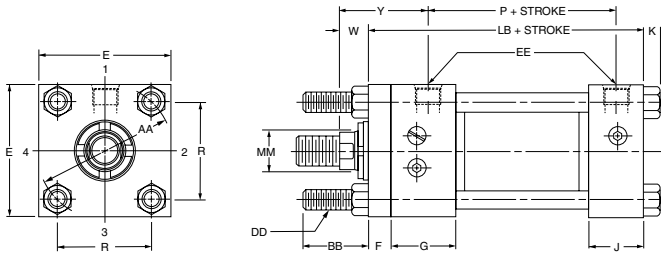


INDUSTRIAL CYLINDERS

SERIES 2H HEAVY DUTY HYDRAULIC CYLINDERS

Styles TB, TC, TD Tie Rods Extended*

(NFPA MX3)

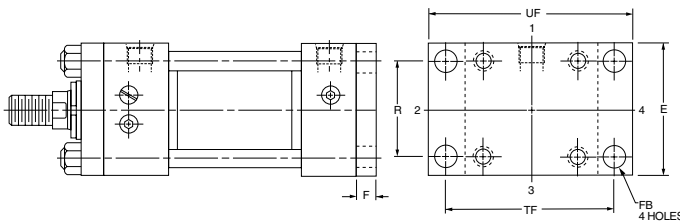


* Basic Mounting (T) — NFPA MX0
 — no tie rods extended can be supplied upon request.

Style TB (NFPA MX3), Head Tie Rods Extended, illustrated; Style TC (NFPA MX2), Cap Tie Rods Extended; and Style TD (NFPA MX1), Both Ends Tie Rods Extended are also available. All "T" styles can be dimensioned from Style TB drawing at left.

Style H Cap Rectangular Flange

(NFPA MF2)



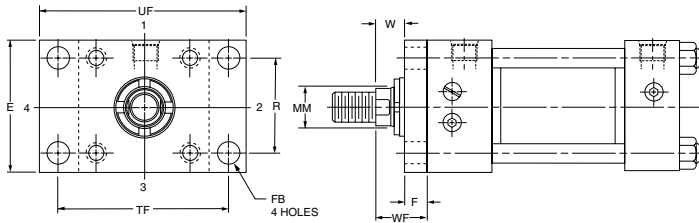
Series 2H Pressure Limitation for Style 'H' Mount

Bore Size	Max. PSI - Push*		
	1	2	3
1 1/2	2500	3000	-
2	3000	3000	-
2 1/2	3000	3000	3000
3 1/4	3000	3000	3000
4	3000	3000	3000

* Maximum pressure rating - pull application.

Style J Head Rectangular Flange

(NFPA MF1)



Series 2H Pressure Limitation for Style 'J' Mount

Bore Size	Max. PSI - Push*		
	1	2	3
1 1/2	1500	1000	-
2	2000	1200	-
2 1/2	2000	1100	1500
3 1/4	1800	1300	1400
4	1800	1300	1700

* Maximum pressure rating - push application.

Style JJ Head Rectangular

(NFPA ME5)

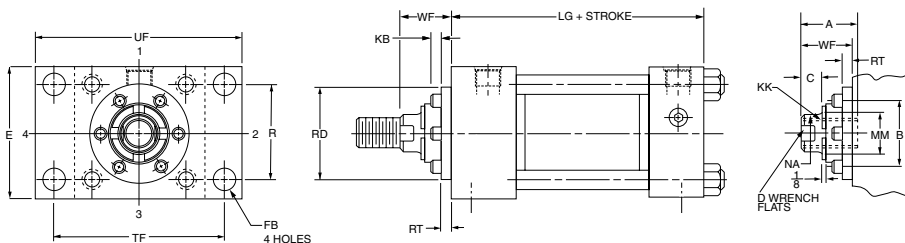


Table 1 – Envelope and Mounting Dimensions

Bore	AA	BB	CB	$\begin{matrix} +.000 \\ -.002 \\ CD^* \end{matrix}$	CW	DD	E	NPTF†	EE SAE**	F
1 1/2	2.3	1 3/8	3/4	.501	1/2	3/8-24	2 1/2	1/2	10	3/8
2	2.9	1 13/16	1 1/4	.751	5/8	1/2-20	3	1/2	10	5/8
2 1/2	3.6	1 13/16	1 1/4	.751	5/8	1/2-20	3 1/2	1/2	10	5/8
3 1/4	4.6	2 5/16	1 1/2	1.001	3/4	5/8-18	4 1/2	3/4	12	3/4
4	5.4	2 5/16	2	1.376	1	5/8-18	5	3/4	12	7/8

Bore	FB	G	J	K	R	TF	UF	Add Stroke LB	LG	P
1 1/2	7/16	1 3/4	1 1/2	3/8	1.63	3 7/16	4 1/4	5	4 5/8	2 7/8
2	9/16	1 3/4	1 1/2	7/16	2.05	4 1/8	5 1/8	5 1/4	4 5/8	2 7/8
2 1/2	9/16	1 3/4	1 1/2	7/16	2.55	4 5/8	5 5/8	5 3/8	4 3/4	3
3 1/4	11/16	2	1 3/4	9/16	3.25	5 7/8	7 1/8	6 1/4	5 1/2	3 1/2
4	11/16	2	1 3/4	9/16	3.82	6 3/8	7 5/8	6 5/8	5 3/4	3 3/4

† NPTF ports are available at no extra charge.
* Dimension CD is pin diameter.
** SAE straight thread ports are standard and are indicated by port number.

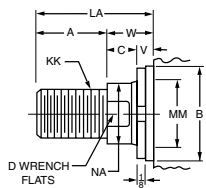
Table 2 – Rod Dimensions

Bore	Rod No.	Rod Dia. MM	Thread		Rod Extensions and Pilot Dimensions												
			Style 8 CC	Style 4 & 9 KK	A	$\begin{matrix} +.000 \\ -.002 \\ B \end{matrix}$	C	D	KB	LA	NA	V	W	RD	RT	WF	Y
1 1/2	1 (Std.)	5/8	1/2-20	7/16-20	3/4	1.124	3/8	1/2	0	1 3/8	9/16	1/4	5/8	2 1/8	3/8	1	2
	2	1	7/8-14	3/4-16	1 1/8	1.499	1/2	7/8	0	2 1/8	15/16	1/2	1	2 1/2	3/8	1 3/8	2 3/8
2	1 (Std.)	1	7/8-14	3/4-16	1 1/8	1.499	1/2	7/8	0	1 7/8	15/16	1/4	3/4	2 1/2	3/8	1 3/8	2 3/8
	2	1 3/8	1 1/4-12	1-14	1 5/8	1.999	5/8	1 1/8	1/4	2 5/8	1 5/16	3/8	1	3	3/8	1 5/8	2 5/8
2 1/2	1 (Std.)	1	7/8-14	3/4-16	1 1/8	1.499	1/2	7/8	0	1 7/8	15/16	1/4	3/4	2 1/2	3/8	1 3/8	2 3/8
	2	1 3/4	1 1/2-12	1 1/4-12	2	2.374	3/4	1 1/2	1/4	3 1/4	1 11/16	1/2	1 1/4	3 1/2	3/8	1 7/8	2 7/8
	3	1 3/8	1 1/4-12	1-14	1 5/8	1.999	5/8	1 1/8	1/4	2 5/8	1 5/16	3/8	1	3	3/8	1 5/8	2 5/8
3 1/4	1 (Std.)	1 3/8	1 1/4-12	1-14	1 5/8	1.999	5/8	1 1/8	1/4	2 1/2	1 5/16	1/4	7/8	3	3/8	1 5/8	2 3/4
	2	2	1 3/4-12	1 1/2-12	2 1/4	2.624	7/8	1 11/16	1/8	3 1/2	1 15/16	3/8	1 1/4	4	5/8	2	3 1/8
	3	1 3/4	1 1/2-12	1 1/4-12	2	2.374	3/4	1 1/2	1/4	3 1/8	1 11/16	3/8	1 1/8	3 1/2	3/8	1 7/8	3
4	1 (Std.)	1 3/4	1 1/2-12	1 1/4-12	2	2.374	3/4	1 1/2	1/4	3	1 11/16	1/4	1	3 1/2	3/8	1 7/8	3
	2	2 1/2	2 1/4-12	1 7/8-12	3	3.124	1	2 1/16	1/4	4 3/8	2 3/8	3/8	1 3/8	4 1/2	5/8	2 1/4	3 3/8
	3	2	1 3/4-12	1 1/2-12	2 1/4	2.624	7/8	1 11/16	1/8	3 3/8	1 15/16	1/4	1 1/8	4	5/8	2	3 1/8

Table 3 – Envelope and Mounting Dimensions

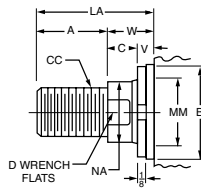
Rod End Dimensions — see table 2

Thread Style 4
(NFPA Style SM)
Small Male



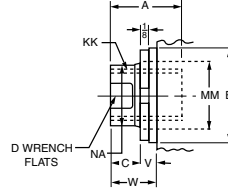
A high strength rod end stud is supplied on thread style 4 through 2" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod

Thread Style 8
(NFPA Style IM)
Intermediate Male



ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied.

Thread Style 9
(NFPA Style SF)
Small Female



"Special" Thread Style 3

Special thread, extension, rod eye, blank, etc., are also available.

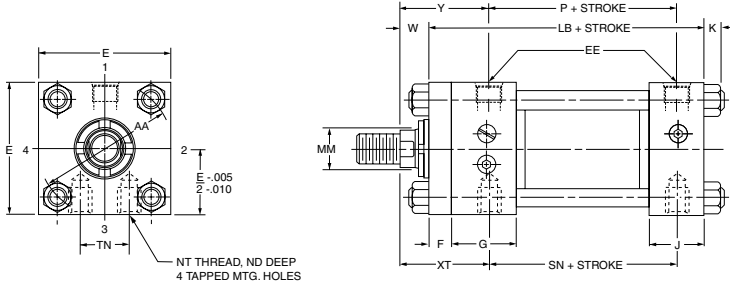
To order, specify "Style 3" and give desired dimensions for CC or KK, A and LA. If otherwise special, furnish dimensioned sketch.

INDUSTRIAL CYLINDERS

SERIES 2H HEAVY DUTY HYDRAULIC CYLINDERS

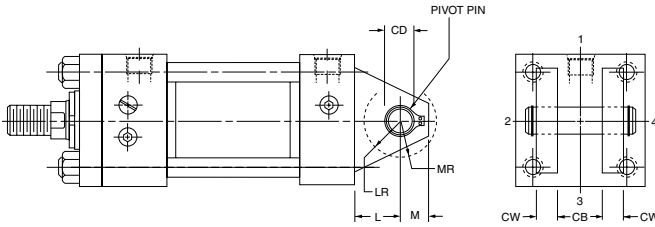
Style F Side Tap

(NFPA MS4)



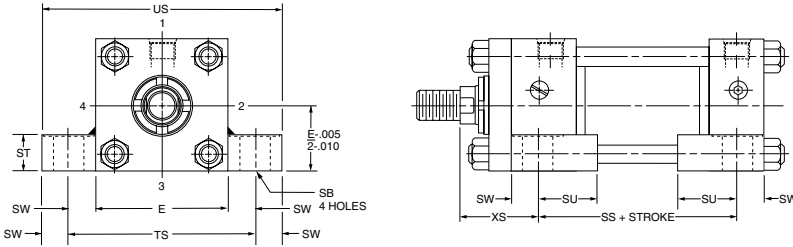
Style BB Cap Fixed Clevis

(NFPA MP1)



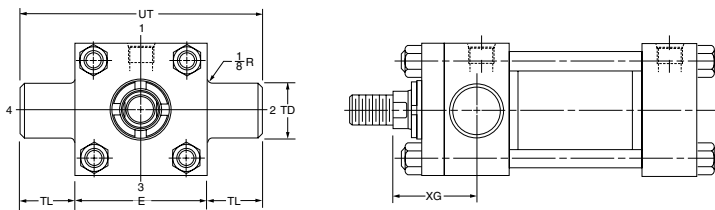
Style C Side Lug

(NFPA MS2)



Style D Head Trunnion

(NFPA MT1)



Maximum Pressure Rating - PSI

Bore Size	PSI
1 1/2	3000
2	3000
2 1/2	3000
3 1/4	2800
4	1800

Table 1 – Envelope and Mounting Dimensions

Bore	AA	CB	+ .000 -.002 CD	CW	E	NPTF†	EE SAE*	F	G	J	K	L	LR	M	MR	ND
1 1/2	2.3	3/4	.501	1/2	2 1/2	1/2	10	3/8	1 3/4	1 1/2	3/8	3/4	9/16	1/2	5/8	3/8
2	2.9	1 1/4	.751	5/8	3	1/2	10	5/8	1 3/4	1 1/2	7/16	1 1/4	1	3/4	15/16	7/16
2 1/2	3.6	1 1/4	.751	5/8	3 1/2	1/2	10	5/8	1 3/4	1 1/2	7/16	1 1/4	15/16	3/4	15/16	1/2
3 1/4	4.6	1 1/2	1.001	3/4	4 1/2	3/4	12	3/4	2	1 3/4	9/16	1 1/2	1 1/4	1	1 3/16	11/16
4	5.4	2	1.376	1	5	3/4	12	7/8	2	1 3/4	9/16	2 1/8	1 3/4	1 3/8	1 5/8	11/16

Bore	NT	SB	ST	SU	SW	+ .000 -.001 TD	TL	TN	TS	US	UT	LB	Add Stroke P	SN	SS
1 1/2	3/8-16	7/16	1/2	15/16	3/8	1.000	1	3/4	3 1/4	4	4 1/2	5	2 7/8	2 7/8	3 7/8
2	1/2-13	9/16	3/4	1 1/4	1/2	1.375	1 3/8	15/16	4	5	5 3/4	5 1/4	2 7/8	2 7/8	3 5/8
2 1/2	5/8-11	13/16	1	1 9/16	11/16	1.375	1 3/8	1 5/16	4 7/8	6 1/4	6 1/4	5 3/8	3	3	3 3/8
3 1/4	3/4-10	13/16	1	1 9/16	11/16	1.750	1 3/4	1 1/2	5 7/8	7 1/4	8	6 1/4	3 1/2	3 1/2	4 1/8
4	1-8	1 1/16	1 1/4	2	7/8	1.750	1 3/4	2 1/16	6 3/4	8 1/2	8 1/2	6 5/8	3 3/4	3 3/4	4

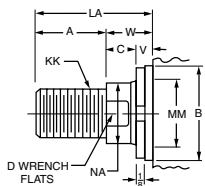
† NPTF ports are available at no extra charge.
* Dimension CD is pin diameter.
** SAE straight thread ports are standard and are indicated by port number.

Table 2 – Rod Dimensions

Bore	Rod No.	Rod Dia. MM	Thread		Rod Extensions and Pilot Dimensions													Table 3 – Envelope and Mounting Dimensions			
			Style 8 CC	Style 4 & 9 KK	A	+ .000 -.002 B	C	D	KB	LA	LAF	NA	V	W	RD	RT	XG	XS	XT	Y	
1 1/2	1(Std.)	5/8	1/2-20	7/16-20	3/4	1.124	3/8	1/2	0	1 3/8	1 3/4	9/16	1/4	5/8	2 1/8	3/8	1 7/8	1 3/8	2	2	
	2	1	7/8-14	3/4-16	1 1/8	1.499	1/2	7/8	0	2 1/8	2 1/2	15/16	1/2	1	2 1/2	3/8	2 1/4	1 3/4	2 3/8	2 3/8	
2	1(Std.)	1	7/8-14	3/4-16	1 1/8	1.499	1/2	7/8	0	1 7/8	2 1/2	15/16	1/4	3/4	2 1/2	3/8	2 1/4	1 7/8	2 3/8	2 3/8	
	2	1 3/8	1 1/4-12	1-14	1 5/8	1.999	5/8	1 1/8	1/4	2 5/8	3 1/4	1 5/16	3/8	1	3	3/8	2 1/2	2 1/8	2 5/8	2 5/8	
2 1/2	1(Std.)	1	7/8-14	3/4-16	1 1/8	1.499	1/2	7/8	0	1 7/8	2 1/2	15/16	1/4	3/4	2 1/2	3/8	2 1/4	2 1/16	2 3/8	2 3/8	
	2	1 3/4	1 1/2-12	1 1/4-12	2	2.374	3/4	1 1/2	1/4	3 1/4	3 7/8	1 11/16	1/2	1 1/4	3 1/2	3/8	2 3/4	2 9/16	2 7/8	2 7/8	
3 1/4	1(Std.)	1 3/8	1 1/4-12	1-14	1 5/8	1.999	5/8	1 1/8	1/4	2 1/2	3 1/4	1 5/16	1/4	7/8	3	3/8	2 5/8	2 5/16	2 3/4	2 3/4	
	2	2	1 3/4-12	1 1/2-12	2 1/4	2.624	7/8	1 11/16	1/8	3 1/2	4 1/4	1 15/16	3/8	1 1/4	4	5/8	3	2 11/16	3 1/8	3 1/8	
4	1(Std.)	1 3/4	1 1/2-12	1 1/4-12	2	2.374	3/4	1 1/2	1/4	3	3 7/8	1 11/16	1/4	1	3 1/2	3/8	2 7/8	2 3/4	3	3	
	2	2 1/2	2 1/4-12	1 7/8-12	3	3.124	1	2 1/16	1/4	4 3/8	5 1/4	2 3/8	3/8	1 3/8	4 1/2	5/8	3 1/4	3 1/8	3 3/8	3 3/8	
	3	2	1 3/4-12	1 1/2-12	2 1/4	2.624	7/8	1 11/16	1/8	3 3/8	4 1/4	1 15/16	1/4	1 1/8	4	5/8	3	2 7/8	3 1/8	3 1/8	

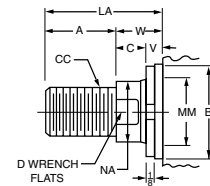
Rod End Dimensions — see table 2

Thread Style 4
(NFPA Style SM)
Small Male



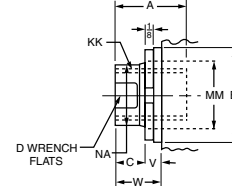
A high strength rod end stud is supplied on thread style 4 through 2" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod

Thread Style 8
(NFPA Style IM)
Intermediate Male



ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied.

Thread Style 9
(NFPA Style SF)
Small Female



"Special" Thread Style 3

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LA. If otherwise special, furnish dimensioned sketch.