5 Amp Max	1 Amp Max	1 Amp Max
Switching Power	10 Watts Max	30 Watts Max	12 Watts Max	12 Watts Max	24 Watts Max	24 Watts Max
Switching Speed	0.5 ms operate 0.1 ms release	0.6 ms operate 0.05 ms release	1.5 u operate 0.5 u release	1.5 u operate 0.5 u release	1.5 u operate 0.5 u release	1.5 u operate 0.5 u release
Max Volt Drop	3.5 Volts	3 Volts	0.5 Volts	0.5 Volts	0.5 Volts	0.5 Volts
Sensitivity	85 Gauss	85 Gauss	85 Gauss	85 Gauss	85 Gauss	85 Gauss

HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

MOUNTING STYLES for HEAVY-DUTY NFPA CYLINDERS

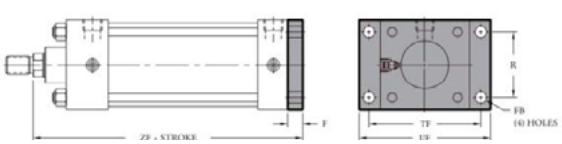
Front Flange Mount (NFPA MF1)



NFPA MF1

BORE SIZE	DIMENSIONS										
	ROD DIA.		F	FB	R	TF	UF	W		ZF	
1 1/2	5/8	1	3/8	5/16	1.43	2 3/4	3 3/8	5/8	1	5	5 3/8
2	5/8	1	3/8	3/8	1.84	3 3/8	4 1/8	5/8	1	5	5 1/2
2 1/2	5/8	1	3/8	3/8	2.19	3 7/8	4 5/8	5/8	1	5 1/8	5 1/2
3 1/4	1	1 3/8	5/8	7/16	2.76	4 11/16	5 1/2	3/4	1	6 1/4	6 1/2
4	1	1 3/8	5/8	7/16	3.32	5 7/16	6 1/4	3/4	1	6 1/4	6 1/2
5	1	1 3/8	5/8	9/16	4.10	6 5/8	7 5/8	3/4	1	6 1/2	6 3/4
6	1 3/8	1 3/4	3/4	9/16	4.88	7 5/8	8 5/8	7/8	1 1/8	7 3/8	7 5/8

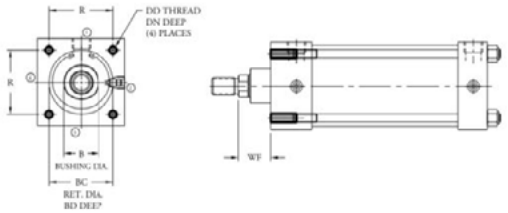
Rear Flange Mount (NFPA MF2)



NFPA MF2

BORE SIZE	DIMENSIONS										
	ROD DIA.		F	FB	R	TF	UF	W		ZF	
1 1/2	5/8	1	3/8	5/16	1.43	2 3/4	3 3/8	5/8	1	5	5 3/8
2	5/8	1	3/8	3/8	1.84	3 3/8	4 1/8	5/8	1	5	5 1/2
2 1/2	5/8	1	3/8	3/8	2.19	3 7/8	4 5/8	5/8	1	5 1/8	5 1/2
3 1/4	1	1 3/8	5/8	7/16	2.76	4 11/16	5 1/2	3/4	1	6 1/4	6 1/2
4	1	1 3/8	5/8	7/16	3.32	5 7/16	6 1/4	3/4	1	6 1/4	6 1/2
5	1	1 3/8	5/8	9/16	4.10	6 5/8	7 5/8	3/4	1	6 1/2	6 3/4
6	1 3/8	1 3/4	3/4	9/16	4.88	7 5/8	8 5/8	7/8	1 1/8	7 3/8	7 5/8

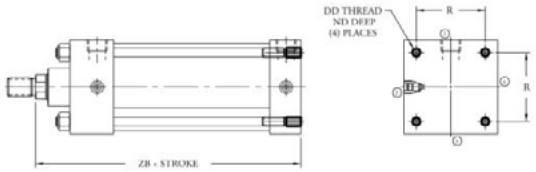
Front Face Mount (NFPA FC1)



NFPA FC1

BORE SIZE	DIMENSIONS										
	ROD DIA.		B		BC	BD	DD	DN	R	WF	
1 1/2	5/8	1	1.124	1.499	1 5/8 NA	1/16	1/4-28	3/4	*1 1/8	1.43	1	1
2	5/8	1	1.124	1.499	2 1/8	3/32	5/16-24	3/4		1.84	1	3/8
2 1/2	5/8	1	1.124	1.499	2 1/8	3/32	5/16-24	3/4		2.19	1	3/8
3 1/4	1	1 3/8	1.499	1.999	2 3/4	5/32	3/8-24	7/8		2.76	1 3/8	1 5/8
4	1	1 3/8	1.499	1.999	2 3/4	5/32	3/8-24	7/8		3.32	1 3/8	1 5/8
5	1	1 3/8	1.499	1.999	2 3/4	5/32	1/2-20	7/8		4.10	1 3/8	1 5/8
6	1 3/8	1 3/4	1.999	2.374	3 1/4	3/16	1/2-20	1		4.88	1 5/8	1 7/8
8	1 3/8	1 3/4	1.999	2.374	3 1/4	3/16	5/8-18	1		6.44	1 5/8	1 7/8

Rear Face Mount (NFPA FC2)



NFPA FC2

BORE SIZE	DIMENSIONS						
	ROD DIA.		DD	ND	R	ZB	
1 1/2	5/8	1	1/4-28	1/2	1.43	4 5/8	5
2	5/8	1	5/16-24	1/2	1.84	4 5/8	5
2 1/2	5/8	1	5/16-24	1/2	2.19	4 3/4	5 1/8
3 1/4	1	1 3/8	3/8-24	5/8	2.76	5 5/8	5 7/8
4	1	1 3/8	3/8-24	5/8	3.32	5 5/8	5 7/8
5	1	1 3/8	1/2-20	5/8	4.10	5 7/8	6 1/8
6	1 3/8	1 3/4	1/2-20	3/4	4.88	6 5/8	6 7/8
8	1 3/8	1 3/4	5/8-18	3/4	6.44	6 3/4	7

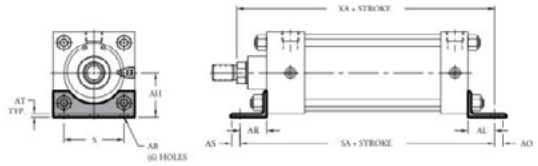
*Includes 3/8 unthread cover plate.

HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

MOUNTING STYLES for HEAVY-DUTY NFPA CYLINDERS

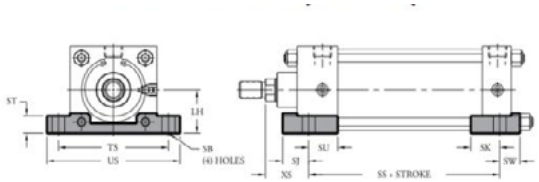
Angle Mount (NFPA MS1)



NFPA MS1

BORE SIZE	DIMENSIONS											
	ROD DIA.	AB	AH	AL	AO	AR	AS	AT	S	SA	XA	
1 1/2	5/8	1	7/16	1 3/16	1	3/8	1 3/8	3/8	1/8	1 1/4	6	5 5/8	6
2	5/8	1	7/16	1 7/16	1	3/8	1 3/8	3/8	1/8	1 3/4	6	5 5/8	6
2 1/2	5/8	1	7/16	1 5/8	1	3/8	1 3/8	3/8	1/8	2 1/4	6 1/8	5 3/4	6 1/8
3 1/4	1	1 3/8	9/16	1 15/16	1 1/4	1/2	1 7/8	5/8	3/16	2 3/4	7 3/8	6 7/8	7 1/8
4	1	1 3/8	9/16	2 1/4	1 1/4	1/2	1 7/8	5/8	3/16	3 1/2	7 3/8	6 7/8	7 1/8
5	1	1 3/8	11/16	2 3/4	1 3/8	5/8	2	1	3/16	4 1/4	7 7/8	7 1/4	7 1/2
6	1 3/8	1 3/4	13/16	3 1/4	1 3/8	5/8	2 1/8	7/8	3/16	5 1/4	8 1/2	8	8 1/4
8	1 3/8	1 3/4	13/16	4 1/4	1 13/16	11/16	1 13/16	11/16	1/4	7 1/8	8 3/4	8 9/16	8 13/16

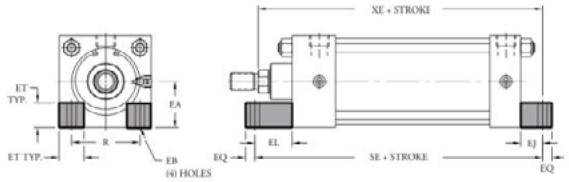
Side Lug Mount (NFPA MS2)



NFPA MS2

BORE SIZE	DIMENSIONS													
	ROD DIA.	LH	SB	SJ	SK	SS	ST	SU	SW	TS	US	XS		
1 1/2	5/8	1	1	7/16	3/4	1 1/8	5/8	2 7/8	1/2	15/16	9/16	2 3/4	3 1/2	1 3/8	1 3/4
2	5/8	1	1 1/4	7/16	7/8	15/16	2 7/8	1/2	15/16	3/4	3 1/4	4	1 3/8	1 3/4
2 1/2	5/8	1	1 1/2	7/16	7/8	15/16	3	1/2	15/16	3/4	3 3/4	4 1/2	1 3/8	1 3/4
3 1/4	1	1 3/8	1 7/8	9/16	1 1/8	1 1/4	3 1/4	3/4	1 1/4	3/4	4 3/4	5 3/4	1 7/8	2 1/8
4	1	1 3/8	2 1/4	9/16	1 1/8	1 1/4	3 1/4	3/4	1 1/4	1	5 1/2	6 1/2	1 7/8	2 1/8
5	1	1 3/8	2 3/4	13/16	1 7/16	1 9/16	3 1/8	1	1 9/16	1 7/16	6 7/8	8 1/4	2 1/16	2 5/16
6	1 3/8	1 3/4	3 1/4	13/16	1 7/16	1 9/16	3 5/8	1	1 9/16	1 7/16	7 7/8	9 1/4	2 5/16	2 9/16
8	1 3/8	1 3/4	4 1/4	13/16	1 11/16	1 9/16	3 3/4	1	1 9/16	1 11/16	9 7/8	11 1/4	2 5/16	2 9/16

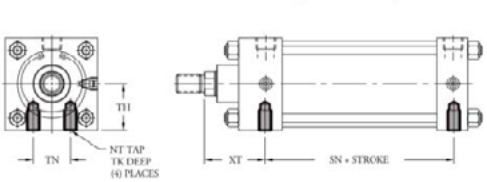
End Lug Mount (NFPA MS7)



NFPA MS7

BORE SIZE	DIMENSIONS										
	ROD DIA.	EA	EB	EJ	EL	EQ	ET	R	SE	XE	
1 1/2	5/8	1	1	5/16	3/4	3/4	1 1/8	3/4	1/4	9/16	1.43	5 1/2	5 3/8	5 3/4
2	5/8	1	1 1/4	3/8	15/16	1 5/16	5/16	11/16	1.84	5 7/8	5 9/16	5 15/16
2 1/2	5/8	1	1 1/2	3/8	1 1/16	1 7/16	5/16	13/16	2.19	6 1/4	5 13/16	6 3/16
3 1/4	1	1 3/8	1 7/8	7/16	7/8	1 1/2	3/8	1	2.76	6 5/8	6 1/2	6 3/4
4	1	1 3/8	2 1/4	7/16	1	1 5/8	3/8	1 3/16	3.32	6 7/8	6 5/8	6 7/8
5	1	1 3/8	2 3/4	9/16	1 1/16	1 11/16	1/2	1 3/8	4.10	7 1/4	6 15/16	7 3/16
6	1 3/8	1 3/4	3 1/4	9/16	1	1 3/4	1/2	1 5/8	4.88	7 3/4	7 5/8	7 7/8
8	1 3/8	1 3/4	4 1/4	11/16	1 1/8	1 1/8	5/8	2 1/16	6.44	7 3/8	7 7/8	8 1/8

Side Tapped Mounts (NFPA MS4)



NFPA MS4

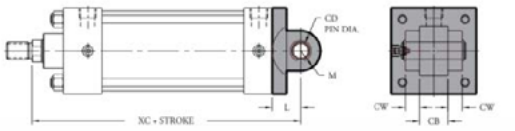
BORE SIZE	DIMENSIONS							
	ROD DIA.	NT	SN	TH	TK	TN	XT	
1 1/2	5/8	1	1/4-20	2 1/4	1	3/8	5/16	5/8	1 15/16	2 15/16
2	5/8	1	5/16-18	2 1/4	1 1/4	1/2		7/8	1 15/16	2 15/16
2 1/2	5/8	1	3/8-16	2 3/8	1 1/2	5/8		1 1/4	1 15/16	2 15/16
3 1/4	1	1 3/8	1/2-13	2 5/8	1 7/8	13/16		1 1/2	2 7/16	2 11/16
4	1	1 3/8	1/2-13	2 5/8	2 1/4	13/16		2 1/16	2 7/16	2 11/16
5	1	1 3/8	5/8-11	2 7/8	2 3/4	1		2 11/16	2 7/16	2 11/16
6	1 3/8	1 3/4	3/4-10	3 1/8	3 1/4	1 3/16		3 1/4	2 13/16	3 1/16
8	1 3/8	1 3/4	3/4-10	3 1/4	4 1/4	1 1/4		4 1/2	2 13/16	3 1/16

HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

MOUNTING STYLES for HEAVY-DUTY NFPA CYLINDERS

Clevis Mount (NFPA MP1)

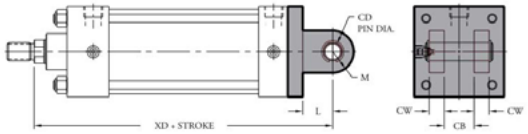


NFPA MP1

BORE SIZE	DIMENSIONS									
	ROD DIA.		CB	CD	CW	L	M	XC		XD	
1 1/2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 3/8	5 3/4	5 3/4	6 1/8
2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 3/8	5 3/4	5 3/4	6 1/8
2 1/2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 1/2	5 7/8	5 7/8	6 1/4
3 1/4	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	6 7/8	7 1/8	7 1/2	7 3/4
4	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	6 7/8	7 1/8	7 1/2	7 3/4
5	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	7 1/8	7 3/8	7 3/4	8
6	1 3/8	1 3/4	1 1/2	1	3/4	1 1/2	1 1/4	8 1/8	8 3/8	8 7/8	9 1/8
8	1 3/8	1 3/4	1 1/2	1	3/4	1 1/2	1 1/4	8 1/4	8 1/2	NA	NA

Pivot pin is included on MP1 and MP2. Optional pivot pin for MP4.

Clevis Mount (NFPA MP2)

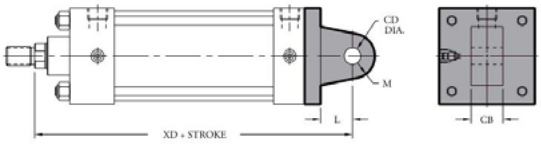


NFPA MP2

BORE SIZE	DIMENSIONS									
	ROD DIA.		CB	CD	CW	L	M	XC		XD	
1 1/2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 3/8	5 3/4	5 3/4	6 1/8
2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 3/8	5 3/4	5 3/4	6 1/8
2 1/2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 1/2	5 7/8	5 7/8	6 1/4
3 1/4	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	6 7/8	7 1/8	7 1/2	7 3/4
4	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	6 7/8	7 1/8	7 1/2	7 3/4
5	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	7 1/8	7 3/8	7 3/4	8
6	1 3/8	1 3/4	1 1/2	1	3/4	1 1/2	1 1/4	8 1/8	8 3/8	8 7/8	9 1/8
8	1 3/8	1 3/4	1 1/2	1	3/4	1 1/2	1 1/4	8 1/4	8 1/2	NA	NA

Pivot pin is included on MP1 and MP2. Optional pivot pin for MP4.

Pivot Mount (NFPA MP4)

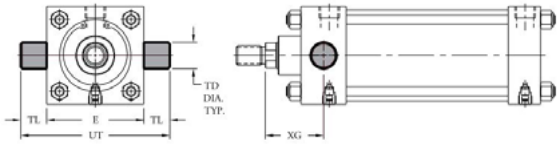


NFPA MP4

BORE SIZE	DIMENSIONS									
	ROD DIA.		CB	CD	CW	L	M	XC		XD	
1 1/2	5/8		3/4	1/2	1/2	3/4	5/8	5 3/8	5 3/4	5 3/4	6 1/8
2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 3/8	5 3/4	5 3/4	6 1/8
2 1/2	5/8	1	3/4	1/2	1/2	3/4	5/8	5 1/2	5 7/8	5 7/8	6 1/4
3 1/4	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	6 7/8	7 1/8	7 1/2	7 3/4
4	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	6 7/8	7 1/8	7 1/2	7 3/4
5	1	1 3/8	1 1/4	3/4	5/8	1 1/4	7/8	7 1/8	7 3/8	7 3/4	8
6	1 3/8	1 3/4	1 1/2	1	3/4	1 1/2	1 1/4	8 1/8	8 3/8	8 7/8	9 1/8
8	1 3/8	1 3/4	1 1/2	1	3/4	1 1/2	1 1/4	8 1/4	8 1/2	NA	NA

Pivot pin is included on MP1 and MP2. Optional pivot pin for MP4.

Head Trunnion Mounts (NFPA MT1)



NFPA MT1

BORE SIZE	DIMENSIONS									
	ROD DIA.		E	TD	TL	UT	XG		XJ	
1 1/2	5/8	1	2	1	1	4	1 3/4	2 1/8	4 1/8	4 1/2
2	5/8	1	2 1/2	1	1	4 1/2	1 3/4	2 1/8	4 1/8	4 1/2
2 1/2	5/8	1	3	1	1	5	1 3/4	2 1/8	4 1/4	4 5/8
3 1/4	1	1 3/8	3 3/4	1	1	5 3/4	2 1/4	2 1/2	5	5 1/4
4	1	1 3/8	4 1/2	1	1	6 1/2	2 1/4	2 1/2	5	5 1/4
5	1	1 3/8	5 1/2	1	1	7 1/2	2 1/4	2 1/2	5 1/4	5 1/2
6	1 3/8	1 3/4	6 1/2	1 3/8	1 3/8	9 1/4	2 5/8	2 7/8	5 7/8	6 1/8
8	1 3/8	1 3/4	8 1/2	1 3/8	1 3/8	11 1/4	2 5/8	2 7/8	6	6 1/4

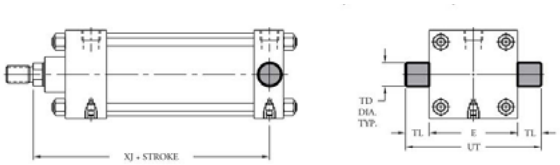
Pivot pin is included on MP1 and MP2. Optional pivot pin for MP4.

HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

MOUNTING STYLES for HEAVY-DUTY NFPA CYLINDERS

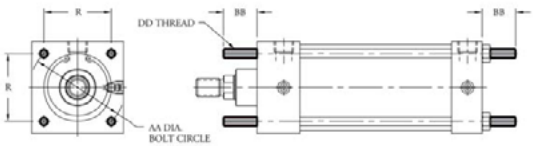
Cap Trunnion Mounts (NFPA MT2)



NFPA MT2

BORE SIZE	DIMENSIONS								
	ROD DIA.		E	TD	TL	UT	XG		XJ	
1½	⅝		2	1	1	4	1¾	2⅛	4⅛	4½
2	⅝	1	2½	1	1	4½	1¾	2⅛	4⅛	4½
2½	⅝	1	3	1	1	5	1¾	2⅛	4¼	4⅝
3¼	1	1⅜	3¾	1	1	5¾	2¼	2½	5	5¼
4	1	1⅜	4½	1	1	6½	2¼	2½	5	5¼
5	1	1⅜	5½	1	1	7½	2¼	2½	5¼	5½
6	1⅜	1¾	6½	1⅜	1⅜	9¼	2⅝	2⅞	5⅞	6⅛
8	1⅜	1¾	8½	1⅜	1⅜	11¼	2⅝	2⅞	6	6¼

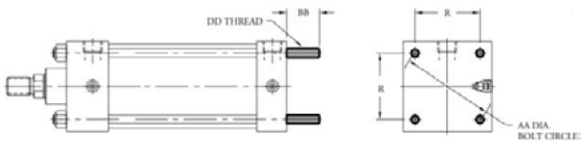
Extended Tie Rods - Front & Rear (NFPA MX1)



NFPA MX1

BORE SIZE	DIMENSIONS			
	AA	BB	DD	R
1½	2.02	1	¼-28	1.43
2	2.6	1⅛	5/16-24	1.84
2½	3.1	1⅛	5/16-24	2.19
3¼	3.9	1⅜	⅜-24	2.76
4	4.7	1⅜	⅜-24	3.32
5	5.8	1 13/16	½-20	4.10
6	6.9	1 13/16	½-20	4.88
8	9.1	2 5/16	⅝-18	6.44

Extended Tie Rods - Rear (NFPA MX2)

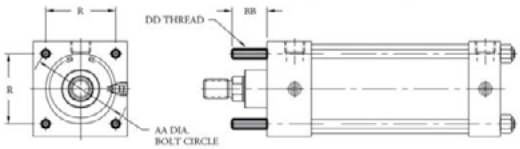


1

NFPA MX2

BORE SIZE	DIMENSIONS			
	AA	BB	DD	R
1½	2.02	1	¼-28	1.43
2	2.6	1⅛	5/16-24	1.84
2½	3.1	1⅛	5/16-24	2.19
3¼	3.9	1⅜	⅜-24	2.76
4	4.7	1⅜	⅜-24	3.32
5	5.8	1 13/16	½-20	4.10
6	6.9	1 13/16	½-20	4.88
8	9.1	2 5/16	⅝-18	6.44

Extended Tie Rods - Front (NFPA MX3)



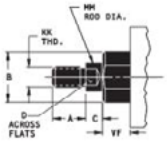
NFPA MX3

BORE SIZE	DIMENSIONS			
	AA	BB	DD	R
1½	2.02	1	¼-28	1.43
2	2.6	1⅛	5/16-24	1.84
2½	3.1	1⅛	5/16-24	2.19
3¼	3.9	1⅜	⅜-24	2.76
4	4.7	1⅜	⅜-24	3.32
5	5.8	1 13/16	½-20	4.10
6	6.9	1 13/16	½-20	4.88
8	9.1	2 5/16	⅝-18	6.44

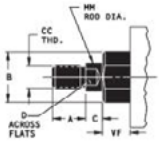
HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

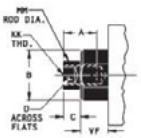
ROD END STYLES for HEAVY-DUTY NFPA CYLINDERS



SMALL MALE (NFPA SM)*



INTERMEDIATE MALE (NFPA IM)*



SHORT FEMALE (NFPA SF)*

BORE SIZE	DIMENSIONS						
	A	B	C	D	KK	MM	VF
1 1/2, 2, 2 1/2	3/4	1 1/8	3/8	1/2	7/16-20	5/8	5/8
3 1/4, 4	1 1/8	1 1/2	1/2	7/8	3/4-16	1	7/8

*Standard on all Flairline NFPA interchangeable cylinders. When ordering, if no rod end style is specified, style SM will be supplied. Rod eye and rod clevis fir style SM. Rod nut included.

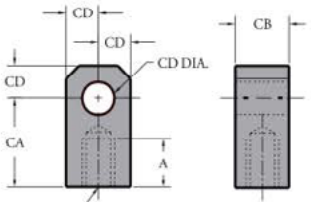
BORE SIZE	DIMENSIONS						
	A	B	C	CC	D	MM	VF
1 1/2, 2, 2 1/2	3/4	1 1/8	3/8	1/2-20	1/2	5/8	5/8
3 1/4, 4	1 1/8	1 1/2	1/2	7/8-14	7/8	1	7/8

*Optional. Rod Nut Included

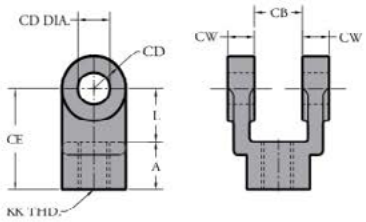
BORE SIZE	DIMENSIONS						
	A	B	C	D	KK	MM	VF
1 1/2, 2, 2 1/2	3/4	1 1/8	3/8	1/2	7/16-20	5/8	5/8
3 1/4, 4	1 1/8	1 1/2	1/2	7/8	3/4-16	1	7/8

*Optional.

ACCESSORIES for HEAVY-DUTY NFPA CYLINDERS



ROD EYE



ROD CLEVIS

PART NO.	DIMENSIONS				
	A	CA	CB	CD	KK
4-36-3	3/4	1 1/2	3/4	1/2	7/16 - 20
4-36-3A	3/4	1 1/2	3/4	1/2	1/2 - 20
4-36-65	1 5/8	2 1/16	1 1/4	3/4	3/4 - 16
4-36-65A	1 5/8	2 1/16	1 1/4	3/4	7/8 - 14
4-36-12	1 5/8	2 13/16	1 1/2	1	1 - 14
4-36-12A	2	3 7/16	2	1 3/8	1 1/4 - 12
4-36-12B	2	3 7/16	2	1 3/8	1 1/2 - 12

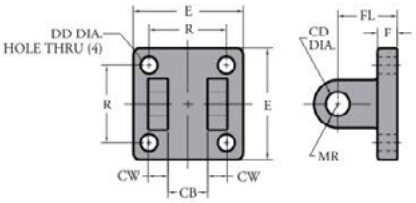
PART NO.	DIMENSIONS						
	A	CB	CD	CE	CW	L	KK
4-35-3	3/4	3/4	1/2	1 1/2	1/2	3/4	7/16 - 20
4-35-3A	3/4	3/4	1/2	1 1/2	1/2	3/4	1/2 - 20
4-35-65	1 1/8	1 1/4	3/4	2 3/8	5/8	1 1/4	3/4 - 16
4-35-65A	1 1/8	1 1/4	3/4	2 3/8	5/8	1 1/4	7/8 - 14
4-35-12	1 5/8	1 1/2	1	3 1/8	3/4	1 1/2	1 - 14
4-35-12A	2	2	1 3/8	4 1/8	1	2 1/8	1 1/4 - 12
4-35-12B	2	2	1 3/8	4 1/8	1	2 1/8	1 1/2 - 12

Pivot pin included.

HEAVY DUTY NFPA CYLINDERS

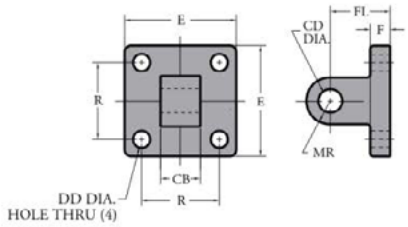
FLAIRLINE

ACCESSORIES for HEAVY-DUTY NFPA CYLINDERS



CLEVIS BRACKET

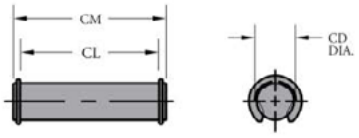
PART NO.	DIMENSIONS								
	CB	CD	CW	DD	E	F	FL	MR	R
5-34-3	3/4	1/2	1/2	13/32	2 1/2	3/8	1 1/2	1/2	1 5/8
5-34-65	1 1/4	3/4	5/8	17/32	3 1/2	5/8	1 7/8	3/4	2 9/16
5-34-12	1 1/2	1	3/4	21/32	4 1/2	3/4	2 1/4	1 1/8	3 1/4
5-34-12A	2	1 3/8	1	21/32	5	7/8	3	1 3/4	3 13/16
5-34-16	2 1/2	1 3/4	1 1/4	29/32	6 1/2	7/8	3 1/8	1 7/8	4 15/16



PIVOT BRACKET

PART NO.	DIMENSIONS							
	CB	CD	DD	E	F	FL	MR	R
5-37-3	3/4	1/2	13/32	2 1/2	3/8	1 1/8	1/2	1 5/8
5-37-65	1 1/4	3/4	17/32	3 1/2	5/8	1 7/8	3/4	2 9/16
5-37-12	1 1/2	1	21/32	4 1/2	7/8	2 3/8	1 1/4	3 1/4
5-37-12A	2	1 3/8	21/32	5	7/8	3	1 5/8	3 13/16
5-37-16	2 1/2	1 3/4	29/32	6 1/2	1 1/8	3 3/8	2 1/8	4 15/16

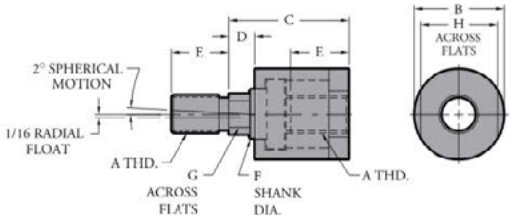
See optional pivot pin below.



PIVOT PIN

PART NO.	DIMENSIONS		
	CD	CL	CM
BKT. PIN F 3 1/4, 4	1/2	1 7/8	2 1/16
PIVOT PIN FI 3 1/4, 4	3/4	2 5/8	2 29/32
5-40-12	1	3 1/8	3 7/16
5-40-12A	1 3/8	4 1/8	4 31/64
5-40-16	1 3/4	5 3/16	5 9/16

Snap Rings included.



ALIGNMENT COUPLER

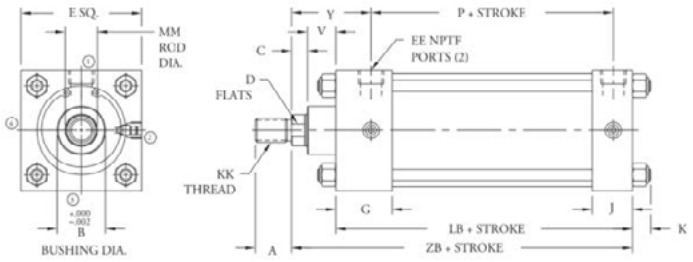
PART	DIMENSIONS								Max. Pull at Yield
	A	B	C	D	E	F	G	H	
4-39-3	7/16 -20	1 1/4	2	1/2	3/4	5/8	1/2	1	10,000
4-39-3A	1/2 -20	1 1/4	2	1/2	3/4	5/8	1/2	1	14,000
4-39-65	3/4 -16	1 3/4	2 5/16	1/2	1 1/8	31/32	3/16	1 1/2	34,000
4-39-65A	7/8 -14	1 3/4	2 5/16	1/2	1 1/8	31/32	3/16	1 1/2	39,000
4-39-12	1 -14	2 1/2	2 15/16	1/2	1 5/8	1 3/8	1 5/32	2 1/4	64,000
4-39-12A	1 1/4 -12	2 1/2	2 15/16	1/2	1 5/8	1 3/8	1 5/32	2 1/4	78,000
4-39-16	1 1/2 -12	3 1/4	4 3/8	13/16	2 1/4	1 3/4	1 1/2	3	134,000

Alignment couplers improve bearing and seal life by preventing excessive binding and friction caused by misalignment. Flairline alignment couplers also allow a greater assembly tolerances then would typically be required which help simplify cylinder installation. Alignment couplers work equally well in “push or “pull” applications and are available for all Flairline cylinders.

HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

Dimensions



Specifications

- Maximum Pressure:
  Pneumatic: 250 psi
  Hydraulic: 400 psi
  (non-shock)

- Operating Temperature:
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

*Note: Viton seals for T and TS series only

Features

- Standard Bore Sizes:
  1 1/2, 2, 2 1/2, 3 1/4, 4, 5, 6, 8

- Stroke Sizes: Any stroke up to 130”

- Cushions available: either/both ends

- Double-acting cylinders with pressure energized, wear compensating U-cup piston seals (Buna N standard; Viton available for Series T and TS)

DIM.	CYLINDER BORE															
	1 1/2		2		2 1/2		3 1/4		4		5		6		8	
A	3/4	1 1/8	3/4	1 1/8	3/4	1 1/8	1 1/8	1 5/8	1 1/8	1 5/8	1 1/8	1 5/8	1 5/8	2	1 5/8	2
B	1.124	1.499	1.124	1.499	1.124	1.499	1.499	1.999	1.499	1.999	1.499	1.999	1.999	2.374	1.999	2.374
C	3/8	1/2	3/8	1/2	3/8	1/2	1/2	5/8	1/2	5/8	1/2	5/8	5/8	3/4	5/8	3/4
D	1/2	7/8	1/2	7/8	1/2	7/8	7/8	1 7/32	7/8	1 7/32	7/8	1 7/32	1 1/8	1 1/2	1 1/8	1 1/2
E	2		2 1/2		3		3 3/4		4 1/2		5 1/2		6 1/2		8 1/2	
EE	1/4*		1/4*		1/4*		1/2		1/2		1/2		3/4		3/4	
G	1 1/2		1 1/2		1 1/2		1 3/4		1 3/4		1 3/4		2		2	
J	1		1		1		1 1/4		1 1/4		1 1/4		1 1/2		1 1/2	
K	7/16		15/32		15/32		9/16		9/16		3/4		3/4		7/8	
KK	7/16-20	3/4-16	7/16-20	3/4-16	7/16-20	3/4-16	3/4-16	1-14	3/4-16	1-14	3/4-16	1-14	1-14	1 1/4-12	1-14	1 1/4-12
LB	3 5/8		3 5/8		3 3/4		4 1/4		4 1/4		4 1/2		5		5 1/8	
LD	4 1/8		4 1/8		4 1/4		4 3/4		4 3/4		4 3/2		5 1/2		5 5/8	
MM (Rod Dia.)	5/8	1	5/8	1	5/8	1	1	1 3/8	1	1 3/8	1	1 3/8	1 3/8	1 3/4	1 3/8	1 3/4
P	2 5/16		2 5/16		2 7/16		2 9/16		2 9/16		2 13/16		3 3/16		3 5/16	
V	5/8	7/8	5/8	7/8	5/8	7/8	7/8	1	7/8	1	7/8	1	1	1 1/8	1	1 1/8
Y	1 29/32	2 9/32	1 29/32	2 9/32	1 29/32	2 9/32	2 15/32	2 23/32	2 15/32	2 23/32	2 15/32	2 23/32	2 25/32	3 1/32	2 25/32	3 1/32
ZB	4 5/8	5	4 5/8	5	4 3/4	5 1/8	5 5/8	5 7/8	5 7/8	5 5/8	5 7/8	6 1/8	6 5/8	6 7/8	6 3/4	7
ZM	6 1/8	6 7/8	6 1/8	6 7/8	6 1/4	7	7 1/2	8	7 1/2	8	7 3/4	8 1/4	8 3/4	9 1/4	8 7/8	9 3/8

*3/8 ports optional on 1 1/2, 2 and 2 1/2 bore cylinders.

HEAVY DUTY NFPA CYLINDERS

FLAIRLINE

Ordering Information

T 2 x 6 MF1 T = 5 1/2 H NT

PISTON	
STANDARD	T
OVERSIZED ROD	TS
LOW FRICTION	TL
STANDARD	
LOW FRICTION	TLS
OVERSIZED ROD	

BORE SIZE
1 1/2
2
2 1/2
3 1/4
4
5
6
8

MOUNTING STYLES	
FRONT FLANGE MOUNT	MF1
REAR FLANGE MOUNT	MF2
FRONT FACE MOUNT	FC1
REAR FACE MOUNT	FC2
ANGLE MOUNT	MS1
SIDE LUG MOUNT	MS2
END LUG MOUNT	MS7
SIDE TAPPED MOUNT	MS4
CLEVIS MOUNT	MP1
CLEVIS MOUNT	MP2
PIVOT MOUNT	MP4
HEAD TRUNNION MOUNT	MT1
CAP TRUNNION MOUNT	MT2
EXTENDED TIE RODS - FRONT & REAR	MX1
EXTENDED TIE RODS - REAR	MX2
EXTENDED TIE RODS - FRONT	MX3
BLANK	No Mount

Note: All mounting options are on pages 51 - 54.

SPECIAL OPTIONS	
CUSHIONS	
HEAD ONLY	H
CAP ONLY	C
BOTH	HC
METAL ROD SCRAPER	MRS
3/8" INLET PORTS	Ports 3/8
EXTRA INLET PORT(S)	Indicate location(s) (PP2, PP3, PP4) in cap or head end
NON-STANDARD INLET PORTS	Indicate location(s) (PP2, PP3, PP4) in cap or head end
VITON PACKING	Viton
STOP TUBES	Consult Factory
ROD END STYLES	Small Male Standard
INTERMEDIATE MALE	IM
OR SHORT FEMALE	SF
ROD EXTENSION "C"	C = Dimension
THREAD LENGTH "A"	A = Dimension
MALE THREAD SIZE	XX = (size or plain rod end)
FEMALE THREAD SIZE	XX = (size and depth – unless otherwise specified, all other dimensions will be Short Female
STAINLESS STEEL RODS	SS Rod

STROKE LENGTH
Any length in inch increments or fraction thereof up to and including 130"

Replacement Parts

PK KIT T 2

PISTON	
STANDARD	T
OVERSIZED ROD	TS
LOW FRICTION	TL
STANDARD	
LOW FRICTION	TLS
OVERSIZED ROD	

BORE SIZE
1 1/2
2
2 1/2
3 1/4
4
5
6
8

PROUD TO BE
MADE IN AMERICA

**MF1, MF2, MP2, and MP4 are not available on 8" bore cylinders

Note: Longer lead times may be required for strokes longer than 18". Strokes over 40" may require oversized rods and/or stop tube. Cushions not available on head-end of 1 1/2 bore cylinders with oversized rods.

HEAVY DUTY NFPA MAGNETIC SWITCH CYLINDERS

FLAIRLINE

Ordering Information

TM 2-CRT 2 x 6 MF1 T = 5 1/2 H NT

PISTON

STANDARD	**TM**
OVERSIZED	**TSM**

BORE SIZE

- 1 1/2
- 2
- 2 1/2
- 3 1/4
- 4
- 5
- 6
- 8

SWITCHES

TM:	
REED SWITCH	**Indicate Quanity-CRT**
HALL EFFECT SWITCH	**Indicate Quanity-HPT**
HALL EFFECT SWITCH	**Indicate Quanity-HNT**
TSM:	
REED SWITCH	**Indicate Quanity-CRR**
HALL EFFECT SWITCH	**Indicate Quanity-HPP**
HALL EFFECT SWITCH	**Indicate Quanity-HNN**

Note: The switch options are on page 63.

MOUNTING STYLES

FRONT FLANGE MOUNT	**MF1**
REAR FLANGE MOUNT	**MF2**
FRONT FACE MOUNT	**FC1**
REAR FACE MOUNT	**FC2**
ANGLE MOUNT	**MS1**
SIDE LUG MOUNT	**MS2**
END LUG MOUNT	**MS7**
SIDE TAPPED MOUNT	**MS4**
CLEVIS MOUNT	**MP1**
CLEVIS MOUNT	**MP2**
PIVOT MOUNT	**MP4**
HEAD TRUNNION MOUNT	**MT1**
CAP TRUNNION MOUNT	**MT2**
EXTENDED TIE RODS - FRONT & REAR	**MX1**
EXTENDED TIE RODS - REAR	**MX2**
EXTENDED TIE RODS - FRONT	**MX3**
BLANK	**No Mount**

Note: All mounting options are on pages 51 - 54.

STROKE LENGTH

Any length in inch increments or fraction thereof up to and including 130”

SPECIAL OPTIONS

CUSHIONS	
HEAD ONLY	**H**
CAP ONLY	**C**
BOTH	**HC**
METAL ROD SCRAPER	**MRS**
3/8” INLET PORTS	**Ports 3/8**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
NON-STANDARD INLET PORTS	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
VITON PACKING	**Viton**
STOP TUBES	**Consult Factory**
ROD END STYLES	**Small Male Standard**
INTERMEDIATE MALE OR SHORT FEMALE	**IM** **SF**
ROD EXTENSION “C”	**C = Dimension**
THREAD LENGTH “A”	**A = Dimension**
MALE THREAD SIZE	**XX = (size or plain rod end)**
FEMALE THREAD SIZE	**XX = (size and depth – unless otherwise specified, all other dimensions will be Short Female**
STAINLESS STEEL RODS	**SS Rod**

Replacement Parts

PK KIT TM 2

PISTON

- TM
- TSM

BORE SIZE

- 1 1/2
- 2
- 2 1/2
- 3 1/4
- 4
- 5
- 6
- 8

PROUD TO BE
MADE IN AMERICA

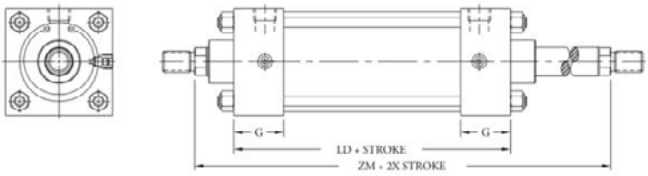
**MF1, MF2, MP2, and MP4 are not available on 8” bore cylinders

Note: Longer lead times may be required for strokes longer than 18”. Strokes over 40” may require oversized rods and/or stop tube. Cushions not available on head-end of 1 1/2 bore cylinders with oversized rods.

HEAVY DUTY NFPA DOUBLE-ENDED CYLINDERS

FLAIRLINE

Dimensions



Series TSDE features oversized rods

Specifications

- Maximum Pressure:
  Pneumatic: 250 psi
  Hydraulic: 400 psi
  (non-shock)

- Operating Temperature:
  0-200°F (Buna Seals)
  -18-93°C (Buna Seals)
  0-275°F (Viton Seals)
  -18-135°C (Viton Seals)

*__Note:__ Viton seals for T and TS series only

Features

- Standard Bore Sizes:
  1 1/2, 2, 2 1/2, 3 1/4, 4, 5, 6, 8

- Stroke Sizes: Any stroke up to 130”

- Cushions available: either/both ends

- Double-acting double-ended cylinders with pressure energized, wear compensating U-cup piston seals (Buna N standard; Viton available)

DIM.	CYLINDER BORE															
	1 1/2		2		2 1/2		3 1/4		4		5		6		8	
A	3/4	1 1/8	3/4	1 1/8	3/4	1 1/8	1 1/8	1 5/8	1 1/8	1 5/8	1 1/8	1 5/8	1 5/8	2	1 5/8	2
B	1.124	1.499	1.124	1.499	1.124	1.499	1.499	1.999	1.499	1.999	1.499	1.999	1.999	2.374	1.999	2.374
C	3/8	1/2	3/8	1/2	3/8	1/2	1/2	5/8	1/2	5/8	1/2	5/8	5/8	3/4	5/8	3/4
D	1/2	7/8	1/2	7/8	1/2	7/8	7/8	1 7/32	7/8	1 7/32	7/8	1 7/32	1 1/8	1 1/2	1 1/8	1 1/2
E	2		2 1/2		3		3 3/4		4 1/2		5 1/2		6 1/2		8 1/2	
EE	1/4*		1/4*		1/4*		1/2		1/2		1/2		3/4		3/4	
G	1 1/2		1 1/2		1 1/2		1 3/4		1 3/4		1 3/4		2		2	
J	1		1		1		1 1/4		1 1/4		1 1/4		1 1/2		1 1/2	
K	7/16		15/32		15/32		9/16		9/16		3/4		3/4		7/8	
KK	7/16 -20	3/4 -16	7/16 -20	3/4 -16	7/16 -20	3/4 -16	3/4 -16	1 -14	3/4 -16	1 -14	3/4 -16	1 -14	1 -14	1 1/4 -12	1 -14	1 1/4 -12
LB	3 5/8		3 5/8		3 3/4		4 1/4		4 1/4		4 1/2		5		5 1/8	
LD	4 1/8		4 1/8		4 1/4		4 3/4		4 3/4		4 3/2		5 1/2		5 5/8	
MM (Rod Dia.)	5/8	1	5/8	1	5/8	1	1	1 3/8	1	1 3/8	1	1 3/8	1 3/8	1 3/4	1 3/8	1 3/4
P	2 5/16		2 5/16		2 7/16		2 9/16		2 9/16		2 13/16		3 3/16		3 5/16	
V	5/8	7/8	5/8	7/8	5/8	7/8	7/8	1	7/8	1	7/8	1	1	1 1/8	1	1 1/8
Y	1 29/32	2 9/32	1 29/32	2 9/32	1 29/32	2 9/32	2 15/32	2 23/32	2 15/32	2 23/32	2 15/32	2 23/32	2 25/32	3 1/32	2 25/32	3 1/32
ZB	4 5/8	5	4 5/8	5	4 3/4	5 1/8	5 5/8	5 7/8	5 7/8	5 5/8	5 7/8	6 1/8	6 5/8	6 7/8	6 3/4	7
ZM	6 1/8	6 7/8	6 1/8	6 7/8	6 1/4	7	7 1/2	8	7 1/2	8	7 3/4	8 1/4	8 3/4	9 1/4	8 7/8	9 3/8

*3/8 ports optional on 1 1/2, 2 and 2 1/2 bore cylinders.

HEAVY DUTY NFPA DOUBLE-ENDED CYLINDERS

FLAIRLINE

Ordering Information

TDE 2 x 6 MF1 T = 5 1/2 H NT

BORE SIZE

1 ½
2
2 ½
3 ¼
4
5
6
8

PISTON

STANDARD	**TDE**
OVERSIZED ROD	**TSDE**

MOUNTING STYLES

FRONT FLANGE MOUNT	**MF1**
REAR FLANGE MOUNT	**MF2**
FRONT FACE MOUNT	**FC1**
REAR FACE MOUNT	**FC2**
ANGLE MOUNT	**MS1**
SIDE LUG MOUNT	**MS2**
END LUG MOUNT	**MS7**
SIDE TAPPED MOUNT	**MS4**
CLEVIS MOUNT	**MP1**
CLEVIS MOUNT	**MP2**
PIVOT MOUNT	**MP4**
HEAD TRUNNION MOUNT	**MT1**
CAP TRUNNION MOUNT	**MT2**
EXTENDED TIE RODS - FRONT & REAR	**MX1**
EXTENDED TIE RODS - REAR	**MX2**
EXTENDED TIE RODS - FRONT	**MX3**
BLANK	**No Mount**

Note: All mounting options are on pages 51 - 54.

SPECIAL OPTIONS

CUSHIONS	
HEAD ONLY	**H**
CAP ONLY	**C**
BOTH	**HC**
METAL ROD SCRAPER	**MRS**
3/8" INLET PORTS	**Ports 3/8**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
NON-STANDARD INLET PORTS	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
VITON PACKING	**Viton**
STOP TUBES	**Consult Factory**
ROD END STYLES	**Small Male Standard**
INTERMEDIATE MALE	**IM**
OR SHORT FEMALE	**SF**
ROD EXTENSION "C"	**C = Dimension**
THREAD LENGTH "A"	**A = Dimension**
MALE THREAD SIZE	**XX = (size or plain rod end)**
FEMALE THREAD SIZE	**XX = (size and depth – unless otherwise specified, all other dimensions will be Short Female**
STAINLESS STEEL RODS	**SS Rod**

STROKE LENGTH

Any length in inch increments or fraction thereof up to and including 130"

Replacement Parts

PK KIT TDE 2

PISTON

TDE
TSDE

BORE SIZE

1 ½
2
2 ½
3 ¼
4
5
6
8

PROUD TO BE
MADE IN AMERICA

**MF1, MF2, MP2, and MP4 are not available on 8" bore cylinders

Note: Longer lead times may be required for strokes longer than 18". Strokes over 40" may require oversized rods and/or stop tube. Cushions not available on head-end of 1 1/2 bore cylinders with oversized rods.

HEAVY DUTY NFPA MAGNETIC SWITCH DOUBLE-ENDED CYLINDERS

FLAIRLINE

Ordering Information

TMDE 2-CRT 2 x 6 MF1 T = 5 1/2 H NT

PISTON

STANDARD	**TMDE**
OVERSIZED ROD	**TSMDE**

BORE SIZE

1 ½
2
2 ½
3 ¼
4
5
6
8

SWITCHES

TMDE:	
REED SWITCH	**Indicate Quanity-CRT**
HALL EFFECT SWITCH	**Indicate Quanity-HPT**
HALL EFFECT SWITCH	**Indicate Quanity-HNT**
TSMDE:	
REED SWITCH	**Indicate Quanity-CRR**
HALL EFFECT SWITCH	**Indicate Quanity-HPP**
HALL EFFECT SWITCH	**Indicate Quanity-HNN**

Note: The switch options are on page 63.

STROKE LENGTH

Any length in inch increments or fraction thereof up to and including 130”

MOUNTING STYLES

FRONT FLANGE MOUNT	**MF1**
REAR FLANGE MOUNT	**MF2**
FRONT FACE MOUNT	**FC1**
REAR FACE MOUNT	**FC2**
ANGLE MOUNT	**MS1**
SIDE LUG MOUNT	**MS2**
END LUG MOUNT	**MS7**
SIDE TAPPED MOUNT	**MS4**
CLEVIS MOUNT	**MP1**
CLEVIS MOUNT	**MP2**
PIVOT MOUNT	**MP4**
HEAD TRUNNION MOUNT	**MT1**
CAP TRUNNION MOUNT	**MT2**
EXTENDED TIE RODS - FRONT & REAR	**MX1**
EXTENDED TIE RODS - REAR	**MX2**
EXTENDED TIE RODS - FRONT	**MX3**
BLANK	**No Mount**

Note: All mounting options are on pages 51 - 54.

SPECIAL OPTIONS

CUSHIONS	
HEAD ONLY	**H**
CAP ONLY	**C**
BOTH	**HC**
METAL ROD SCRAPER	**MRS**
3/8” INLET PORTS	**Ports 3/8**
EXTRA INLET PORT(S)	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
NON-STANDARD INLET PORTS	**Indicate location(s) (PP2, PP3, PP4) in cap or head end**
VITON PACKING	**Viton**
STOP TUBES	**Consult Factory**
ROD END STYLES	**Small Male Standard**
INTERMEDIATE MALE	**IM**
OR SHORT FEMALE	**SF**
ROD EXTENSION “C”	**C = Dimension**
THREAD LENGTH “A”	**A = Dimension**
MALE THREAD SIZE	**XX = (size or plain rod end)**
FEMALE THREAD SIZE	**XX = (size and depth – unless otherwise specified, all other dimensions will be Short Female**
STAINLESS STEEL RODS	**SS Rod**

Replacement Parts

PK KIT TMDE 2

PISTON

TMDE
TSMDE

BORE SIZE

1 ½
2
2 ½
3 ¼
4
5
6
8

PROUD TO BE
MADE IN AMERICA

**MF1, MF2, MP2, and MP4 are not available on 8” bore cylinders

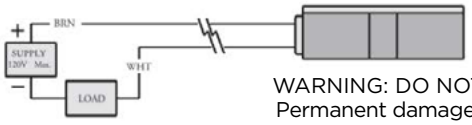
Note: Longer lead times may be required for strokes longer than 18”. Strokes over 40” may require oversized rods and/or stop tube. Cushions not available on head-end of 1 1/2 bore cylinders with oversized rods.

HEAVY DUTY NFPA DOUBLE-ENDED CYLINDERS

FLAIRLINE

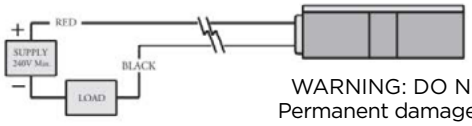
Series **TMDE** & **TSMDE** Magnetic Switch Options:

REED SWITCH: PART NO. 43-CRT



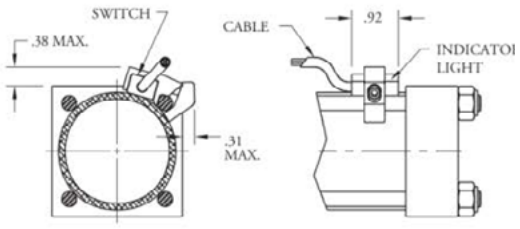
WARNING: DO NOT EXCEED RATINGS.
Permanent damage to sensor may occur.

REED SWITCH: PART NO. 43-CRR



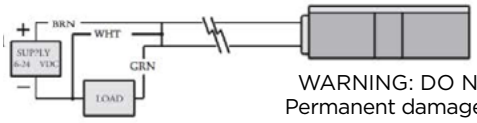
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

Mounting Clamp - Included with Switches



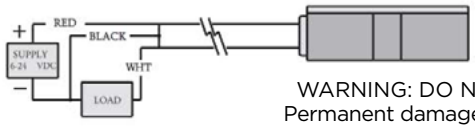
For use on 1 1/2 through 2 1/2 bore cylinders.
(43-CRT, 43-HPT & 43-HNT

HALL EFFECT SWITCH NO. 43-HPT



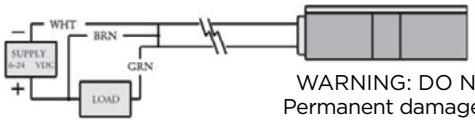
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH NO. 43-HPP



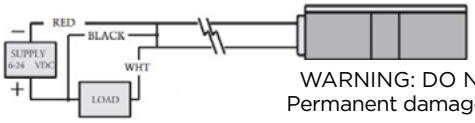
WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH NO. 43-HNT



WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

HALL EFFECT SWITCH NO. 43-HNN



WARNING: DO NOT EXCEED 24 VDC.
Permanent damage to sensor may occur.

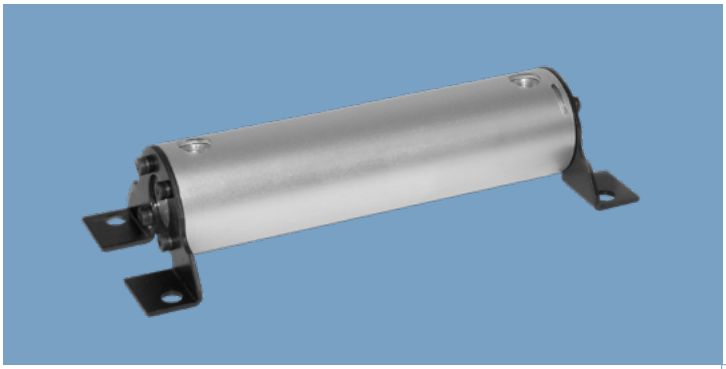
Power Supply Polarity MUST be observed for proper operation. FAILURE TO OBSERVE POLARITY WILL CAUSE DAMAGE TO SWITCH.
Temperature Range - operational from -30° to +80°C. Shock - operational up to 30G (11msec.) /Reeds only. Not applicable for Halls.
Vibration - operational up to 20G (10-55Hz) /Reeds only. Not applicable for Halls.

SENSOR TYPES & TECHNICAL DATA

PART NO.	43-CRT	43-CRR	43-HPT	43-HNT	43-HPP	43-HNN
Description	Reed Switch MOV, LED	Reed Switch MOV, LED	Hall Effect, LED Sourcing	Hall Effect, LED Sinking	Hall Effect, LED Sourcing	Hall Effect, LED Sinking
Function	SPTS Normally Open	SPTS Normally Open	Normally Open PNP Output	Normally Open NPN Output	Normally Open PNP Output	Normally Open NPN Output
Switching Voltage	5 - 120 VDC/VAC 50/60 Hz	5 - 240 VDC/VAC 50/60 Hz	6-24 VDC	6-24 VDC	6-24 VDC	6-24 VDC
Switching Current	0.5 Amp Max 0.005 Amp Min	1 Amp Max .005 Amp Min	0.5 Amp Max	0.5 Amp Max	1 Amp Max	1 Amp Max
Switching Power	10 Watts Max	30 Watts Max	12 Watts Max	12 Watts Max	24 Watts Max	24 Watts Max
Switching Speed	0.5 ms operate 0.1 ms release	0.6 ms operate 0.05 ms release	1.5 u operate 0.5 u release	1.5 u operate 0.5 u release	1.5 u operate 0.5 u release	1.5 u operate 0.5 u release
Max Volt Drop	3.5 Volts	3 Volts	0.5 Volts	0.5 Volts	0.5 Volts	0.5 Volts
Sensitivity	85 Gauss	85 Gauss	85 Gauss	85 Gauss	85 Gauss	85 Gauss

VOLUME CHAMBERS

FLAIRLINE



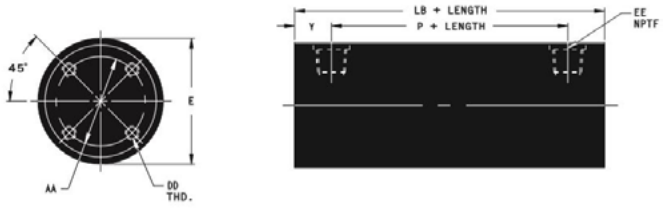
Operating Specifications

- Standard Bore Sizes: 1 1/2", 2, 2 1/2", 3 1/4", 4
- Maximum Pressure:
  Pneumatic: 150 psi
  Hydraulic: 200 psi
- Barrels are hard-anodized for corrosion resistance

Features

- Constructed of lightweight aluminum caps and barrels
- Optional mountings are NFPA interchangeable and are made of anodized aluminum or oxidized steel

Dimensional Data



Volume Data

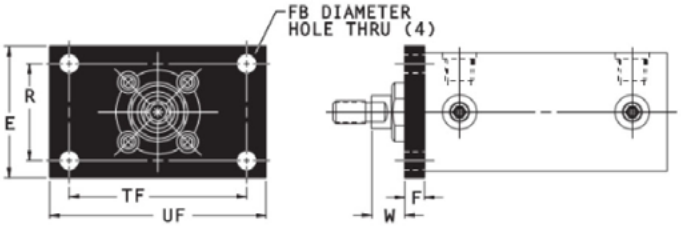
BORE SIZE	CAPACITY	
	BASIC VOLUME (Add to total)	Add per 1.0 inch of length
1 1/2	1.95 IN³	1.77 IN³
2	3.35 IN³	3.14 IN³
2 1/2	4.14 IN³	4.91 IN³
3 1/4	8.45 IN³	8.30 IN³
4	11.29 IN³	12.57 IN³

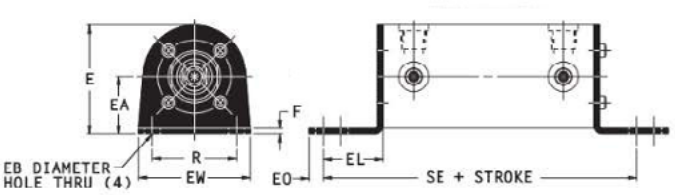
DIMENSIONS							
BORE SIZE	AA	E	DD	EE	LB	P	Y
1 1/2	1.21	1 3/4	#6 - 32X 1/2	1/4 - 18	3 5/8	2.29	.67
2	1.60	2 1/4	1/4 - 20X 5/8	1/4 - 18	3 5/8	2.29	.67
2 1/2	2.00	2 3/4	5/16 - 18X 3/4	1/4 - 18	3 3/4	2.42	.67
3 1/4	2.62	3 1/2	3/8 - 16X 7/8	1/2 - 14	4 1/2	2.44	.91
4	2.62	4 1/4	3/8 - 16X 7/8	1/2 - 14	4 1/4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

VOLUME CHAMBERS

FLAIRLINE

MOUNTING STYLES



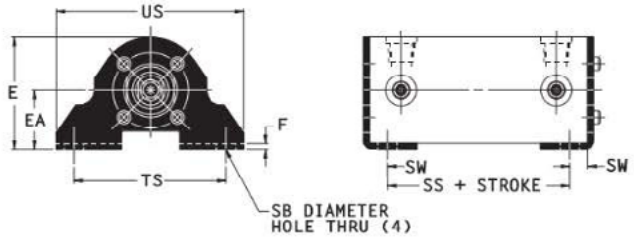


Front Flange Mount (NFPA MF1)

BORE SIZE	DIMENSIONS						
	E	F	FB	R	TF	UF	W
1 1/2	2	3/8	9/32	1.43	2.75	3 3/8	5/8
2	2 1/2	3/8	11/32	1.84	3.38	4 1/8	5/8
2 1/2	3	3/8	11/32	2.19	3.88	4 5/8	5/8
3 1/4	3 3/4	5/8	13/32	2.76	4.69	5 1/2	3/4
4	4 1/2	5/8	13/32	3.32	5.44	6 1/4	3/4

End Lug Mounts (NFPA MS7)

BORE SIZE	DIMENSIONS									
	E	EA	EB	EL	EO	EW	F	R	SE	XE
1 1/2	1 7/8	1	9/32	1 1/8	1/4	2	1/8	1.43	5 1/2	5 3/8
2	2 3/8	1 1/4	11/32	1 5/16	5/16	2 7/16	1/8	1.84	5 7/8	5 9/16
2 1/2	2 7/8	1 1/2	11/32	1 7/16	7/16	3	3/16	2.19	6 1/4	6 13/16
3 1/4	3 5/8	1 7/8	13/32	1 1/2	3/8	3 1/2	1/4	2.76	6 5/8	6 1/2
4	4 3/8	2 1/4	13/32	1 5/8	3/8	4 1/4	5/16	3.32	6 7/8	6 5/8



Side Lug Mounts (NFPA MS2)

BORE SIZE	DIMENSIONS									
	E	EA	F	SB	SS	SW	TS	US	XS	ZB
1 1/2	1 7/8	1	1/8	13/32	2 7/8	3/8	2 3/4	3 1/2	1 3/8	4.92
2	2 3/8	1 1/4	1/8	13/32	2 7/8	3/8	3 1/4	4	1 3/8	4.95
2 1/2	2 7/8	1 1/2	3/16	13/32	3	3/8	3 3/4	4 1/2	1 3/8	5.19
3 1/4	3 5/8	1 7/8	1/4	17/32	3 1/4	1/2	4 3/4	5 3/4	1 7/8	6.19
4	4 3/8	2 1/4	5/16	17/32	3 1/4	1/2	5 1/2	6 1/2	1 7/8	6.25

Ordering Information

VC 2 10 MF1

BORE SIZE

1 1/2
2
2 1/2
3 1/4
4

MOUNTING OPTIONS

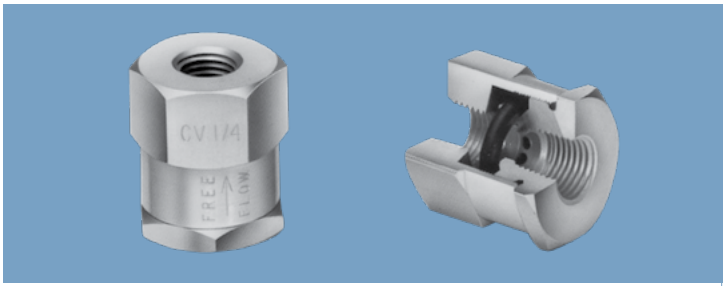
FRONT FLANGE MOUNT	MF1
SIDE LUG MOUNT	MS2
END LUG MOUNT	MS7

STROKE LENGTH

Any length in inch increments or fraction thereof up to and including 130”

CHECK VALVES

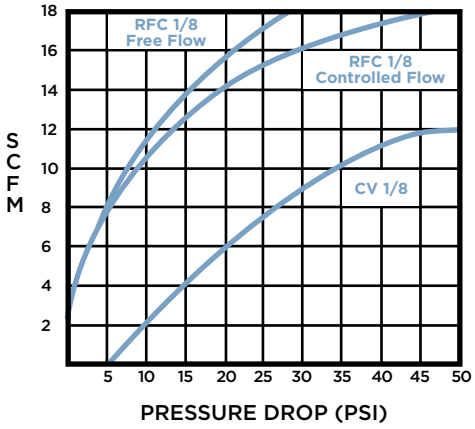
FLAIRLINE



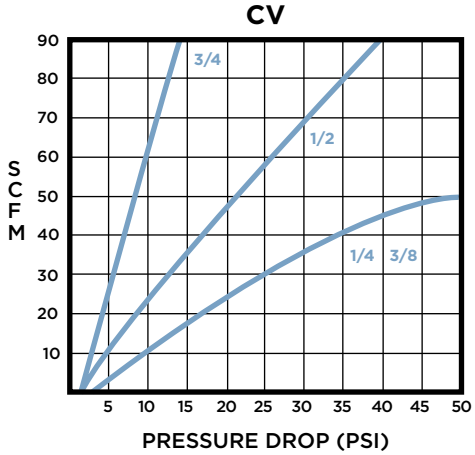
Features

- Quick to open, quick to close
- Dilating O-ring as the only moving part
- 'Out-flows' the competition
- Bubble-tight sealing
- Last millions of cycles (factory tests to 50 million cycles show no discernible wear)

RFC/CV 1/8



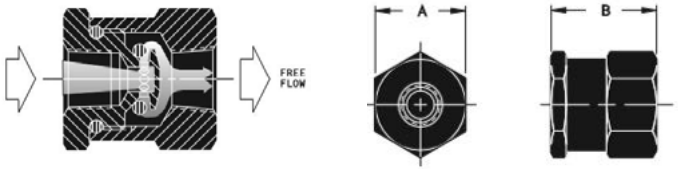
CV



Operating Specifications

- Standard pipe sizes: 1/8", 1/4", 3/8", 1/2", 3/4"
- Operating pressure: 250 psi
- Orifices available for fixed flow control applications
- Operating temperature range: -40°F - 225°F
- Standard valve body material: Aluminum
- Standard needle material: Brass
- Standard swivel connector material: Black oxidized steel

Dimensional Data



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

Ordering Information

CV 1/2 031 V

PIPE SIZE

1/8
1/4
3/8
1/2
3/4

SEALS

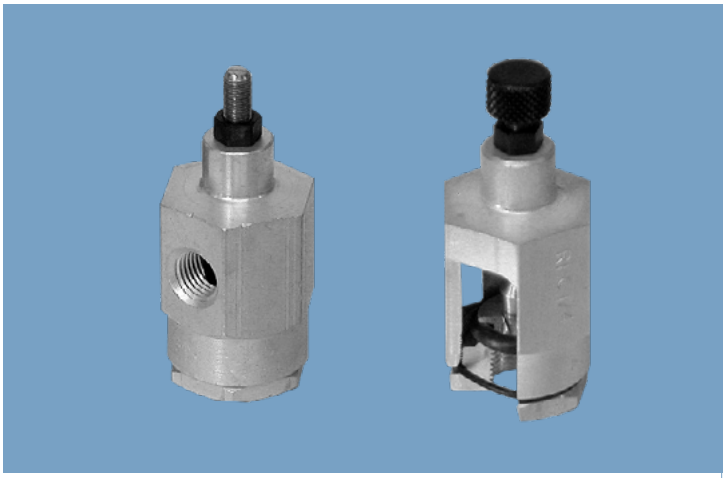
BUNA-N	**Standard**
FLOUROCARBON	**V**

OPTIONS

1/32 ORIFICE	**031**
1/16 ORIFICE	**063**
3/32 ORIFICE	**094**
1/8 ORIFICE	**125**

FLOW CONTROLS

FLAIRLINE



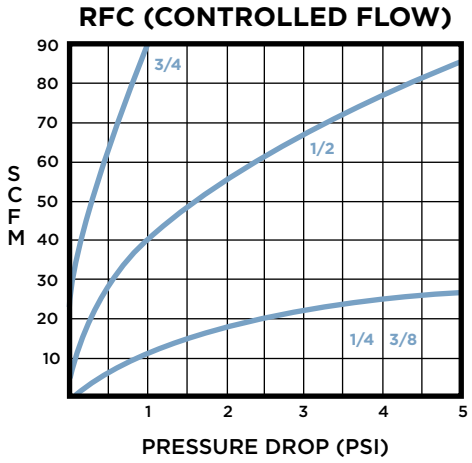
Features

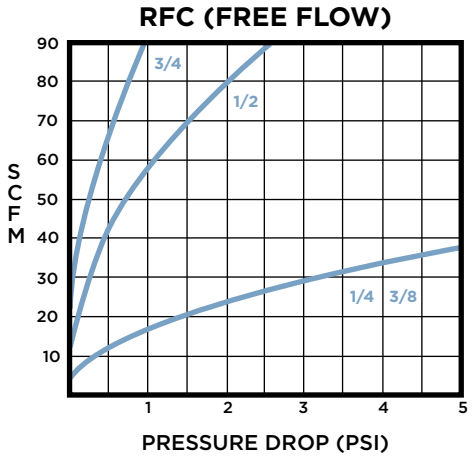
- Permits full free flow in one direction and metered flow in the opposite direction
- Positive sealing (no bubble leakage)
- Last millions of cycles (factory tests to 50 million cycles show no discernible wear)
- Fine adjustment screw threads and compound needle taper provide precise flow control
- Now available with lock and key tamper-resistant capability

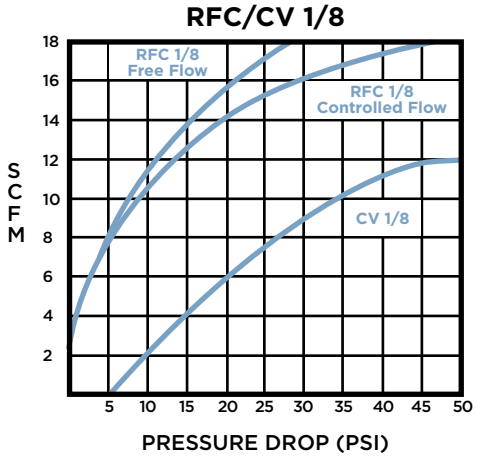
Specifications

- Standard NPTF sizes: 1/8", 1/4", 3/4", 1" & 2"
- Operating pressure: 250 psi
- Orifices available for fixed flow control applications
- Operating temperature range: -40° - +225°F
- Standard valve body material: Aluminum
- Standard needle material: Brass
- Standard swivel connector material: Black oxidized steel

Flow Charts



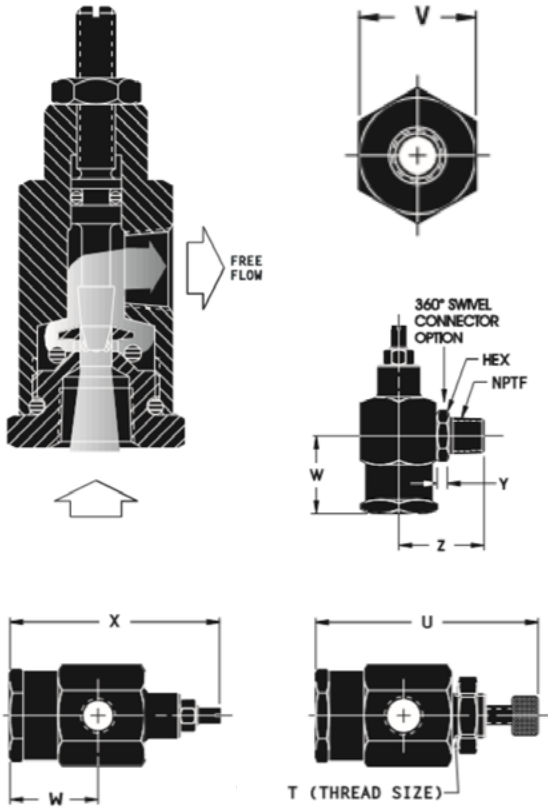




FLOW CONTROLS

FLAIRLINE

Dimensional Data



Ordering Information

RFC 1/2 K V

PIPE SIZE

1/8
1/4
3/8
1/2
3/4

SEALS

BUNA-N	**Standard**
FLOUROCARBON	**V**

OPTIONS

KNOB	**K**
PANEL MOUNT	**PM**
KNOB AND PANEL MOUNT	**PK**
SWIVEL	**S**
SWIVEL AND KNOB	**SK**
TAMPER PROOF	**T**

RIGHT ANGLE FLOW CONTROL
Model RFC (NPTF)

NPTF	T	U	V	W	X	Y	Z	HEX
1/8	1/8 - 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			

BORETTI PNEUMATIC SILENCERS

FLAIRLINE

Information

Long lasting silencers to quiet noisy, air-operated devices and prolong the life of your air tools. Offers 30 million cycles of clean compressed air.

- Eight models – 1/8”- 1” NPT

Specifications

- Maximum operating pressure 300 psi (20.7 bars)
- Maximum operating temperature 160°F (71°C)

Ordering Information

Pipe Size	Model Number Female Thread	Model Number Male Thread	Flow Coefficent CV	Diameter IN.	Overall Length IN.
1/8		1000-1	1.0	3/4”	1”
1/4	1000-2-F	1000-2-M	2.3	1/8”	2”
3/8	1000-3-F	1000-3-M	5.5	1-1/4”	2-61/64”
1/2	1000-34-F	1000-34-M	6.6	1-1/4”	2-61/64”
1/2	1000-4-F	1000-4-M	7.0	1-1/2”	3-25/32”
3/4	1000-46-F	1000-46-M	8.0	1-1/2”	3-25/32”
3/4	1000-86-F	1000-86-M	19.0	2”	4-53/64”
1	1000-8-F	1000-8-M	19.8	2”	4-53/64”


FLAIRLINE