WORLD CLASS PERFORMANCE
FABCO-AIR
PNEUMATIC PRODUCTS

NFPA Air Cylinders

NFPA Cylinders

The dimensional interchange to NFPA Standards

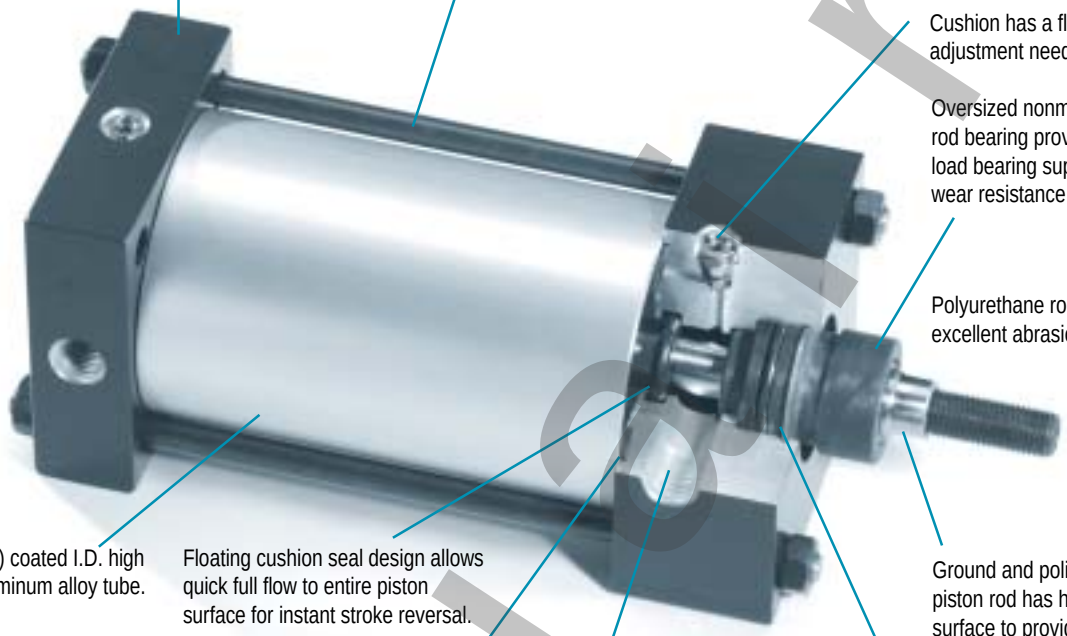
Cylinder Construction

Head and cap are machined from solid aluminum bar stock and black anodized for corrosion resistance.

Tie rods are 100,000 psi minimum yield steel for maximum holding power. Threads are rolled for durability.

Pressure rating: 250 psi max.
Temperature limits: –10°F to +165°F.

Lubrication is a high performance synthetic grease with microscopic PTFE particles in suspension.



Cushion has a flush, retained adjustment needle.

Oversized nonmetallic, composite rod bearing provides maximum load bearing support and superb wear resistance for high cycle life.

Polyurethane rod wiper has excellent abrasion resistance.

Hard (60 Rc) coated I.D. high strength aluminum alloy tube.

Floating cushion seal design allows quick full flow to entire piston surface for instant stroke reversal.

Ground and polished high strength steel piston rod has hard chrome plated surface to provide maximum cycle life for bushing and seals.

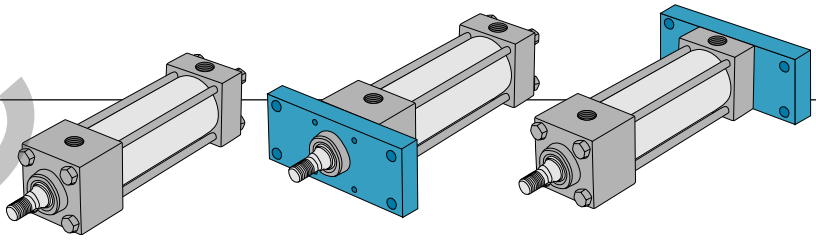
Solid aluminum alloy piston is strong, light weight and carries a wide graphite filled PTFE wear band to support maximum load conditions.

Compression type tube seals are reusable.

Port design allows full flow for optimum cylinder operation.

Bearing retainer ring allows bearing cartridge to be removed without disassembly of cylinder.

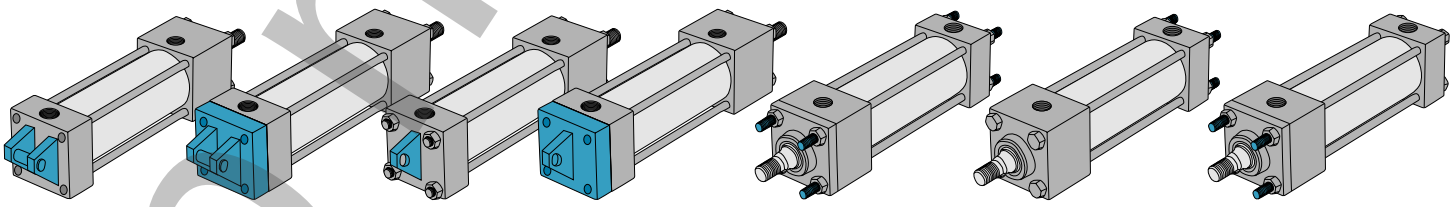
Quick Reference to Mounting Styles



MXO - Basic Cylinder
Order Code XO

MF1 Head Rectangular Flange - Order Code F1

MF2 Cap Rectangular Flange - Order Code F2



MP1 Fixed Clevis Order Code P1

MP2 Detachable Clevis Order Code P2

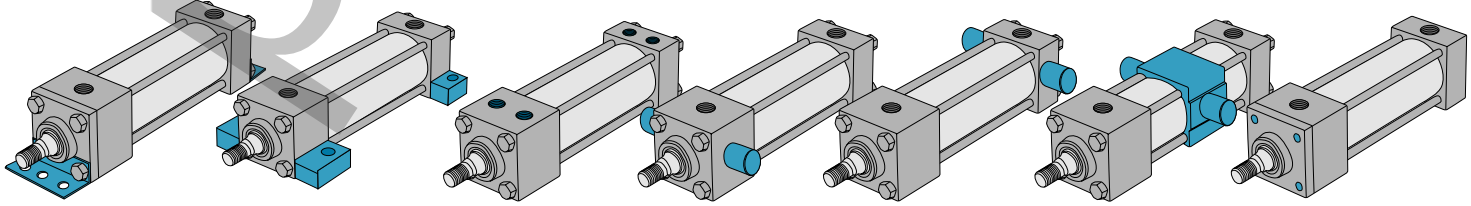
MP3 Fixed Eye Order Code P3

MP4 Detachable Eye Order Code P4

MX1 Extended Tie Rods Both Ends - Order Code X1

MX2 Extended Tie Rods Cap End - Order Code X2

MX3 Extended Tie Rods Head End - Order Code X3



MS1 Angle Mount Order Code S1

MS2 Side Lug Mount Order Code S2

MS4 Bottom Tapped Order Code S4

MT1 Head Trunnion Order Code T6

MT2 Cap Trunnion Order Code T7

MT4 Mid Trunnion Order Code T8

Sleeve Nut Mount Order Code SN

Note: The fields in the model number below this line must be filled. *This field can be blank.*

Model Number 32 XO – 06 A 1 E C – CT E – AD01A

Cylinder Bore
15 = 1-1/2
20 = 2
25 = 2-1/2
32 = 3-1/4
40 = 4
50 = 5
60 = 6

Order Code / NFPA Mounting
XO . . . MXO = Basic cylinder - no mount
F1 . . . . MF1 = Head rectangular flange
F2 . . . . MF2 = Cap rectangular flange
P1 . . . . MP1 = Fixed clevis
P2 . . . . MP2 = Detachable clevis
P3 . . . . MP3 = Fixed eye
P4 . . . . MP4 = Detachable eye
T6 . . . . MT1 = [1] Head trunnion
T7 . . . . MT2 = [1] Cap trunnion
T8 . . . . MT4 = [1] Mid trunnion
X1 . . . . MX1 = Extended tie rods both ends
X2 . . . . MX2 = Cap end tie rods
X3 . . . . MX3 = Head end tie rods
S1 . . . . MS1 = Angle mount
S2 . . . . MS2 = Side lug
S4 . . . . MS4 = Bottom tapped, flush mount
SN – = Sleeve nut

[1] Trunnion pins are removable.

Full inches of stroke
00 = 0"
01 = 1"
02 = 2"
03 = 3"
48 = 48" stroke (Maximum)

Fractional inches of stroke
A = 0"
B = 1/16"
C = 1/8"
D = 3/16"
E = 1/4"
F = 5/16"
G = 3/8"
H = 7/16"
I = 1/2"
J = 9/16"
K = 5/8"
L = 11/16"
M = 3/4"
N = 13/16"
O = 7/8"
P = 15/16"

Rod End Thread Code
1 = Style #1 Standard male
2 = Style #2 Optional male
3 = Style #3 Optional female

Port Size & Position Code

Position	1	2	3	4
1/8 NPT	B	H	N	T
1/4 NPT	C	I	O	U
3/8 NPT	D	J	P	V
1/2 NPT	E	K	Q	W
3/4 NPT	F	L	R	X

Length Extensions *(Leave blank if not required)*
AD = Rod thread total "A" Dim (Must specify)
Example = AD01A (Full & fractional length)
CD = Shaft total "C" Dim (Must specify)
Example = CD02A (Full & fractional length)
AC = Total "A" & "C" Dim combined (Must specify)
Specify "A" Dim first, then "C" Dim.
Example = AC01A02A (Full & fractional length)

Magnet
N = No magnet
E = Magnet sensing

Options
XX = No options
BF = Bumper, head end only[1]
BR = Bumper, cap end only[1]
(Not available with adjustable or fixed air cushions (pg. 10).)
CT = Composite cylinder tube
DR = Double rod (page 4)
MR = Male rod stud with "KK" thread (page 10)
SB = Silent seal bumpers (allows use of air cushions - pg. 10) (150 psi max., 200°F max.)
SR = Stainless steel piston rod
ST = Stainless steel tie rods
VS = Viton® seals (385°F max.)
WS = Metallic rod scraper

Combination Options
BB = Bumpers, head and cap[1].
CR = Composite tubing and stainless rod.
CS = Composite tubing and stainless tie rods.
CU = Composite tubing, stainless rod and tie rods.
DM = Double rod and male rod stud (Head end only).
DS = Double rod and stainless rod.
DT = Double rod and stainless tie rods.
DU = Double rod, stainless rod and stainless tie rods.
SS = Stainless steel rod and tie rods.
WD = Composite tubing, stainless rod, stainless tie rods, and metallic scraper.
WE = Composite tubing, stainless rod, stainless tie rods, metallic scraper and Viton seals.
WV = Metallic rod scraper and Viton seals.
Consult factory for additional combination options.

[1] OAL increases 0.062 per end.
Piston travel is minimum of specified stroke.

Adjustable Air cushions (St'd position Head and Cap = C)

Position	1	2	3	4
No Cushions	A	A	A	A
Head & Cap	B	C	D	E
Head only	F	G	H	J
Cap only	K	L	M	N

Standard Ports, Diameters, and Rod Threads

Code	Bore	NPT	St'd Port Position Code	Rod	Style #1 St'd Male Thread	Style #2 Opt. Male Thread	Style #3 Opt. Female thread
15	1-1/2	3/8	D	.625	7/16-20	1/2-20	7/16-20
20	2	3/8	D	.625	7/16-20	1/2-20	7/16-20
25	2-1/2	3/8	D	.625	7/16-20	1/2-20	7/16-20
32	3-1/4	1/2	E	1.000	3/4-16	7/8-14	3/4-16
40	4	1/2	E	1.000	3/4-16	7/8-14	3/4-16
50	5	1/2	E	1.000	3/4-16	7/8-14	3/4-16
60	6	3/4	F	1.375	1-14	1 1/4-12	1-14

(Viton® is a registered trademark of DuPont Corp.)

Standard port and air cushion adjustment positions
Ports are in position #1 both ends; cushion adjustments are in position #2 both ends.
Optional position Air cushion adjustment can be located on same surface as standard size port on 2" bore and larger. For 1-1/2" bore or larger ports, consult factory.

Sizing Guide

Table 1 – Extend Force (pounds)

Bore	Piston Area	Pressure 40	50	60	70	80	90	100	125	150	175	200	250
1-1/2"	1.77	71	88	106	124	141	159	177	221	265	309	353	443
2"	3.14	126	157	188	220	251	283	314	393	471	550	628	785
2-1/2"	4.91	196	245	295	343	393	442	491	614	736	859	982	1228
3-1/4"	8.30	332	415	498	581	664	747	830	1037	1244	1452	1659	2075
4"	12.57	503	628	754	880	1005	1131	1257	1571	1885	2199	2513	3143
5"	19.63	785	982	1178	1374	1571	1767	1963	2454	2945	3436	3927	4908
6"	28.27	1131	1414	1696	1979	2262	2545	2827	3534	4241	4948	5655	7067

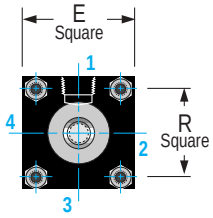
Table 2 – Retract Force Deduction (pounds)

Rod	Rod Area	Pressure 40	50	60	70	80	90	100	125	150	175	200	250
.625	.307	12	15	18	21	25	28	31	38	46	54	61	76
1.000	.785	31	39	47	55	63	71	79	98	118	137	157	196
1.375	1.458	59	74	89	104	119	134	148	186	223	260	297	371

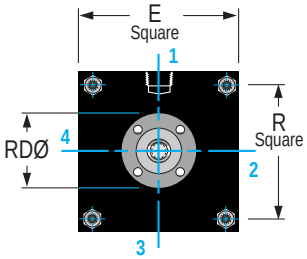
Approximate Cylinder Weights (pounds)

Bore	Rod	X0 S4 SN	F1 F2 S2	P2 P4	T1 T2 T4	P1, P3, X1, X2, X3, S1	Per Inch Stroke by Tube Material: Aluminum	Steel	Composite
1-1/2"	.625	2.10	2.70	3.20	2.60	2.30	0.24	0.36	0.23
2"	.625	2.70	3.70	4.10	3.10	2.80	0.30	0.45	0.28
2-1/2"	.625	3.60	5.00	5.50	4.00	3.70	0.30	0.49	0.28
3-1/4"	1.000	7.10	10.30	11.50	7.50	7.50	0.50	0.74	0.47
4"	1.000	9.30	14.00	15.50	9.90	9.90	0.60	0.99	0.56
5"	1.000	13.00	20.00	20.10	13.70	13.30	0.60	0.99	0.56
6"	1.375	22.00	32.00	35.00	23.00	23.00	0.90	1.33	0.83

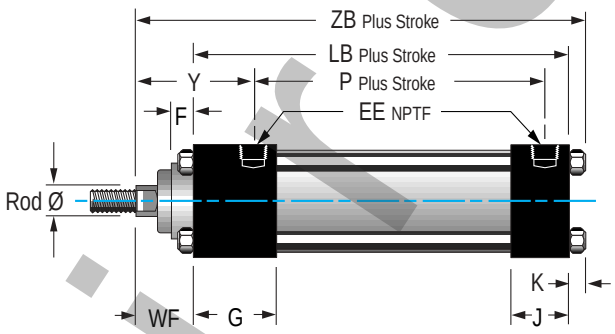
Basic Cylinder



Head End View
1-1/2" thru 5" Bores

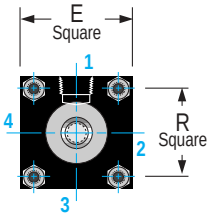


Head End View
6" Bore

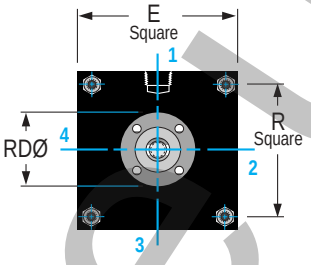


Double Rod Cylinder

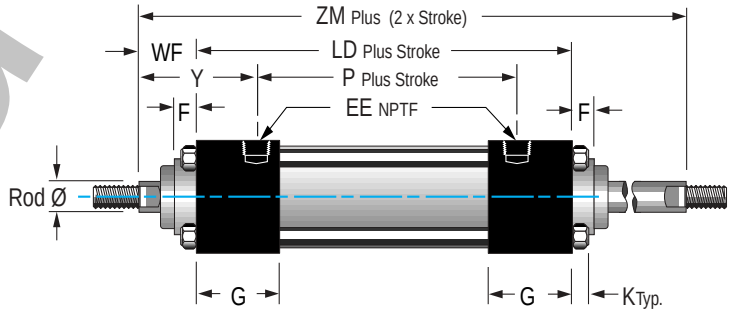
Use option code "DR" for double rod cylinder available with the following NFPA mounts:
MXO, MF1, MT1, MT4, MX1, MX3, MS1, MS2, MS4 or non-NFPA SN mount.



Head End View
1-1/2" thru 5" Bores



Head End View
6" Bore

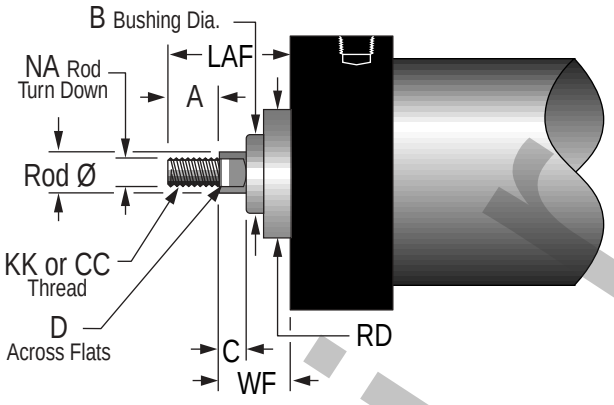


Basic Dimensions for Single or Double Rod Cylinders (inches)

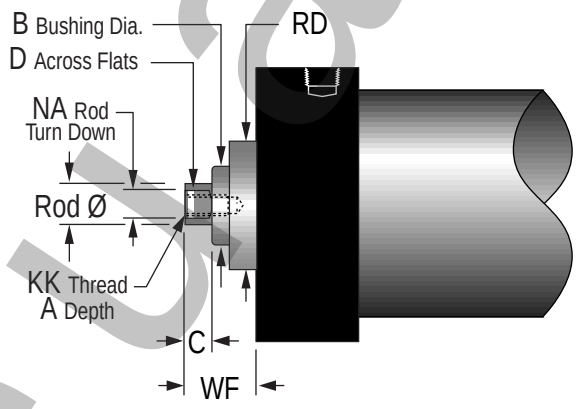
Bore	Rod	E	EE Std	F	G	J	K	LB	LD	P	R	RD	WF	Y	ZB	ZM
1-1/2"	.625	2.000	3/8	.000	1.500	1.000	.250	3.625	4.125	2.250	1.428	N/A	1.000	1.938	4.875	6.125
2"	.625	2.500	3/8	.000	1.500	1.000	.313	3.625	4.125	2.250	1.838	N/A	1.000	1.938	4.938	6.125
2-1/2"	.625	3.000	3/8	.000	1.500	1.000	.313	3.750	4.250	2.375	2.192	N/A	1.000	1.938	5.062	6.250
3-1/4"	1.000	3.750	1/2	.000	1.750	1.250	.375	4.250	4.750	2.625	2.758	N/A	1.375	2.438	6.000	7.500
4"	1.000	4.500	1/2	.000	1.750	1.250	.375	4.250	4.750	2.625	3.323	N/A	1.375	2.438	6.000	7.500
5"	1.000	5.500	1/2	.000	1.750	1.250	.500	4.500	5.000	2.875	4.101	N/A	1.375	2.438	6.375	7.750
6"	1.375	6.500	3/4	.625	2.000	1.500	.500	5.000	5.500	3.125	4.879	3.125	1.625	2.813	7.125	8.750

Rod End Style #1
(Standard Male – KK Thread)

Rod End Style #2
(Optional Male – CC Thread)



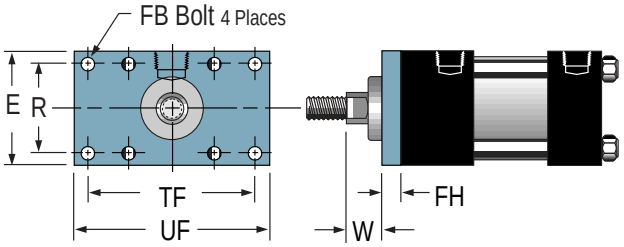
Rod End Style #3
(Optional Female)



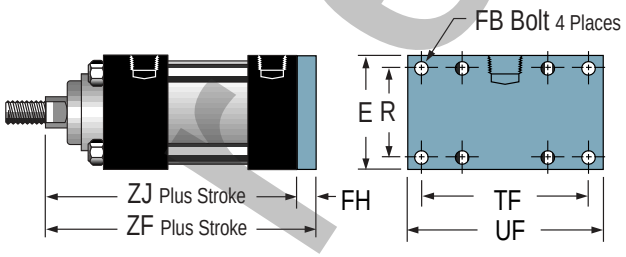
Rod End Dimensions (inches)

Bore	Rod	KK	CC	A	B	C	D	LAF	NA	RD	WF
1-1/2"	.625	7/16-20	1/2-20	.750	1.125	.375	.500	1.750	.585	N/A	1.000
2"	.625	7/16-20	1/2-20	.750	1.125	.375	.500	1.750	.585	N/A	1.000
2-1/2"	.625	7/16-20	1/2-20	.750	1.125	.375	.500	1.750	.585	N/A	1.000
3-1/4"	1.000	3/4-16	7/8-14	1.125	1.500	.500	.813	2.500	.960	N/A	1.375
4"	1.000	3/4-16	7/8-14	1.125	1.500	.500	.813	2.500	.960	N/A	1.375
5"	1.000	3/4-16	7/8-14	1.125	1.500	.500	.813	2.500	.960	N/A	1.375
6"	1.375	1-14	1 1/4-12	1.625	2.000	.625	1.125	3.250	1.313	3.125	1.625

MF1 – Head Rectangular Flange Order Code F1



MF2 – Cap Rectangular Flange Order Code F2

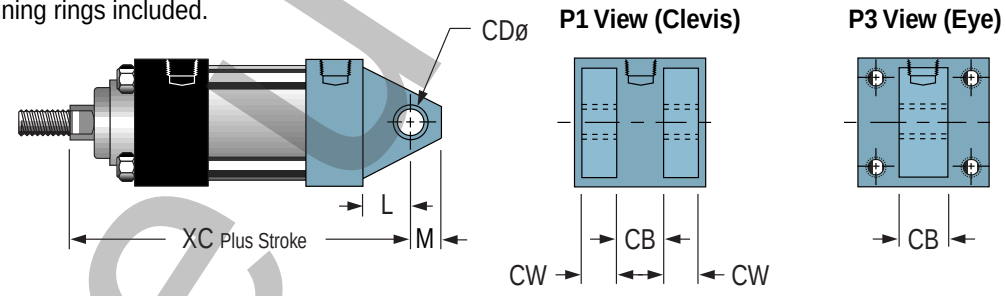


Rectangular Flange Mount Dimensions (inches)

Bore	Rod	E	FB	FH	R	TF	UF	W	ZF	ZJ
1-1/2"	.625	2.000	1/4	.375	1.428	2.750	3.375	.625	5.000	4.625
2"	.625	2.500	5/16	.375	1.838	3.375	4.125	.625	5.000	4.625
2-1/2"	.625	3.000	5/16	.375	2.192	3.875	4.625	.625	5.125	4.750
3-1/4"	1.000	3.750	3/8	.625	2.758	4.688	5.500	.750	6.250	5.625
4"	1.000	4.500	3/8	.625	3.323	5.438	6.250	.750	6.250	5.625
5"	1.000	5.500	1/2	.625	4.101	6.625	7.625	.750	6.500	5.875
6"	1.375	6.500	1/2	.750	4.879	7.625	8.625	.875	7.375	6.625

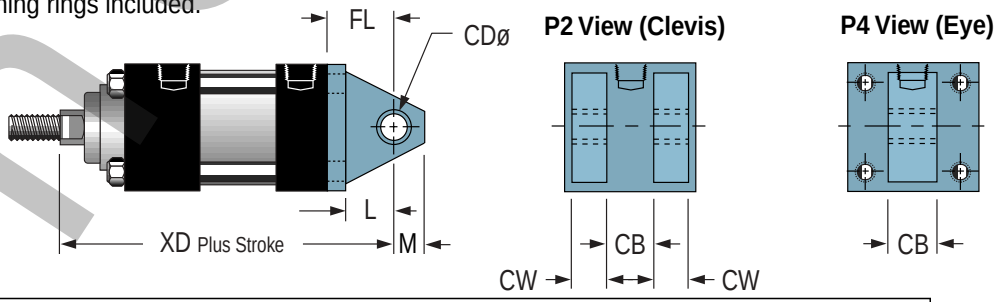
MP1 & MP3 Fixed Clevis and Eye Mounts Order Codes P1 & P3

Pivot pins and retaining rings included.



MP2 & MP4 Detachable Clevis and Eye Mounts Order Codes P2 & P4

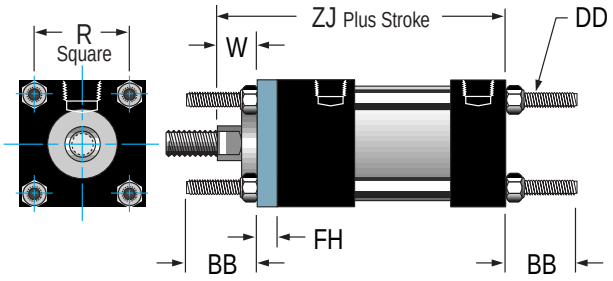
Pivot pins and retaining rings included.



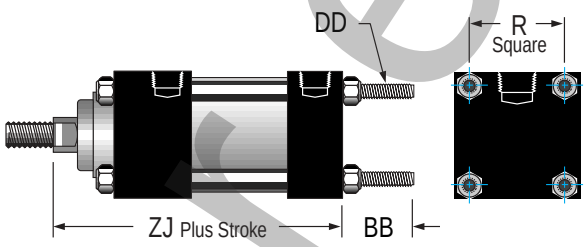
Clevis & Eye Mount Dimensions (inches)

Bore	Rod	CB	CD	CW	FL	L	M	XC	XD
1-1/2"	.625	.750	.500	.500	1.125	.750	.500	5.375	5.750
2"	.625	.750	.500	.500	1.125	.750	.500	5.375	5.750
2-1/2"	.625	.750	.500	.500	1.125	.750	.500	5.500	5.875
3-1/4"	1.000	1.250	.750	.625	1.875	1.250	.750	6.875	7.500
4"	1.000	1.250	.750	.625	1.875	1.250	.750	6.875	7.500
5"	1.000	1.250	.750	.625	1.875	1.250	.750	7.125	7.750
6"	1.375	1.500	1.000	.750	2.250	1.500	1.000	8.125	8.875

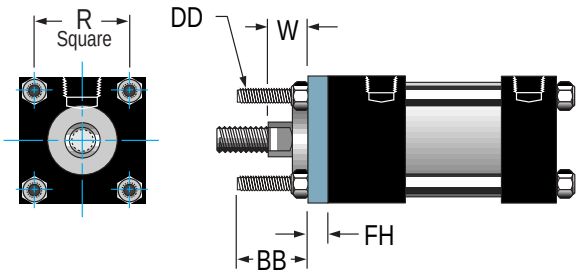
MX1 – Extended Tie Rods Order Code X1



MX2 – Cap Extended Tie Rods Order Code X2



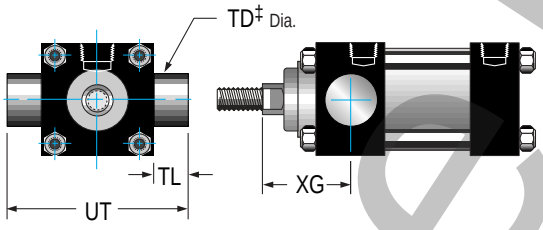
MX3 – Head Extended Tie Rods Order Code X3



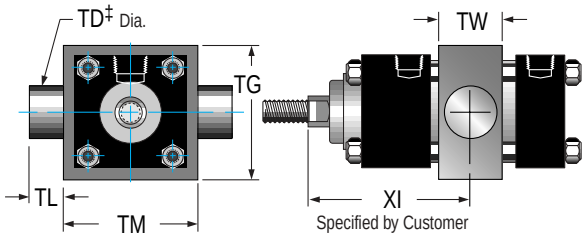
Extended Tie Rod Mount Dimensions (inches)

Bore	Rod	BB	DD	FH	R	W	ZJ
1-1/2"	.625	1.000	1/4-28	.375	1.428	.625	4.625
2"	.625	1.125	5/16-24	.375	1.838	.625	4.625
2-1/2"	.625	1.125	5/16-24	.375	2.192	.625	4.750
3-1/4"	1.000	1.375	3/8-24	.625	2.758	.750	5.625
4"	1.000	1.375	3/8-24	.625	3.323	.750	5.625
5"	1.000	1.813	1/2-20	.625	4.101	.750	5.875
6"	1.375	1.813	1/2-20	.750	4.879	.875	6.625

MT1 – Head Trunnion Order Code T6

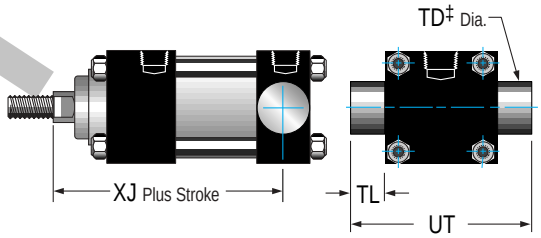


MT4 – Mid Trunnion Order Code T8



‡ Note: Trunnion pins are removable. User should apply thread locking adhesive on fastener at installation.

MT2 – Cap Trunnion Order Code T7

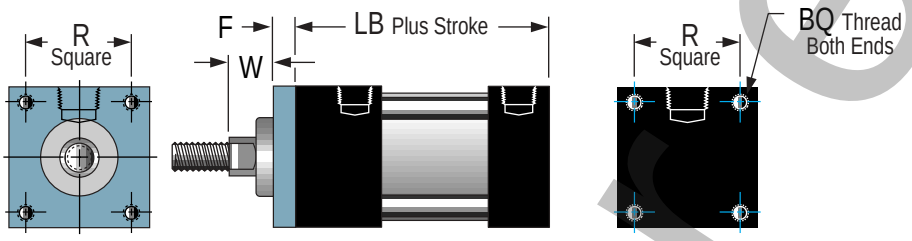


Trunnion Mount Dimensions (inches)

Bore	Rod	TD	TG	TL	TM	TW	XG	XI (min)	XJ
1-1/2"	.625	1.000	2.500	1.000	2.500	1.250	1.750	3.125	4.125
2"	.625	1.000	3.000	1.000	3.000	1.500	1.750	3.250	4.125
2-1/2"	.625	1.000	3.500	1.000	3.500	1.500	1.750	3.250	4.250
3-1/4"	1.000	1.000	4.250	1.000	4.500	2.000	2.250	4.125	5.000
4"	1.000	1.000	5.000	1.000	5.250	2.000	2.250	4.125	5.000
5"	1.000	1.000	6.000	1.000	6.250	2.000	2.250	4.125	5.250
6"	1.375	1.375	7.000	1.375	7.625	2.500	2.625	4.875	5.875

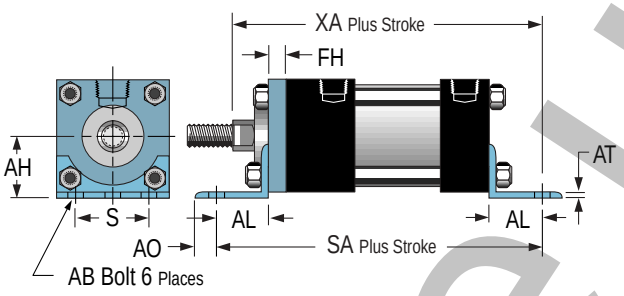
Sleeve Nut, Angle, Lug & Bottom Tap Mounts

Sleeve Nut Mount Order Code SN

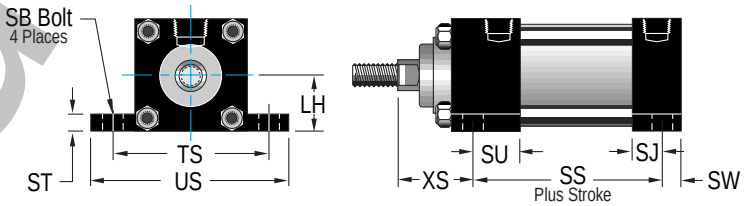


SN - Sleeve Nut Mount Dimensions (inches)						
Bore	Rod	BQ	F	LB	R	W
1-1/2"	.625	1/4-28	.375	3.625	1.428	.625
2"	.625	5/16-24	.375	3.625	1.838	.625
2-1/2"	.625	5/16-24	.375	3.750	2.192	.625
3-1/4"	1.000	3/8-24	.625	4.250	2.758	.750
4"	1.000	3/8-24	.625	4.250	3.323	.750
5"	1.000	1/2-20	.625	4.500	4.101	.750
6"	1.375	1/2-20	.625	5.000	4.879	.875

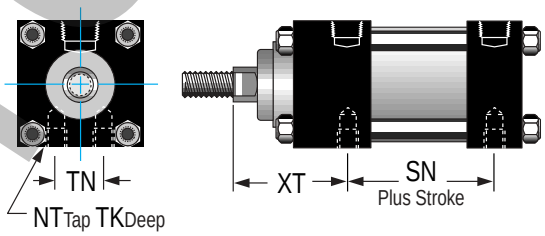
MS1 – Angle Mount Order Code S1



MS2 – Side Lug Order Code S2



MS4 – Bottom Tap Order Code S4

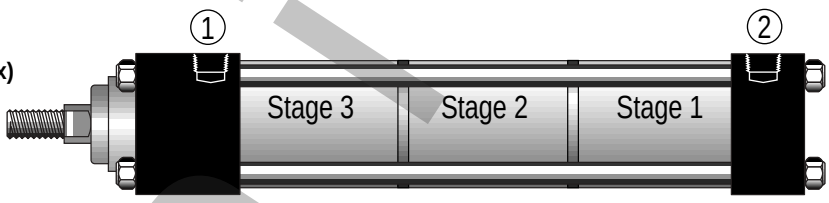


Mounting Dimensions (inches)																								
Bore	Rod	AB	AH	AL	AO	AT	FH	S	SA	XA	LH	SB	SJ	SS	ST	SU	SW	TS	US	XS	NT	SN	TK	TN	XT
1-1/2"	.625	3/8	1.188	1.000	.375	.125	.375	1.250	6.000	5.625	1.000	3/8	.625	2.875	.500	1.125	.375	2.750	3.500	1.375	1/4-20	2.250	.375	.625	1.938
2"	.625	3/8	1.438	1.000	.375	.125	.375	1.750	6.000	5.625	1.250	3/8	.625	2.875	.500	1.125	.375	3.250	4.000	1.375	5/16-18	2.250	.500	.875	1.938
2-1/2"	.625	3/8	1.625	1.000	.375	.125	.375	2.250	6.125	5.750	1.500	3/8	.625	3.000	.500	1.125	.375	3.750	4.500	1.375	3/8-16	2.375	.625	1.250	1.938
3-1/4"	1.000	1/2	1.938	1.250	.500	.125	.625	2.750	7.375	6.875	1.875	1/2	.750	3.250	.750	1.250	.500	4.750	5.750	1.875	1/2-13	2.625	.750	1.500	2.438
4"	1.000	1/2	2.250	1.250	.500	.125	.625	3.500	7.375	6.875	2.250	1/2	.750	3.250	.750	1.250	.500	5.500	6.500	1.875	1/2-13	2.625	.750	2.063	2.438
5"	1.000	5/8	2.750	1.375	.625	.188	.625	4.250	7.875	7.250	2.750	3/4	.563	3.125	1.000	1.063	.688	6.875	8.250	2.063	5/8-11	2.875	1.000	2.688	2.438
6"	1.375	3/4	3.250	1.375	.625	.188	.750	5.250	8.500	8.000	3.250	3/4	.813	3.625	1.000	1.313	.688	7.875	9.250	2.313	3/4-10	3.125	1.125	3.250	2.813

What do you need?

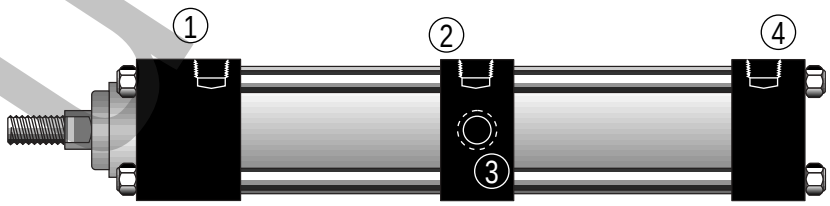
- **Strokes** in decimal increments or longer than 48"
- **Stop Tubes** for longer strokes
- **Electroless Nickel Plating**
- **Extruded Aluminum Cylinder Tube (Enclosed Tie Rods)**
- **Multi-Power® Cylinders (150 psi max)**
- **Hard Chrome Plated I.D. Steel Cyl. Tube**
- **Custom Rod End Features**
- **Additional Ports**

Fabco-Air attaches multiple pistons to a common shaft and provides ***internal*** air passages through the shaft to all pistons. Internal baffles divide the cylinder body into separate sections or stages. When air pressure is applied to port #2 of the cylinder illustrated at the right, all three pistons are pressurized simultaneously nearly tripling the thrust. Cylinders can be built with up to four stages enabling thrusts of over 16,000 pounds to be reached!



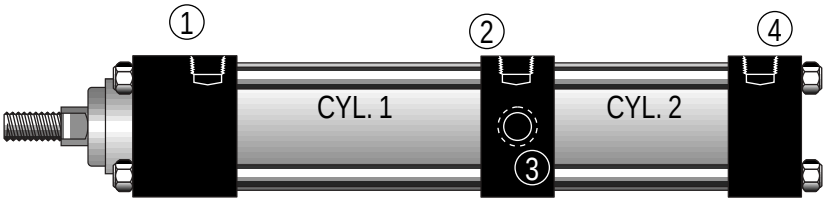
• Tandem Cylinders

Tandem cylinders provide nearly twice the force on an equivalent double acting cylinder. Two pistons are attached to a common piston rod. Ports 2 and 4 are pressurized simultaneously to nearly double the extend force. Ports 1 and 3 are pressurized to double the retract force.



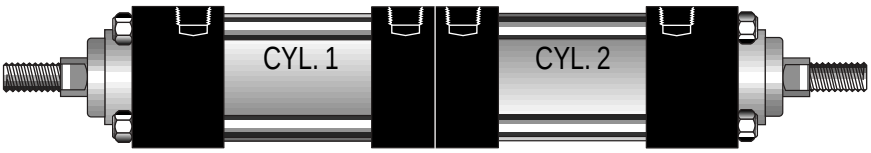
• 3-Position Cylinders

3-Position cylinders are generally used when three distinct rod positions are required from a single cylinder body. Two cylinders are assembled tip-to-tail with a common center head. Using cylinders with two different strokes (the shorter located on the rear cylinder), enables the front rod to be extended from “home” to a positive mid-position or to full extension.



• Back-to-Back Cylinders

Here two cylinders are mounted back-to-back. They can have the same or different strokes and can be operated independently. This assembly enables you to have four combinations of rods extended or retracted.

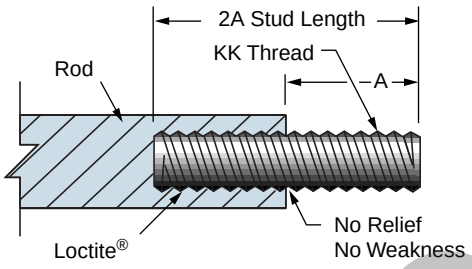


Magnetic Piston
Option -E

- ***Option -E*** consists of a magnet bonded into the piston head. When the piston magnet moves past an external sensor, the magnetic field activates the sensor without physical contact.
- ***Reliability*** – The annular piston magnet is permanently bonded into a groove in the piston. It is a polarized permanent magnet of rubber bonded barium ferrite that is very stable and is not affected by shock. Under normal usage it will remain magnetized indefinitely.
- ***Warning*** – External magnetic fields and/or ferrous objects may affect the strength of the piston magnet therefore affecting sensor actuation and piston position indication. Labels noting this are affixed to the cylinder.
- ***Mounting*** – The sensor is attached to a 2-part clamp that attaches rigidly to a tie rod and can be positioned anywhere along the length of the cylinder for very precise signaling.
- Two sensor styles are used – (a) the ***9-2A197 Series*** for 1-1/ 2" thru 4" bores requires a tie rod clamp, and (b) the ***749 Series*** which accommodates the larger diameter tie rods of the 5" and 6" bores with an integral clamp.

Order Sensors, Sensor Clamps and Cables Separately. See page 12 for details.

Male Rod Thread Stud
Option -MR



A high strength stud is threaded into the standard female rod end and retained with thread locking adhesive. This method eliminates the small diameter thread relief normally required when machining male threads. It provides a much stronger rod end which can be repaired, rather than replacing the complete rod, should the stud become damaged.

Part No.	KK	A	2A
NMR-7/16-20	7/16-20	.75	1.50
NMR-3/4-16	3/4-16	1.13	2.25
NMR-1-14	1-14	1.63	3.25

Also available separately for individual installation.

Rubber Bumpers Options
Head **-BF**‡, Cap **-BR**, Head & Cap **-BB**

A donut or pad of rubber is bonded in place to act as the piston stop and absorb the impact of the piston. This reduces noise and absorbs energy.

Cylinder length will increase .062" per bumper. Piston will travel a minimum of specified stroke.
‡ Note: **–BF** not available $1\frac{1}{2}$" bore.

Silent Seal Bumpers
Option -SB

Attached to the piston, these bumpers reduce the noise caused by the impact of the piston against the end cap. Standard pneumatic cushions may be used in conjunction with these cushions to further reduce end of stroke noise and impact while giving deceleration benefits.

- Available 1-1/2" thru 5" bores only.
- Operating Temperature: –20° to 200°F.
- Operating Pressure to 150 psi.

Static Stroke Length Reduction (inches)

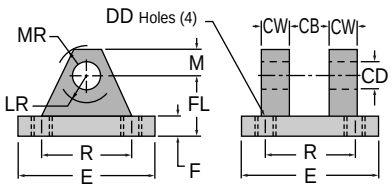
Bore	0 psi	20 psi	40 psi	60 psi	80 psi	100 psi
1-1/2"	.106	.056	.028	.018	0	0
2"	.090	.070	.046	.037	.018	0
2-1/2"	.201	.166	.122	.071	.008	0
3-1/4"	.160	.102	.082	.048	.038	0
4"	.150	.085	.065	.031	.005	0
5"	.219	.158	.099	.053	.015	0

Accessories Guide to Part Numbers

Rod Thread	Rod Clevis	Eye Bracket	Pivot Pin	Rod Eye	Clevis Bracket
7/16-20	NRC-7/16-20	NEM-1-1/2	NPP-0.500	NRE-7/16-20	NPM-1-1/2
1/2-20	NRC-1/2-20	NEM-1-1/2	NPP-0.500	NRE-1/2-20	NPM-1-1/2
3/4-16	NRC-3/4-16	NEM-3-1/4	NPP-0.750	NRE-3/4-16	NPM-3-1/4
7/8-14	NRC-7/8-14	NEM-6	NPP-1.000	–	–
1-14	NRC-1-14	NEM-6	NPP-1.000	NRE-1-14	NPM-6
1 1/4-12	NRC-1-1/4-12	–	NPP-1.375	–	–

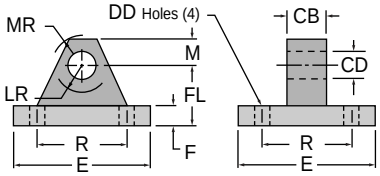
Bore	Mount	Eye Bracket	Pivot Pin	Mount	Clevis Bracket
1 1/2, 2, 2 1/2	MP1 & MP2 Clevis	NEM-1-1/2	NPP-0.500	MP3 & MP4 Eye	NPM-1-1/2
3 1/4, 4, 5	MP1 & MP2 Clevis	NEM-3-1/4	NPP-0.750	MP3 & MP4 Eye	NPM-3-1/4
6	MP1 & MP2 Clevis	NEM-6	NPP-1.000	MP3 & MP4 Eye	NPM-6

Clevis Bracket



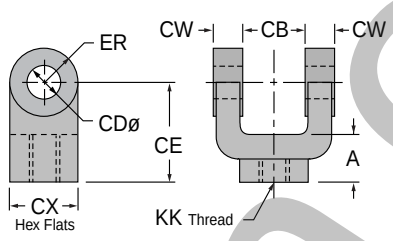
Part No.	CB	CD	CW	DD	E	F	FL	LR	M	MR	R
NPM-1-1/2	.750	.500	.500	3/8-24	2.500	.375	1.125	.500	.500	.563	1.625
NPM-3-1/4	1.250	.750	.625	1/2-20	3.500	.625	1.875	1.063	.750	1.063	2.563
NPM-6	1.500	1.000	.750	5/8-18	4.500	.750	2.250	1.250	1.000	1.125	3.250

Eye Bracket



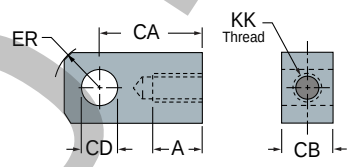
Part No.	CB	CD	DD	E	F	FL	LR	M	MR	R
NEM-1-1/2	.750	.500	.406	2.500	.375	1.125	.750	.500	.563	1.625
NEM-3-1/4	1.250	.750	.531	3.500	.625	1.875	1.250	.750	.875	2.563
NEM-6	1.500	1.000	.656	4.500	.750	2.250	1.500	1.000	1.250	3.250

Rod Clevis



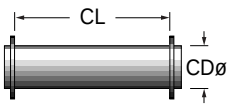
Part No.	KK	A	CB	CD	CE	CW	CX	ER
NRC-7/16-20	7/16-20	.750	.750	.500	1.500	.500	1.000	.500
NRC-1/2-20	1/2-20	.750	.750	.500	1.500	.500	1.000	.500
NRC-3/4-16	3/4-16	1.125	1.250	.750	2.375	.625	1.250	.750
NRC-7/8-14	7/8-14	1.625	1.500	1.000	3.125	.750	1.500	1.000
NRC-1-14	1-14	1.625	1.500	1.000	3.125	.750	1.500	1.000
NRC-1-1/4-12	1 1/4-12	2.000	2.000	1.375	4.125	1.000	2.000	1.375

Rod Eye



Part No.	KK	A	CA	CB	CD	ER
NRE-7/16-20	7/16-20	.750	1.500	.750	.500	.625
NRE-1/2-20	1/2-20	.750	1.500	.750	.500	.625
NRE-3/4-16	3/4-16	1.125	2.063	1.250	.750	.875
NRE-1-14	1-14	1.625	2.813	1.500	1.000	1.188
NRE-1-1/4-12	1 1/4-12	2.000	3.438	2.000	1.375	1.563

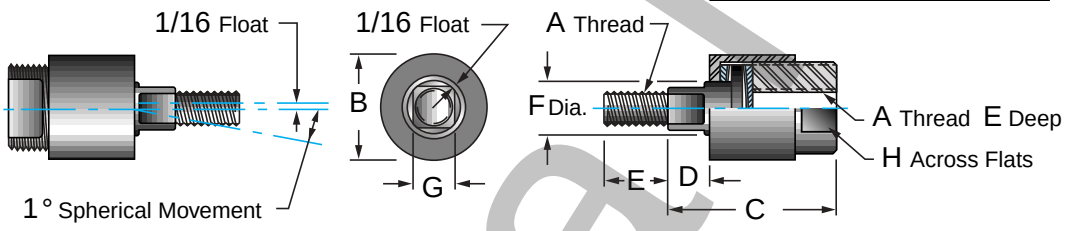
Pivot Pin (Includes retaining rings)



Part No.	CD	CL
NPP-0.500	.500	1.875
NPP-0.750	.750	2.625
NPP-1.000	1.000	3.125
NPP-1.375	1.375	4.125

Alignment Couplers

Alignment couplers can be used in both push or pull applications. Linear couplers can prevent binding caused by misalignment and allow a greater tolerance between the cylinder centerline and the mating part.



Part Number	A	B	C	D	E	F	G	H	Max. Pull Load lbs.
NCP-7/16-20	7/16-20	1-1/4	2	1/2	3/4	5/8	1/2	1	2,535
NCP-1/2-20	1/2-20	1-1/4	2	1/2	3/4	5/8	1/2	1	3,500
NCP-3/4-16	3/4-16	1-3/4	2-5/16	1/2	1-1/8	31/32	13/16	1-1/2	8,750
NCP-7/8-14	7/8-14	1-3/4	2-5/16	1/2	1-1/8	31/32	13/16	1-1/2	9,750
NCP-1-14	1-14	2-1/2	2-15/16	1/2	1-5/8	1-3/8	1-5/32	2-1/4	16,125
NCP-1-1/4-12	1 1/4-12	2-1/2	2-15/16	1/2	1-5/8	1-3/8	1-5/32	2-1/4	19,600

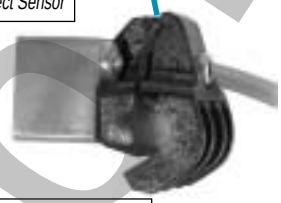
Magnetic Sensor and Mounting Clamps

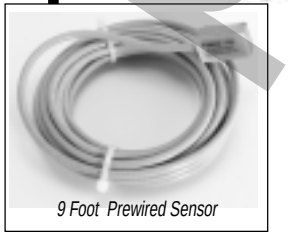
9-2A197 Series Sensor & Clamp for 1-1/2" to 4" Bores. Order clamps separately.

Quick Disconnect Sensor Shown in Clamp

Quick Disconnect Sensor

749 Series Sensor with Integral Clamp for 5" & 6" Bore Cylinders *(shown prewired)*





9 Foot Prewired Sensor

Temperature Range: –20° to + 80°C (–4° to + 176°F)

Warning! Do not exceed sensor ratings. Permanent damage to sensor may occur. Power supply polarity ***MUST*** be observed for proper operation of sensors. See wiring diagrams included with each sensor.

Female Cordsets available in 1, 2, & 5 meter lengths

Female Cordsets for 9-2A197 Series Quick Disconnect Sensors			
Length	1 Meter	2 Meter	5 Meter
Part No.	CFC-1M	CFC-2M	CFC-5M

Female Cordsets for 749 Series Quick Disconnect Sensors		
Length	2 Meter	5 Meter
Part No.	CFC-2M-12	CFC-5M-12

LED Lighted Magnetic Piston Position Sensors: Bores 1-1/2" – 4"			
Product	**9 ft. Prewired P/N**	**Quick Discon. P/N**	**Electrical Characteristics**
Reed Switch	9-2A197-1004	9-2A197-1304	5-120 VDC/VAC, 0.5 Amp Max., 10 Watt Max., SPST N.O., 3.5 Voltage Drop
Electronic	9-2A197-1033	9-2A197-1333	Sourcing, PNP, 6-24 VDC, 0.5Amp Max., 1.0 Voltage Drop
Electronic	9-2A197-1034	9-2A197-1334	Sinking, NPN, 6-24VDC, 0.5Amp Max., 1.0 Voltage Drop
9-2A197 Series Sensor Mounting Clamps – **Part Number 800-200-000**			

LED Lighted Magnetic Piston Position Sensors: Bores 5" – 6"			
Reed Switch	749-000-004	749-000-504	5-240 VDC/VAC, 1 Amp Max., 30 Watt Max., SPST N.O., 3.0 Voltage Drop
Electronic	749-000-031	749-000-531	Sourcing, PNP, 6-24 VDC, 1.0 Amp Max., 0.5 Voltage Drop
Electronic	749-000-032	749-000-532	Sinking, NPN, 6-24 VDC, 1.0 Amp Max., 0.5 Voltage Drop