



Cylinders



E Series

Economic Tie-Rod Cylinder Line

We're everywhere you need us to be!



PRESSURE RATING
250 psig PNEUMATIC

E SERIES

This cost-efficient cylinder is ideal for a variety of OEM applications, providing long-lasting and reliable service.

1) The file hard (60RC) high strength aluminum alloy tube provides a smooth corrosion free sealing surface and excellent abrasion resistance.

2) Head and cap are machined from (6061-T6) solid aluminum bar and anodized for corrosion resistance. A recess at the piston mating surface allows the air to work on a larger effective piston area for faster breakaway.

3) The cast iron rod bushing provides maximum load bearing support. This graphite filled material offers the best bearing surface with hard chrome plated piston rod.

4) Rod seal and wiper are made from a highly durable material for long-lasting service.

5) High strength steel piston rod has a ground, polished and hard chrome plated surface providing maximum life of bushing and seals.

6) The bushing retainer allows cartridge removal without disassembly.

7) Tie rods are 100,000 psi minimum yield steel for maximum holding power. Tie rod threads are rolled for strength and engagement.

8) The piston seals are a BUNA N compound that provides smoother breakaway.

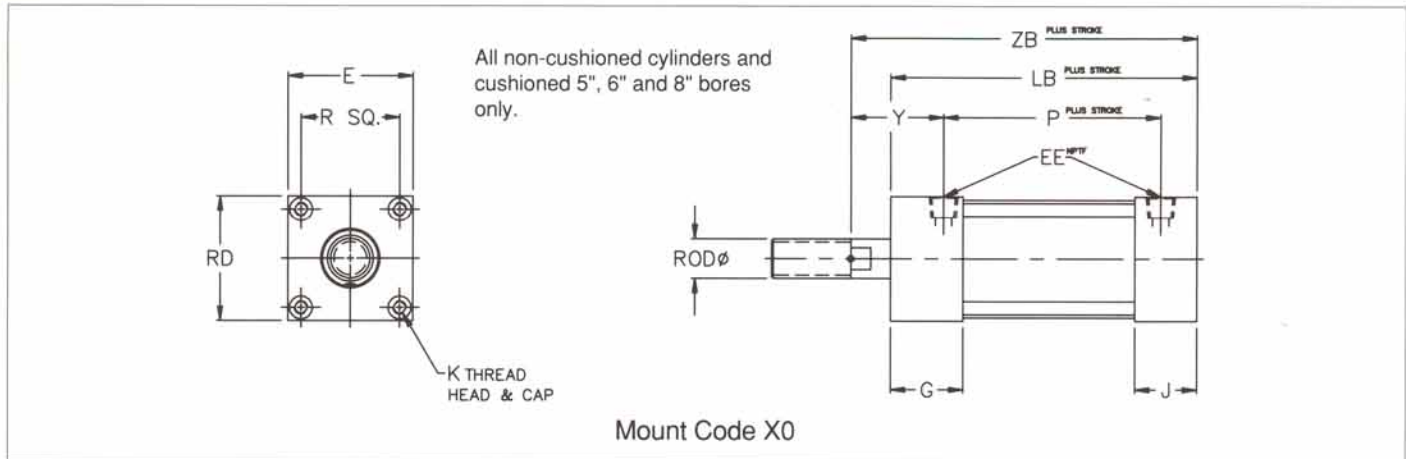
9) The extra wide wear band is provided to support maximum loading.

10) The solid aluminum alloy piston is strong and lightweight.

11) The tube seals are compression type and reuseable.

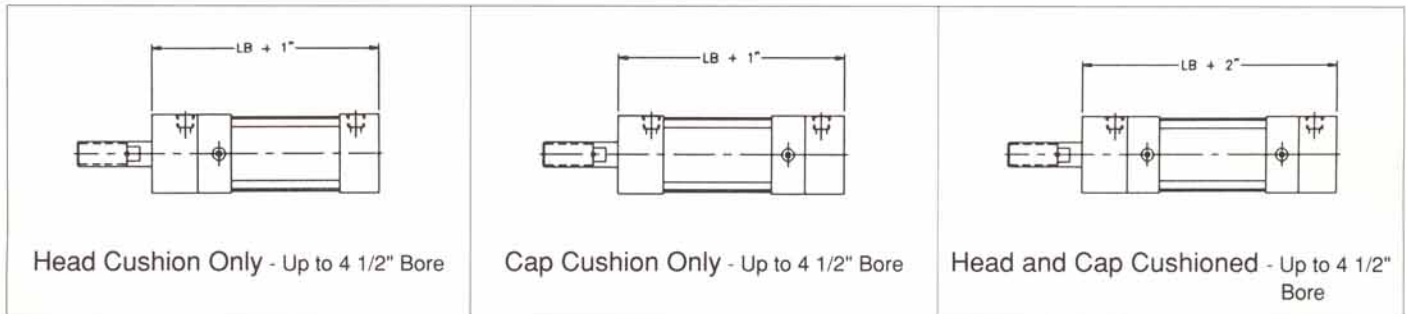
The floating cushion seal design gives the fastest stroke reversal possible by providing instantaneous full flow to piston. Each cushion has a flush, retained adjustment needle.

BASIC E-SERIES CYLINDERS



CUSHIONED CYLINDERS

- 1 1/4" through 4 1/2" bores only: Add 1" for each cushion
- 5", 6" and 8" bores only: no change in length for cushions

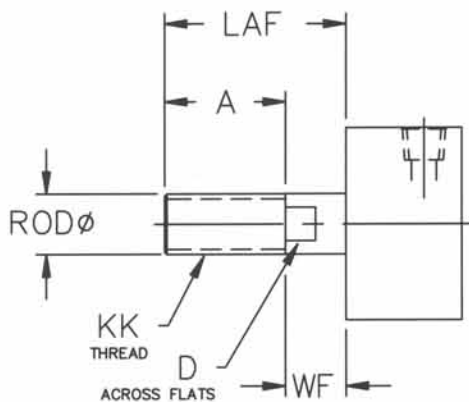


BASIC E-SERIES DIMENSIONS						
BORE	ROD DIA.	E	EE	G	J	K
1.25	.375	1.813	1/8	1.125	.750	1/4-28 X .38
1.75	.750	2.375	1/4	1.437	1.235	5/16-24 X .50
2.00	.750	2.375	1/4	1.437	1.235	1/4-28 X .38
2.50	.750	2.875	3/8	1.437	1.235	5/16-24 X .50
3.00	.750	3.375	3/8	1.437	1.235	5/16-24 X .50
3.50	1.000	4.000	1/2	2.000	1.250	3/8-24 X .63
4.50	1.000	5.000	1/2	2.000	1.250	1/2-20 X .63
5.00	1.000	5.500	1/2	2.000	1.250	1/2-20 X .63
6.00	1.500	6.500	3/4	2.000	1.500	1/2-20 X .63
8.00	1.500	8.500	3/4	2.000	1.500	5/8-18 X .75

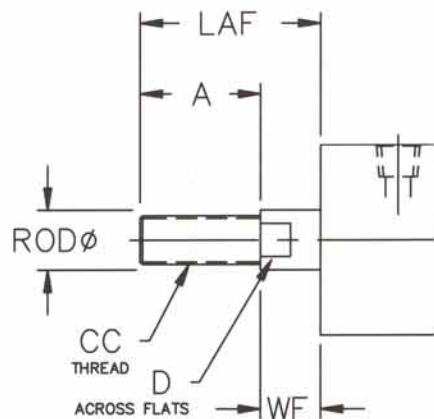
BORE	LB	P	R	RD	Y	ZB
1.25	2.906	2.063	1.281	1.813	1.125	3.531
1.75	3.797	2.362	1.718	2.375	1.500	4.547
2.00	3.797	2.362	1.875	2.375	1.500	4.547
2.50	3.797	2.425	2.203	2.875	1.438	4.547
3.00	3.797	2.425	2.625	3.375	1.438	4.547
3.50	4.545	3.076	3.219	4.125	1.844	5.545
4.50	4.545	3.076	4.031	5.125	1.844	5.545
5.00	4.797	3.328	4.100	5.500	1.844	5.797
6.00	5.750	3.750	4.875	6.500	2.125	6.625
8.00	5.750	3.750	6.440	8.500	2.125	6.625

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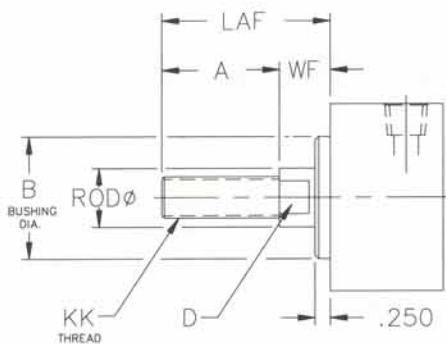
E-SERIES ROD ENDS



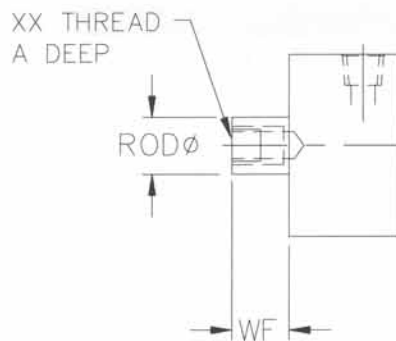
Style 1
1 1/4" Though 5" Bores Only



Style 2



Style 1
6" and 8" Bores Only

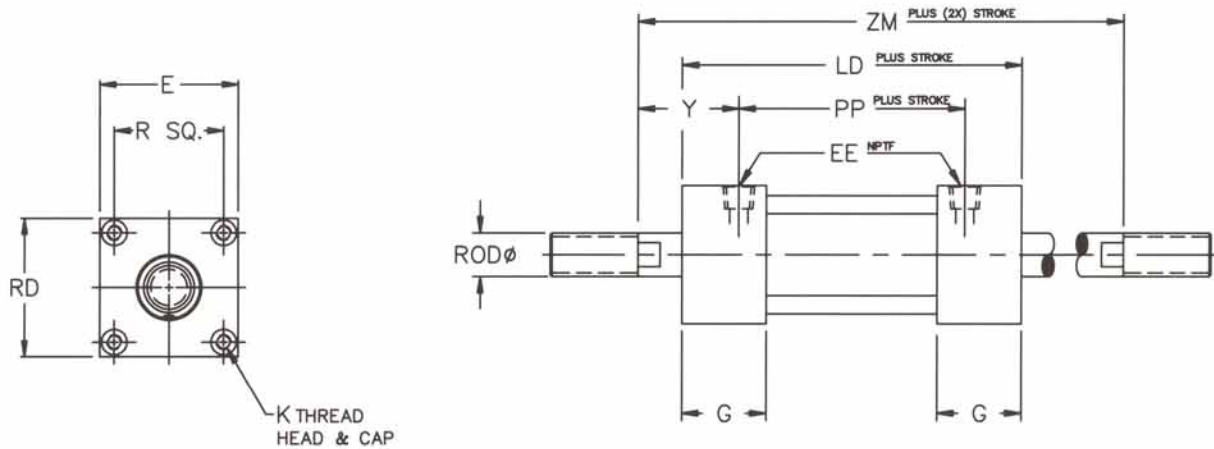


Style 3

PISTON ROD ENDS

BORE	ROD DIA.	STYLE #1 (MALE THREAD)	STYLE #2 (MALE THREAD)	STYLE #3 (FEMALE THREAD)	A	B	D	LAF	WF
		KK	CC	XX					
1 1/4	.375	3/8-16	1/4-20	1/4-20	1.000	N/A	.312	1.625	.625
1 3/4, 2, 2 1/2, 3	.750	3/4-10	1/2-13	1/2-13	1.500	N/A	.625	2.250	.750
3 1/2, 4 1/2, 5	1.000	1-8	3/4-10	3/4-10	1.625	N/A	.875	2.625	1.000
6, 8	1.500	1 1/4-12	1-8	1 1/4-12	1.625	2.00	1.313	2.500	.875

E-SERIES DOUBLE ROD CYLINDERS



Order as "DA" Option

E SERIES

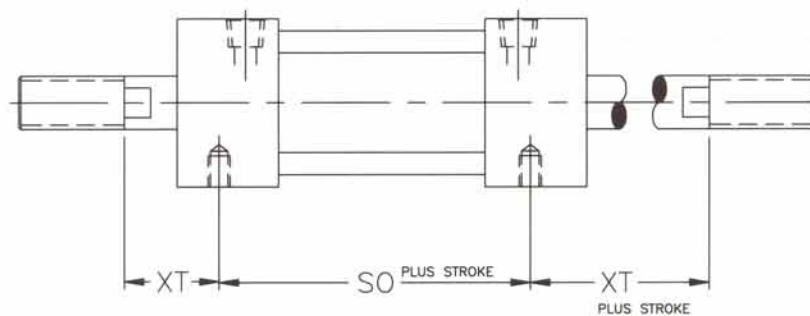
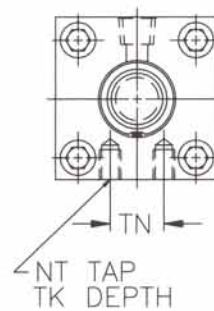
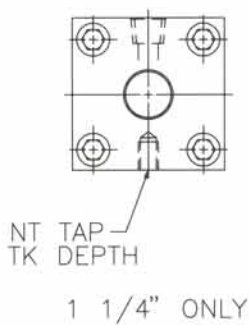
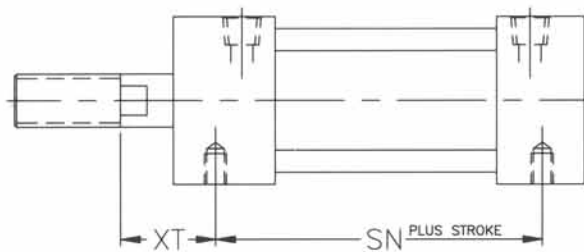
E-SERIES DOUBLE ROD DIMENSIONS

BORE	ROD DIA.	E	EE	G	K	LD
1.25	.375	1.813	1/8	1.125	1/4-28 X .38	3.281
1.75	.750	2.375	1/4	1.437	5/16-24 X .50	4.000
2.00	.750	2.375	1/4	1.437	1/4-28 X .38	4.000
2.50	.750	2.875	3/8	1.437	5/16-24 X .50	4.000
3.00	.750	3.375	3/8	1.437	5/16-24 X .50	4.000
3.50	1.000	4.000	1/2	2.000	3/8-24 X .63	5.295
4.50	1.000	5.000	1/2	2.000	1/2-20 X .63	5.295
5.00	1.000	5.500	1/2	2.000	1/2-20 X .63	5.547
6.00	1.500	6.500	3/4	2.000	1/2-20 X .63	6.250
8.00	1.500	8.500	3/4	2.000	5/8-18 X .75	6.250

BORE	PP	R	RD	Y	ZM
1.25	2.281	1.281	1.813	1.125	4.531
1.75	2.500	1.718	2.375	1.500	5.500
2.00	2.500	1.875	2.375	1.500	5.500
2.50	2.625	2.203	2.875	1.438	5.500
3.00	2.625	2.625	3.375	1.438	5.500
3.50	3.607	3.219	4.125	1.844	7.295
4.50	3.607	4.031	5.125	1.844	7.295
5.00	3.859	4.100	5.500	1.844	7.547
6.00	3.750	4.875	6.500	2.125	8.000
8.00	3.750	6.440	8.500	2.125	8.000

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BOTTOM TAP MOUNT

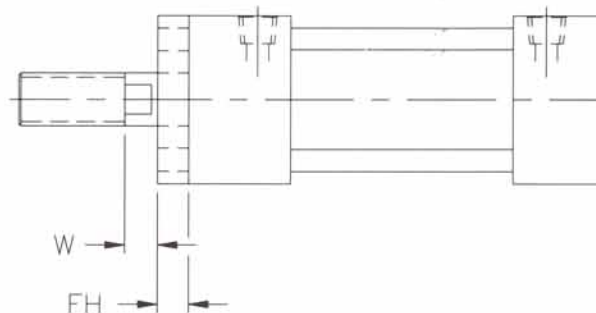
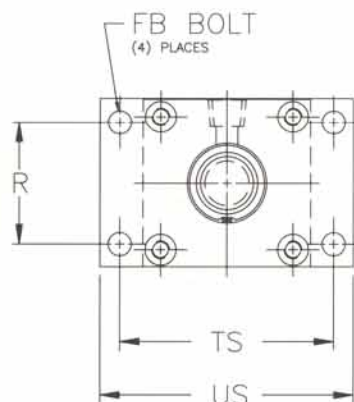


Mount Code S4

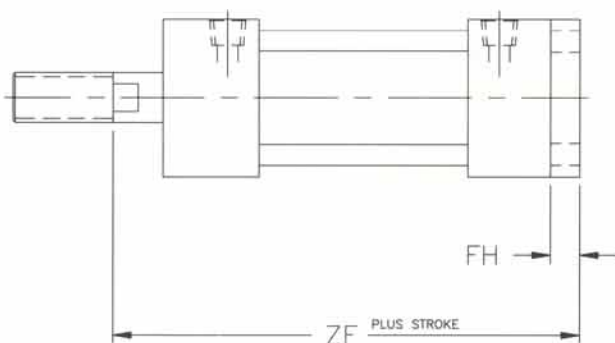
DIMENSIONS

BORE	NT	TK	SN	SO	TN	XT
1.25	1/4-28	.313	2.03	2.41	N/A	1.06
1.75	5/16-24	.438	2.61	2.81	.78	1.34
2.00	5/16-24	.438	2.61	2.81	.78	1.34
2.50	5/16-24	.563	2.61	2.81	1.25	1.34
3.00	5/16-24	.563	2.61	2.81	1.25	1.34
3.50	3/8-24	.688	3.04	3.73	1.84	1.78
4.50	1/2-20	.688	3.04	3.73	2.50	1.78
5.00	1/2-20	.688	3.30	4.05	2.69	1.75
6.00	1/2-20	.625	3.75	3.75	3.25	2.12
8.00	5/8-18	.750	3.75	3.75	4.50	2.12

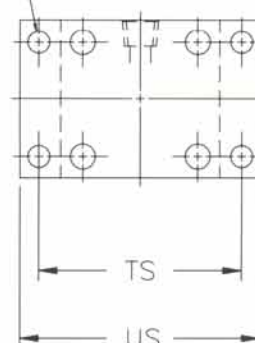
FLANGE MOUNT



Mount Code F1



FB BOLT
(4) PLACES



Mount Code F2

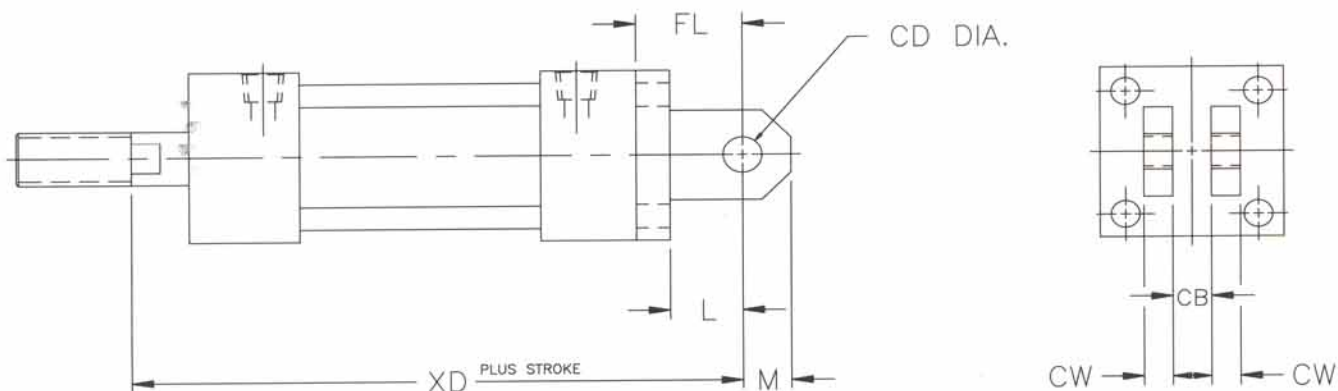
E SERIES

DIMENSIONS

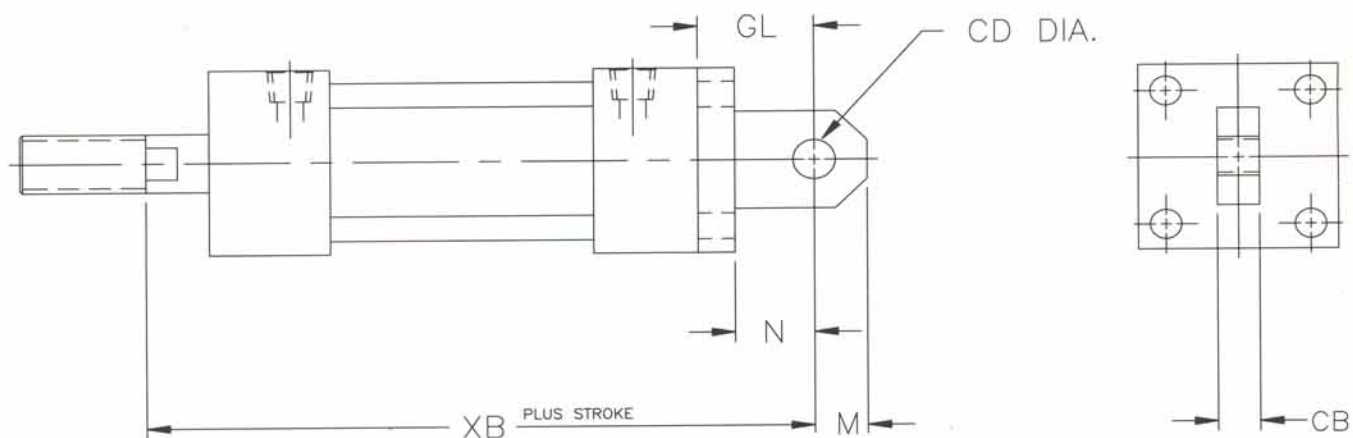
BORE	FB	FH	R	TS	US	W	ZF
1.25	.250	.375	1.281	2.312	2.750	.250	3.906
1.75	.313	.438	1.718	3.031	3.594	.313	4.984
2.00	.313	.438	1.875	3.031	3.625	.313	4.984
2.50	.313	.438	2.203	3.437	4.000	.313	4.984
3.00	.313	.438	2.625	3.875	4.500	.313	4.984
3.50	.375	.625	3.219	5.062	5.937	.375	6.170
4.50	.500	.625	4.031	6.062	7.000	.375	6.170
5.00	.500	.625	4.100	6.562	7.500	.375	6.422
6.00	.500	.750	4.875	7.625	8.500	.125	7.375
8.00	.625	.875	6.440	10.000	11.250	0	7.500

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CLEVIS AND EYE MOUNT



Mount Code P2

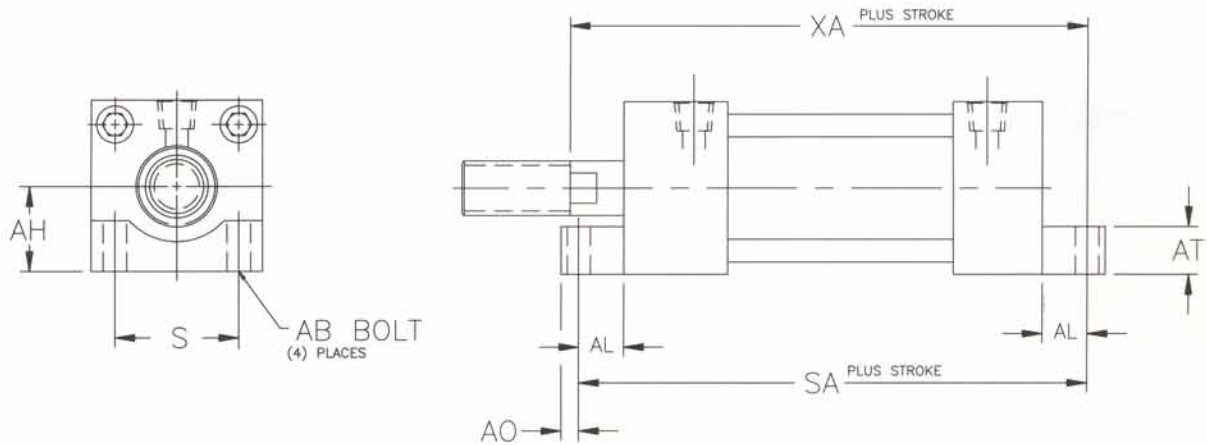


Mount Code P4

DIMENSIONS

BORE	L	M	N	CB	CD	CW	FL	GL	XB	XD
1.25	.750	.438	1.250	.250	.375	.250	1.000	1.500	5.031	4.531
1.75	1.000	.625	1.500	.500	.500	.375	1.375	1.875	6.422	5.922
2.00	1.000	.625	1.500	.500	.500	.375	1.375	1.875	6.422	5.922
2.50	1.125	.813	1.750	.500	.625	.375	1.500	2.125	6.672	6.047
3.00	1.750	.813	1.750	.500	.625	.375	2.125	2.125	6.672	6.672
3.50	1.563	1.000	2.500	.500	.750	.500	2.063	3.000	8.545	7.608
4.50	1.875	1.125	3.000	.500	.750	.500	2.375	3.500	9.045	7.920
5.00	1.875	1.125	3.000	.500	.750	.500	2.375	3.500	9.297	8.172
6.00	1.625	1.125	1.625	1.500	1.000	.750	2.250	2.250	8.875	8.875
8.00	1.625	1.125	1.625	1.500	1.000	.750	2.250	2.250	8.875	8.875

END LUG MOUNT

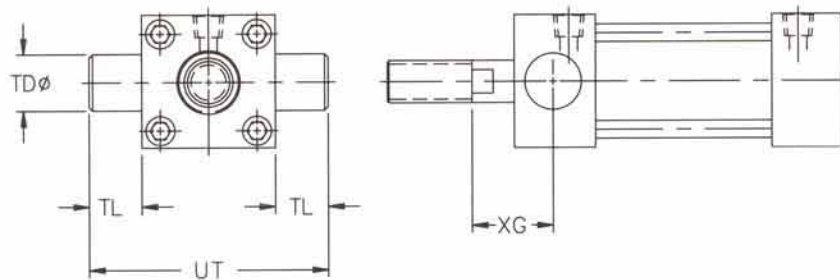


Mount Code S7

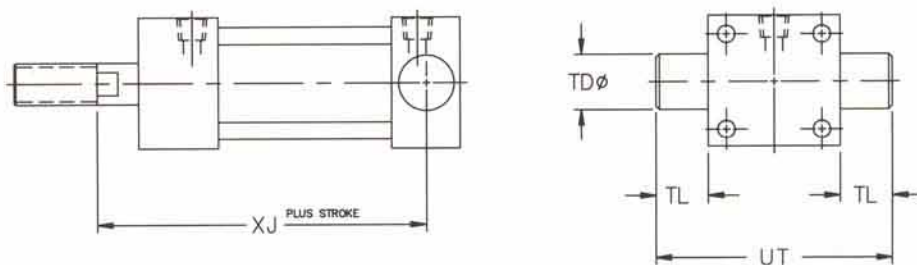
DIMENSIONS								
BORE	AB	AH	AL	AO	AT	S	SA	XA
1.25	1/4	.906	.500	.250	.625	1.281	3.906	4.031
1.75	5/16	1.188	.625	.250	.875	1.781	5.047	5.173
2.00	1/4	1.188	.500	.250	.625	1.875	4.797	5.048
2.50	5/16	1.438	.625	.250	.875	2.203	5.047	5.173
3.00	5/16	1.688	.625	.250	.875	2.625	5.047	5.173
3.50	1/2	2.063	1.000	.375	1.375	3.219	6.545	6.545
4.50	1/2	2.563	1.000	.375	1.375	4.031	6.545	6.545
5.00	1/2	2.750	1.000	.375	1.375	4.100	6.797	6.797
6.00	1/2	3.250	1.000	.375	1.375	4.875	7.750	7.625
8.00	1/2	4.250	1.250	.750	2.000	6.440	8.250	7.875

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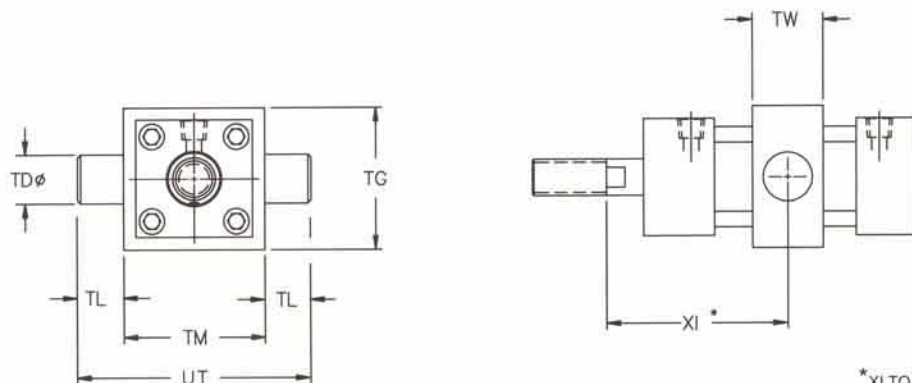
TRUNNION MOUNTS



Mount Code T1



Mount Code T2



Mount Code T4

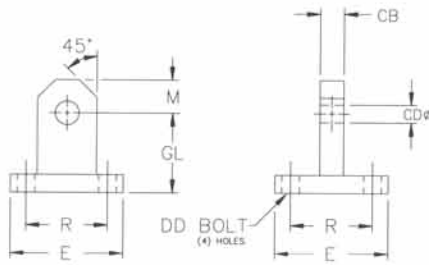
*XI TO BE SPECIFIED BY CUSTOMER

DIMENSIONS

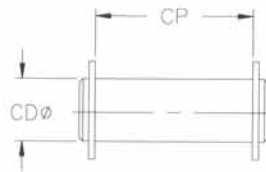
BORE	TD	TG	TL	TM	TW	UT	XG	XJ
1.25	.375	2.375	.438	2.375	1.250	2.688	1.156	3.188
1.75	1.000	2.875	.938	2.875	1.438	4.250	1.438	3.959
2.00	1.000	2.875	.938	2.875	1.438	4.250	1.438	3.959
2.50	1.000	3.375	.938	3.375	1.438	4.750	1.438	3.959
3.00	1.000	4.125	.938	4.000	1.438	5.250	1.438	3.959
3.50	1.000	5.125	.938	5.000	2.000	5.875	1.953	4.967
4.50	1.000	5.500	.938	5.500	2.000	6.875	1.953	4.967
5.00	1.000	6.500	.938	6.500	2.000	7.375	1.953	5.219
6.00	1.375	8.500	1.375	8.500	2.000	9.250	1.830	5.922
8.00	1.375	N/A	1.375	N/A	N/A	11.250	1.830	5.922

ACCESSORIES

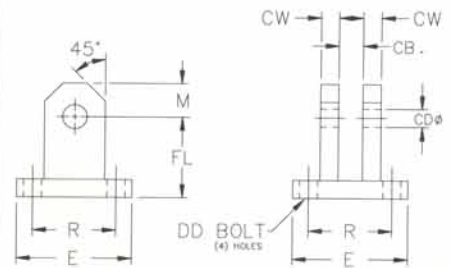
Detachable Eye



Pivot Pin for Detachable Clevis



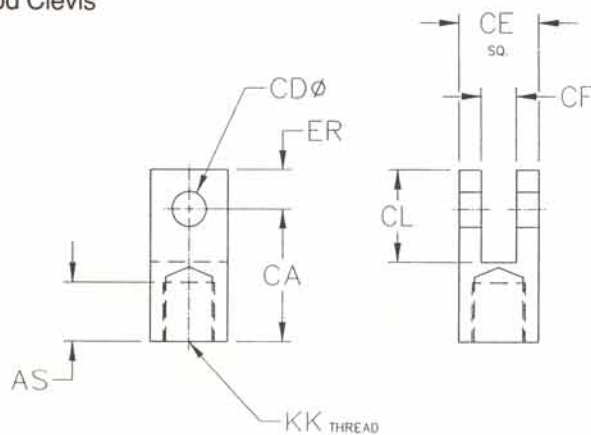
Detachable Clevis



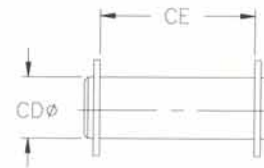
DIMENSIONS													
BORE	CLEVIS	PIN	EYE	CB	CD	CP	CW	DD	E	FL	GL	M	R
1.25	E500-001	E500-401	E500-101	.250	.375	.750	.250	1/4	1.813	1.000	1.500	.438	1.281
1.75	E500-002	E500-402	E500-102	.500	.500	1.250	.375	5/16	2.375	1.375	1.875	.625	1.718
2.00	E500-003	E500-402	E500-103	.500	.500	1.250	.375	5/16	2.375	1.375	1.875	.625	1.875
2.50	E500-004	E500-403	E500-104	.500	.625	1.250	.375	5/16	2.875	1.500	2.125	.813	2.203
3.00	E500-005	E500-403	E500-105	.500	.625	1.250	.375	5/16	3.375	2.125	2.125	.813	2.625
3.50	E500-006	E500-404	E500-106	.500	.750	1.500	.500	3/8	4.000	2.063	3.000	1.000	3.219
4.50	E500-007	E500-404	E500-107	.500	.750	1.500	.500	1/2	5.000	2.375	3.500	1.125	4.031
5.00	E500-008	E500-404	E500-108	.500	.750	1.500	.500	1/2	5.500	2.375	3.500	1.125	4.100
6.00	E500-009	E500-405	E500-109	1.500	1.000	3.000	.750	1/2	6.500	2.250	2.250	1.125	4.875
8.00	E500-010	E500-405	E500-110	1.500	1.000	3.000	.750	5/8	8.500	2.250	2.250	1.125	6.440

E SERIES

Rod Clevis



Pivot Pin for Rod Clevis



DIMENSIONS										
BORE	ROD CLEVIS	PIN	AS	CA	CD	CE	CF	CL	ER	KK
1 1/4	E500-301	E500-401	.875	1.344	.375	.750	.250	.906	.375	3/8-16
1 3/4, 2	E500-302	E500-406	1.000	1.875	.500	1.125	.500	1.313	.563	3/4-10
2 1/2, 3	E500-303	E500-407	1.000	2.063	.625	1.125	.500	1.500	.563	3/4-10
3 1/2, 4 1/2, 5	E500-304	E500-404	1.000	2.313	.750	1.500	.500	1.875	.750	1-8
6, 8	E500-305	E500-408	1.625	3.000	1.000	2.000	1.000	2.000	1.000	1 1/4-12

NUMATICS ACTUATOR®

HOW TO ORDER

P2 E L - 04 A 1 C - C AA 0 B

DESIGN CODE

CYLINDER MOUNTING

F1 = Front Flange
F2 = Rear Flange
P2 = Detachable Clevis
P4 = Detachable Eye
P7 = P2 and S4 Mount Combination
S4 = Bottom Tapped
S7 = End Lug
T1 = Head Trunnion
T2 = Cap Trunnion
T4 = Mid Trunnion Fixed
X0 = Basic - No Mount

CYLINDER TYPE

E = Type "E" Cylinder

CYLINDER BORE

F = 1.25 Q = 3.50
I = 1.75 S = 4.50
L = 2.00 T = 5.00
M = 2.50 U = 6.00
N = 3.00 W = 8.00

FULL INCHES OF STROKE

00 = 0" Stroke
01 = 1" Stroke
02 = 2" Stroke
03 = 3" Stroke

99 = 99" Stroke

FRACTIONAL INCHES OF STROKE

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

MAGNETIC PISTON

0 = No Magnet
2 = Reed or Proximity Switch
3 = Hall Effect
Order switches separately

OPTIONS

AA = No Options
BA = Bumpers, Both Ends
KA = Stroke Adjuster
DA = Double Rod End
MA = Metallic Rod Scraper
NA = Nickel Plated Cylinder
Stainless Steel Rods & Tie Rods
SA = Stainless Steel Rod
SS = Stainless Steel Rod & Tie Rods
ST = Stainless Steel Tie Rods
VA = Viton Seals
1A = Rod Extension
2A = Thread Extension
3A = Studded Rod End
4A = Stop Tube

CUSHIONS

POSITION	1	2	3	4
NO CUSHIONS	A			
HEAD & CAP	B	C	D	E
HEAD ONLY	F	G	H	J
CAP ONLY	K	L	M	N

PORTS

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

ROD END CODES

1 = Style #1 Rod Thread
2 = Style #2 Rod Thread
3 = Style #3 Rod Thread

For rod end styles and dimensions, see page 4.

CYLINDER ORIENTATION

