

2MNR Series – 1-1/2" to 4" Bore Size

B Tie Rod Pneumatic Cylinders	
	4MA Series
	4MAP Series
	ACVB Option
	LPSP Option
	P1D Series
	P1F Series
	2MNR Series

MULTIPLE PISTON RODS

Three hard-chrome plated and polished piston rods provide stability and strength for higher bearing support. Precision machining provides precise fit for antirotation.

RETAINER

Retainer is easily removed for access to rod gland assemblies.

CHECK SEAL CUSHION

Molded urethane cushion combines the sealing capabilities of a lip seal for effective cushioning with check valve action for quick stroke reversal. "Floating" cushions assure cushion repeatability and long life.

ROUNDED LIP PISTON SEALS

Carboxylated nitrile w/PTFE seals glide over lubricant film instead of scraping it off.

TOOLING PLATE

Cold rolled carbon steel tooling plate with corrosion-resistant finish is easily removable for maintenance.

CUSHION NEEDLE VALVES

Adjustable captive design makes precise adjustment quick and easy. Can be adjusted while cylinder is under pressure.

CYLINDER BODY

Lightweight anodized aluminum body is wear resistant. The smooth extruded design eliminates areas for contamination.

PISTON AND WEAR BAND

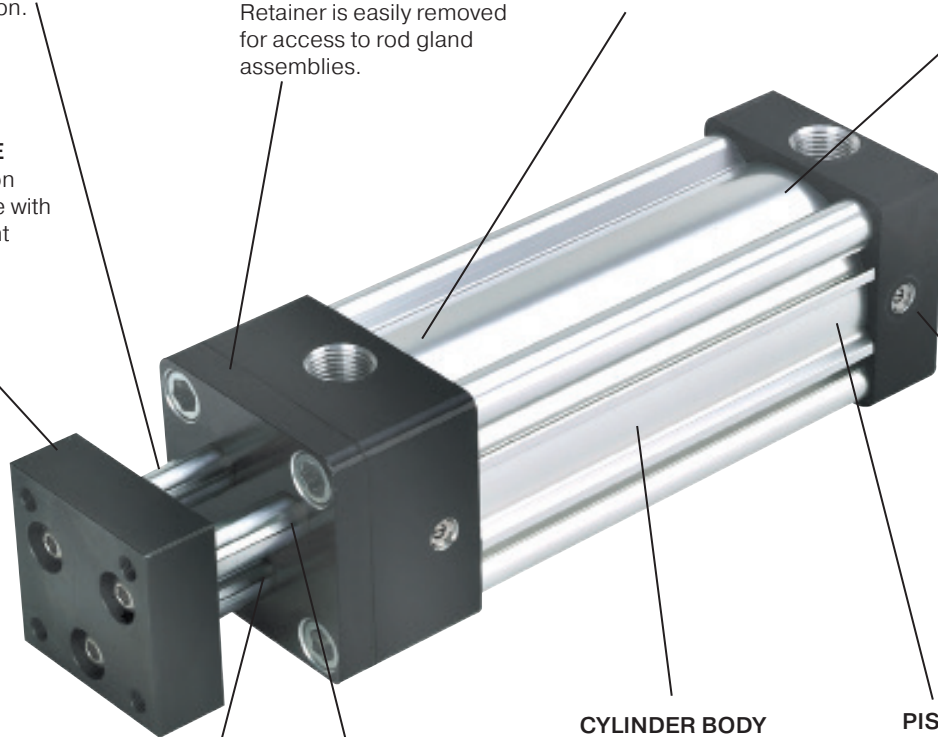
Aluminum lightweight piston with nylon wear band (not shown) eliminates metal-to-metal contact to extend cylinder life. Formed, shaped wear band makes installation and repair easier than regular wear strip.

ROD SEAL/WIPER

Combination rod seal and rod wiper, available in either nitrile or fluorocarbon, is inserted into the bearing, creating a rod gland. Completely self-compensating for zero leakage at all pressures.

ROD BEARING

Permanently lubricated sintered bronze bearing provides excellent performance in nonlube applications. Bearings are easily removed for service.



- NFPA Interchangeable
- Bore sizes: 1-1/2 to 4 inches
- Single end or double end designs
- Mounting styles: 9 NFPA standard
- Mounts plus 1 base bar style
- Non-rotating, multi-rod design
- Strokes: available in any practical stroke length
- Cushions: optional at either end or both ends of stroke

Operating pressure:	250 PSIG (17 bar)
maximum air service	
Temperature range –	
Standard seals	-10°F to 165°F (-23°C to 73°C)
Filtration requirements:	40 micron, dry filtered air

Ordering Information

[illegible]

Cylinder mounting styles

Mounting style code	NFPA style	Mounting description
T	MX0	No mount (basic)
TC	MX2	Tie rods extended cap end
F	MS4	Side tapped
BB †	MP1	Cap Fixed Clevis
BC †	MP2	Cap Detachable Clevis
BE †	MP4	Detachable Pivot Eye
H †	MF2	Cap Rectangular Flange
J †	MF1	Head Rectangular Flange
TE	MX5	Sleeve Nut (Cap End Only)
NB	Non NFPA Style	Base Bar (2" bore only)

† Mounting styles with asterisks can be ordered assembled to the cylinder or as a basic (T) no-mount cylinder.

How to Order Parker 2MNR Series Cylinders with Sensors:

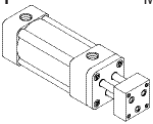
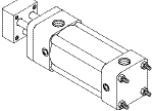
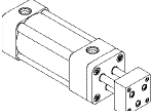
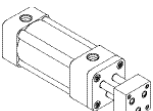
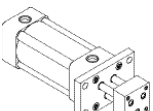
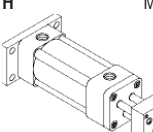
Sensors are not mounted to the cylinder prior to shipment.

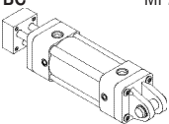
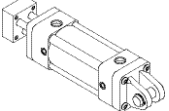
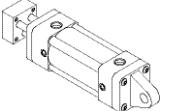
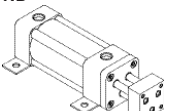
When ordering a cylinder to accommodate a sensor:

1. Derive a proper model number as shown in the table above.
2. Place a "3" in the piston column of the model number.
3. Order appropriate brackets and sensor as separate line items.
See Section L for specifications and part numbers.

Example: For cylinder prepared for sensor
2.00CJ2MNR3UT9AC 6.000

2MNR Mounting Styles

Mounting Style	NFPA Mounting	Description	Bore Size
T 	MX0	Basic Mount	1-1/2 - 4
TC 	MX2	Tie Rod Extended Cap End	1-1/2 - 4
TE 	MX5	Sleeve Nut (Cap end only)	1-1/2 - 4
F 	MS4	Side Tap)	1-1/2 - 4
J 	MF1	Head Rectangular Flange	1-1/2 - 4
H 	MF2	Cap Rectangular Flange	1-1/2 - 4

Mounting Style	NFPA Mounting	Description	Bore Size
BC 	MP2	Cap Detachable Clevis	1-1/2 - 4
BB 	MP1	Cap Fixed Clevis	1-1/2 - 4
BE 	MP4	Detachable Pivot Eye	1-1/2 - 4
NB 		Base Bar	2

B

Tie Rod Pneumatic
Cylinders

4MA
Series

4MAP
Series

ACVB
Option

LPSF
Option

P1D
Series

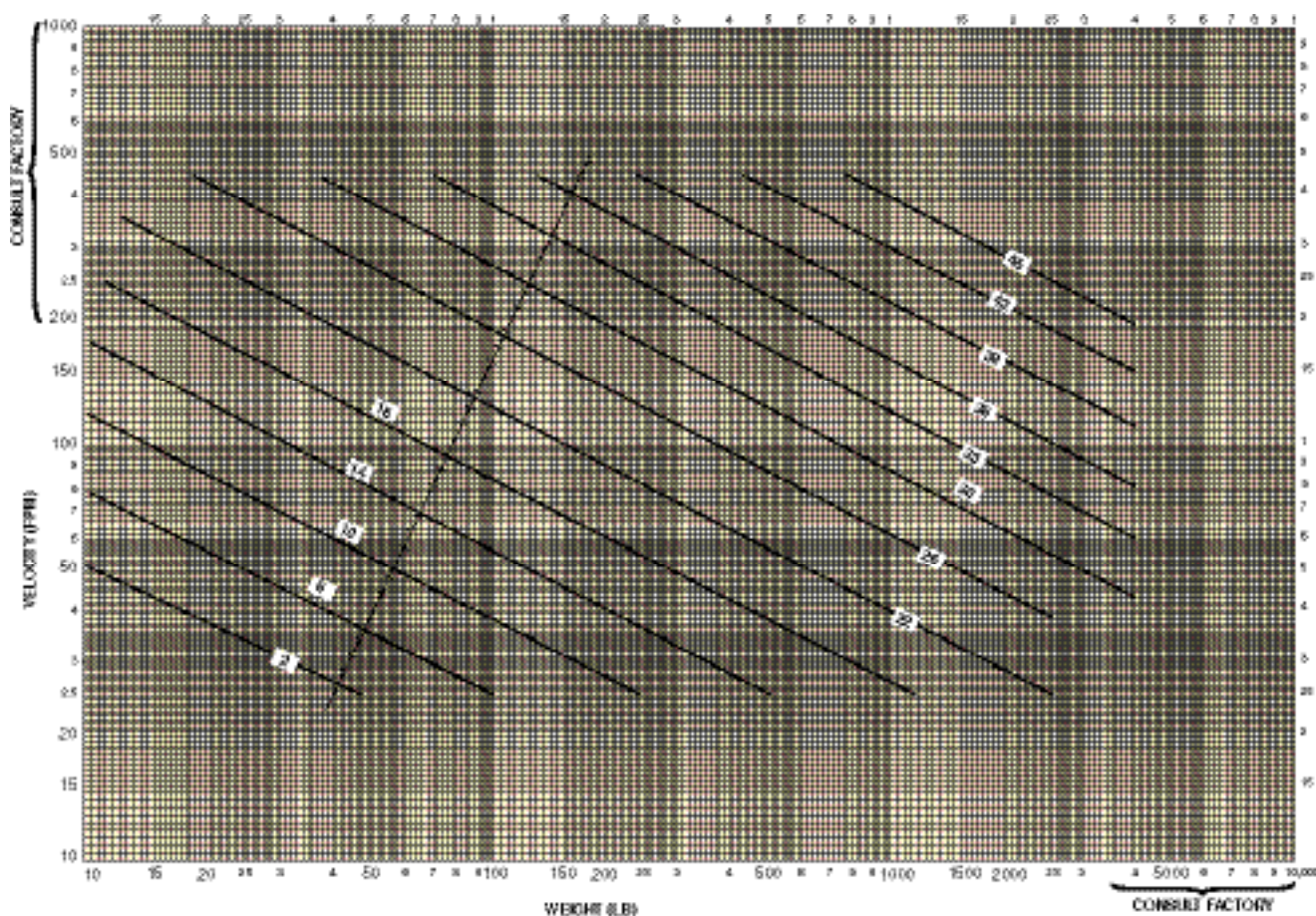
P1F
Series

2MNR
Series

Air Cylinder Cushion Ratings

Single Ended Cylinders

Bore Size	Cylinder End	Rating With No Back Pressure	Rating With Back Pressure
1-1/2"	Cap	12	17
	Rod	6	11
2"	Cap	14	20
	Rod	10	14
2-1/2"	Cap	17	23
	Rod	11	15
3-1/4"	Cap	21	26
	Rod	15	20
4"	Cap	23	28
	Rod	17	23



B

Tie Rod Pneumatic
Cylinders

4MA
Series

4MAP
Series

ACVB
Option

LPSF
Option

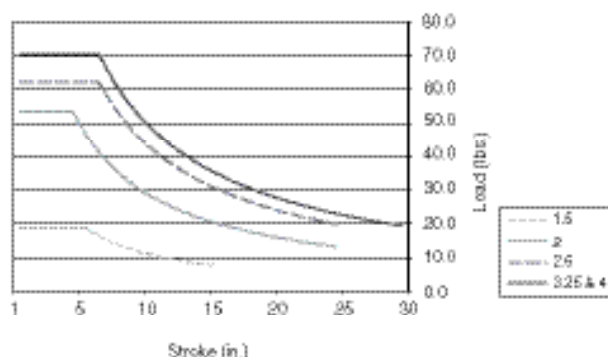
P1D
Series

P1F
Series

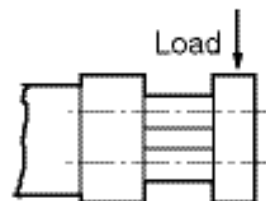
2MNR
Series

Loading Information

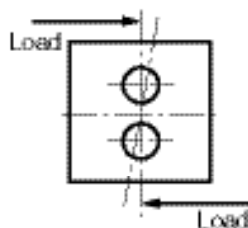
Side Load Versus Stroke



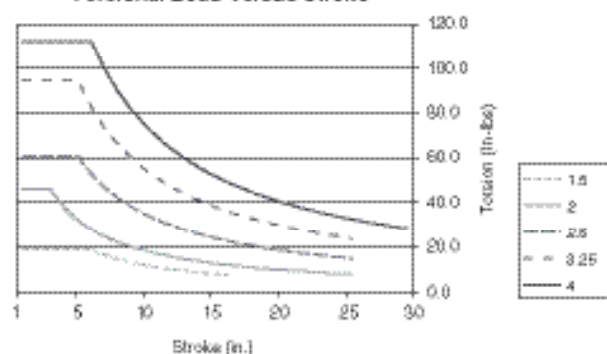
Side Load



Torsional Load



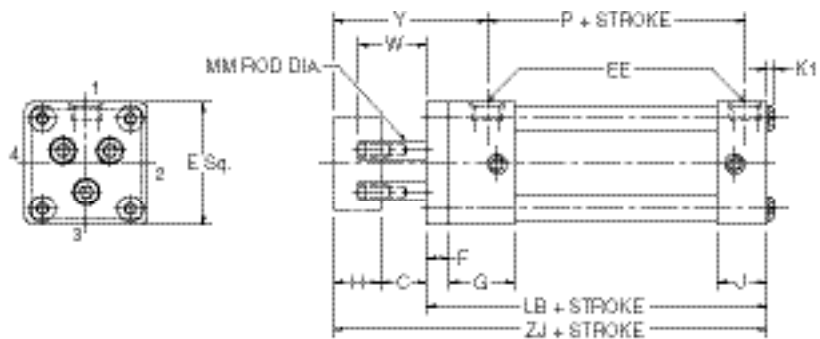
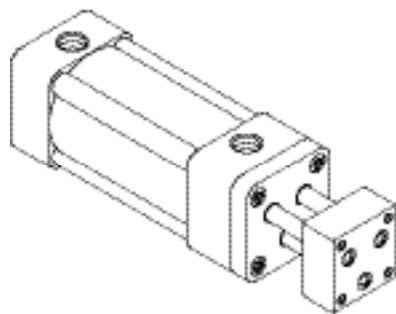
Torsional Load Versus Stroke



Theoretical Extend and Retract Forces in Pounds

Bore Size	Movement	Effective Area (in ²)	Pressure (PSI)								Cu. ft. of Displacement Per Inch of Stroke
			20	40	60	80	100	150	200	250	
1-1/2"	Extend	1.767	35	71	106	141	177	265	353	442	0.00102
	Retract	1.537	31	61	92	123	154	231	307	384	0.00089
2"	Extend	3.142	63	126	188	251	314	471	628	785	0.00182
	Retract	2.553	51	102	153	204	255	383	511	638	0.00148
2-1/2"	Extend	4.909	98	196	295	393	491	736	982	1227	0.00284
	Retract	3.988	80	160	239	319	399	598	798	997	0.00231
3-1/4"	Extend	8.296	166	332	498	664	830	1244	1659	2074	0.00480
	Retract	7.375	148	295	443	590	738	1106	1475	1844	0.00427
4"	Extend	12.566	251	503	754	1005	1257	1885	2513	3142	0.00727
	Retract	11.646	233	466	699	932	1165	1747	2329	2911	0.00674

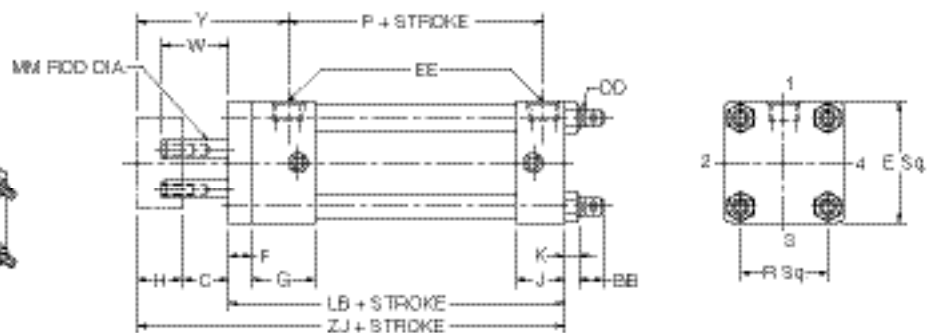
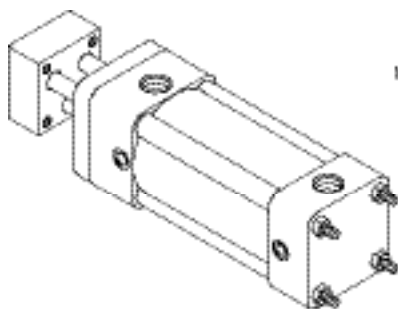
Basic Single End – Style T (NFPA MX0)



Style T and Dimensions

Bore	Rod Dia. mm	C	E	EE (NPTF)	F	G	H	J	K1	W	Y	Add Stroke		
												LB	P	ZJ
1-1/2	8mm	3/4	2	1/4	3/8	1-7/16	3/4	15/16	1/8	1.10	2-3/4	4	2-5/16	5-1/2
2	12mm	3/4	2-1/2	1/4	3/8	1-7/16	3/4	15/16	5/32	1.10	2-3/4	4	2-5/16	5-1/2
2-1/2	16mm	3/4	3	3/8	3/8	1-7/16	1	15/16	5/32	1.35	3-1/16	4-1/8	2-3/8	5-7/8
3-1/4	16mm	3/4	3-3/4	1/2	5/8	1-11/16	1	1-3/16	3/16	1.10	3-7/16	4-7/8	2-5/8	6-5/8
4	16mm	3/4	4-1/2	1/2	5/8	1-11/16	1	1-3/16	3/16	1.10	3-7/16	4-7/8	2-5/8	6-5/8

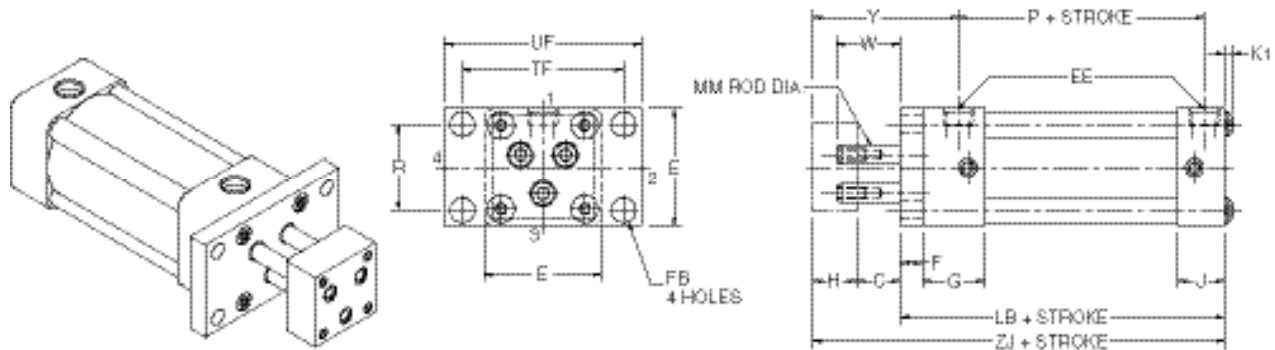
Tie Rods Extend Cap End – Style TC



Style TC and Dimensions

Bore	Rod Dia. mm	BB	C	DD	E	EE (NPTF)	F	G	H	J	K	R	W	Y	Add Stroke		
															LB	P	ZJ
1-1/2	8mm	1	3/4	1/4-28	2	1/4	3/8	1-7/16	3/4	15-16	1/4	1.43	1.10	2-3/4	4	2-5/16	5-1/2
2	12mm	1-1/8	3/4	5/16-24	2-1/2	1/4	3/8	1-7/16	3/4	15-16	5/16	1.84	1.10	2-3/4	4	2-5/16	5-1/2
2-1/2	16mm	1-1/8	3/4	5/16-24	3	3/8	3/8	1-7/16	1	15-16	5/16	2.19	1.35	3-1/16	4-1/8	2-3/8	5-7/8
3-1/4	16mm	1-3/8	3/4	3/8-24	3-3/4	1/2	5/8	1-11/16	1	1-3/16	3/8	2.76	1.10	3-7/16	4-7/8	2-5/8	6-5/8
4	16mm	1-3/8	3/4	3/8-24	4-1/2	1/2	5/8	1-11/16	1	1-3/16	3/8	3.32	1.10	3-7/16	4-7/8	2-5/8	6-5/8

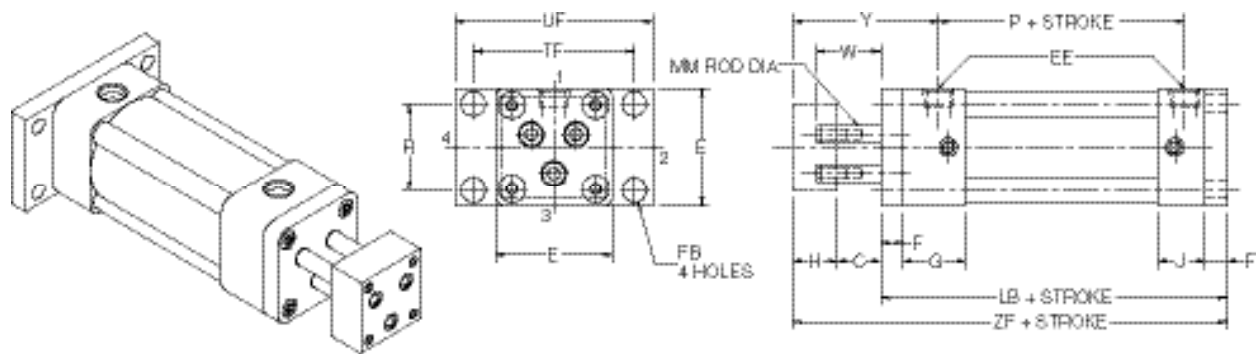
Head Rectangular Flange – Style J (NFPA MF1)



Style J and Dimensions

Bore	Rod Dia. mm	C	E	EE (NPTF)	F	FB	G	H	J	K1	R	TF	UF	W	Y	Add Stroke		
																LB	P	ZJ
1-1/2	8mm	3/4	2	1/4	3/8	5/16	1-7/16	3/4	15/16	1/8	1.43	2-3/4	3-3/8	1.10	2-3/4	4	2-5/16	5-1/2
2	12mm	3/4	2-1/2	1/4	3/8	3/8	1-7/16	3/4	15/16	5/32	1.84	3-3/8	4-1/8	1.10	2-3/4	4	2-5/16	5-1/2
2-1/2	16mm	3/4	3	3/8	3/8	3/8	1-7/16	1	15/16	5/32	2.19	3-7/8	4-5/8	1.35	3-1/16	4-1/8	2-3/8	5-7/8
3-1/4	16mm	3/4	3-3/4	1/2	5/8	7/16	1-11/16	1	1-3/16	3/16	2.76	4-11/16	5-1/2	1.10	3-7/16	4-7/8	2-5/8	6-5/8
4	16mm	3/4	4-1/2	1/2	5/8	7/16	1-11/16	1	1-3/16	3/16	3.32	5-7/16	6-1/4	1.10	3-7/16	4-7/8	2-5/8	6-5/8

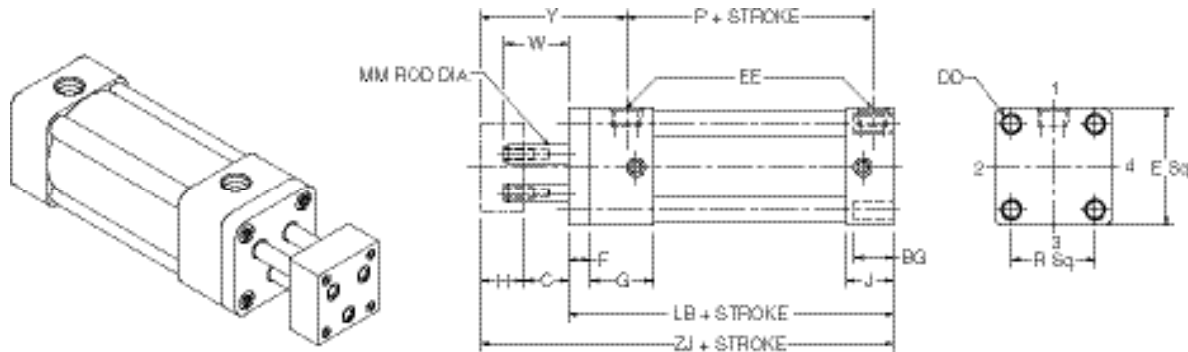
Cap Rectangular Flange – Style H (NFPA MF2)



Style H and Dimensions

Bore	Rod Dia. mm	C	E	EE (NPTF)	F	FB	G	H	J	R	TF	UF	W	Y	Add Stroke		
															LB	P	ZF
1-1/2	8mm	3/4	2	1/4	3/8	5/16	1-7/16	3/4	15-16	1.43	2-3/4	3-3/8	1.10	2-3/4	4-3/8	2-5/16	5-7/8
2	12mm	3/4	2-1/2	1/4	3/8	3/8	1-7/16	3/4	15-16	1.84	3-3/8	4-1/8	1.10	2-3/4	4-3/8	2-5/16	5-7/8
2-1/2	16mm	3/4	3	3/8	3/8	3/8	1-7/16	1	15-16	2.19	3-7/8	4-5/8	1.35	3-1/16	4-1/2	2-3/8	6-1-4
3-1/4	16mm	3/4	3-3/4	1/2	5/8	7/16	1-11/16	1	1-3/16	2.76	4-11/16	5-1/2	1.10	3-7/16	5-1/2	2-5/8	7-1-4
4	16mm	3/4	4-1/2	1/2	5/8	7/16	1-11/16	1	1-3/16	3.32	5-7/16	6-1/4	1.10	3-7/16	5-1/2	2-5/8	7-1-4

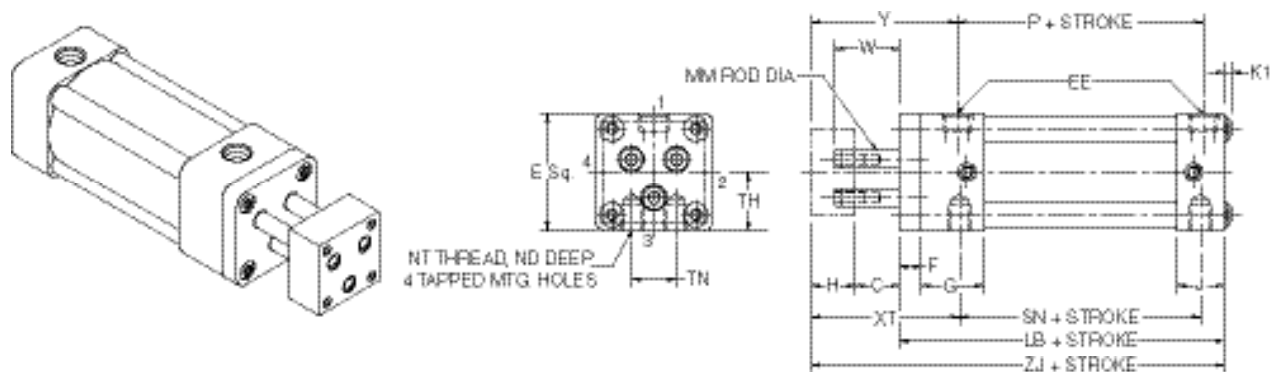
Sleeve Nut (Cap End Only) – Style TE (NFPA MX5)



Style TE and Dimensions

Bore	Rod Dia. mm	BG	C	DD	E	EE (NPTF)	F	G	H	J	R	W	Y	Add Stroke			
														LB	P	ZF	ZJ
1-1/2	8mm	0.45	3/4	1/4-28	2	1/4	3/8	1-7/16	3/4	15/16	1.43	1.10	2-3/4	4	2-5/16	5.10	5-1/2
2	12mm	0.48	3/4	5/16-24	2-1/2	1/4	3/8	1-7/16	3/4	15/16	1.84	1.10	2-3/4	4	2-5/16	5.10	5-1/2
2-1/2	16mm	0.48	3/4	5/16-24	3	3/8	3/8	1-7/16	1	15/16	2.19	1.35	3-1/16	4-1/8	2-3/8	5.35	5-7/8
3-1/4	16mm	0.50	3/4	3/8-24	3-3/4	1/2	5/8	1-11/16	1	1-3/16	2.76	1.10	3-7/16	4-7/8	2-5/8	5.23	6-5/8
4	16mm	0.50	3/4	3/8-24	4-1/2	1/2	5/8	1-11/16	1	1-3/16	3.32	1.10	3-7/16	4-7/8	2-5/8	5.98	6-5/8

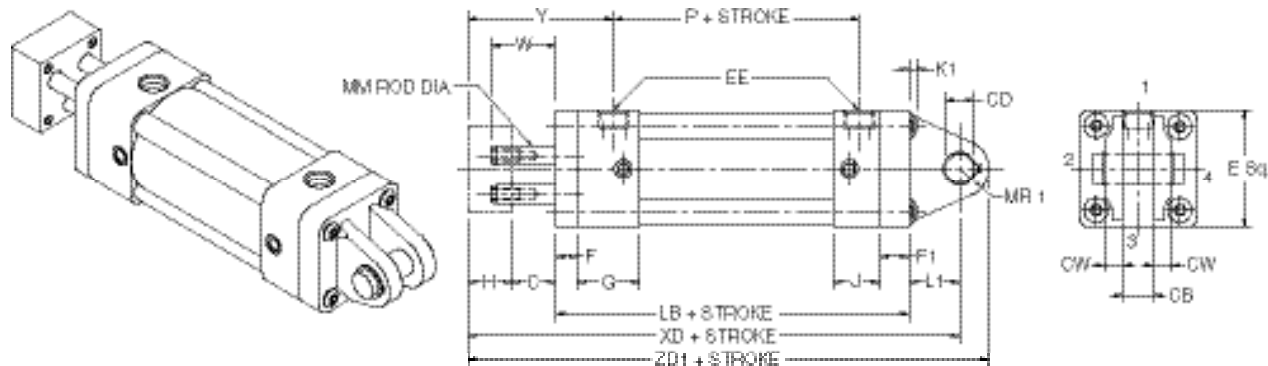
Side Tapped Mount – Style F (NFPA MS4)



Style TC and Dimensions

Bore	Rod Dia. mm	C	E	EE (NPTF)	F	G	H	J	K1	ND	NT	TH ±0.003	TN	W	XT	Y	Add Stroke			
																	LB	P	SN	ZJ
1-1/2	8mm	3/4	2	1/4	3/8	1-7/16	3/4	15-16	1/8	3/8	1/4-20	0.993	5/8	1.10	2-13/16	2-3/4	4	2-5/16	2-1/4	5-1/2
2	12mm	3/4	2-1/2	1/4	3/8	1-7/16	3/4	15-16	5/32	7/16	5/16-18	1.243	7/8	1.10	2-13/16	2-3/4	4	2-5/16	2-1/4	5-1/2
2-1/2	16mm	3/4	3	3/8	3/8	1-7/16	1	15-16	5/32	5/8	3/8-16	1.493	1-1/4	1.35	3-1/16	3-1/16	4-1/8	2-3/8	2-3/8	5-7/8
3-1/4	16mm	3/4	3-3/4	1/2	5/8	1-11/16	1	1-3/16	3/16	3/4	1/2-13	1.868	1-1/2	1.10	3-7/16	3-7/16	4-7/8	2-5/8	2-5/8	6-5/8
4	16mm	3/4	4-1/2	1/2	5/8	1-11/16	1	1-3/16	3/16	3/4	1/2-13	2.243	2-1/16	1.10	3-7/16	3-7/16	4-7/8	2-5/8	3-1/4	6-5/8

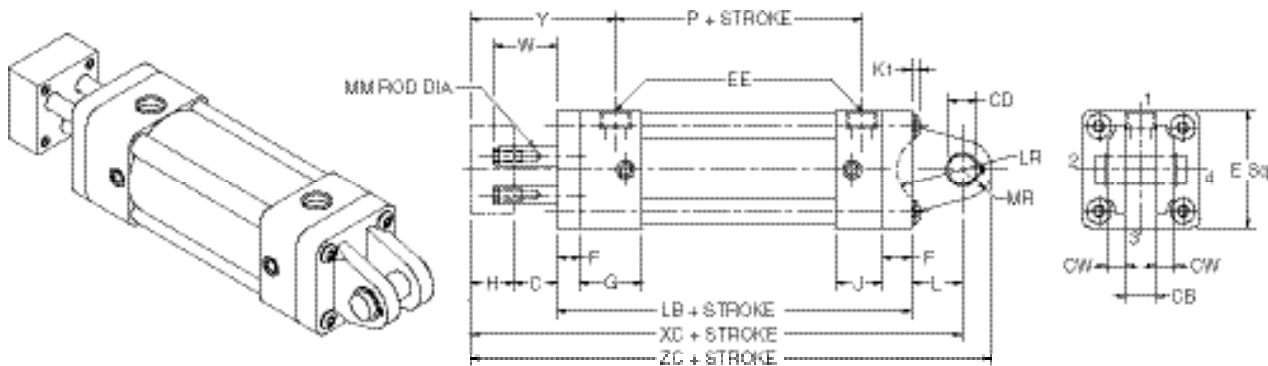
Cap Detachable Clevis – Style BC (NFPA MP2)



Style BC and Dimensions

Bore	Rod Dia. mm	C	CB	CD + .000 - .002	CW	E	EE (NPTF)	F	F1	G	H	J	K1	L1	MR1	W	Y	Add Stroke			
																		LB	P	XD	ZD1
1-1/2	8mm	3/4	3/4	0.501	1/2	2	1/4	3/8	3/8	1-7/16	3/4	15/16	1/8	3/4	1/2	1.10	2-3/4	4-3/8	2-5/16	6-5/8	7-1/8
2	12mm	3/4	3/4	0.501	1/2	2-1/2	1/4	3/8	3/8	1-7/16	3/4	15/16	5/32	3/4	1/2	1.10	2-3/4	4-3/8	2-5/16	6-5/8	7-1/8
2-1/2	16mm	3/4	3/4	0.501	1/2	3	3/8	3/8	3/8	1-7/16	1	15/16	5/32	3/4	1/2	1.35	3-1/16	4-1/2	2-3/8	7	7-1/2
3-1/4	16mm	3/4	1-1/4	0.751	5/8	3-3/4	1/2	5/8	5/8	1-11/16	1	1-3/16	3/16	1-1/4	3/4	1.10	3-7/16	5-1/2	2-5/8	8-1/2	9-1/4
4	16mm	3/4	1-1/4	0.751	5/8	4-1/2	1/2	5/8	5/8	1-11/16	1	1-3/16	3/16	1-1/4	3/4	1.10	3-7/16	5-1/2	2-5/8	8-1/2	9-1/4

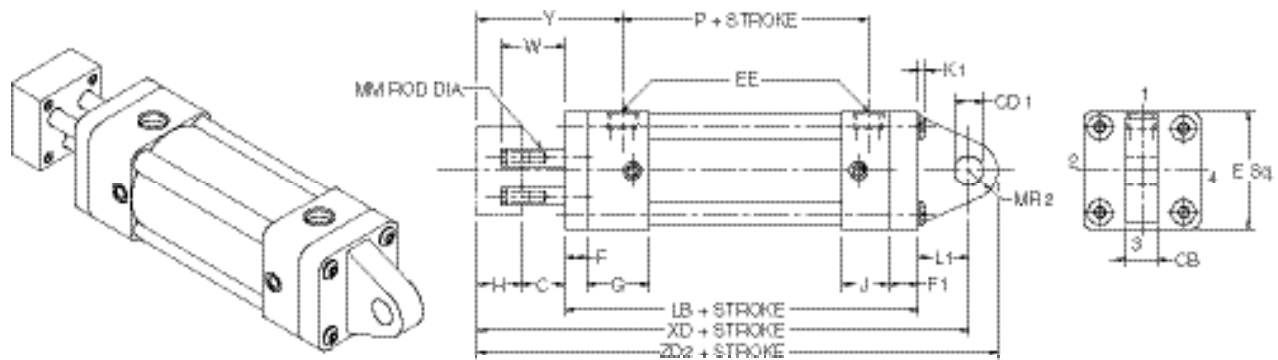
Cap Fixed Clevis – Style BB (NFPA MP1)



Style BB and Dimensions

Bore	Rod Dia. mm	C	CB	CD + .000 - .002	CW	E	EE (NPTF)	F	G	H	J	L	LR	MR	W	Y	Add Stroke			
																	LB	P	XC	ZC
1-1/2	8mm	3/4	3/4	0.501	1/2	2	1/4	3/8	1-7/16	3/4	15-16	15/16	3/4	5/8	1.10	2-3/4	4-3/8	2-5/16	6-1/4	6-7/8
2	12mm	3/4	3/4	0.501	1/2	2-1/2	1/4	3/8	1-7/16	3/4	15-16	15/16	3/4	5/8	1.10	2-3/4	4-3/8	2-5/16	6-1/4	6-7/8
2-1/2	16mm	3/4	3/4	0.501	1/2	3	3/8	3/8	1-7/16	1	15-16	15/16	3/4	5/8	1.35	3-1/16	4-1/2	2-3/8	6-5/8	7-1/4
3-1/4	16mm	3/4	1-1/4	0.751	5/8	3-3/4	1/2	5/8	1-11/16	1	1-3/16	1-3/16	1	15/16	1.10	3-7/16	5-1/2	2-5/8	7-7/8	8-13/16
4	16mm	3/4	1-1/4	0.751	5/8	4-1/2	1/2	5/8	1-11/16	1	1-3/16	1-3/16	1	15/16	1.10	3-7/16	5-1/2	2-5/8	7-7/8	8-13-16

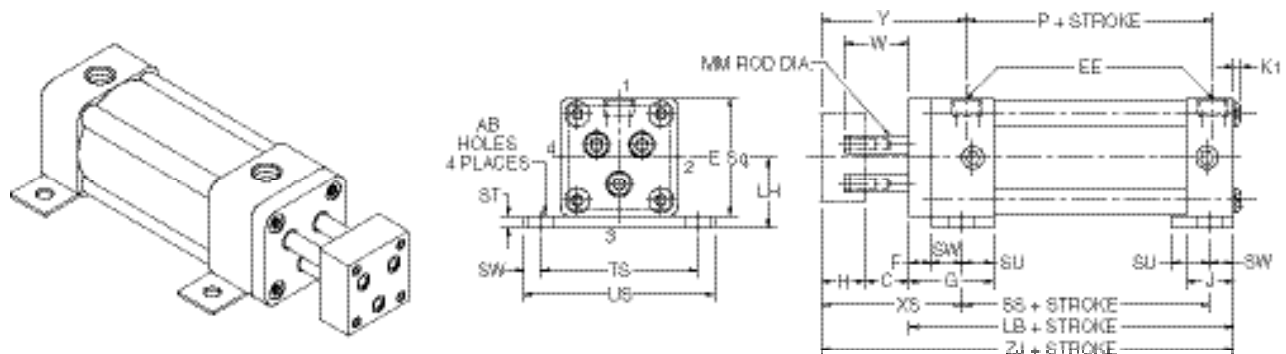
Detachable Pivot Eye – Style BE (NFPA MP4)



Style BE and Dimensions

Bore	Rod Dia. mm	C	CB	CD + .000 - .002	E	EE (NPTF)	F	F1	G	H	J	K1	L1	MR2	W	Y	Add Stroke			
																	LB	P	XD	ZD2
1-1/2	8mm	3/4	3/4	0.500	2	1/4	3/8	3/8	1-7/16	3/4	15/16	1/8	3/4	5/8	1.10	2-3/4	4-3/8	2-5/16	6-5/8	7-1/4
2	12mm	3/4	3/4	0.500	2-1/2	1/4	3/8	3/8	1-7/16	3/4	15/16	5/32	3/4	5/8	1.10	2-3/4	4-3/8	2-5/16	6-5/8	7-1/4
2-1/2	16mm	3/4	3/4	0.500	3	3/8	3/8	3/8	1-7/16	1	15/16	5/32	3/4	11/16	1.35	3-1/16	4-1/2	2-3/8	7	7-11/16
3-1/4	16mm	3/4	1-1/4	0.750	3-3/4	1/2	5/8	5/8	1-11/16	1	1-3/16	3/16	1-1/4	7/8	1.10	3-7/16	5-1/2	2-5/8	8-1/2	9-3/8
4	16mm	3/4	1-1/4	0.750	4-1/2	1/2	5/8	5/8	1-11/16	1	1-3/16	3/16	1-1/4	7/8	1.10	3-7/16	5-1/2	2-5/8	8-1/2	9-3/8

Base Bar – Style NB



Only Available with 2" bore

Style NB and Dimensions

Bore	Rod Dia. mm	AB	C	E	EE (NPTF)	F	G	H	J	K1	LH ± .000	ST	SU	SW	TS	US	W	XS	Y	Add Stroke			
																				LB	P	SS	ZJ
2	12mm	7/16	3/4	2-1/2	1/4	3/8	1-1/2	3/4	15-16	5/32	15/16	1/4	1-1/8	3/8	3-1/4	4	1.10	2-3/16	2-3/4	4	2-5/16	2-16/16	5-1/2

B

Tie Rod Pneumatic
Cylinders

4MA
Series

4MAP
Series

ACVB
Option

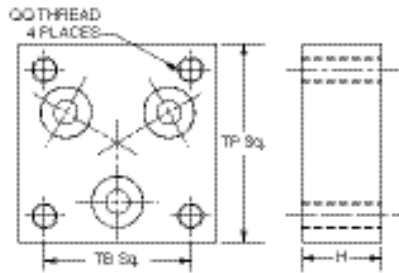
LPSF
Option

P1D
Series

P1F
Series

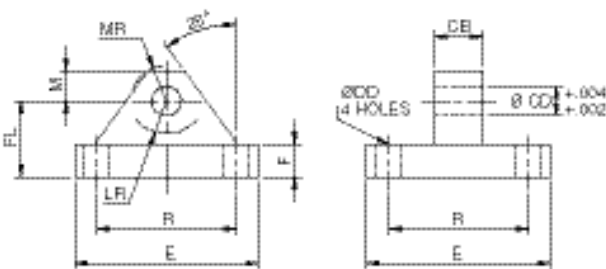
2MNR
Series

Standard Tooling Plate – Style T



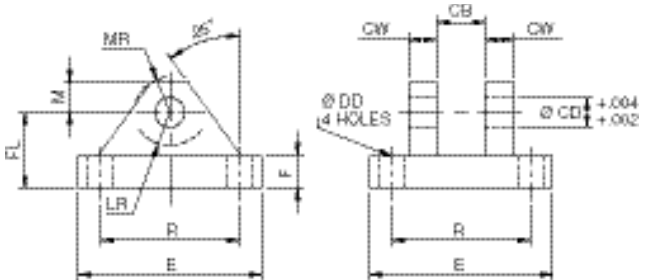
Bore	H	QQ	TB	TP
1-1/2	3/4	10-32	1.12	1-1/2
2	3/4	1/4-28	1.43	2
2-1/2	1	5/16-24	1.84	2-1/2
3-1/4	1	3/8-24	2.19	3-1/4
4	1	3/8-24	2.76	4

Mounting Plate & Eye Bracket



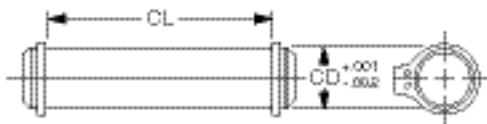
Bore Size	1-1/2, 2, 2-1/2	3-1/4, 4
Part Number	1458060050	1458060075
CB	3/4	1-1/4
CD	1/2	3/4
DD	13/32	17/32
E	2-1/2	3-1/2
F	3/8	5/8
FL	1-1/8	1-7/8
LR	3/4	1-1/4
M	1/2	3/4
MR	9/16	7/8
R	1.63	2.55

Clevis Bracket



Bore Size	1-1/2, 2, 2-1/2	3-1/4, 4
Part Number	1458050050	1458050075
CB	3/4	1-1/4
CD	1/2	3/4
CW	1/2	5/8
DD	13/32	17/32
E	3-1/2	5
F	1/2	5/8
FL	1-1/2	1-7/8
LR	3/4	1-3/16
M	1/2	3/4
MR	5/8	2/32
R	2.55	3.82

Pivot Pin



Part Number	0683680000	068369000
CD	1/2	3/4
CL	1-7/8	2-5/8



Bore Size	1-1/2	2	2-1/2	3-1/4	4
Angle A *	52	43	29	50	49

* Angle of rotation specified is for BB style mount only.

Seal Kits

	Part Number
Bore Size	Standard Seal Kit
1-1/2	SG2MNR1501
2	SG2MNR2001
2-1/2	SG2MNR2501
3-1/4	SG2MNR3201
4	SG2MNR4001

B
Tie Rod Pneumatic Cylinders
4MA Series
4MAP Series
ACVB Option
LPSF Option
P1D Series
P1F Series
2MNR Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com