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For installation, maintenance and replacement parts information, go to www.parker.com/actsafety.

Features

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 anti-rotation.

Retainer 1

Retainer is easily removed for access to rod gland assemblies.

Check Seal Cushion

Molded urethane cushion combines the sealing capabilities of a lipseal 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.

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 2

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

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.

Cushion Needle Valves

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

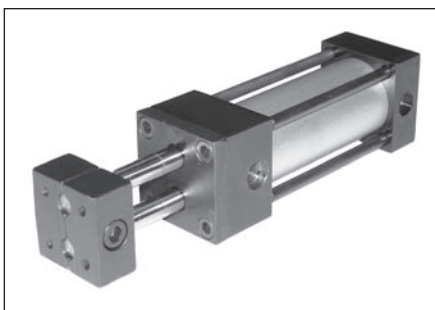
Cylinder Body 3

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

Caustic washdown version available.



1 1/8" Bore



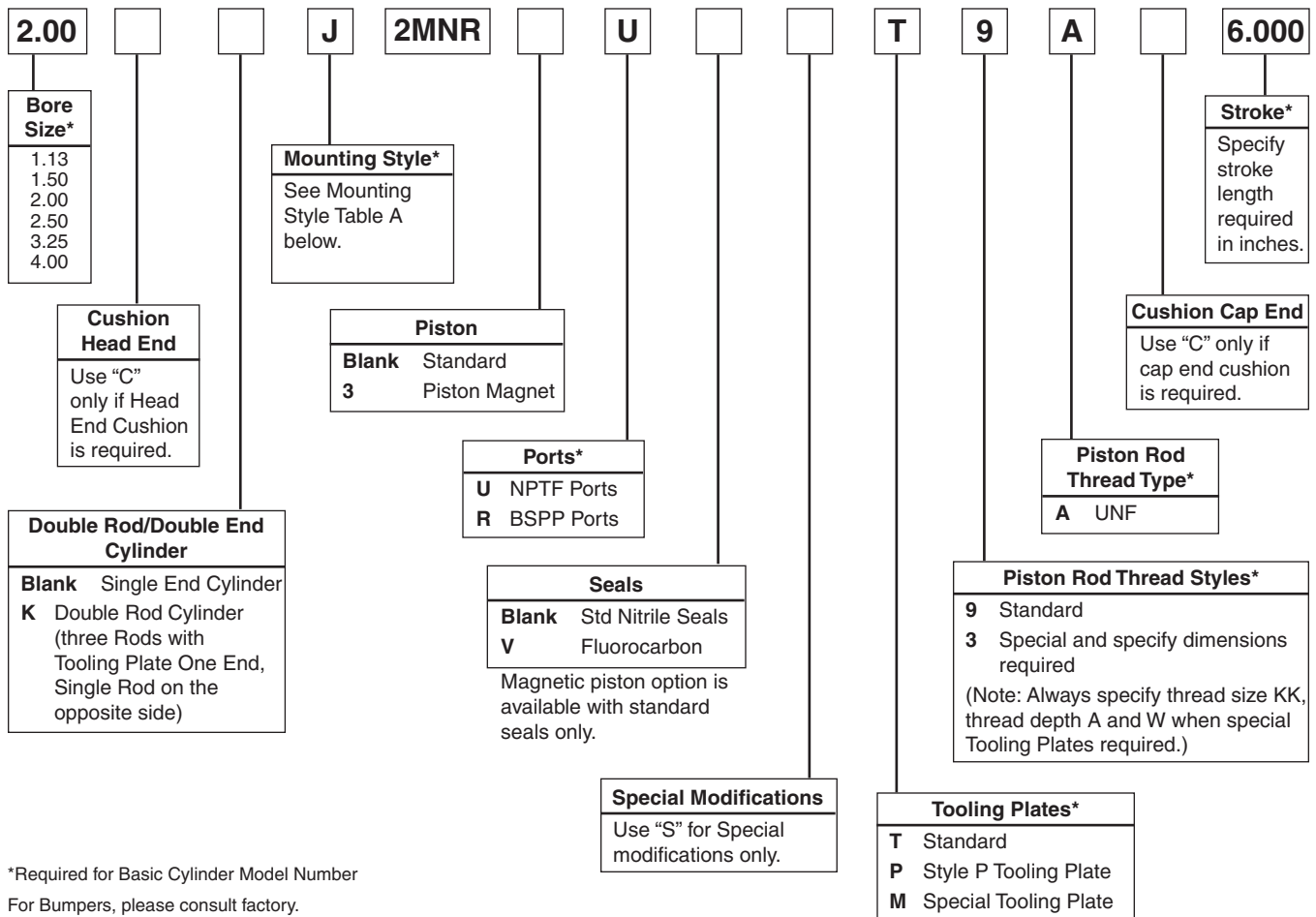
1 Retainer is steel on 1 1/8" bore. Rod seals are also inboard.

2 Rod bearing is close-grained cast iron on 1 1/8" bore.

3 1 1/8" bore has traditional tube and tie-rod design.

How to Order 2MNR Series Cylinders

Parker 2MNR Series pneumatic cylinders can be specified by model number by using the table below.



*Required for Basic Cylinder Model Number
 For Bumpers, please consult factory.

Note: For sensor specifications and part numbers, please refer to the [Electronic Sensors Section](#).

Table A – Cylinder Mounting Styles

Mounting Style Code	NPFA 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

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 H](#) for specifications and part numbers.

Example: For cylinder prepared for sensor
 2.00CJ2MNR3UT9AC 6.000

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

Standard Specifications

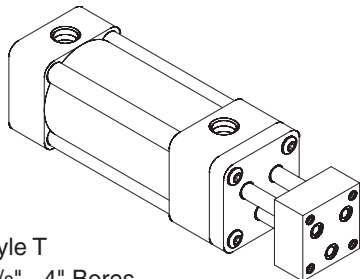
- N.F.P.A. Interchangeable (Bores 1 1/8" - 4")
- Cushions: optional at either end or both ends*
- Strokes: available in any practical length
- Operating Pressure: 250 psi (17.2 Bar)
- Standard Fluid: dry, filtered air
- Standard Temperature: -10° to 165°F (-23° to 73°C)
- High Temperature Option: -20° to 250°F (-29° to 121°C)
- Single Rod End or Double Rod End
- Eleven Mounting Styles (only seven available on 1 1/8" Bore)
- Non-Rotating, Multi-Rod Design†

* Not on 1-1/8" Bore

† 1 1/8" Bore is twin rod design; 1 1/2" - 4" Bores are triple rod design.

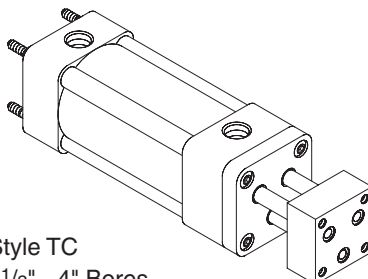
Available Mounting Styles

Basic Mount



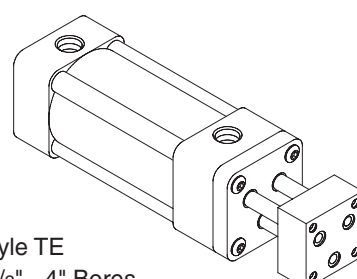
Style T
1 1/8" - 4" Bores

Tie Rods Extended Cap End*



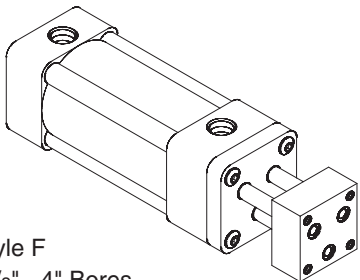
Style TC
1 1/2" - 4" Bores

Sleeve Nut (Cap End Only)*



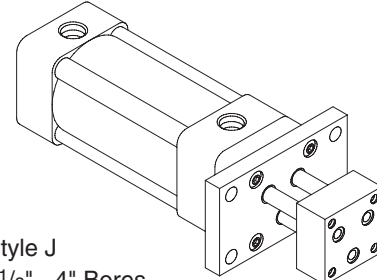
Style TE
1 1/2" - 4" Bores

Side Tapped



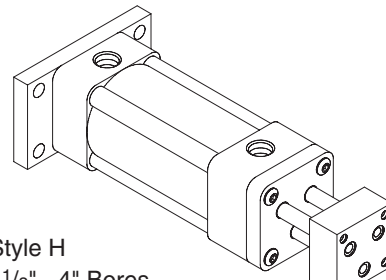
Style F
1 1/8" - 4" Bores

Head Rectangular Flange



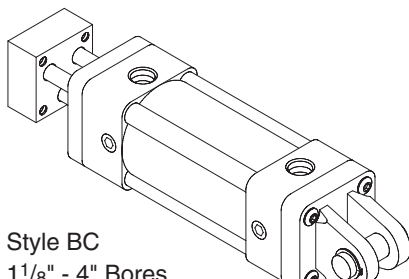
Style J
1 1/8" - 4" Bores

Cap Rectangular Flange



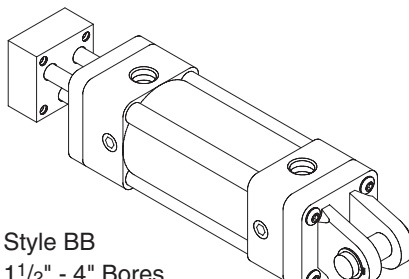
Style H
1 1/8" - 4" Bores

Cap Detachable Clevis



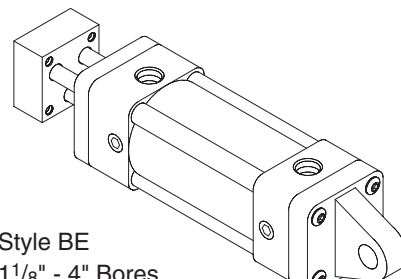
Style BC
1 1/8" - 4" Bores

Cap Fixed Clevis*



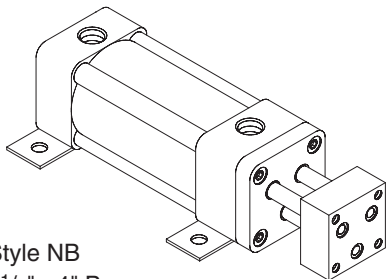
Style BB
1 1/2" - 4" Bores

Detachable Pivot Eye



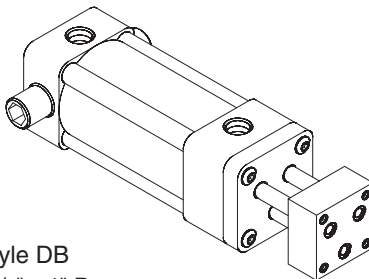
Style BE
1 1/8" - 4" Bores

Base Bar



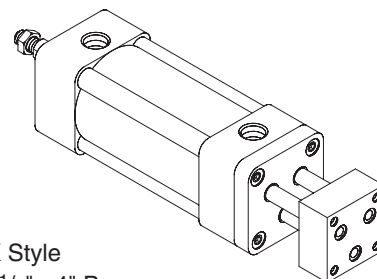
Style NB
1 1/8" - 4" Bores

Cap End Trunnion*



Style DB
1 1/2" - 4" Bores

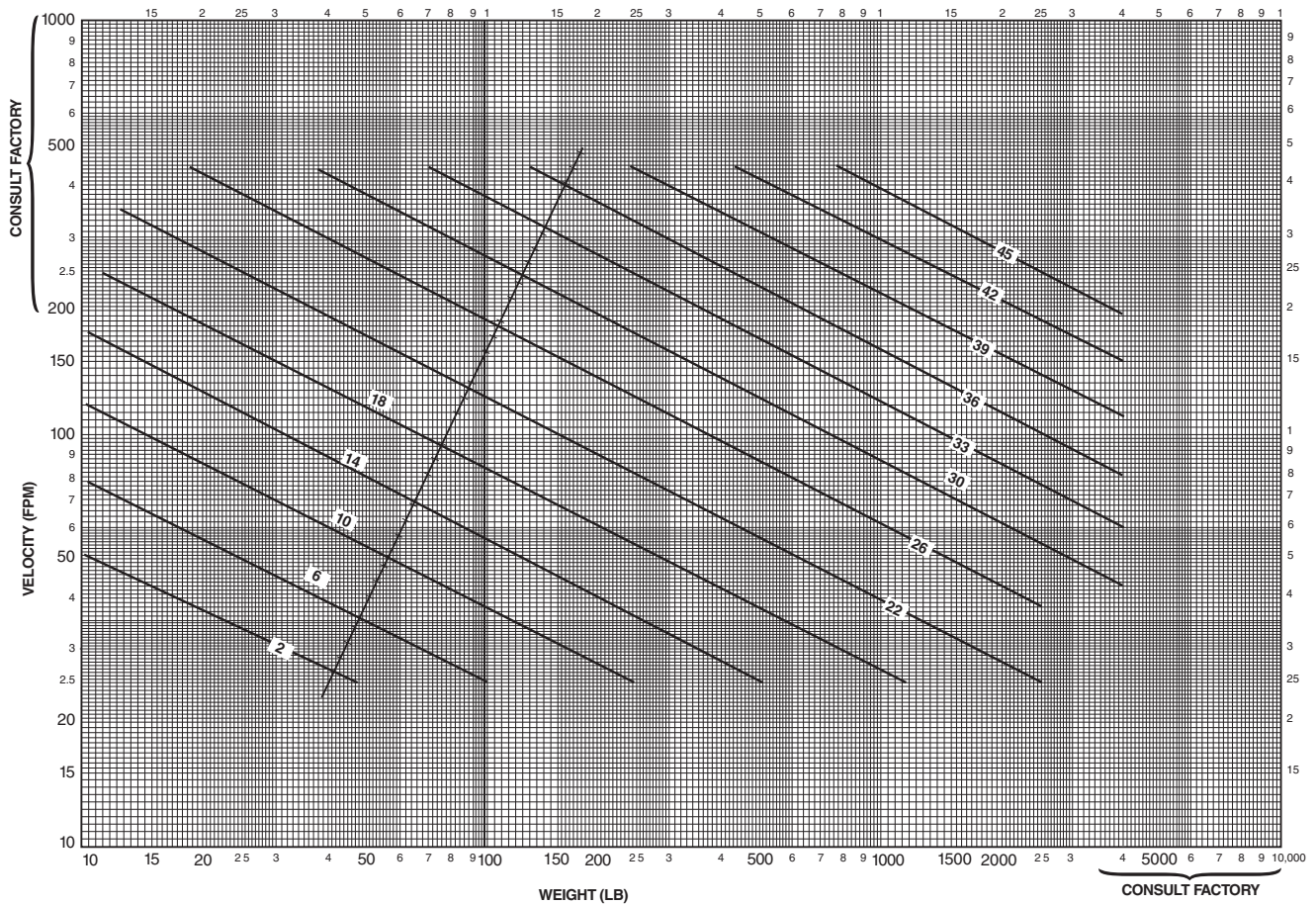
Double Rod*



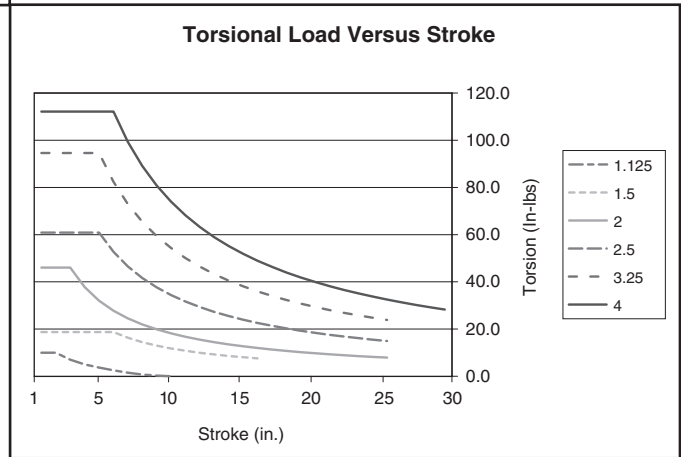
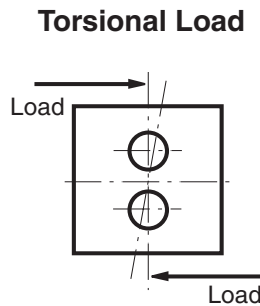
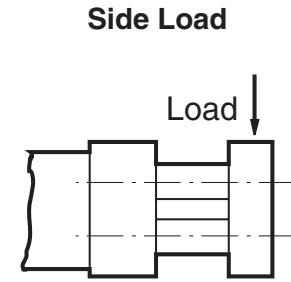
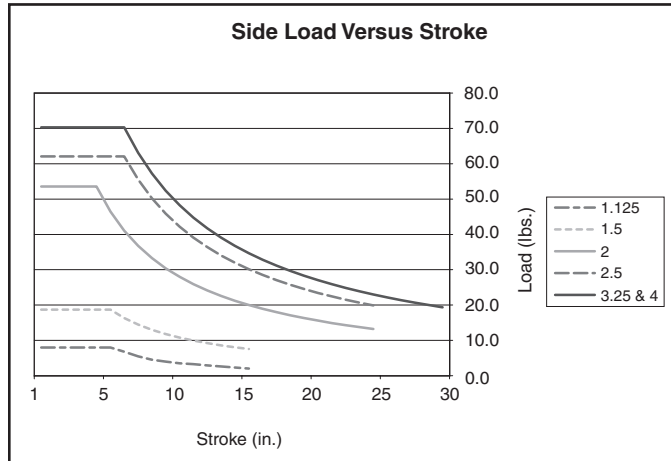
K Style
1 1/2" - 4" Bores

Air Cylinder Cushion Ratings

Bore Size	Single Ended Cylinders and Double Ended Cylinders – Multi-Rod Both Ends			Double Ended Cylinders – Single Rod One End		
	Cylinder End	Rating with No Back Pressure	Rating with Back Pressure	Cylinder End	Rating with No Back Pressure	Rating with Back Pressure
1 1/2"	Cap	12	17	SingleRod	7	12
	Rod	6	11	Triple Rod	6	11
2"	Cap	14	20	Single Rod	11	16
	Rod	10	14	Triple Rod	10	14
2 1/2"	Cap	17	23	SingleRod	12	18
	Rod	11	15	Triple Rod	11	15
3 1/4"	Cap	21	26	SingleRod	15	20
	Rod	15	20	Triple Rod	15	20
4"	Cap	23	28	SingleRod	17	23
	Rod	17	23	Triple Rod	17	23



Loading Information



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 1/8"	Extend	1.227	25	49	74	98	123	184	245	307	0.00071
	Retract	1.080	22	43	65	86	108	162	216	270	0.00062
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

Double Rod Extend Forces – Single Rod Style

Bore Size	Rod Size	Effective Area (in ²)	Pressure (PSI)								Cu. Ft. of Displacement per inch of Stroke
			20	40	60	80	100	150	200	250	
1 1/8"	1/2"	0.798	16	32	48	64	80	120	160	199	0.00046
1 1/2"	5/8"	1.460	29	58	88	117	146	219	292	365	0.00085
2"	5/8"	2.835	57	113	170	227	283	425	567	709	0.00164
2 1/2"	5/8"	4.602	92	184	276	368	460	690	920	1150	0.00266
3 1/4"	1"	7.510	150	300	451	601	751	1127	1502	1878	0.00435
4"	1"	11.781	236	471	707	942	1178	1767	2356	2945	0.00682

Basic Single End – Style “T” (NFPA MX0)

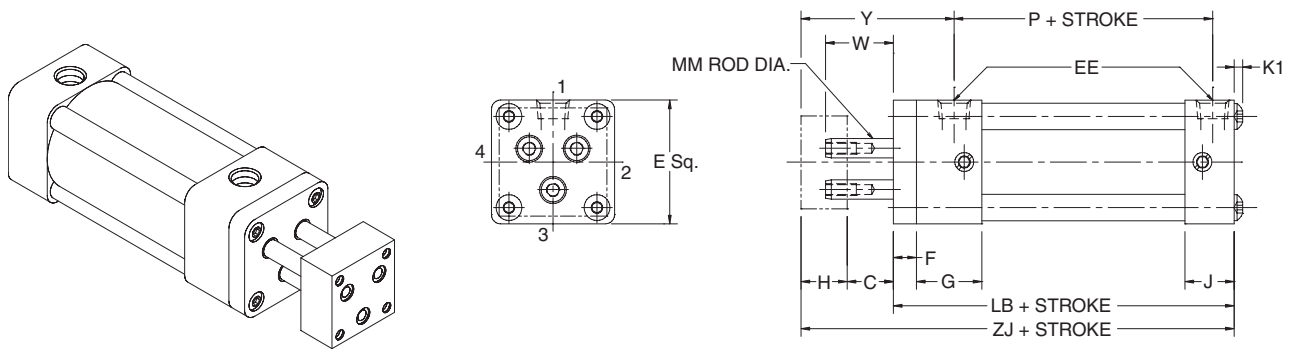


Table 1 – Envelope and Mounting Dimensions

Bore	Rod Dia. MM	C	E	EE (NPTF)	F	G	H	J	K1	W	Y	Add Stroke		
												LB	P	ZJ
1 1/8*	5/16	5/8	1 1/2	1/8	1/4	1	5/8	5/8	–	–	2 1/32	2 1/2	1 15/32	3 3/4
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

*Twin Rod Only (not shown)

Tie Rods Extend Cap End – Style “TC”

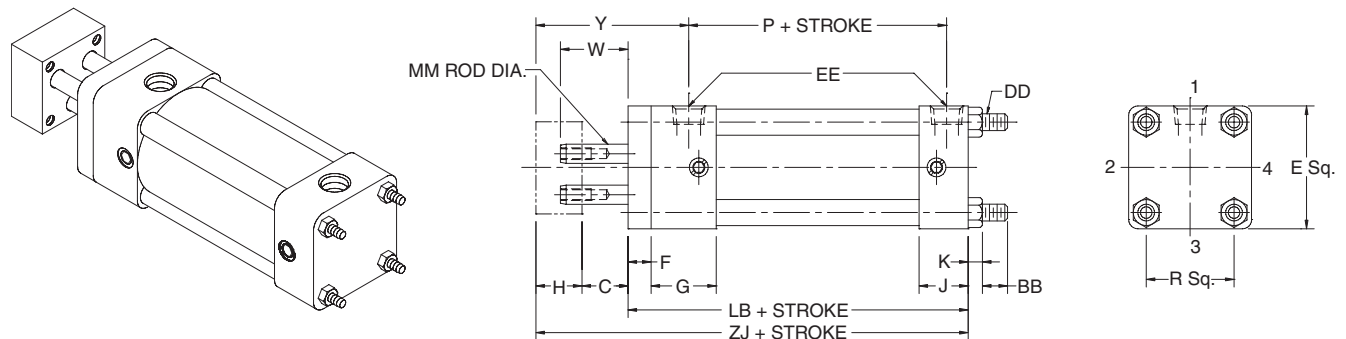


Table 2 – Envelope and Mounting Dimensions

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” (NFA MF1)

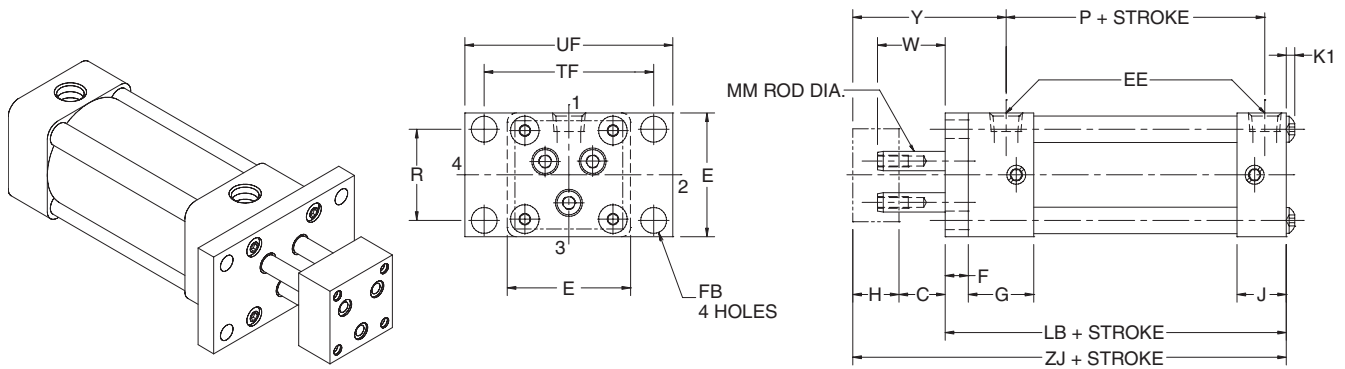


Table 1 – Envelope and Mounting Dimensions

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 1/8*	5/16	5/8	1 1/2	1/8	1/4	7/32	1	5/8	5/8	–	1.00	2	2 1/2	–	2 1/32	2 1/2	1 15/32	3 3/4
1 1/2	8mm	3/4	2	1/4	3/8	5/16	17/16	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	17/16	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	17/16	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

*Twin Rod Only (not shown)

Cap Rectangular Flange – Style “H” (NFA MF2)

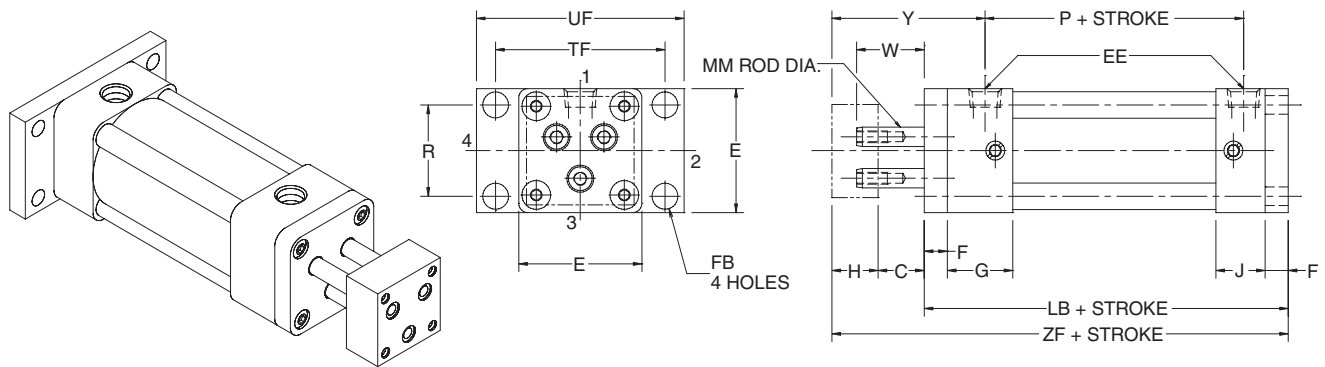


Table 2 – Envelope and Mounting Dimensions

Bore	Rod Dia. MM	C	E	EE (NPTF)	F	FB	G	H	J	R	TF	UF	W	Y	Add Stroke		
															LB	P	ZF
1 1/8*	5/16	5/8	1 1/2	1/8	1/4	7/32	1	5/8	5/8	1.00	2	2 1/2	–	2 1/32	2 3/4	1 15/32	4
1 1/2	8mm	3/4	2	1/4	3/8	5/16	17/16	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	17/16	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	17/16	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

*Twin Rod Only (not shown)

Sleeve Nut (Cap End Only) – Style “TE” (NFA MX5)

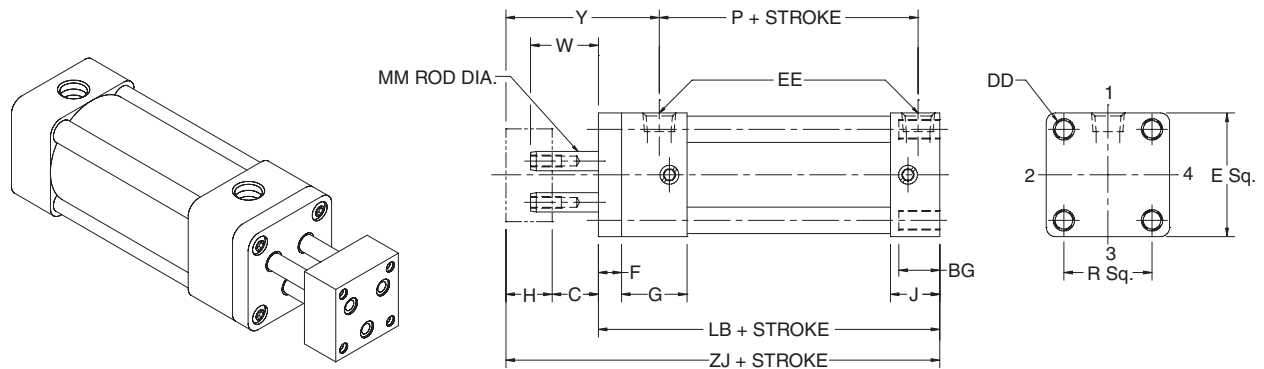


Table 1 – Envelope and Mounting Dimensions

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	17/16	3/4	15/16	1.43	1.10	23/4	4	25/16	5.10	5 1/2
2	12mm	0.48	3/4	5/16-24	2 1/2	1/4	3/8	17/16	3/4	15/16	1.84	1.10	23/4	4	25/16	5.10	5 1/2
2 1/2	16mm	0.48	3/4	5/16-24	3	3/8	3/8	17/16	1	15/16	2.19	1.35	3 1/16	4 1/8	23/8	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	13/16	2.76	1.10	3 7/16	4 7/8	25/8	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	13/16	3.32	1.10	3 7/16	4 7/8	25/8	5.98	6 5/8

Side Tapped Mount – Style “F” (NFA MS4)

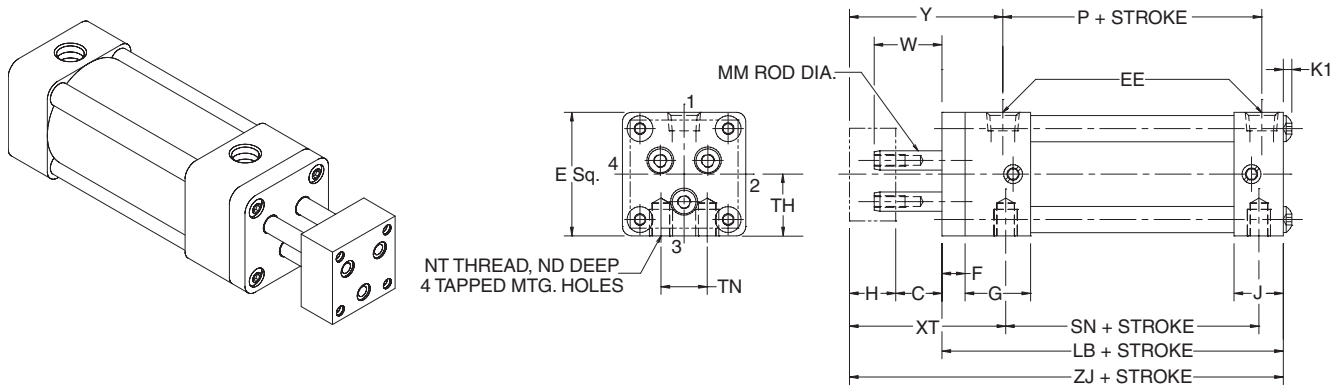


Table 2 – Envelope and Mounting Dimensions

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 1/8*	5/16	5/8	1 1/2	1/8	1/4	1	5/8	5/8	-	1/4	10-32	0.750	1/2	-	2	2 1/32	2 1/2	1 15/32	1 1/2	3 3/4
1 1/2	8mm	3/4	2	1/4	3/8	17/16	3/4	15/16	1/8	3/8	1/4-20	0.993	5/8	1.10	2 13/16	2 3/4	4	25/16	2 1/4	5 1/2
2	12mm	3/4	2 1/2	1/4	3/8	17/16	3/4	15/16	5/32	7/16	5/16-18	1.243	7/8	1.10	2 13/16	2 3/4	4	25/16	2 1/4	5 1/2
2 1/2	16mm	3/4	3	3/8	3/8	17/16	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	23/8	23/8	5 7/8
3 1/4	16mm	3/4	3 3/4	1/2	5/8	1 11/16	1	13/16	3/16	3/4	1/2-13	1.868	1 1/2	1.10	3 7/16	3 7/16	4 7/8	25/8	25/8	6 5/8
4	16mm	3/4	4 1/2	1/2	5/8	1 11/16	1	13/16	3/16	3/4	1/2-13	2.243	2 1/16	1.10	3 7/16	3 7/16	4 7/8	25/8	25/8	6 5/8

*Twin Rod Only (not shown)

Cap End Trunnion – Style “DB” (NFPA MT2)

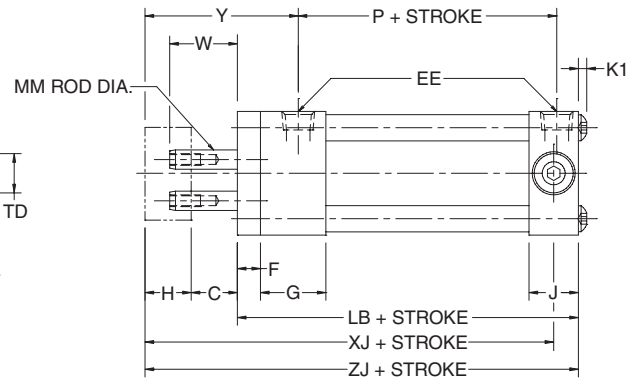
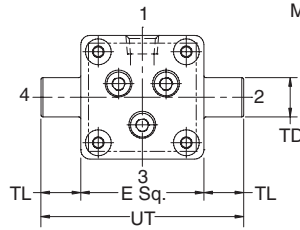
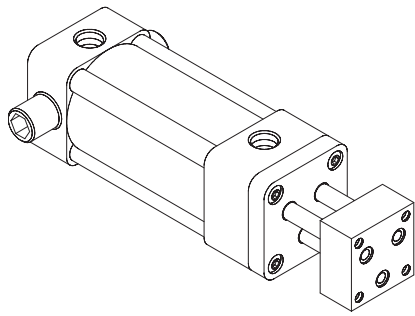


Table 1 – Envelope and Mounting Dimensions

Bore	Rod Dia. MM	C	E	EE (NPTF)	F	G	H	J	K1	TD +0.000, -0.001	TL	UT	W	Y
1½	8mm	¾	2	¼	⅜	17/16	¾	15/16	1/8	1.000	1	4	1.10	2¾
2	12mm	¾	2½	¼	⅜	17/16	¾	15/16	5/32	1.000	1	4½	1.10	2¾
2½	16mm	¾	3	⅜	⅜	17/16	1	15/16	5/32	1.000	1	5	1.35	3¹/16
3¼	16mm	¾	3¾	½	5/8	11¹/16	1	13/16	3/16	1.000	1	5¾	1.10	37/16
4	16mm	¾	4½	½	5/8	11¹/16	1	13/16	3/16	1.000	1	6½	1.10	37/16

Bore	Add Stroke			
	LB	P	XJ	ZJ
1½	4	2 ⁵ / ₁₆	5	5½
2	4	2 ⁵ / ₁₆	5	5½
2½	4 ¹ / ₈	2 ³ / ₈	5 ³ / ₈	5 ⁷ / ₈
3¼	4 ⁷ / ₈	2 ⁵ / ₈	6	6 ⁵ / ₈
4	4 ⁷ / ₈	2 ⁵ / ₈	6	6 ⁵ / ₈

Cap Detachable Clevis – Style “BC” (NFPA MP2)

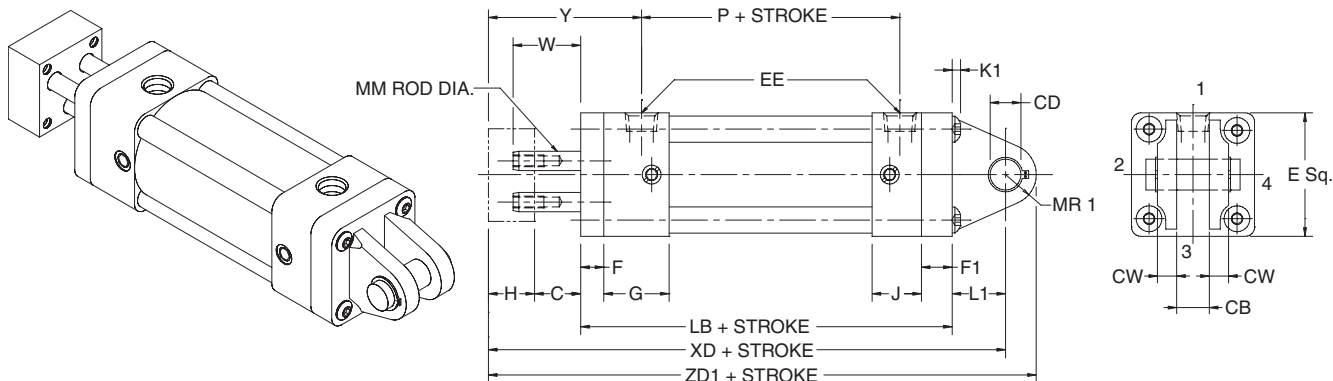


Table 1 – Envelope and Mounting Dimensions

Bore	Rod Dia. MM	C	CB	CD +0.000, -0.002	CW	E	EE (NPTF)	F	F1	G	H	J	K1	L1	MR1
1 1/8*	5/16	5/8	3/8	0.375	1/4	1 1/2	1/8	1/4	1/2	1	5/8	5/8	–	5/8	3/8
1 1/2	8mm	3/4	3/4	0.501	1/2	2	1/4	3/8	3/8	17/16	3/4	15/16	1/8	3/4	1/2
2	12mm	3/4	3/4	0.501	1/2	2 1/2	1/4	3/8	3/8	17/16	3/4	15/16	5/32	3/4	1/2
2 1/2	16mm	3/4	3/4	0.501	1/2	3	3/8	3/8	3/8	17/16	1	15/16	5/32	3/4	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
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

Bore	W	Y	Add Stroke			
			LB	P	XD	ZD1
1 1/8*	–	2 1/32	3	1 15/32	4 7/8	5 1/4
1 1/2	1.10	2 3/4	4 3/8	2 5/16	6 5/8	7 1/8
2	1.10	2 3/4	4 3/8	2 5/16	6 5/8	7 1/8
2 1/2	1.35	3 1/16	4 1/2	2 3/8	7	7 1/2
3 1/4	1.10	3 7/16	5 1/2	2 5/8	8 1/2	9 1/4
4	1.10	3 7/16	5 1/2	2 5/8	8 1/2	9 1/4

*Twin Rod Only (not shown)

Cap Fixed Clevis – Style “BB” (NFPA MP1)

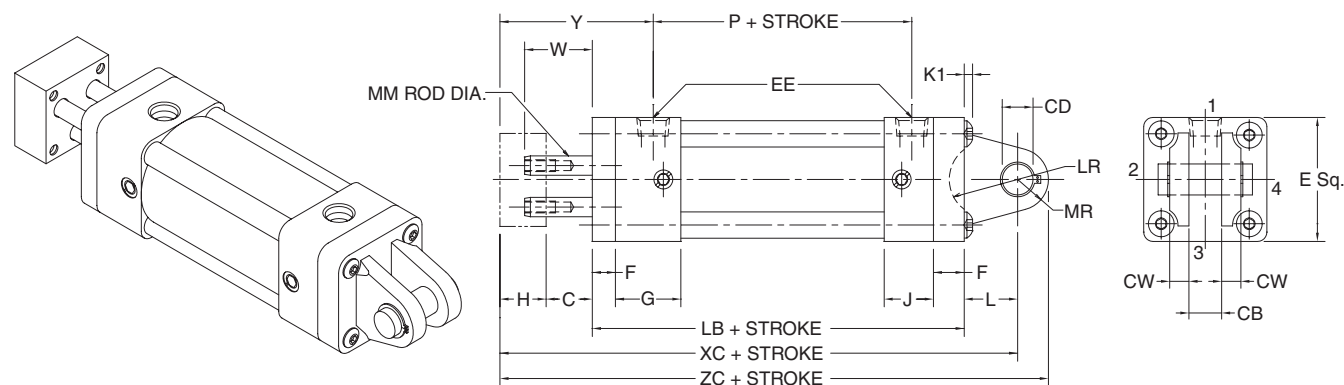


Table 2 – Envelope and Mounting Dimensions

Bore	Rod Dia. MM	C	CB	CD +0.000, -0.002	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	17/16	3/4	15/16	3/8	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	17/16	3/4	15/16	3/8	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	17/16	1	15/16	3/8	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	5/8	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	5/8	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)

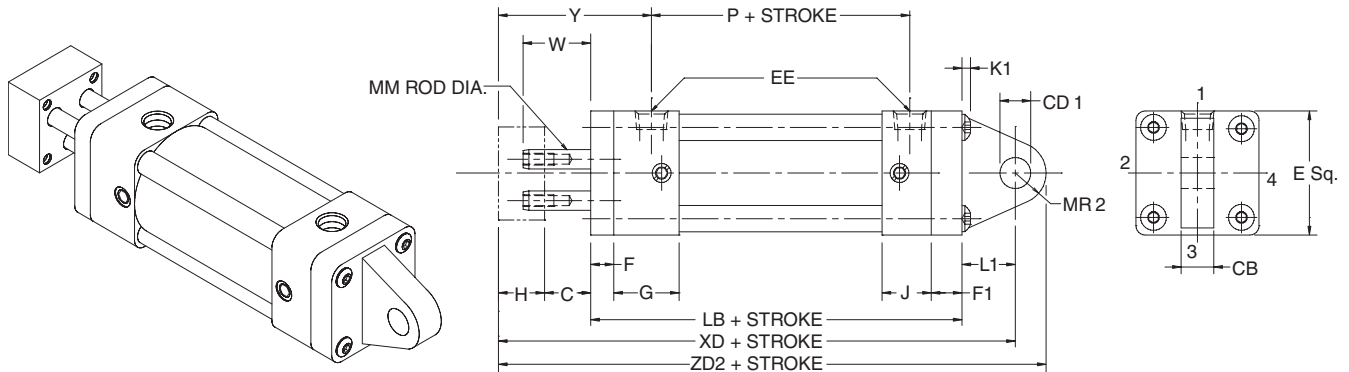


Table 1 – Envelope and Mounting Dimensions

Bore	Rod Dia. MM	C	CB	CD1 +.002 +.004	E	EE (NPTF)	F	F1	G	H	J	K1	L1	MR2
1 1/8*	5/16	5/8	3/8	0.375	1 1/2	1/8	1/4	1/2	1	5/8	5/8	-	5/8	3/8
1 1/2	8mm	3/4	3/4	0.500	2	1/4	3/8	3/8	17/16	3/4	15/16	1/8	3/4	5/8
2	12mm	3/4	3/4	0.500	2 1/2	1/4	3/8	3/8	17/16	3/4	15/16	5/32	3/4	5/8
2 1/2	16mm	3/4	3/4	0.500	3	3/8	3/8	3/8	17/16	1	15/16	5/32	3/4	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
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

Bore	W	Y	Add Stroke			
			LB	P	XD	ZD2
1 1/8*	-	2 1/32	3	1 15/32	4 7/8	5 1/4
1 1/2	1.10	2 3/4	4 3/8	2 5/16	6 5/8	7 1/4
2	1.10	2 3/4	4 3/8	2 5/16	6 5/8	7 1/4
2 1/2	1.35	3 1/16	4 1/2	2 3/8	7	7 11/16
3 1/4	1.10	3 7/16	5 1/2	2 5/8	8 1/2	9 3/8
4	1.10	3 7/16	5 1/2	2 5/8	8 1/2	9 3/8

*Twin Rod Only (not shown)

Base Bar – Style “NB”

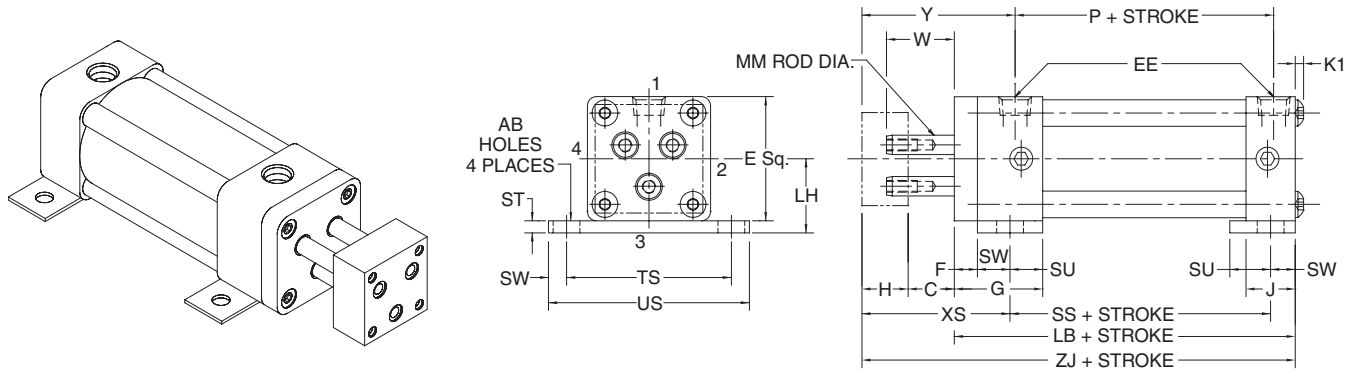


Table 2 – Envelope and Mounting Dimensions

Bore	Rod Dia. MM	AB	C	E	EE (NPTF)	F	G	H	J	K1	LH ± .005	ST	SU	SW	TS	US
1 1/8*	5/16	13/64	5/8	1 1/2	1/8	1/4	1	5/8	5/8	–	1.000	1/4	3/4	1/4	1 7/8	2 3/8
1 1/2	8mm	7/16	3/4	2	1/4	3/8	1 1/2	3/4	15/16	1/8	1.243	1/4	1 1/8	3/8	2 3/4	3 1/2
2	12mm	7/16	3/4	2 1/2	1/4	3/8	1 1/2	3/4	15/16	5/32	1.493	1/4	1 1/8	3/8	3 1/4	4
2 1/2	16mm	7/16	3/4	3	3/8	3/8	1 1/2	1	15/16	5/32	1.868	3/8	1 1/8	3/8	3 3/4	4 1/2
3 1/4	16mm	9/16	3/4	3 3/4	1/2	5/8	1 3/4	1	1 3/16	3/16	2.368	1/2	1 1/4	1/2	4 3/4	5 3/4
4	16mm	9/16	3/4	4 1/2	1/2	5/8	1 3/4	1	1 3/16	3/16	2.743	1/2	1 1/4	1/2	5 1/2	6 1/2

Bore	W	XS	Y	Add Stroke			
				LB	P	SS	ZJ
1 1/8*	–	1 3/4	2 1/32	2 1/2	1 15/32	1 3/4	3 3/4
1 1/2	1.10	2 1/4	2 3/4	4	2 5/16	2 7/8	5 1/2
2	1.10	2 1/4	2 3/4	4	2 5/16	2 7/8	5 1/2
2 1/2	1.35	2 1/2	3 1/16	4 1/8	2 3/8	3	5 7/8
3 1/4	1.10	2 7/8	3 7/16	4 7/8	2 5/8	3 1/4	6 5/8
4	1.10	2 7/8	3 7/16	4 7/8	2 5/8	3 1/4	6 5/8

*Twin Rod Only (not shown)

Double End* – Style “K”

Three Rods with Tooling Plate One End
Single Rod on the Opposite End

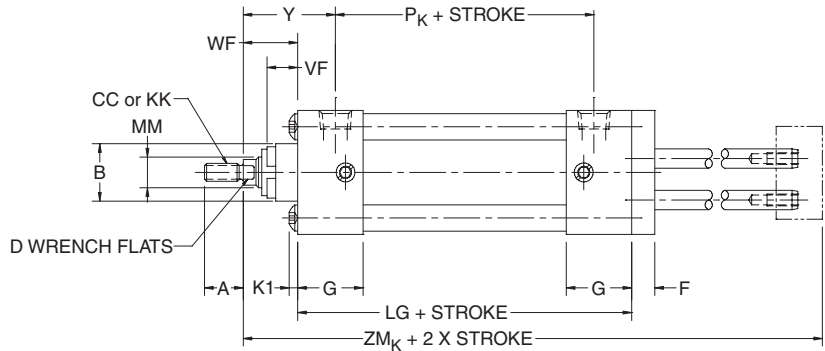
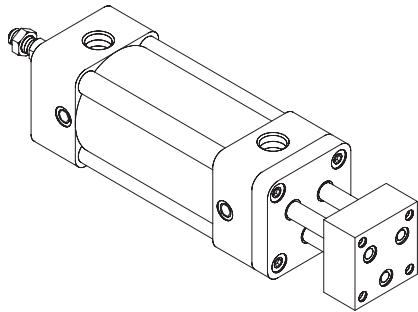


Table 1 – Envelope and Mounting Dimensions

For dimensions not shown on Table 1, please refer to table corresponding to specific mounting style.

Bore	Rod No.	Rod Dia. MM	Thread Style 8 CC	Thread Style 4 & 9 KK	A	B +0.000 -0.002	C	D	F	G	H	K1	VF	WF
1 1/8*	–	3/8	3/8-24	–	5/8	–	5/8	5/16	1/4	1	5/8	–	1/8	3/8
1 1/2	1	5/8	1/2-20	7/16-20	3/4	1.124	3/4	1/2	3/8	17/16	3/4	1/8	5/8	1
2	1	5/8	1/2-20	7/16-20	3/4	1.124	3/4	1/2	3/8	17/16	3/4	5/32	5/8	1
2 1/2	1	5/8	1/2-20	7/16-20	3/4	1.124	3/4	1/2	3/8	17/16	1	5/32	5/8	1
3 1/4	1	1	7/8-14	3/4-16	1 1/8	1.499	3/4	7/8	5/8	1 11/16	1	3/16	3/4	1 3/8
4	1	1	7/8-14	3/4-16	1 1/8	1.499	3/4	7/8	5/8	1 11/16	1	3/16	3/4	1 3/8

Bore	Y	Add Stroke				Add 2X Stroke	
		LG	SSk	SNk	PK	ZMK	ZMR
1 1/8*	–	2 7/8	2 1/4	1 7/8	1 27/32	4 5/8	–
1 1/2	1 7/8	4 1/8	3 3/8	2 1/4	2 3/8	7	7 7/8
2	1 7/8	4 1/8	3 3/8	2 1/4	2 3/8	7	7 7/8
2 1/2	1 5/16	4 1/4	3 1/2	2 3/8	2 3/8	7 3/8	8 1/2
3 1/4	2 7/16	4 3/4	3 3/4	2 5/8	2 5/8	8 1/2	9 1/2
4	2 7/16	4 3/4	3 3/4	2 5/8	2 5/8	8 1/2	9 1/2
Replaces Dimension			SS	SN			
On Mtg. Style			NB	F			

*Twin Rod Cylinder not shown

**Standard Tooling Plate
 Style "T"**

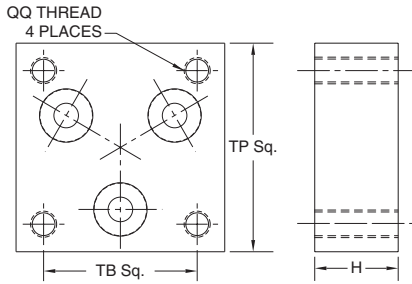


Table 4 – Dimensions

Bore	H	QQ	TB	TP
1 ¹ / ₈	5/8	6-32	0.75	1 ¹ / ₄
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

Tooling Plate Style "P"

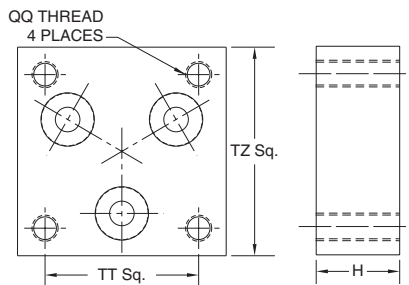
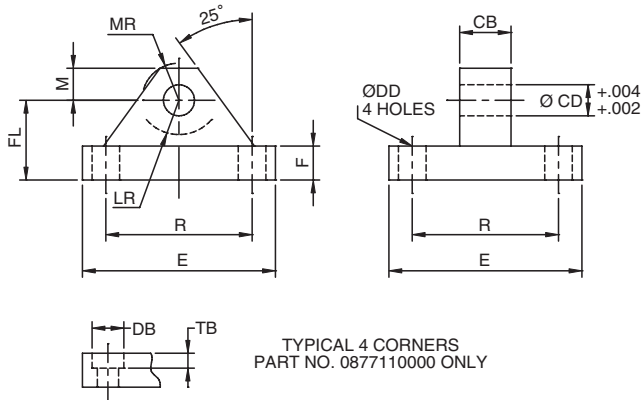


Table 5 – Dimensions

Bore	H	QQ	TT	TZ
1 ¹ / ₈	5/8	6-32	0.75	1 ¹ / ₄
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*	1.79	3 ¹ / ₄
4	1	3/8-24	3.44	4

* Thread depth is 1/2".

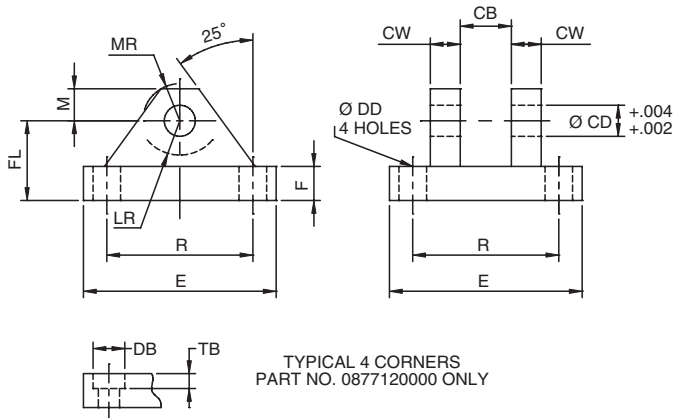
Mounting Plate & Eye Bracket



Eye Bracket Dimensions

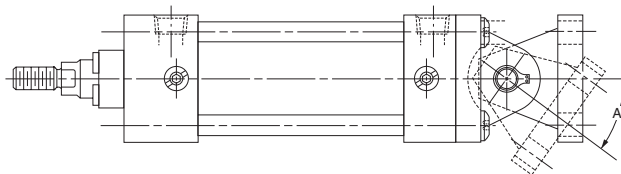
Bore Size	1 1/8	1 1/2, 2, 2 1/2	3 1/4, 4
Part No.	0877110000	1458060050	1458060075
CB	3/8	3/4	1 1/4
CD	3/8	1/2	3/4
DB	21/64	—	—
DD	13/64	13/32	17/32
E	1 1/2	2 1/2	3 1/2
F	1/2	3/8	5/8
FL	1 1/8	1 1/8	1 7/8
LR	5/8	3/4	1 1/4
M	3/8	1/2	3/4
MR	—	9/16	7/8
R	1.12	1.63	2.55
TB	5/16	—	—

Clevis Bracket Dimensions



Clevis Bracket Dimensions

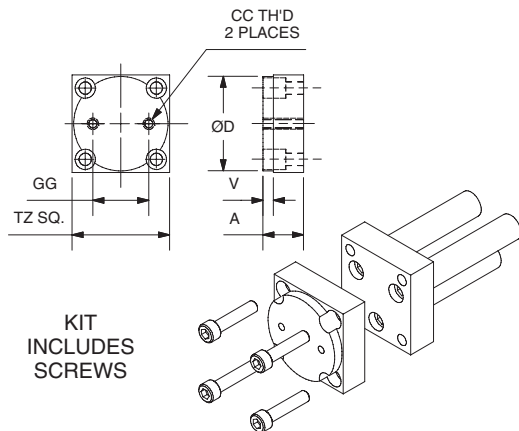
Bore Size	1 1/8	1 1/2, 2, 2 1/2	3 1/4, 4
Part No.	0877120000	1458050050	1458050075
CB	3/8	3/4	1 1/4
CD	3/8	1/2	3/4
CW	1/4	1/2	5/8
DD	13/64	13/32	17/32
E	1 1/2	3 1/2	5
F	1/2	1/2	5/8
FL	1 1/8	1 1/2	1 7/8
LR	5/8	3/4	1 3/16
M	3/8	1/2	3/4
MR	3/8	5/8	29/32
R	1.15	2.55	3.82
TB	5/16	—	—



Bore	1 1/8	1 1/2	2	2 1/2	3 1/4	4
Angle A*	45	52	43	29	50	49

* Angle of rotation specified is for 'BB' Style mount only.

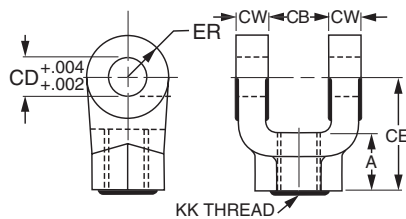
Pilot Adapter Plate
 (For use with Style P Tooling Plate only)



Pilot Adapter Plate Dimensions

Bore	Part Number	A	CC	D	GG	TZ	V
1 1/8	0877130112	5/8	1/4-20	1.260	0.750	1 1/4	0.16
1 1/2	0877130150	5/8	5/16-18	1.575	0.860	1 1/2	0.16
2	0877130200	5/8	5/16-18	1.969	1.180	2	0.20
2 1/2	0877130250	5/8	3/8-16	2.480	1.500	2 1/2	0.20
3 1/4	0877130325	7/8	1/2-13	3.150	1.970	3 1/4	0.20
4	0877130400	7/8	1/2-13	3.937	2.760	4	0.20

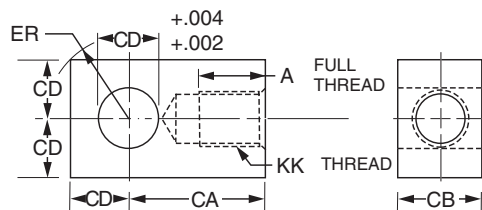
Female Rod Clevis



Female Rod Clevis Dimensions

Part Number	1458030044	1458030050	1458030075
A	3/4	3/4	1 1/16
CB	3/4	3/4	1 1/4
CD	1/2	1/2	3/4
CE	1 1/2	1 1/2	2 1/8
CW	1/2	1/2	5/8
ER	1/2	1/2	3/4
KK	7/16 - 20	1/2 - 20	3/4 - 16

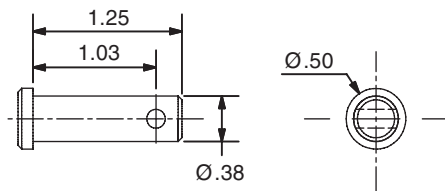
Rod Eye Knuckle



Rod Eye Dimensions

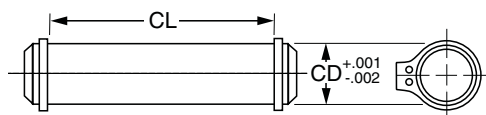
Part Number	1458040044	1458040050	1458040075
A	3/4	3/4	1 1/8
CB	3/4	3/4	1 1/4
CD	1/2	1/2	3/4
CA	1 1/2	1 1/2	2 1/16
ER	23/32	23/32	1 1/16
KK	7/16 - 20	1/2 - 20	3/4 - 16

1-1/8" Bore Pin



Part Number 0883030000

Pivot Pin



Pivot Pin Dimensions

Part Number	0856640050	0856640075
CD	1/2	3/4
CL	1 7/8	2 5/8

