



Hydraulic Cylinders



**ADVANCED
CYLINDERS**

Catalog AC1003



ADVANCED CYLINDERS

Advanced Cylinders, LLC. is an innovative and progressive supplier of highly engineered cylinder solutions and is a manufacturer of a standard range of hydraulic cylinders for industrial applications. We engineer many unique "specials" for very demanding applications over a wide range of Markets and Industry Segments.

Our manufacturing operation is certificated to ISO 9001:2015. Our staff is comprised of people with many years of hydraulic cylinder design and manufacture experience. Our mission is to produce the highest quality and reliable products available in the industrial market place.

Whether you are looking for a NFPA cylinder, or an agricultural cylinder, or a telescopic cylinder, or a custom manufactured cylinder, Advanced Cylinders is your choice for quality products, competitive pricing and a commitment to excellent customer service.



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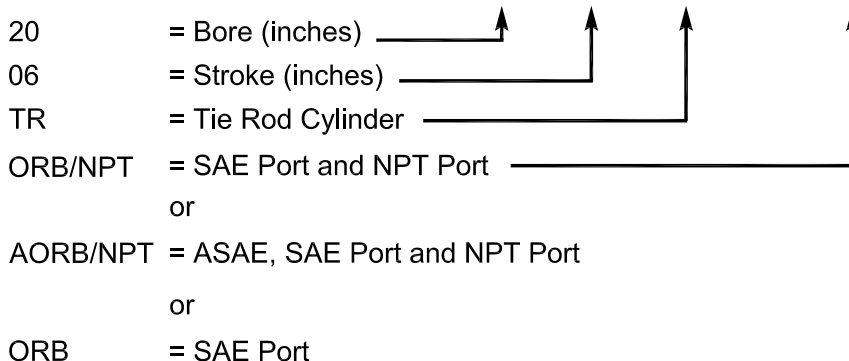
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TR Tie Rod Cylinders



How to Order

20 06 TR - ORB/NPT



Specifications

Bore Sizes - 2" ~ 5"
Strokes - 4 ~ 48"

Pressure - 2500 PSI
Ports - SAE Port and NPT Port

Features

- GLAND - Ductile Iron with one SAE port and one NPT port on opposite sides
- TUBE - High tensile cold drawn tube, precision honed for extended seal life
- TIE ROD - High tensile steel
- ROD - Hard chrome plated steel
- ROD Clevis - Ductile iron
- END CAP - Ductile iron with two SAE ports and two NPT ports on each side for greater flexibility of assembly
- PISTON - High grade ductile iron
- Use all Hallite type seals
 - PISTON SEAL - Hallite 775
 - ROD SEAL - Hallite 605
 - ROD WIPER - Hallite 520
 - TUBE SEAL - Hallite AS-568 o-ring with anti-extrusion backup ring
- PAINT COLOR - Gloss black, or other customized color

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
2008TR-AORB/NPT	2"	8"	1 1/8"	20 1/4"	28 1/4"	7850	SAE 8 / 3/8 NPT	1"	20
2508TR-AORB/NPT	2 1/2"	8"	1 1/8"	20 1/4"	28 1/4"	12270	SAE 8 / 3/8 NPT	1"	23
3008TR-AORB/NPT	3"	8"	1 1/4"	20 1/4"	28 1/4"	17670	SAE 8 / 1/2 NPT	1"	29
3016TR-AORB/NPT	3"	16"	1 1/4"	31 1/2"	47 1/2"	17670	SAE 8 / 1/2 NPT	1 1/4"	38
3508TR-AORB/NPT	3 1/2"	8"	1 1/4"	20 1/4"	28 1/4"	24050	SAE 8 / 1/2 NPT	1"	35
3516TR-AORB/NPT	3 1/2"	16"	1 1/2"	31 1/2"	47 1/2"	24050	SAE 8 / 1/2 NPT	1 1/4"	47
4008TR-AORB/NPT	4"	8"	1 1/4"	20 1/4"	28 1/4"	31410	SAE 8 / 1/2 NPT	1"	42

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
4016TR-AORB/NPT	4"	16"	2"	31 1/2"	47 1/2"	31410	SAE 8 / 1/2 NPT	1 1/4"	64
5008TR-AORB	5"	8"	1 1/2"	22 1/4"	30 1/4"	29450	SAE 8	1"	66
5016TR-AORB	5"	16"	2"	31 1/2"	47 1/2"	29450	SAE 8	1 1/4"	90
2004TR-ORB/NPT	2"	4"	1 1/8"	14 1/4"	18 1/4"	7850	SAE 8 / 3/8 NPT	1"	15
2006TR-ORB/NPT	2"	6"	1 1/8"	16 1/4"	22 1/4"	7850	SAE 8 / 3/8 NPT	1"	16
2008TR-ORB/NPT	2"	8"	1 1/8"	18 1/4"	26 1/4"	7850	SAE 8 / 3/8 NPT	1"	18
2010TR-ORB/NPT	2"	10"	1 1/8"	20 1/4"	30 1/4"	7850	SAE 8 / 3/8 NPT	1"	21
2012TR-ORB/NPT	2"	12"	1 1/8"	22 1/4"	34 1/4"	7850	SAE 8 / 3/8 NPT	1"	22
2014TR-ORB/NPT	2"	14"	1 1/8"	24 1/4"	38 1/4"	7850	SAE 8 / 3/8 NPT	1"	23
2016TR-ORB/NPT	2"	16"	1 1/8"	26 1/4"	42 1/4"	7850	SAE 8 / 3/8 NPT	1"	25
2018TR-ORB/NPT	2"	18"	1 1/8"	28 1/4"	46 1/4"	7850	SAE 8 / 3/8 NPT	1"	27
2020TR-ORB/NPT	2"	20"	1 1/8"	30 1/4"	50 1/4"	7850	SAE 8 / 3/8 NPT	1"	28
2024TR-ORB/NPT	2"	24"	1 1/8"	34 1/4"	58 1/4"	7850	SAE 8 / 3/8 NPT	1"	30
2030TR-ORB/NPT	2"	30"	1 1/8"	40 1/4"	70 1/4"	7850	SAE 8 / 3/8 NPT	1"	35
2036TR-ORB/NPT	2"	36"	1 1/8"	46 1/4"	82 1/4"	7850	SAE 8 / 3/8 NPT	1"	40
2040TR-ORB/NPT	2"	40"	1 1/8"	50 1/4"	90 1/4"	7850	SAE 8 / 3/8 NPT	1"	44
2048TR-ORB/NPT	2"	48"	1 1/8"	58 1/4"	106 1/4"	7850	SAE 8 / 3/8 NPT	1"	50
2504TR-ORB/NPT	2 1/2"	4"	1 1/8"	14 1/4"	18 1/4"	12270	SAE 8 / 3/8 NPT	1"	18
2506TR-ORB/NPT	2 1/2"	6"	1 1/8"	16 1/4"	22 1/4"	12270	SAE 8 / 3/8 NPT	1"	20
2508TR-ORB/NPT	2 1/2"	8"	1 1/8"	18 1/4"	26 1/4"	12270	SAE 8 / 3/8 NPT	1"	22
2510TR-ORB/NPT	2 1/2"	10"	1 1/8"	20 1/4"	30 1/4"	12270	SAE 8 / 3/8 NPT	1"	24
2512TR-ORB/NPT	2 1/2"	12"	1 1/8"	22 1/4"	34 1/4"	12270	SAE 8 / 3/8 NPT	1"	25
2514TR-ORB/NPT	2 1/2"	14"	1 1/8"	24 1/4"	38 1/4"	12270	SAE 8 / 3/8 NPT	1"	26
2516TR-ORB/NPT	2 1/2"	16"	1 1/8"	26 1/4"	42 1/4"	12270	SAE 8 / 3/8 NPT	1"	28
2518TR-ORB/NPT	2 1/2"	18"	1 1/8"	28 1/4"	46 1/4"	12270	SAE 8 / 3/8 NPT	1"	30
2520TR-ORB/NPT	2 1/2"	20"	1 1/8"	30 1/4"	50 1/4"	12270	SAE 8 / 3/8 NPT	1"	32
2524TR-ORB/NPT	2 1/2"	24"	1 1/8"	34 1/4"	58 1/4"	12270	SAE 8 / 3/8 NPT	1"	36
2530TR-ORB/NPT	2 1/2"	30"	1 1/4"	40 1/4"	70 1/4"	12270	SAE 8 / 3/8 NPT	1"	43
2536TR-ORB/NPT	2 1/2"	36"	1 1/4"	46 1/4"	82 1/4"	12270	SAE 8 / 3/8 NPT	1"	48
2540TR-ORB/NPT	2 1/2"	40"	1 1/4"	50 1/4"	90 1/4"	12270	SAE 8 / 3/8 NPT	1"	51
2548TR-ORB/NPT	2 1/2"	48"	1 1/4"	58 1/4"	106 1/4"	12270	SAE 8 / 3/8 NPT	1"	59
3004TR-ORB/NPT	3"	4"	1 1/4"	14 1/4"	18 1/4"	17670	SAE 8 / 1/2 NPT	1"	23
3006TR-ORB/NPT	3"	6"	1 1/4"	16 1/4"	22 1/4"	17670	SAE 8 / 1/2 NPT	1"	24
3008TR-ORB/NPT	3"	8"	1 1/4"	18 1/4"	26 1/4"	17670	SAE 8 / 1/2 NPT	1"	26
3010TR-ORB/NPT	3"	10"	1 1/4"	20 1/4"	30 1/4"	17670	SAE 8 / 1/2 NPT	1"	29
3012TR-ORB/NPT	3"	12"	1 1/4"	22 1/4"	34 1/4"	17670	SAE 8 / 1/2 NPT	1"	32
3014TR-ORB/NPT	3"	14"	1 1/4"	24 1/4"	38 1/4"	17670	SAE 8 / 1/2 NPT	1"	33
3016TR-ORB/NPT	3"	16"	1 1/4"	26 1/4"	42 1/4"	17670	SAE 8 / 1/2 NPT	1"	36
3018TR-ORB/NPT	3"	18"	1 1/4"	28 1/4"	46 1/4"	17670	SAE 8 / 1/2 NPT	1"	38
3020TR-ORB/NPT	3"	20"	1 1/4"	30 1/4"	50 1/4"	17670	SAE 8 / 1/2 NPT	1"	40
3024TR-ORB/NPT	3"	24"	1 1/2"	34 1/4"	58 1/4"	17670	SAE 8 / 1/2 NPT	1"	49
3030TR-ORB/NPT	3"	30"	1 1/2"	40 1/4"	70 1/4"	17670	SAE 8 / 1/2 NPT	1"	56
3036TR-ORB/NPT	3"	36"	1 1/2"	46 1/4"	82 1/4"	17670	SAE 8 / 1/2 NPT	1"	63

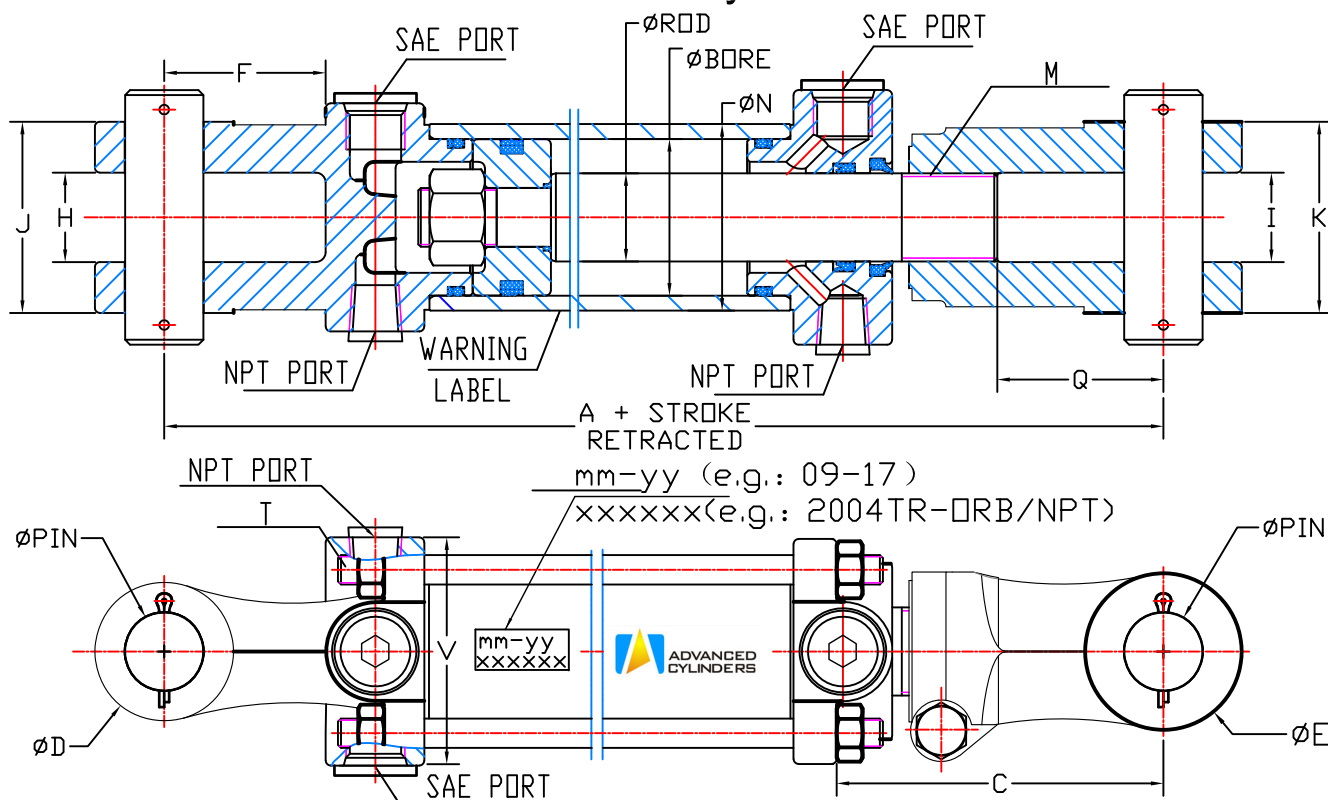
Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
3040TR-ORB/NPT	3"	40"	1 1/2"	50 1/4"	90 1/4"	17670	SAE 8/ 1/2 NPT	1"	67
3048TR-ORB/NPT	3"	48"	1 1/2"	58 1/4"	106 1/4"	17670	SAE 8/ 1/2 NPT	1"	77
3504TR-ORB/NPT	3 1/2"	4"	1 1/4"	14 1/4"	18 1/4"	24050	SAE 8/ 1/2 NPT	1"	27
3506TR-ORB/NPT	3 1/2"	6"	1 1/4"	16 1/4"	22 1/4"	24050	SAE 8/ 1/2 NPT	1"	30
3508TR-ORB/NPT	3 1/2"	8"	1 1/4"	18 1/4"	26 1/4"	24050	SAE 8/ 1/2 NPT	1"	33
3510TR-ORB/NPT	3 1/2"	10"	1 1/4"	20 1/4"	30 1/4"	24050	SAE 8/ 1/2 NPT	1"	34
3512TR-ORB/NPT	3 1/2"	12"	1 1/4"	22 1/4"	34 1/4"	24050	SAE 8/ 1/2 NPT	1"	37
3514TR-ORB/NPT	3 1/2"	14"	1 1/4"	24 1/4"	38 1/4"	24050	SAE 8/ 1/2 NPT	1"	39
3516TR-ORB/NPT	3 1/2"	16"	1 1/4"	26 1/4"	42 1/4"	24050	SAE 8/ 1/2 NPT	1"	42
3518TR-ORB/NPT	3 1/2"	18"	1 1/4"	28 1/4"	46 1/4"	24050	SAE 8/ 1/2 NPT	1"	44
3520TR-ORB/NPT	3 1/2"	20"	1 1/4"	30 1/4"	50 1/4"	24050	SAE 8/ 1/2 NPT	1"	47
3524TR-ORB/NPT	3 1/2"	24"	1 1/2"	34 1/4"	58 1/4"	24050	SAE 8/ 1/2 NPT	1"	56
3530TR-ORB/NPT	3 1/2"	30"	1 1/2"	40 1/4"	70 1/4"	24050	SAE 8/ 1/2 NPT	1"	62
3536TR-ORB/NPT	3 1/2"	36"	1 1/2"	46 1/4"	82 1/4"	24050	SAE 8/ 1/2 NPT	1"	72
3540TR-ORB/NPT	3 1/2"	40"	1 1/2"	50 1/4"	90 1/4"	24050	SAE 8/ 1/2 NPT	1"	78
3548TR-ORB/NPT	3 1/2"	48"	1 1/2"	58 1/4"	106 1/4"	24050	SAE 8/ 1/2 NPT	1"	90
4004TR-ORB/NPT	4"	4"	1 1/4"	14 1/4"	18 1/4"	31410	SAE 8/ 1/2 NPT	1"	34
4006TR-ORB/NPT	4"	6"	1 1/4"	16 1/4"	22 1/4"	31410	SAE 8/ 1/2 NPT	1"	36
4008TR-ORB/NPT	4"	8"	1 1/4"	18 1/4"	26 1/4"	31410	SAE 8/ 1/2 NPT	1"	39
4010TR-ORB/NPT	4"	10"	1 1/4"	20 1/4"	30 1/4"	31410	SAE 8/ 1/2 NPT	1"	42
4012TR-ORB/NPT	4"	12"	1 1/4"	22 1/4"	34 1/4"	31410	SAE 8/ 1/2 NPT	1"	45
4014TR-ORB/NPT	4"	14"	1 1/4"	24 1/4"	38 1/4"	31410	SAE 8/ 1/2 NPT	1"	50
4016TR-ORB/NPT	4"	16"	1 1/4"	26 1/4"	42 1/4"	31410	SAE 8/ 1/2 NPT	1"	51
4018TR-ORB/NPT	4"	18"	1 1/2"	28 1/4"	46 1/4"	31410	SAE 8/ 1/2 NPT	1"	56
4020TR-ORB/NPT	4"	20"	1 1/2"	30 1/4"	50 1/4"	31410	SAE 8/ 1/2 NPT	1"	59
4024TR-ORB/NPT	4"	24"	2"	34 1/4"	58 1/4"	31410	SAE 8/ 1/2 NPT	1"	74
4030TR-ORB/NPT	4"	30"	2"	40 1/4"	70 1/4"	31410	SAE 8/ 1/2 NPT	1"	94
4036TR-ORB/NPT	4"	36"	2"	46 1/4"	82 1/4"	31410	SAE 8/ 1/2 NPT	1"	102
4040TR-ORB/NPT	4"	40"	2"	50 1/4"	90 1/4"	31410	SAE 8/ 1/2 NPT	1"	106
4048TR-ORB/NPT	4"	48"	2"	58 1/4"	106 1/4"	31410	SAE 8/ 1/2 NPT	1"	120
5004TR-ORB	5"	4"	1 1/2"	16 1/4"	20 1/4"	49080	SAE 8	1"	53
5006TR-ORB	5"	6"	1 1/2"	18 1/4"	24 1/4"	49080	SAE 8	1"	55
5008TR-ORB	5"	8"	1 1/2"	20 1/4"	28 1/4"	49080	SAE 8	1"	64
5010TR-ORB	5"	10"	1 1/2"	22 1/4"	32 1/4"	49080	SAE 8	1"	68
5012TR-ORB	5"	12"	2"	24 1/4"	36 1/4"	49080	SAE 8	1 1/4"	77
5014TR-ORB	5"	14"	2"	26 1/4"	40 1/4"	49080	SAE 8	1 1/4"	82
5016TR-ORB	5"	16"	2"	28 1/4"	44 1/4"	49080	SAE 8	1 1/4"	87
5018TR-ORB	5"	18"	2"	30 1/4"	48 1/4"	49080	SAE 8	1 1/4"	92
5020TR-ORB	5"	20"	2"	32 1/4"	52 1/4"	49080	SAE 8	1 1/4"	96
5024TR-ORB	5"	24"	2"	36 1/4"	60 1/4"	49080	SAE 8	1 1/4"	106
5030TR-ORB	5"	30"	2"	42 1/4"	72 1/4"	49080	SAE 8	1 1/4"	121
5036TR-ORB	5"	36"	2"	48 1/4"	84 1/4"	49080	SAE 8	1 1/4"	136
5040TR-ORB	5"	40"	2"	52 1/4"	92 1/4"	49080	SAE 8	1 1/4"	146

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
5048TR-ORB	5"	48"	2"	60 1/4"	108 1/4"	49080	SAE 8	1 1/4"	166
SK-TR201125B	2" BORE X 1 1/8" ROD SEAL KIT								
SK-TR251125B	2 1/2" BORE X 1 1/8" ROD SEAL KIT								
SK-TR251250B	2 1/2" BORE X 1 1/4" ROD SEAL KIT								
SK-TR301250B	3" BORE X 1 1/4" ROD SEAL KIT								
SK-TR301500B	3" BORE X 1 1/2" ROD SEAL KIT								
SK-TR351250B	3 1/2" BORE X 1 1/4" ROD SEAL KIT								
SK-TR351500B	3 1/2" BORE X 1 1/2" ROD SEAL KIT								
SK-TR401250B	4" BORE X 1 1/4" ROD SEAL KIT								
SK-TR401500B	4" BORE X 1 1/2" ROD SEAL KIT								
SK-TR402000B	4" BORE X 2" ROD SEAL KIT								

TR Tie Rod Cylinders



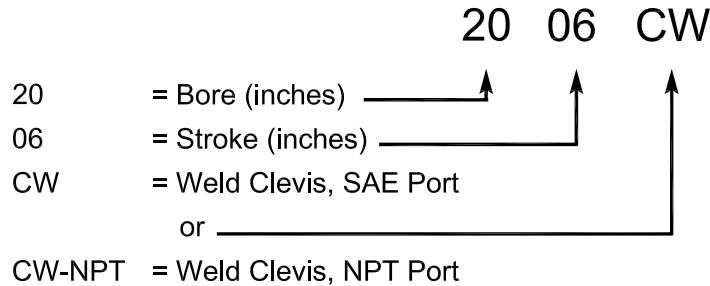
Dimension

BORE SIZE	2"	2 1/2"	3"	3 1/2"	4"	5"
A NON-ASAE // ASAE	10 1/4" // 12 1/4"	10 1/4" // 12 1/4"	10 1/4" // 12 1/4" (3016 ASAE 15 1/2")	10 1/4" // 12 1/4" (3516 ASAE 15 1/2")	10 1/4" // 12 1/4" (4016 ASAE 15 1/2")	10 1/4" // 14 1/4" (5016 ASAE 15 1/2")
C NON-ASAE // ASAE	4.17" // 6.17"	4.17" // 6.17"	4.07" // 6.07" (3016 ASAE 9.30")	3.97" // 6.01" (3516 ASAE 9.26")	3.90" // 5.90" (4016 ASAE 9.10")	5.01" // 7.01" (5016 ASAE 8.26")
D	1.77"	1.97"	2.04"	2.25"	2.05"	2.76"
E	2.00"	2.00"	2.04"	2.25"	2.05"	2.76"
F	2.06"	2.06"	2.06"	2.06"	2.06"	2.12"
H	1.14"	1.14"	1.14"	1.14"	1.14"	1.30"
I	1.14"	1.14"	1.14"	1.14"	1.14"	1.20"
J	2.46"	2.44"	2.50"	2.50"	2.64"	2.87"
K	2.46"	2.44"	2.64"	2.64"	2.64"	2.95"
M	1 1/8-12UNF	1 1/8-12UNF	1 1/4-12UNF	1 1/4-12UNF	1 1/4-12UNF	1 1/2-12UNF
N	2.38"	2.89"	3.39"	4.00"	4.50"	5.50"
Q	2.12"	2.12"	2.12"	2.12"	2.12"	2.12"
T	M10	M10	M12	M14	M16	M20
V	2.91"	3.31"	3.86"	4.29"	5.12"	6.46"

CW Weld Clevis Cylinders



How to Order



Specifications

Bore Sizes - 1 1/2" ~ 5"
 Strokes - 4 ~ 36"

Pressure - 3000 PSI
 Ports - SAE Port or NPT Port

Features

- CONSTRUCTION - Heavy duty welded
- TUBE - High tensile cold drawn tube, precision honed for extended seal life
- ROD - Hard chrome plated steel
- PISTON - High grade ductile iron
- Use all Hallite type seals
 - PISTON SEAL - Hallite 775
 - ROD SEAL - Hallite 605
 - ROD WIPER - Hallite 520
 - TUBE SEAL - Hallite AS-568 o-ring with anti-extrusion backup ring
- PAINT COLOR - Gloss black, or other customized color

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
1504CW-NPT	1 1/2"	4"	1"	11 3/4"	15 3/4"	5300	3/8 NPT	1/2"	8
1506CW-NPT	1 1/2"	6"	1"	13 3/4"	19 3/4"	5300	3/8 NPT	1/2"	9
1508CW-NPT	1 1/2"	8"	1"	15 3/4"	23 3/4"	5300	3/8 NPT	1/2"	10
1510CW-NPT	1 1/2"	10"	1"	17 3/4"	27 3/4"	5300	3/8 NPT	1/2"	11
1512CW-NPT	1 1/2"	12"	1"	19 3/4"	31 3/4"	5300	3/8 NPT	1/2"	12
2004CW	2"	4"	1 1/4"	14 1/4"	18 1/4"	9420	SAE 6	1"	14
2006CW	2"	6"	1 1/4"	16 1/4"	22 1/4"	9420	SAE 6	1"	16
2008CW	2"	8"	1 1/4"	18 1/4"	26 1/4"	9420	SAE 6	1"	17
2010CW	2"	10"	1 1/4"	20 1/4"	30 1/4"	9420	SAE 6	1"	20
2012CW	2"	12"	1 1/4"	22 1/4"	34 1/4"	9420	SAE 6	1"	21
2014CW	2"	14"	1 1/4"	24 1/4"	38 1/4"	9420	SAE 6	1"	23
2016CW	2"	16"	1 1/4"	26 1/4"	42 1/4"	9420	SAE 6	1"	24
2018CW	2"	18"	1 1/4"	28 1/4"	46 1/4"	9420	SAE 6	1"	26

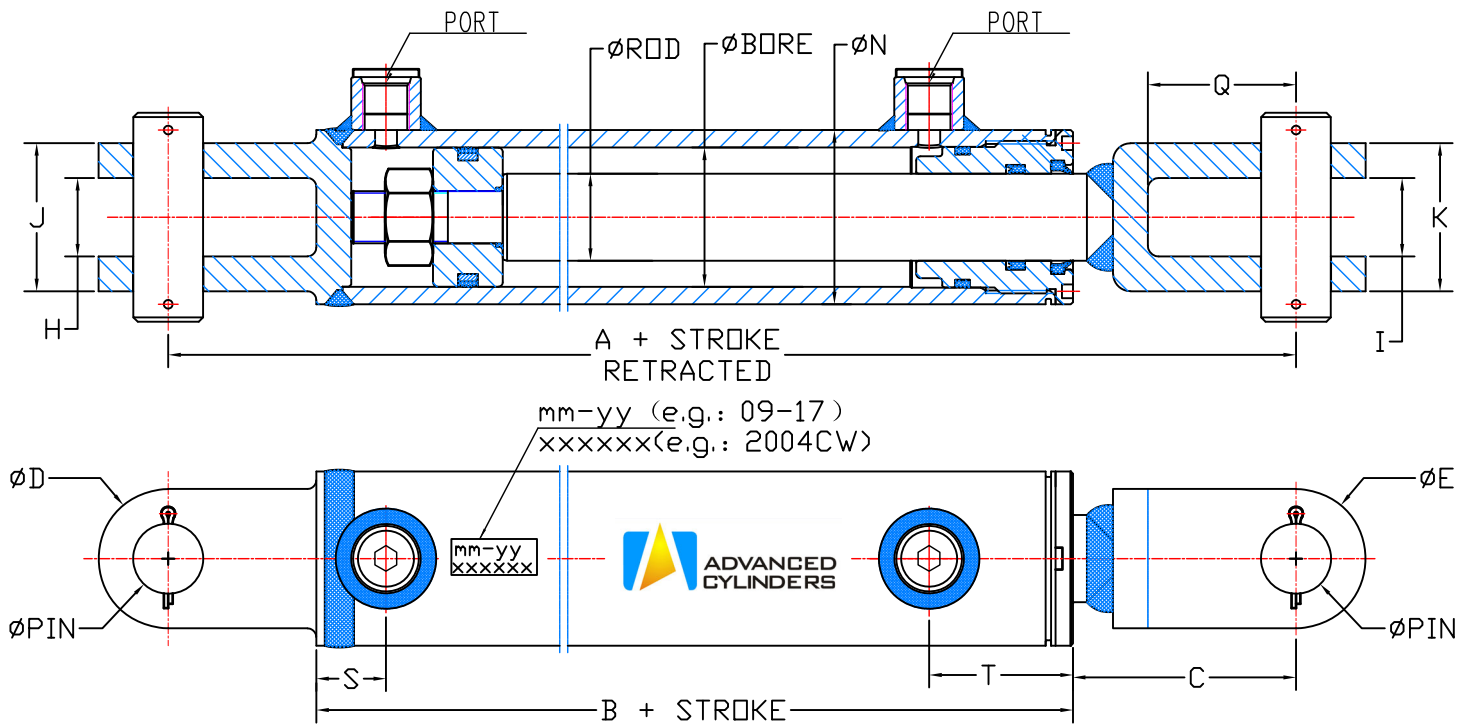
Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
2020CW	2"	20"	1 1/4"	30 1/4"	50 1/4"	9420	SAE 6	1"	28
2024CW	2"	24"	1 1/4"	34 1/4"	58 1/4"	9420	SAE 6	1"	32
2028CW	2"	28"	1 1/4"	38 1/4"	66 1/4"	9420	SAE 6	1"	36
2030CW	2"	30"	1 1/4"	40 1/4"	70 1/4"	9420	SAE 6	1"	37
2032CW	2"	32"	1 1/4"	42 1/4"	74 1/4"	9420	SAE 6	1"	39
2034CW	2"	34"	1 1/4"	44 1/4"	78 1/4"	9420	SAE 6	1"	40
2036CW	2"	36"	1 1/4"	46 1/4"	82 1/4"	9420	SAE 6	1"	41
2504CW	2 1/2"	4"	1 1/2"	14 1/4"	18 1/4"	14720	SAE 8	1"	19
2506CW	2 1/2"	6"	1 1/2"	16 1/4"	22 1/4"	14720	SAE 8	1"	21
2508CW	2 1/2"	8"	1 1/2"	18 1/4"	26 1/4"	14720	SAE 8	1"	23
2510CW	2 1/2"	10"	1 1/2"	20 1/4"	30 1/4"	14720	SAE 8	1"	25
2512CW	2 1/2"	12"	1 1/2"	22 1/4"	34 1/4"	14720	SAE 8	1"	27
2514CW	2 1/2"	14"	1 1/2"	24 1/4"	38 1/4"	14720	SAE 8	1"	29
2516CW	2 1/2"	16"	1 1/2"	26 1/4"	42 1/4"	14720	SAE 8	1"	31
2518CW	2 1/2"	18"	1 1/2"	28 1/4"	46 1/4"	14720	SAE 8	1"	34
2520CW	2 1/2"	20"	1 1/2"	30 1/4"	50 1/4"	14720	SAE 8	1"	36
2524CW	2 1/2"	24"	1 1/2"	34 1/4"	58 1/4"	14720	SAE 8	1"	40
2528CW	2 1/2"	28"	1 1/2"	38 1/4"	66 1/4"	14720	SAE 8	1"	46
2530CW	2 1/2"	30"	1 1/2"	40 1/4"	70 1/4"	14720	SAE 8	1"	48
2532CW	2 1/2"	32"	1 1/2"	42 1/4"	74 1/4"	14720	SAE 8	1"	50
2534CW	2 1/2"	34"	1 1/2"	44 1/4"	78 1/4"	14720	SAE 8	1"	52
2536CW	2 1/2"	36"	1 1/2"	46 1/4"	82 1/4"	14720	SAE 8	1"	54
3004CW	3"	4"	1 1/2"	14 1/4"	18 1/4"	21200	SAE 8	1"	22
3006CW	3"	6"	1 1/2"	16 1/4"	22 1/4"	21200	SAE 8	1"	24
3008CW	3"	8"	1 1/2"	18 1/4"	26 1/4"	21200	SAE 8	1"	26
3010CW	3"	10"	1 1/2"	20 1/4"	30 1/4"	21200	SAE 8	1"	29
3012CW	3"	12"	1 1/2"	22 1/4"	34 1/4"	21200	SAE 8	1"	31
3014CW	3"	14"	1 1/2"	24 1/4"	38 1/4"	21200	SAE 8	1"	34
3016CW	3"	16"	1 1/2"	26 1/4"	42 1/4"	21200	SAE 8	1"	36
3018CW	3"	18"	1 1/2"	28 1/4"	46 1/4"	21200	SAE 8	1"	38
3020CW	3"	20"	1 1/2"	30 1/4"	50 1/4"	21200	SAE 8	1"	41
3024CW	3"	24"	1 1/2"	34 1/4"	58 1/4"	21200	SAE 8	1"	46
3028CW	3"	28"	1 1/2"	38 1/4"	66 1/4"	21200	SAE 8	1"	51
3030CW	3"	30"	1 1/2"	40 1/4"	70 1/4"	21200	SAE 8	1"	53
3032CW	3"	32"	1 1/2"	42 1/4"	74 1/4"	21200	SAE 8	1"	56
3034CW	3"	34"	1 1/2"	44 1/4"	78 1/4"	21200	SAE 8	1"	58
3036CW	3"	36"	1 1/2"	46 1/4"	82 1/4"	21200	SAE 8	1"	61
3504CW	3 1/2"	4"	1 3/4"	14 1/4"	18 1/4"	28860	SAE 8	1"	28
3506CW	3 1/2"	6"	1 3/4"	16 1/4"	22 1/4"	28860	SAE 8	1"	31
3508CW	3 1/2"	8"	1 3/4"	18 1/4"	26 1/4"	28860	SAE 8	1"	34
3510CW	3 1/2"	10"	1 3/4"	20 1/4"	30 1/4"	28860	SAE 8	1"	36
3512CW	3 1/2"	12"	1 3/4"	22 1/4"	34 1/4"	28860	SAE 8	1"	39
3514CW	3 1/2"	14"	1 3/4"	24 1/4"	38 1/4"	28860	SAE 8	1"	42

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
3516CW	3 1/2"	16"	1 3/4"	26 1/4"	42 1/4"	28860	SAE 8	1"	45
3518CW	3 1/2"	18"	1 3/4"	28 1/4"	48 1/4"	28860	SAE 8	1"	50
3520CW	3 1/2"	20"	1 3/4"	30 1/4"	50 1/4"	28860	SAE 8	1"	54
3524CW	3 1/2"	24"	1 3/4"	34 1/4"	58 1/4"	28860	SAE 8	1"	58
3528CW	3 1/2"	28"	1 3/4"	38 1/4"	66 1/4"	28860	SAE 8	1"	63
3530CW	3 1/2"	30"	1 3/4"	40 1/4"	70 1/4"	28860	SAE 8	1"	67
3532CW	3 1/2"	32"	1 3/4"	42 1/4"	74 1/4"	28860	SAE 8	1"	71
3534CW	3 1/2"	34"	1 3/4"	44 1/4"	78 1/4"	28860	SAE 8	1"	74
3536CW	3 1/2"	36"	1 3/4"	46 1/4"	82 1/4"	28860	SAE 8	1"	76
4004CW	4"	4"	2"	14 1/4"	18 1/4"	37700	SAE 8	1"	34
4006CW	4"	6"	2"	16 1/4"	20 1/4"	37700	SAE 8	1"	38
4008CW	4"	8"	2"	18 1/4"	26 1/4"	37700	SAE 8	1"	40
4010CW	4"	10"	2"	20 1/4"	30 1/4"	37700	SAE 8	1"	44
4012CW	4"	12"	2"	22 1/4"	34 1/4"	37700	SAE 8	1"	46
4014CW	4"	14"	2"	24 1/4"	38 1/4"	37700	SAE 8	1"	51
4016CW	4"	16"	2"	26 1/4"	42 1/4"	37700	SAE 8	1"	55
4018CW	4"	18"	2"	28 1/4"	46 1/4"	37700	SAE 8	1"	59
4020CW	4"	20"	2"	30 1/4"	50 1/4"	37700	SAE 8	1"	62
4024CW	4"	24"	2"	34 1/4"	58 1/4"	37700	SAE 8	1"	69
4030CW	4"	30"	2"	40 1/4"	70 1/4"	37700	SAE 8	1"	81
4032CW	4"	32"	2"	42 1/4"	74 1/4"	37700	SAE 8	1"	85
4034CW	4"	34"	2"	44 1/4"	78 1/4"	37700	SAE 8	1"	89
4036CW	4"	36"	2"	46 1/4"	82 1/4"	37700	SAE 8	1"	92
5004CW	5"	4"	2 1/2"	16 1/4"	20 1/4"	58900	SAE 8	1"	64
5006CW	5"	6"	2 1/2"	18 1/4"	24 1/4"	58900	SAE 8	1"	69
5008CW	5"	8"	2 1/2"	20 1/4"	28 1/4"	58900	SAE 8	1"	74
5010CW	5"	10"	2 1/2"	22 1/4"	32 1/4"	58900	SAE 8	1"	79
5012CW	5"	12"	2 1/2"	24 1/4"	36 1/4"	58900	SAE 8	1"	84
5014CW	5"	14"	2 1/2"	26 1/4"	40 1/4"	58900	SAE 8	1"	89
5016CW	5"	16"	2 1/2"	28 1/4"	44 1/4"	58900	SAE 8	1"	95
5018CW	5"	18"	2 1/2"	30 1/4"	48 1/4"	58900	SAE 8	1"	100
5020CW	5"	20"	2 1/2"	32 1/4"	52 1/4"	58900	SAE 8	1"	105
5024CW	5"	24"	2 1/2"	36 1/4"	60 1/4"	58900	SAE 8	1"	115
5030CW	5"	30"	2 1/2"	42 1/4"	72 1/4"	58900	SAE 8	1"	130
5032CW	5"	32"	2 1/2"	44 1/4"	76 1/4"	58900	SAE 8	1"	136
5034CW	5"	34"	2 1/2"	46 1/4"	80 1/4"	58900	SAE 8	1"	141
5036CW	5"	36"	2 1/2"	48 1/4"	84 1/4"	58900	SAE 8	1"	146
SK-CW151000B	1 1/2" BORE X 1" ROD SEAL KIT								
SK-CW201250B	2" BORE X 1 1/4" ROD SEAL KIT								
SK-CW251500B	2 1/2" BORE X 1 1/2" ROD SEAL KIT								
SK-CW301500B	3" BORE X 1 1/2" ROD SEAL KIT								
SK-CW351750B	3 1/2" BORE X 1 3/4" ROD SEAL KIT								
SK-CW402000B	4" BORE X 2" ROD SEAL KIT								

CW Weld Clevis Cylinders



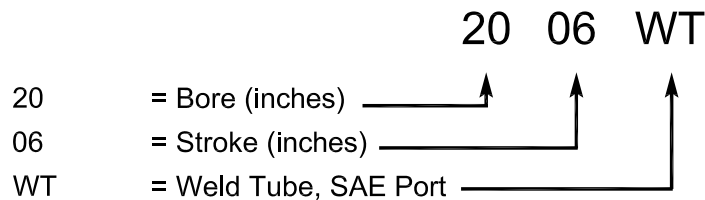
Dimension

BORE	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"
A	7.75"	10.25"	10.25"	10.25"	10.25"	10.25"	12.25"
B	4.28"	4.92"	4.92"	4.92"	5.05"	5.30"	6.19"
C	2.09"	3.20"	3.20"	3.20"	3.20"	3.20"	3.81"
D	1.50"	2.00"	2.00"	2.00"	2.00"	2.00"	3.00"
E	1.50"	2.00"	2.00"	2.00"	2.00"	2.00"	3.00"
H	0.87"	1.13"	1.13"	1.13"	1.13"	1.13"	1.63"
I	0.87"	1.13"	1.13"	1.13"	1.13"	1.13"	1.63"
J	1.63"	2.13"	2.13"	2.13"	2.37"	2.37"	3.13"
K	1.63"	2.13"	2.13"	2.13"	2.37"	2.37"	3.13"
N	2.00"	2.50"	3.00"	3.50"	4.00"	4.50"	5.50"
Q	1.38"	2.13"	2.13"	2.13"	2.13"	2.00"	2.25"
S	1.00"	1.00"	1.00"	1.00"	1.25"	1.13"	1.37"
T	1.88"	2.06"	2.19"	2.19"	2.19"	2.19"	2.75"

WT Weld Tube Cylinders



How to Order



Specifications

Bore Sizes - 1 1/2" ~ 5"

Strokes - 4 ~ 48"

Pressure - 3000 PSI

Ports - SAE Port

Features

- CONSTRUCTION - Heavy duty welded
- TUBE - High tensile cold drawn tube, precision honed for extended seal life
- ROD - Hard chrome plated steel
- PISTON - High grade ductile iron
- Use all Hallite type seals
 - PISTON SEAL - Hallite 775
 - ROD SEAL - Hallite 605
 - ROD WIPER - Hallitie 520
 - TUBE SEAL - Hallite AS-568 o-ring with anti-extrusion backup ring
- PAINT COLOR - Gloss black, or other customized color

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
1504WT	1 1/2"	4"	1"	12"	16"	5300	SAE 4	3/4"	7
1506WT	1 1/2"	6"	1"	14"	20"	5300	SAE 4	3/4"	8
1508WT	1 1/2"	8"	1"	16"	24"	5300	SAE 4	3/4"	9
1510WT	1 1/2"	10"	1"	18"	28"	5300	SAE 4	3/4"	10
1512WT	1 1/2"	12"	1"	20"	32"	5300	SAE 4	3/4"	11
1514WT	1 1/2"	14"	1"	22"	36"	5300	SAE 4	3/4"	12
1516WT	1 1/2"	16"	1"	24"	40"	5300	SAE 4	3/4"	13
2004WT	2"	4"	1 1/4"	12"	16"	9420	SAE 6	1"	12
2006WT	2"	6"	1 1/4"	14"	20"	9420	SAE 6	1"	13
2008WT	2"	8"	1 1/4"	16"	24"	9420	SAE 6	1"	14
2010WT	2"	10"	1 1/4"	18"	28"	9420	SAE 6	1"	16

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
2012WT	2"	12"	1 1/4"	20"	32"	9420	SAE 6	1"	18
2014WT	2"	14"	1 1/4"	22"	36"	9420	SAE 6	1"	20
2016WT	2"	16"	1 1/4"	24"	40"	9420	SAE 6	1"	22
2018WT	2"	18"	1 1/4"	26"	44"	9420	SAE 6	1"	23
2020WT	2"	20"	1 1/4"	28"	48"	9420	SAE 6	1"	25
2024WT	2"	24"	1 1/4"	32"	56"	9420	SAE 6	1"	28
2028WT	2"	28"	1 1/4"	36"	64"	9420	SAE 6	1"	32
2030WT	2"	30"	1 1/4"	38"	68"	9420	SAE 6	1"	34
2032WT	2"	32"	1 1/4"	40"	72"	9420	SAE 6	1"	36
2036WT	2"	36"	1 1/4"	44"	80"	9420	SAE 6	1"	37
2040WT	2"	40"	1 1/4"	48"	88"	9420	SAE 6	1"	41
2504WT	2 1/2"	4"	1 1/2"	12"	16"	14720	SAE 8	1"	16
2506WT	2 1/2"	6"	1 1/2"	14"	20"	14720	SAE 8	1"	18
2508WT	2 1/2"	8"	1 1/2"	16"	24"	14720	SAE 8	1"	20
2510WT	2 1/2"	10"	1 1/2"	18"	28"	14720	SAE 8	1"	22
2512WT	2 1/2"	12"	1 1/2"	20"	32"	14720	SAE 8	1"	25
2514WT	2 1/2"	14"	1 1/2"	22"	36"	14720	SAE 8	1"	27
2516WT	2 1/2"	16"	1 1/2"	24"	40"	14720	SAE 8	1"	29
2518WT	2 1/2"	18"	1 1/2"	26"	44"	14720	SAE 8	1"	31
2520WT	2 1/2"	20"	1 1/2"	28"	48"	14720	SAE 8	1"	34
2524WT	2 1/2"	24"	1 1/2"	32"	56"	14720	SAE 8	1"	38
2528WT	2 1/2"	28"	1 1/2"	36"	64"	14720	SAE 8	1"	42
2530WT	2 1/2"	30"	1 1/2"	38"	68"	14720	SAE 8	1"	45
2532WT	2 1/2"	32"	1 1/2"	40"	72"	14720	SAE 8	1"	47
2534WT	2 1/2"	34"	1 1/2"	42"	76"	14720	SAE 8	1"	49
2536WT	2 1/2"	36"	1 1/2"	44"	80"	14720	SAE 8	1"	51
2540WT	2 1/2"	40"	1 1/2"	48"	88"	14720	SAE 8	1"	57
3004WT	3"	4"	1 1/2"	12"	16"	21200	SAE 8	1"	19
3006WT	3"	6"	1 1/2"	14"	20"	21200	SAE 8	1"	22
3008WT	3"	8"	1 1/2"	16"	24"	21200	SAE 8	1"	24
3010WT	3"	10"	1 1/2"	18"	28"	21200	SAE 8	1"	26
3012WT	3"	12"	1 1/2"	20"	32"	21200	SAE 8	1"	29
3014WT	3"	14"	1 1/2"	22"	36"	21200	SAE 8	1"	31
3016WT	3"	16"	1 1/2"	24"	40"	21200	SAE 8	1"	34
3018WT	3"	18"	1 1/2"	26"	44"	21200	SAE 8	1"	36
3020WT	3"	20"	1 1/2"	28"	48"	21200	SAE 8	1"	38
3024WT	3"	24"	1 1/2"	32"	56"	21200	SAE 8	1"	44
3028WT	3"	28"	1 1/2"	36"	64"	21200	SAE 8	1"	49
3030WT	3"	30"	1 1/2"	38"	68"	21200	SAE 8	1"	51
3032WT	3"	32"	1 1/2"	40"	72"	21200	SAE 8	1"	54
3034WT	3"	34"	1 1/2"	42"	76"	21200	SAE 8	1"	56
3036WT	3"	36"	1 1/2"	44"	80"	21200	SAE 8	1"	59
3040WT	3"	40"	1 1/2"	46"	88"	21200	SAE 8	1"	63

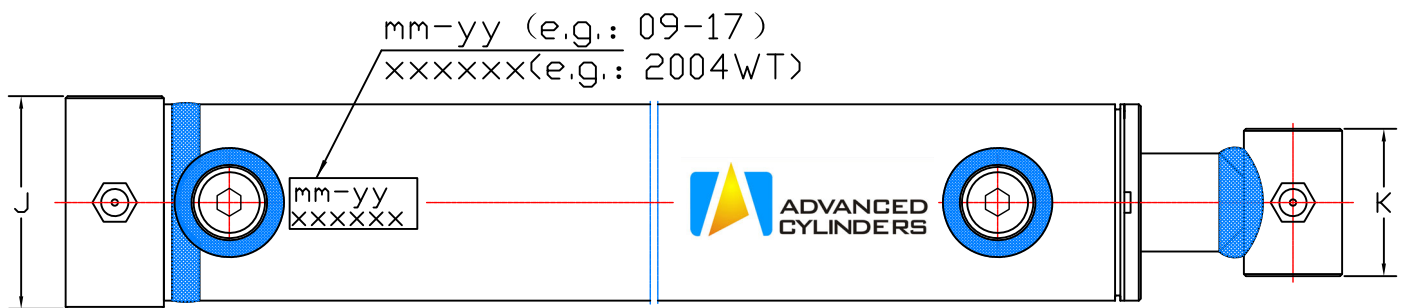
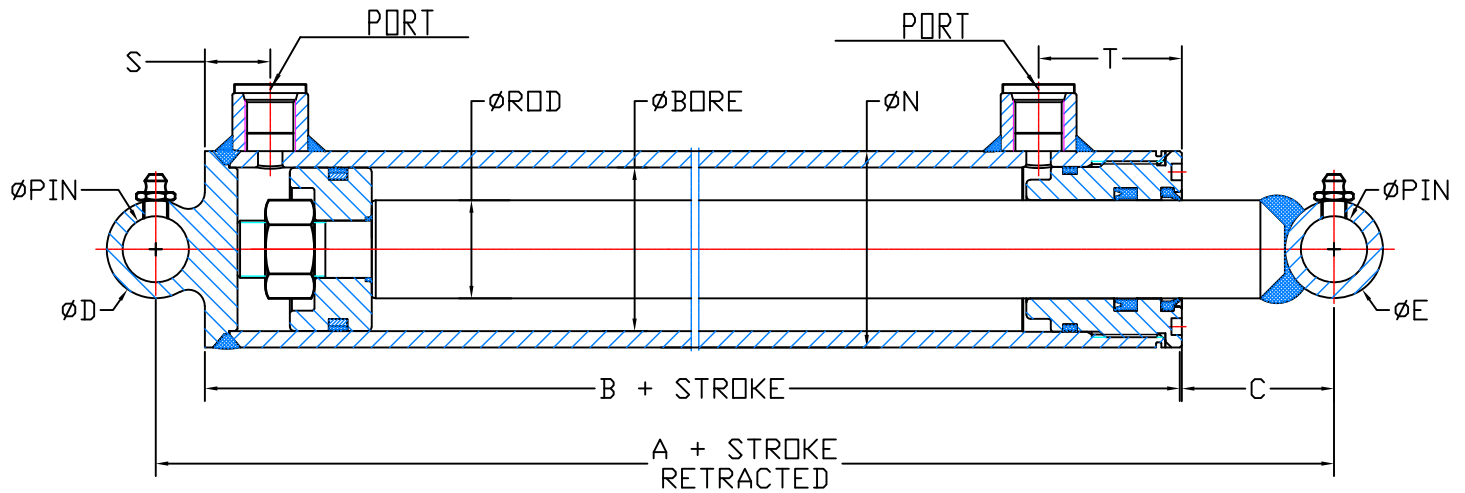
Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
3504WT	3 1/2"	4"	1 3/4"	14"	18"	28860	SAE 8	1 1/4"	28
3506WT	3 1/2"	6"	1 3/4"	16"	22"	28860	SAE 8	1 1/4"	30
3508WT	3 1/2"	8"	1 3/4"	18"	26"	28860	SAE 8	1 1/4"	33
3510WT	3 1/2"	10"	1 3/4"	20"	30"	28860	SAE 8	1 1/4"	36
3512WT	3 1/2"	12"	1 3/4"	22"	34"	28860	SAE 8	1 1/4"	40
3514WT	3 1/2"	14"	1 3/4"	24"	38"	28860	SAE 8	1 1/4"	42
3516WT	3 1/2"	16"	1 3/4"	26"	42"	28860	SAE 8	1 1/4"	45
3518WT	3 1/2"	18"	1 3/4"	28"	46"	28860	SAE 8	1 1/4"	49
3520WT	3 1/2"	20"	1 3/4"	30"	50"	28860	SAE 8	1 1/4"	52
3524WT	3 1/2"	24"	1 3/4"	34"	58"	28860	SAE 8	1 1/4"	58
3530WT	3 1/2"	30"	1 3/4"	40"	70"	28860	SAE 8	1 1/4"	67
3532WT	3 1/2"	32"	1 3/4"	42"	74"	28860	SAE 8	1 1/4"	70
3536WT	3 1/2"	36"	1 3/4"	46"	82"	28860	SAE 8	1 1/4"	76
3540WT	3 1/2"	40"	1 3/4"	50"	90"	28860	SAE 8	1 1/4"	83
4004WT	4"	4"	2"	14"	18"	37700	SAE 8	1 1/2"	34
4006WT	4"	6"	2"	16"	22"	37700	SAE 8	1 1/2"	38
4008WT	4"	8"	2"	18"	26"	37700	SAE 8	1 1/2"	41
4010WT	4"	10"	2"	20"	30"	37700	SAE 8	1 1/2"	44
4012WT	4"	12"	2"	22"	34"	37700	SAE 8	1 1/2"	49
4014WT	4"	14"	2"	24"	38"	37700	SAE 8	1 1/2"	52
4016WT	4"	16"	2"	26"	42"	37700	SAE 8	1 1/2"	55
4018WT	4"	18"	2"	28"	46"	37700	SAE 8	1 1/2"	59
4020WT	4"	20"	2"	30"	50"	37700	SAE 8	1 1/2"	63
4024WT	4"	24"	2"	34"	58"	37700	SAE 8	1 1/2"	70
4030WT	4"	30"	2"	40"	70"	37700	SAE 8	1 1/2"	82
4032WT	4"	32"	2"	42"	74"	37700	SAE 8	1 1/2"	85
4036WT	4"	36"	2"	46"	82"	37700	SAE 8	1 1/2"	92
4040WT	4"	40"	2"	50"	90"	37700	SAE 8	1 1/2"	100
4048WT	4"	48"	2"	58"	106"	37700	SAE 8	1 1/2"	115
5004WT	5"	4"	2 1/2"	16"	30"	58900	SAE 8	1 3/4"	65
5006WT	5"	6"	2 1/2"	18"	24"	58900	SAE 8	1 3/4"	70
5008WT	5"	8"	2 1/2"	20"	28"	58900	SAE 8	1 3/4"	75
5010WT	5"	10"	2 1/2"	22"	32"	58900	SAE 8	1 3/4"	80
5012WT	5"	12"	2 1/2"	24"	36"	58900	SAE 8	1 3/4"	85
5014WT	5"	14"	2 1/2"	26"	40"	58900	SAE 8	1 3/4"	90
5016WT	5"	16"	2 1/2"	28"	44"	58900	SAE 8	1 3/4"	96
5018WT	5"	18"	2 1/2"	30"	48"	58900	SAE 8	1 3/4"	101
5020WT	5"	20"	2 1/2"	32"	52"	58900	SAE 8	1 3/4"	106
5024WT	5"	24"	2 1/2"	36"	60"	58900	SAE 8	1 3/4"	116
5030WT	5"	30"	2 1/2"	42"	68"	58900	SAE 8	1 3/4"	131
5032WT	5"	32"	2 1/2"	44"	72"	58900	SAE 8	1 3/4"	137
5036WT	5"	36"	2 1/2"	48"	76"	58900	SAE 8	1 3/4"	147
5040WT	5"	40"	2 1/2"	52"	84"	58900	SAE 8	1 3/4"	157

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
SK-WT151000B	1 1/2" BORE X 1" ROD SEAL KIT								
SK-WT201250B	2" BORE X 1 1/4" ROD SEAL KIT								
SK-WT251500B	2 1/2" BORE X 1 1/2" ROD SEAL KIT								
SK-WT301500B	3" BORE X 1 1/2" ROD SEAL KIT								
SK-WT351750B	3 1/2" BORE X 1 3/4" ROD SEAL KIT								
SK-WT402000B	4" BORE X 2" ROD SEAL KIT								

WT Weld Tube Cylinders



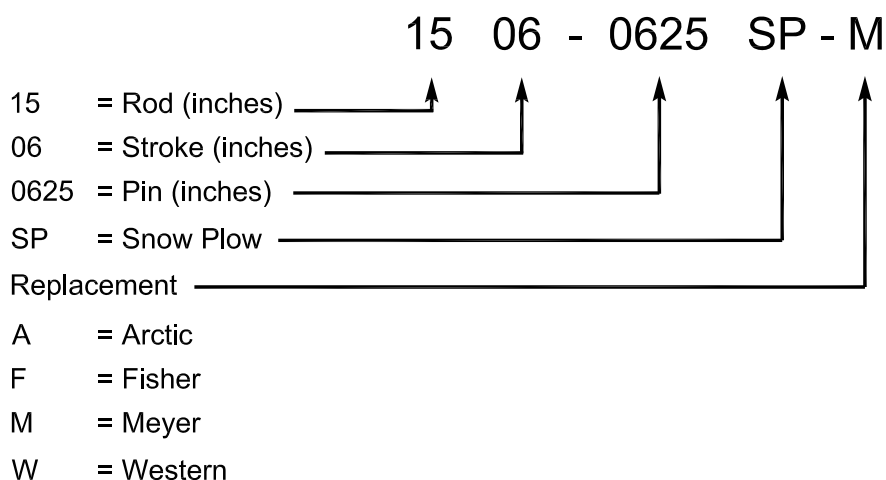
Dimension

BORE	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"
A	8"	8"	8"	8"	10"	10"	12"
B	4.49"	4.92"	4.92"	4.92"	4.92"	5.04"	6.06"
C	2.88"	2.33"	2.33"	2.33"	4.08"	3.83"	4.44"
D	1.25"	1.50"	1.50"	1.50"	2.00"	2.25"	3.00"
E	1.25"	1.50"	1.50"	1.50"	2.00"	2.25"	3.00"
J	2.25"	2.75"	3.25"	3.75"	4.25"	4.75"	5.75"
K	2.00"	2.25"	2.25"	2.25"	2.25"	2.50"	3.25"
N	2.00"	2.50"	3.00"	3.50"	4.00"	4.50"	5.50"
S	1.00"	1.00"	1.00"	1.00"	1.00"	0.88"	1.37"
T	1.88"	2.06"	2.19"	2.19"	2.19"	2.19"	2.75"

SP Snow Plow Cylinders



How to Order



Specifications

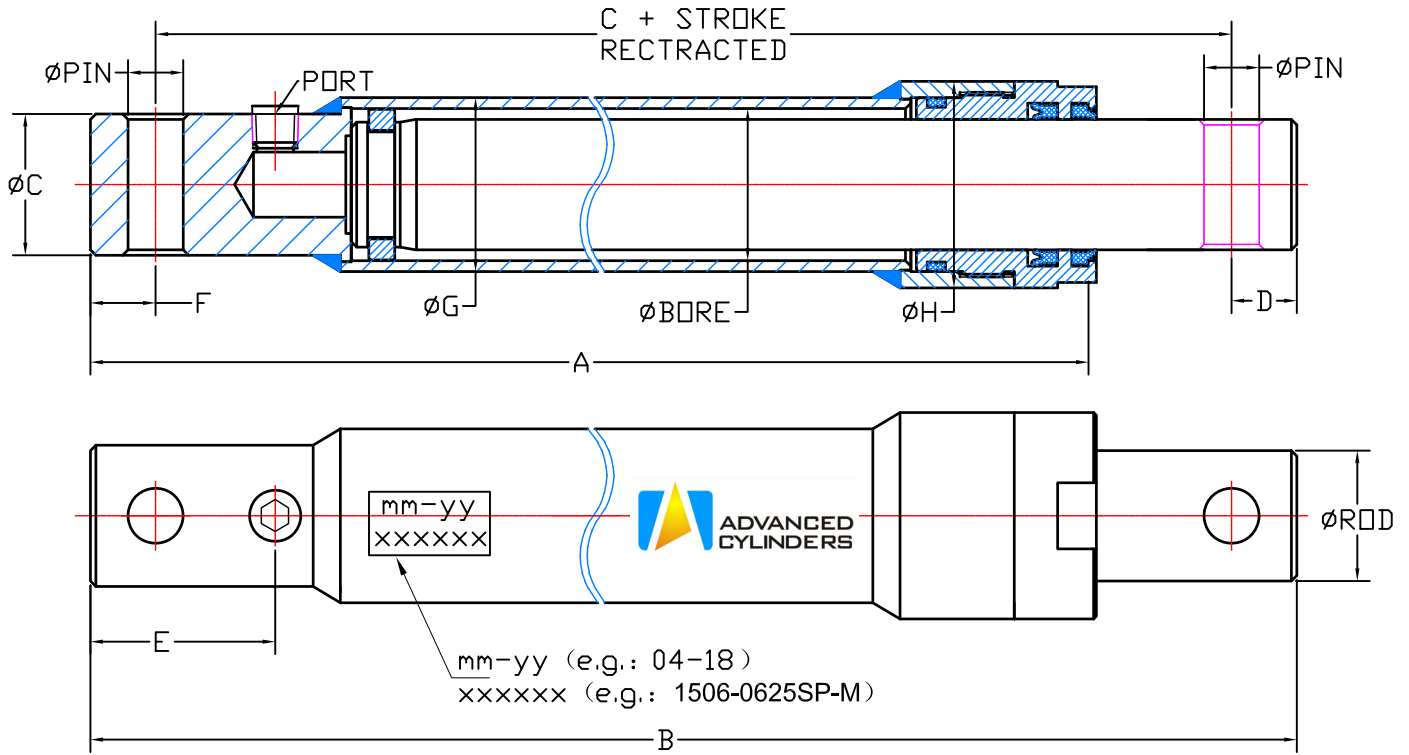
Bore Sizes - 1 3/4" ~ 2 1/4"
 Rod Sizes - 1 1/2" ~ 2"
 Strokes - 6" ~ 16"

Pressure - 2500 PSI
 Ports - NPT Port
 Paint - Gloss Black

Available Model Numbers

MODEL NO	BORE SIZE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
1510-0750SP-A	1 3/4"	10"	1 1/2"	17"	27"	6010	1/4" NPT	3/4"	13
1512-0750SP-A	1 3/4"	12"	1 1/2"	19"	31"	6010	1/4" NPT	3/4"	15
1510-1000SP-F	1 3/4"	10"	1 1/2"	17 1/4"	27 1/4"	6010	1/4" NPT	1"	13
1512-1000SP-F	1 3/4"	12"	1 1/2"	19 1/4"	31 1/4"	6010	1/4" NPT	1"	15
2016-1250SP-F	2 1/4"	16"	2"	23 1/4"	39 1/4"	9940	1/4" NPT	1 1/4"	28
1506-0625SP-M	1 3/4"	6"	1 1/2"	12 3/8"	18 3/8"	6010	1/4" NPT	5/8"	10
1510-0625SP-M	1 3/4"	10"	1 1/2"	16 3/16"	26 3/16"	6010	1/4" NPT	5/8"	13
1512-0625SP-M	1 3/4"	12"	1 1/2"	18"	30"	6010	1/4" NPT	5/8"	14
2012-0625SP-M	2 1/4"	12"	2"	18"	30"	9940	1/4" NPT	5/8"	22
1506-0750SP-W	1 3/4"	6"	1 1/2"	13"	19"	6010	1/4" NPT	3/4"	10
1508-0750SP-W	1 3/4"	8"	1 1/2"	15 1/4"	23 1/4"	6010	1/4" NPT	3/4"	12
1510-0750SP-W	1 3/4"	10"	1 1/2"	17 1/4"	27 1/4"	6010	1/4" NPT	3/4"	13
1510-1000SP-W	1 3/4"	10"	1 1/2"	17"	27"	6010	1/4" NPT	1"	13
2006-0750SP-W	2 1/4"	6"	2"	13 3/16"	19 3/16"	9940	1/4" NPT	3/4"	17
2010-1000SP-W	2 1/4"	10"	2"	17 1/4"	27 1/4"	9940	1/4" NPT	1"	22
2016-1000SP-W	2 1/4"	16"	2"	23 5/16"	39 5/16"	9940	1/4" NPT	1"	29
SK-SP175150B	1 3/4" BORE X 1 1/2" ROD SEAL KIT								
SK-SP225200B	2 1/4" BORE X 2" ROD SEAL KIT								

SP Snow Plow Cylinders



Dimension

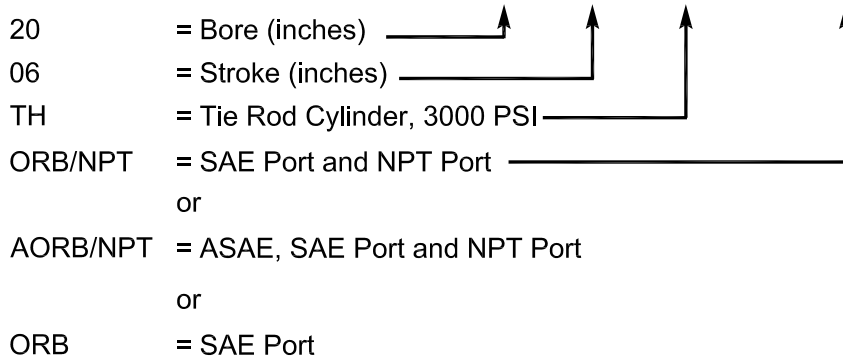
MODEL NO	REPLACEMENT	A	B	C	D, F	E	G	H
1510-0750SP-A	ARCTIC	16.07"	18.50"	1.75"	0.75"	2.75"	2.00"	2.37"
1512-0750SP-A	ARCTIC	18.07"	20.50"	1.75"	0.75"	2.75"	2.00"	2.37"
1510-1000SP-F	FISHER	16.32"	18.75"	1.75"	0.75"	2.75"	2.00"	2.37"
1512-1000SP-F	FISHER	18.07"	20.75"	1.75"	0.75"	2.75"	2.00"	2.37"
2016-1250SP-F	FISHER	22.39"	25.00"	2.25"	0.87"	2.75"	2.50"	3.00"
1506-0625SP-M	MEYER	11.57"	13.87"	1.62"	0.75"	2.12"	2.00"	2.37"
1510-0625SP-M	MEYER	15.32"	17.69"	1.62"	0.75"	2.12"	2.00"	2.37"
1512-0625SP-M	MEYER	17.32"	19.50"	1.62"	0.75"	2.12"	2.00"	2.37"
2012-0625SP-M	MEYER	18.00"	19.50"	1.62"	0.75"	2.25"	2.50"	3.00"
1506-0750SP-W	WESTERN	12.31"	14.37"	1.75"	0.68"	2.75"	2.00"	2.37"
1508-0750SP-W	WESTERN	14.31"	16.62"	1.75"	0.68"	2.75"	2.00"	2.37"
1510-0750SP-W	WESTERN	16.31"	18.62"	1.75"	0.68"	2.75"	2.00"	2.37"
1510-1000SP-W	WESTERN	16.32"	18.50"	1.75"	0.75"	2.75"	2.00"	2.37"
2006-0750SP-W	WESTERN	12.38"	14.69"	2.25"	0.75"	2.75"	2.50"	3.00"
2010-1000SP-W	WESTERN	16.38"	18.75"	2.25"	0.75"	2.75"	2.50"	3.00"
2016-1000SP-W	WESTERN	22.38"	24.81"	2.25"	0.75"	2.56"	2.50"	3.00"

TH Tie Rod Cylinders



How to Order

20 06 TH - ORB/NPT



Specifications

Bore Sizes - 2" ~ 5"
Strokes - 4 ~ 48"

Pressure - 3000 PSI
Ports - SAE Port and NPT Port

Features

- GLAND - Ductile Iron with one SAE port and one NPT port on opposite sides
- TUBE - High tensile cold drawn tube, precision honed for extended seal life
- TIE ROD - High tensile alloy steel
- ROD - Hard chrome plated steel
- ROD Clevis - Ductile iron
- END CAP - Ductile iron with two SAE ports and two NPT ports on each side for greater flexibility of assembly
- PISTON - High grade ductile iron
- Use all Hallite type seals
 - PISTON SEAL - Hallite 775
 - ROD SEAL - Hallite 605
 - ROD WIPER - Hallitie 520
 - TUBE SEAL - Hallite AS-568 O-ring with anti-extrusion backup ring
- PAINT COLOR - Gloss black, or other customized color

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
2008TH-AORB/NPT	2"	8"	1 1/8"	20 1/4"	28 1/4"	9420	SAE 8 / 3/8 NPT	1"	20
2508TH-AORB/NPT	2 1/2"	8"	1 1/4"	20 1/4"	28 1/4"	14720	SAE 8 / 3/8 NPT	1"	25
3008TH-AORB/NPT	3"	8"	1 1/4"	20 1/4"	28 1/4"	21200	SAE 8 / 1/2 NPT	1"	32
3016TH-AORB/NPT	3"	16"	1 1/2"	31 1/2"	47 1/2"	21200	SAE 8 / 1/2 NPT	1 1/4"	39
3508TH-AORB/NPT	3 1/2"	8"	1 1/4"	20 1/4"	28 1/4"	28860	SAE 8 / 1/2 NPT	1"	36
3516TH-AORB/NPT	3 1/2"	16"	1 1/2"	31 1/2"	47 1/2"	28860	SAE 8 / 1/2 NPT	1 1/4"	46
4008TH-AORB/NPT	4"	8"	1 1/2"	20 1/4"	28 1/4"	37700	SAE 8 / 1/2 NPT	1"	50

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
4016TH-AORB/NPT	4"	16"	2"	31 1/2"	47 1/2"	37700	SAE 8 / 1/2 NPT	1 1/4"	68
5008TH-AORB	5"	8"	2"	22 1/4"	30 1/4"	58900	SAE 8	1 1/4"	71
5016TH-AORB	5"	16"	2"	31 1/2"	47 1/2"	58900	SAE 8	1 1/4"	90
2004TH-ORB/NPT	2"	4"	1 1/8"	14 1/4"	18 1/4"	9420	SAE 8 / 3/8 NPT	1"	18
2006TH-ORB/NPT	2"	6"	1 1/8"	16 1/4"	22 1/4"	9420	SAE 8 / 3/8 NPT	1"	19
2008TH-ORB/NPT	2"	8"	1 1/8"	18 1/4"	26 1/4"	9420	SAE 8 / 3/8 NPT	1"	20
2010TH-ORB/NPT	2"	10"	1 1/8"	20 1/4"	30 1/4"	9420	SAE 8 / 3/8 NPT	1"	21
2012TH-ORB/NPT	2"	12"	1 1/8"	22 1/4"	34 1/4"	9420	SAE 8 / 3/8 NPT	1"	25
2014TH-ORB/NPT	2"	14"	1 1/8"	24 1/4"	38 1/4"	9420	SAE 8 / 3/8 NPT	1"	26
2016TH-ORB/NPT	2"	16"	1 1/8"	26 1/4"	42 1/4"	9420	SAE 8 / 3/8 NPT	1"	28
2018TH-ORB/NPT	2"	18"	1 1/8"	28 1/4"	46 1/4"	9420	SAE 8 / 3/8 NPT	1"	29
2020TH-ORB/NPT	2"	20"	1 1/8"	30 1/4"	50 1/4"	9420	SAE 8 / 3/8 NPT	1"	31
2024TH-ORB/NPT	2"	24"	1 1/8"	34 1/4"	58 1/4"	9420	SAE 8 / 3/8 NPT	1"	35
2030TH-ORB/NPT	2"	30"	1 1/8"	40 1/4"	70 1/4"	9420	SAE 8 / 3/8 NPT	1"	39
2036TH-ORB/NPT	2"	36"	1 1/8"	46 1/4"	82 1/4"	9420	SAE 8 / 3/8 NPT	1"	41
2040TH-ORB/NPT	2"	40"	1 1/8"	50 1/4"	90 1/4"	9420	SAE 8 / 3/8 NPT	1"	45
2048TH-ORB/NPT	2"	48"	1 1/8"	58 1/4"	106 1/4"	9420	SAE 8 / 3/8 NPT	1"	50
2504TH-ORB/NPT	2 1/2"	4"	1 1/4"	14 1/4"	18 1/4"	14720	SAE 8 / 3/8 NPT	1"	17
2506TH-ORB/NPT	2 1/2"	6"	1 1/4"	16 1/4"	22 1/4"	14720	SAE 8 / 3/8 NPT	1"	22
2508TH-ORB/NPT	2 1/2"	8"	1 1/4"	18 1/4"	26 1/4"	14720	SAE 8 / 3/8 NPT	1"	24
2510TH-ORB/NPT	2 1/2"	10"	1 1/4"	20 1/4"	30 1/4"	14720	SAE 8 / 3/8 NPT	1"	26
2512TH-ORB/NPT	2 1/2"	12"	1 1/4"	22 1/4"	34 1/4"	14720	SAE 8 / 3/8 NPT	1"	27
2514TH-ORB/NPT	2 1/2"	14"	1 1/4"	24 1/4"	38 1/4"	14720	SAE 8 / 3/8 NPT	1"	29
2516TH-ORB/NPT	2 1/2"	16"	1 1/4"	26 1/4"	42 1/4"	14720	SAE 8 / 3/8 NPT	1"	31
2518TH-ORB/NPT	2 1/2"	18"	1 1/4"	28 1/4"	46 1/4"	14720	SAE 8 / 3/8 NPT	1"	34
2520TH-ORB/NPT	2 1/2"	20"	1 1/4"	30 1/4"	50 1/4"	14720	SAE 8 / 3/8 NPT	1"	36
2524TH-ORB/NPT	2 1/2"	24"	1 1/4"	34 1/4"	58 1/4"	14720	SAE 8 / 3/8 NPT	1"	39
2530TH-ORB/NPT	2 1/2"	30"	1 1/4"	40 1/4"	70 1/4"	14720	SAE 8 / 3/8 NPT	1"	46
2536TH-ORB/NPT	2 1/2"	36"	1 1/4"	46 1/4"	82 1/4"	14720	SAE 8 / 3/8 NPT	1"	51
2540TH-ORB/NPT	2 1/2"	40"	1 1/4"	50 1/4"	90 1/4"	14720	SAE 8 / 3/8 NPT	1"	55
2548TH-ORB/NPT	2 1/2"	48"	1 1/4"	58 1/4"	106 1/4"	14720	SAE 8 / 3/8 NPT	1"	62
3004TH-ORB/NPT	3"	4"	1 1/4"	14 1/4"	18 1/4"	21200	SAE 8 / 1/2 NPT	1"	23
3006TH-ORB/NPT	3"	6"	1 1/4"	16 1/4"	22 1/4"	21200	SAE 8 / 1/2 NPT	1"	24
3008TH-ORB/NPT	3"	8"	1 1/4"	18 1/4"	26 1/4"	21200	SAE 8 / 1/2 NPT	1"	27
3010TH-ORB/NPT	3"	10"	1 1/4"	20 1/4"	30 1/4"	21200	SAE 8 / 1/2 NPT	1"	33
3012TH-ORB/NPT	3"	12"	1 1/4"	22 1/4"	34 1/4"	21200	SAE 8 / 1/2 NPT	1"	33
3014TH-ORB/NPT	3"	14"	1 1/4"	24 1/4"	38 1/4"	21200	SAE 8 / 1/2 NPT	1"	35
3016TH-ORB/NPT	3"	16"	1 1/2"	26 1/4"	42 1/4"	21200	SAE 8 / 1/2 NPT	1"	39
3018TH-ORB/NPT	3"	18"	1 1/2"	28 1/4"	46 1/4"	21200	SAE 8 / 1/2 NPT	1"	42
3020TH-ORB/NPT	3"	20"	1 1/2"	30 1/4"	50 1/4"	21200	SAE 8 / 1/2 NPT	1"	45
3024TH-ORB/NPT	3"	24"	1 1/2"	34 1/4"	58 1/4"	21200	SAE 8 / 1/2 NPT	1"	49
3030TH-ORB/NPT	3"	30"	1 1/2"	40 1/4"	70 1/4"	21200	SAE 8 / 1/2 NPT	1"	58
3036TH-ORB/NPT	3"	36"	1 1/2"	46 1/4"	82 1/4"	21200	SAE 8 / 1/2 NPT	1"	68

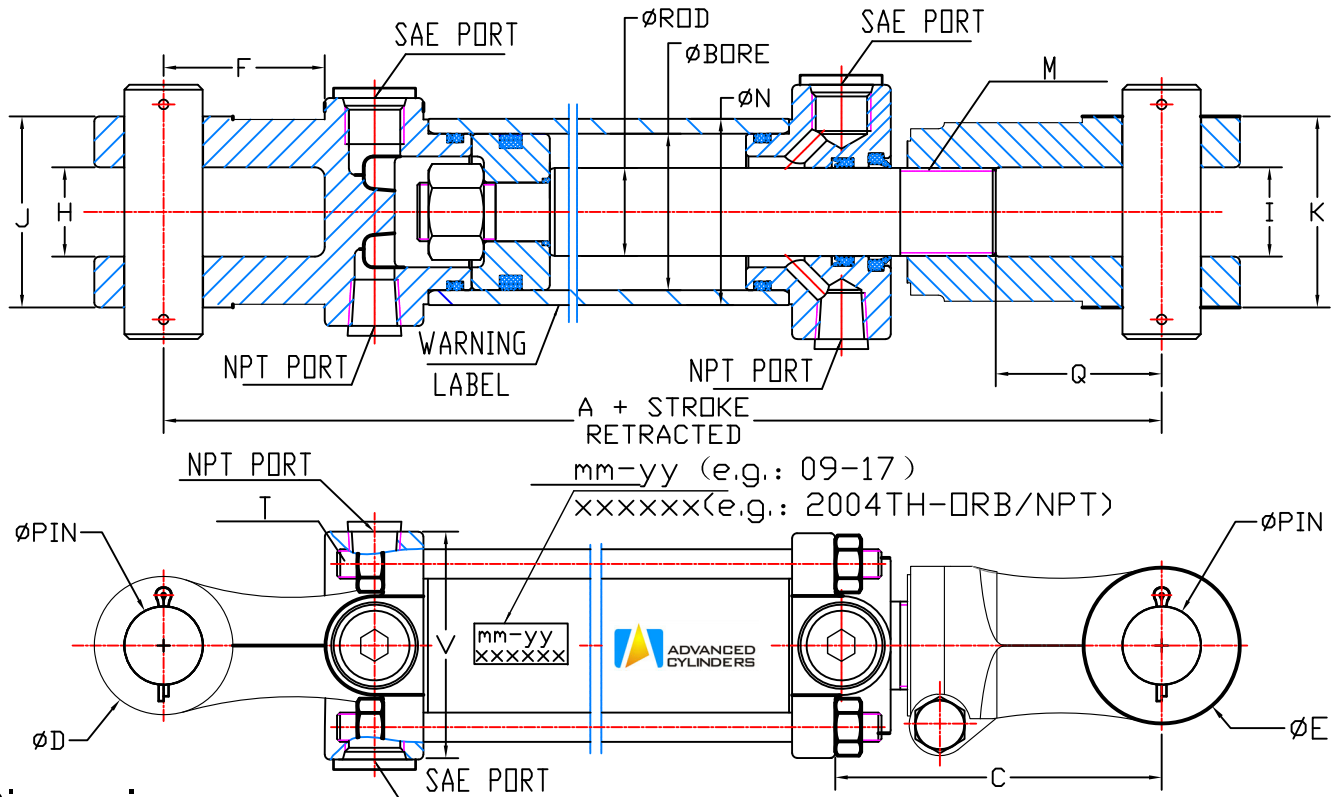
Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
3040TH-ORB/NPT	3"	40"	1 1/2"	50 1/4"	90 1/4"	21200	SAE 8 / 1/2 NPT	1"	73
3048TH-ORB/NPT	3"	48"	1 1/2"	58 1/4"	106 1/4"	21200	SAE 8 / 1/2 NPT	1"	82
3504TH-ORB/NPT	3 1/2"	4"	1 1/4"	14 1/4"	18 1/4"	28860	SAE 8 / 1/2 NPT	1"	30
3506TH-ORB/NPT	3 1/2"	6"	1 1/4"	16 1/4"	22 1/4"	28860	SAE 8 / 1/2 NPT	1"	33
3508TH-ORB/NPT	3 1/2"	8"	1 1/4"	18 1/4"	26 1/4"	28860	SAE 8 / 1/2 NPT	1"	35
3510TH-ORB/NPT	3 1/2"	10"	1 1/4"	20 1/4"	30 1/4"	28860	SAE 8 / 1/2 NPT	1"	37
3512TH-ORB/NPT	3 1/2"	12"	1 1/4"	22 1/4"	34 1/4"	28860	SAE 8 / 1/2 NPT	1"	39
3514TH-ORB/NPT	3 1/2"	14"	1 1/4"	24 1/4"	38 1/4"	28860	SAE 8 / 1/2 NPT	1"	42
3516TH-ORB/NPT	3 1/2"	16"	1 1/2"	26 1/4"	42 1/4"	28860	SAE 8 / 1/2 NPT	1"	46
3518TH-ORB/NPT	3 1/2"	18"	1 1/2"	28 1/4"	46 1/4"	28860	SAE 8 / 1/2 NPT	1"	47
3520TH-ORB/NPT	3 1/2"	20"	1 1/2"	30 1/4"	50 1/4"	28860	SAE 8 / 1/2 NPT	1"	49
3524TH-ORB/NPT	3 1/2"	24"	1 1/2"	34 1/4"	58 1/4"	28860	SAE 8 / 1/2 NPT	1"	55
3530TH-ORB/NPT	3 1/2"	30"	1 1/2"	40 1/4"	70 1/4"	28860	SAE 8 / 1/2 NPT	1"	63
3536TH-ORB/NPT	3 1/2"	36"	1 1/2"	46 1/4"	82 1/4"	28860	SAE 8 / 1/2 NPT	1"	72
3540TH-ORB/NPT	3 1/2"	40"	1 1/2"	50 1/4"	90 1/4"	28860	SAE 8 / 1/2 NPT	1"	81
3548TH-ORB/NPT	3 1/2"	48"	1 1/2"	58 1/4"	106 1/4"	28860	SAE 8 / 1/2 NPT	1"	99
4004TH-ORB/NPT	4"	4"	1 1/2"	14 1/4"	18 1/4"	37700	SAE 8 / 1/2 NPT	1"	41
4006TH-ORB/NPT	4"	6"	1 1/2"	16 1/4"	22 1/4"	37700	SAE 8 / 1/2 NPT	1"	45
4008TH-ORB/NPT	4"	8"	1 1/2"	18 1/4"	26 1/4"	37700	SAE 8 / 1/2 NPT	1"	49
4010TH-ORB/NPT	4"	10"	1 1/2"	20 1/4"	30 1/4"	37700	SAE 8 / 1/2 NPT	1"	52
4012TH-ORB/NPT	4"	12"	1 1/2"	22 1/4"	34 1/4"	37700	SAE 8 / 1/2 NPT	1"	56
4014TH-ORB/NPT	4"	14"	1 1/2"	24 1/4"	38 1/4"	37700	SAE 8 / 1/2 NPT	1"	60
4016TH-ORB/NPT	4"	16"	1 3/4"	26 1/4"	42 1/4"	37700	SAE 8 / 1/2 NPT	1"	64
4018TH-ORB/NPT	4"	18"	1 3/4"	28 1/4"	46 1/4"	37700	SAE 8 / 1/2 NPT	1"	68
4020TH-ORB/NPT	4"	20"	1 3/4"	30 1/4"	50 1/4"	37700	SAE 8 / 1/2 NPT	1"	72
4024TH-ORB/NPT	4"	24"	1 3/4"	34 1/4"	58 1/4"	37700	SAE 8 / 1/2 NPT	1"	80
4030TH-ORB/NPT	4"	30"	2"	40 1/4"	70 1/4"	37700	SAE 8 / 1/2 NPT	1"	92
4036TH-ORB/NPT	4"	36"	2"	46 1/4"	82 1/4"	37700	SAE 8 / 1/2 NPT	1"	104
4040TH-ORB/NPT	4"	40"	2"	50 1/4"	90 1/4"	37700	SAE 8 / 1/2 NPT	1"	116
4048TH-ORB/NPT	4"	48"	2"	58 1/4"	106 1/4"	37700	SAE 8 / 1/2 NPT	1"	140
5004TH-ORB	5"	4"	2"	16 1/4"	20 1/4"	58900	SAE 8	1 1/4"	60
5006TH-ORB	5"	6"	2"	18 1/4"	24 1/4"	58900	SAE 8	1 1/4"	63
5008TH-ORB	5"	8"	2"	20 1/4"	28 1/4"	58900	SAE 8	1 1/4"	67
5010TH-ORB	5"	10"	2"	22 1/4"	32 1/4"	58900	SAE 8	1 1/4"	71
5012TH-ORB	5"	12"	2"	24 1/4"	36 1/4"	58900	SAE 8	1 1/4"	75
5014TH-ORB	5"	14"	2"	26 1/4"	40 1/4"	58900	SAE 8	1 1/4"	80
5016TH-ORB	5"	16"	2"	28 1/4"	44 1/4"	58900	SAE 8	1 1/4"	82
5018TH-ORB	5"	18"	2"	30 1/4"	48 1/4"	58900	SAE 8	1 1/4"	90
5020TH-ORB	5"	20"	2"	32 1/4"	52 1/4"	58900	SAE 8	1 1/4"	95
5024TH-ORB	5"	24"	2"	36 1/4"	60 1/4"	58900	SAE 8	1 1/4"	100
5030TH-ORB	5"	30"	2"	42 1/4"	72 1/4"	58900	SAE 8	1 1/4"	108
5036TH-ORB	5"	36"	2"	48 1/4"	84 1/4"	58900	SAE 8	1 1/4"	118
5040TH-ORB	5"	40"	2"	52 1/4"	92 1/4"	58900	SAE 8	1 1/4"	140

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
5048TH-ORB	5"	48"	2"	60 1/4"	108 1/4"	49080	SAE 8	1 1/4"	161
SK-TH201125B	2" BORE X 1 1/8" ROD SEAL KIT								
SK-TH251125B	2 1/2" BORE X 1 1/8" ROD SEAL KIT								
SK-TH251250B	2 1/2" BORE X 1 1/4" ROD SEAL KIT								
SK-TH301250B	3" BORE X 1 1/4" ROD SEAL KIT								
SK-TH301500B	3" BORE X 1 1/2" ROD SEAL KIT								
SK-TH351250B	3 1/2" BORE X 1 1/4" ROD SEAL KIT								
SK-TH351500B	3 1/2" BORE X 1 1/2" ROD SEAL KIT								
SK-TH401250B	4" BORE X 1 1/4" ROD SEAL KIT								
SK-TH401500B	4" BORE X 1 1/2" ROD SEAL KIT								
SK-TH401750B	4" BORE X 1 3/4" ROD SEAL KIT								
SK-TH402000B	4" BORE X 2" ROD SEAL KIT								

TH Tie Rod Cylinders



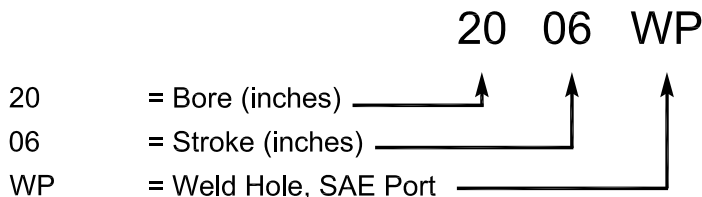
Dimension

BORE SIZE	2"	2 1/2"	3"	3 1/2"	4"	5"
A NON-ASAE // ASAE	10 1/4" // 12 1/4"	10 1/4" // 12 1/4"	10 1/4" // 12 1/4" (3016 ASAE 15 1/2")	10 1/4" // 12 1/4" (3516 ASAE 15 1/2")	10 1/4" // 12 1/4" (4016 ASAE 15 1/2")	10 1/4" // 14 1/4" (5016 ASAE 15 1/2")
C NON-ASAE // ASAE	4.17" // 6.17"	4.17" // 6.17"	4.07" // 6.07" (3016 ASAE 9.30")	3.97" // 6.01" (3516 ASAE 9.26")	3.90" // 5.90" (4016 ASAE 9.10")	5.01" // 7.01" (5016 ASAE 8.26")
D	1.77"	1.97"	2.04"	2.25"	2.05"	2.76"
E	2.00"	2.00"	2.04"	2.25"	2.05"	2.76"
F	2.06"	2.06"	2.06"	2.06"	2.06"	2.12"
H	1.14"	1.14"	1.14"	1.14"	1.14"	1.30"
I	1.14"	1.14"	1.14"	1.14"	1.14"	1.20"
J	2.46"	2.44"	2.50"	2.50"	2.64"	2.87"
K	2.46"	2.44"	2.64"	2.64"	2.64"	2.95"
M	1 1/8-12UNF	1 1/8-12UNF	1 1/4-12UNF	1 1/4-12UNF	1 1/4-12UNF	1 1/2-12UNF
N	2.38"	2.89"	3.39"	4.00"	4.50"	5.50"
Q	2.12"	2.12"	2.12"	2.12"	2.12"	2.12"
T	M10	M10	M12	M14	M16	M20
V	2.91"	3.31"	3.86"	4.29"	5.12"	6.46"

WP Weld Hole Cylinders



How to Order



Specifications

Bore Sizes - 1 1/2" ~ 4"
 Strokes - 4 ~ 72"

Pressure - 3000 PSI
 Ports - SAE Port

Features

- CONSTRUCTION - Heavy duty welded
- TUBE - High tensile cold drawn tube, precision honed for extended seal life
- ROD - Hard chrome plated steel
- PISTON - High grade ductile iron
- Use all Hallite type seals
 - PISTON SEAL - Hallite 755
 - ROD SEAL - Hallite 605
 - ROD WIPER - Hallite 520
 - TUBE SEAL - Hallite AS-568 O-ring with anti-extrusion backup ring
- PAINT COLOR - Gloss black, or other customized color

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
1504WP	1 1/2"	4"	1"	11"	15"	5300	SAE 6	5/8"	7
1506WP	1 1/2"	6"	1"	13"	19"	5300	SAE 6	5/8"	8
1508WP	1 1/2"	8"	1"	15"	23"	5300	SAE 6	5/8"	9
1510WP	1 1/2"	10"	1"	17"	27"	5300	SAE 6	5/8"	11
1512WP	1 1/2"	12"	1"	19"	31"	5300	SAE 6	5/8"	12
1514WP	1 1/2"	14"	1"	21"	35"	5300	SAE 6	5/8"	13
1516WP	1 1/2"	16"	1"	23"	40"	5300	SAE 6	5/8"	14
2004WP	2"	4"	1 1/4"	12"	16"	9420	SAE 8	3/4"	10
2006WP	2"	6"	1 1/4"	14"	20"	9420	SAE 8	3/4"	12
2008WP	2"	8"	1 1/4"	16"	24"	9420	SAE 8	3/4"	13
2010WP	2"	10"	1 1/4"	18"	28"	9420	SAE 8	3/4"	15

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
2012WP	2"	12"	1 1/4"	20"	32"	9420	SAE 8	3/4"	17
2014WP	2"	14"	1 1/4"	22"	36"	9420	SAE 8	3/4"	18
2016WP	2"	16"	1 1/4"	24"	40"	9420	SAE 8	3/4"	19
2018WP	2"	18"	1 1/4"	26"	44"	9420	SAE 8	3/4"	21
2020WP	2"	20"	1 1/4"	28"	48"	9420	SAE 8	3/4"	22
2024WP	2"	24"	1 1/4"	32"	56"	9420	SAE 8	3/4"	25
2028WP	2"	28"	1 1/4"	36"	64"	9420	SAE 8	3/4"	28
2030WP	2"	30"	1 1/4"	38"	68"	9420	SAE 8	3/4"	30
2032WP	2"	32"	1 1/4"	40"	72"	9420	SAE 8	3/4"	31
2036WP	2"	36"	1 1/4"	44"	80"	9420	SAE 8	3/4"	34
2040WP	2"	40"	1 1/4"	48"	88"	9420	SAE 8	3/4"	36
2042WP	2"	48"	1 1/4"	50"	92"	9420	SAE 8	3/4"	37
2048WP	2"	48"	1 1/4"	56"	104"	9420	SAE 8	3/4"	41
2060WP	2"	60"	1 1/4"	68"	128"	9420	SAE 8	3/4"	50
2072WP	2"	72"	1 1/4"	80"	152"	9420	SAE 8	3/4"	59
2504WP	2 1/2"	4"	1 3/8"	12"	16"	14720	SAE 8	3/4"	14
2506WP	2 1/2"	6"	1 3/8"	14"	20"	14720	SAE 8	3/4"	16
2508WP	2 1/2"	8"	1 3/8"	16"	24"	14720	SAE 8	3/4"	18
2510WP	2 1/2"	10"	1 3/8"	18"	28"	14720	SAE 8	3/4"	20
2512WP	2 1/2"	12"	1 3/8"	20"	32"	14720	SAE 8	3/4"	22
2514WP	2 1/2"	14"	1 3/8"	22"	36"	14720	SAE 8	3/4"	24
2516WP	2 1/2"	16"	1 3/8"	24"	40"	14720	SAE 8	3/4"	26
2518WP	2 1/2"	18"	1 3/8"	26"	44"	14720	SAE 8	3/4"	28
2520WP	2 1/2"	20"	1 3/8"	28"	48"	14720	SAE 8	3/4"	30
2524WP	2 1/2"	24"	1 3/8"	32"	56"	14720	SAE 8	3/4"	34
2528WP	2 1/2"	28"	1 3/8"	36"	64"	14720	SAE 8	3/4"	39
2530WP	2 1/2"	30"	1 3/8"	38"	68"	14720	SAE 8	3/4"	41
2532WP	2 1/2"	32"	1 3/8"	40"	72"	14720	SAE 8	3/4"	43
2536WP	2 1/2"	36"	1 3/8"	44"	80"	14720	SAE 8	3/4"	46
2540WP	2 1/2"	40"	1 3/8"	48"	88"	14720	SAE 8	3/4"	51
2542WP	2 1/2"	42"	1 3/8"	50"	92"	14720	SAE 8	3/4"	53
2548WP	2 1/2"	48"	1 3/8"	56"	104"	14720	SAE 8	3/4"	59
2560WP	2 1/2"	60"	1 3/8"	68"	128"	14720	SAE 8	3/4"	68
3004WP	3"	4"	1 1/2"	12"	16"	21200	SAE 8	1"	19
3006WP	3"	6"	1 1/2"	14"	20"	21200	SAE 8	1"	21
3008WP	3"	8"	1 1/2"	16"	24"	21200	SAE 8	1"	24
3010WP	3"	10"	1 1/2"	18"	28"	21200	SAE 8	1"	26
3012WP	3"	12"	1 1/2"	20"	32"	21200	SAE 8	1"	28
3014WP	3"	14"	1 1/2"	22"	36"	21200	SAE 8	1"	31
3016WP	3"	16"	1 1/2"	24"	40"	21200	SAE 8	1"	33
3018WP	3"	18"	1 1/2"	26"	44"	21200	SAE 8	1"	36
3020WP	3"	20"	1 1/2"	28"	48"	21200	SAE 8	1"	38
3024WP	3"	24"	1 1/2"	32"	56"	21200	SAE 8	1"	43

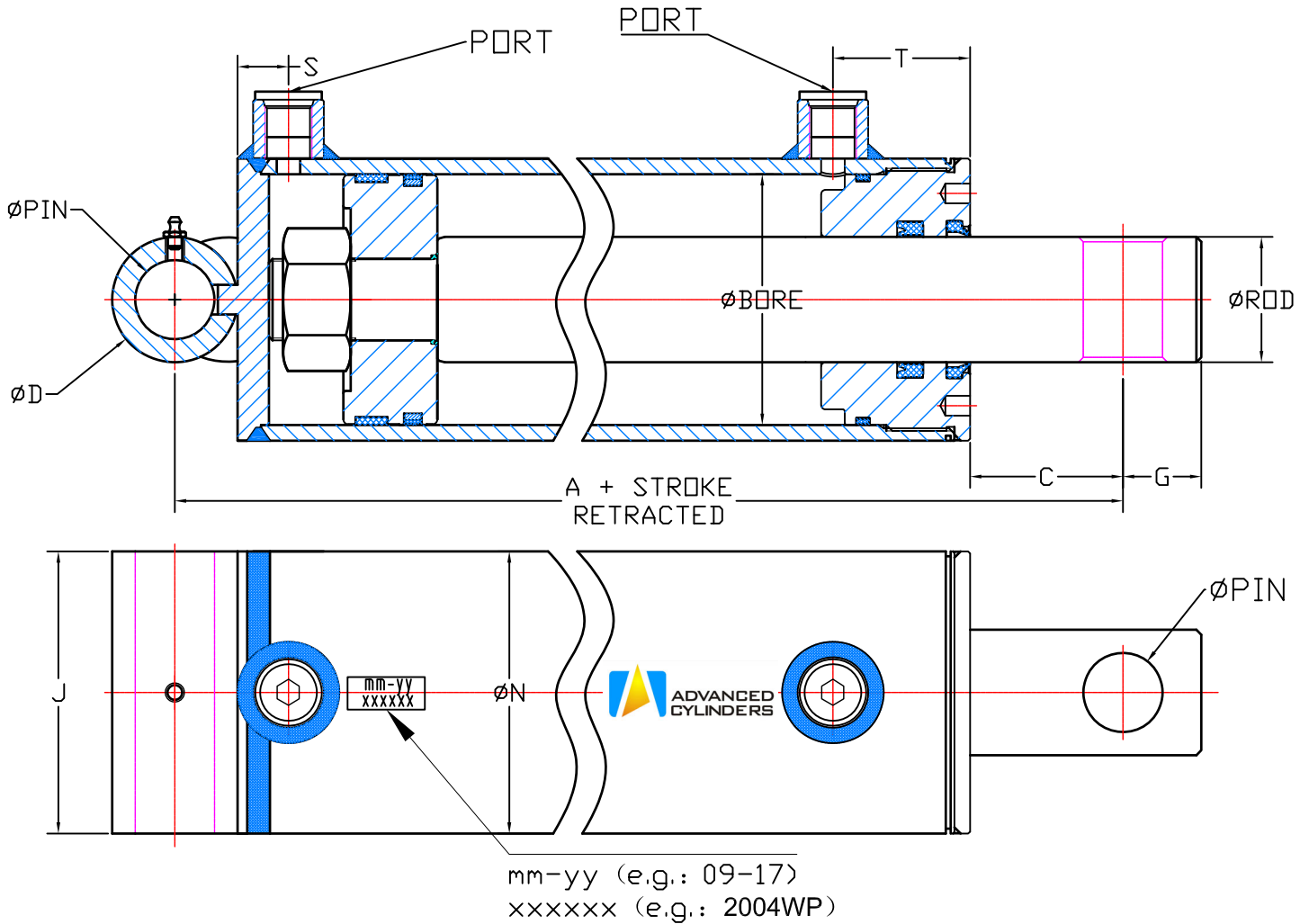
Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
3028WP	3"	28"	1 1/2"	36"	64"	21200	SAE 8	1"	46
3030WP	3"	30"	1 1/2"	38"	68"	21200	SAE 8	1"	48
3032WP	3"	32"	1 1/2"	40"	72"	21200	SAE 8	1"	51
3036WP	3"	36"	1 1/2"	44"	80"	21200	SAE 8	1"	57
3040WP	3"	40"	1 1/2"	48"	88"	21200	SAE 8	1"	63
3042WP	3"	42"	1 1/2"	50"	92"	21200	SAE 8	1"	65
3048WP	3"	48"	1 1/2"	56"	104"	21200	SAE 8	1"	73
3060WP	3"	60"	1 1/2"	68"	128"	21200	SAE 8	1"	87
3504WP	3 1/2"	4"	1 3/4"	12"	16"	28860	SAE 8	1"	24
3506WP	3 1/2"	6"	1 3/4"	14"	20"	28860	SAE 8	1"	27
3508WP	3 1/2"	8"	1 3/4"	16"	24"	28860	SAE 8	1"	30
3510WP	3 1/2"	10"	1 3/4"	18"	28"	28860	SAE 8	1"	33
3512WP	3 1/2"	12"	1 3/4"	20"	32"	28860	SAE 8	1"	36
3514WP	3 1/2"	14"	1 3/4"	22"	36"	28860	SAE 8	1"	39
3516WP	3 1/2"	16"	1 3/4"	24"	40"	28860	SAE 8	1"	42
3518WP	3 1/2"	18"	1 3/4"	26"	44"	28860	SAE 8	1"	45
3520WP	3 1/2"	20"	1 3/4"	28"	48"	28860	SAE 8	1"	48
3524WP	3 1/2"	24"	1 3/4"	32"	56"	28860	SAE 8	1"	54
3528WP	3 1/2"	28"	1 3/4"	36"	64"	28860	SAE 8	1"	60
3530WP	3 1/2"	30"	1 3/4"	38"	68"	28860	SAE 8	1"	63
3532WP	3 1/2"	32"	1 3/4"	40"	72"	28860	SAE 8	1"	66
3536WP	3 1/2"	36"	1 3/4"	44"	80"	28860	SAE 8	1"	72
3540WP	3 1/2"	40"	1 3/4"	48"	88"	28860	SAE 8	1"	79
3542WP	3 1/2"	42"	1 3/4"	50"	92"	28860	SAE 8	1"	82
3548WP	3 1/2"	48"	1 3/4"	56"	104"	28860	SAE 8	1"	91
3560WP	3 1/2"	60"	1 3/4"	68"	128"	28860	SAE 8	1"	109
4004WP	4"	4"	2"	13"	17"	37700	SAE 8	1 1/4"	33
4006WP	4"	6"	2"	15"	21"	37700	SAE 8	1 1/4"	36
4008WP	4"	8"	2"	17"	25"	37700	SAE 8	1 1/4"	40
4010WP	4"	10"	2"	19"	29"	37700	SAE 8	1 1/4"	44
4012WP	4"	12"	2"	21"	33"	37700	SAE 8	1 1/4"	47
4014WP	4"	14"	2"	23"	37"	37700	SAE 8	1 1/4"	51
4016WP	4"	16"	2"	25"	41"	37700	SAE 8	1 1/4"	55
4018WP	4"	18"	2"	27"	45"	37700	SAE 8	1 1/4"	58
4020WP	4"	20"	2"	29"	49"	37700	SAE 8	1 1/4"	62
4024WP	4"	24"	2"	33"	57"	37700	SAE 8	1 1/4"	70
4028WP	4"	28"	2"	37"	65"	37700	SAE 8	1 1/4"	77
4030WP	4"	30"	2"	39"	69"	37700	SAE 8	1 1/4"	81
4032WP	4"	32"	2"	41"	73"	37700	SAE 8	1 1/4"	84
4036WP	4"	36"	2"	45"	81"	37700	SAE 8	1 1/4"	92
4040WP	4"	40"	2"	49"	89"	37700	SAE 8	1 1/4"	99
4042WP	4"	42"	2"	51"	93"	37700	SAE 8	1 1/4"	103
4048WP	4"	48"	2"	57"	105"	37700	SAE 8	1 1/4"	114

Available Model Numbers

MODEL NO	BORE	STROKE	ROD	RETRACTED	EXTENDED	MAX FORCE LB	PORT	PIN	WEIGHT LB
4060WP	4"	60"	2"	69"	129"	37700	SAE 8	1 1/4"	136
SK-WP151000B	1 1/2" BORE X 1" ROD SEAL KIT								
SK-WP201250B	2" BORE X 1 1/4" ROD SEAL KIT								
SK-WP251375B	2 1/2" BORE X 1 3/8" ROD SEAL KIT								
SK-WP301500B	3" BORE X 1 1/2" ROD SEAL KIT								
SK-WP351750B	3 1/2" BORE X 1 3/4" ROD SEAL KIT								
SK-WP402000B	4" BORE X 2" ROD SEAL KIT								

WP Weld Hole Cylinders



Dimension

BORE	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
A	7"	8"	8"	8"	8"	9"
C	2.43"	3.37"	3.12"	2.56"	2.43"	2.43"
D	1.25"	1.25"	1.25"	1.50"	1.50"	2.00"
G	0.62"	0.75"	0.75"	1.00"	1.00"	1.25"
J	2.00"	2.50"	3.00"	3.50"	4.00"	4.50"
N	2.00"	2.50"	3.00"	3.50"	4.00"	4.50"
S	0.81"	0.81"	0.81"	0.81"	0.81"	0.81"
T	1.87"	1.87"	2.06"	2.18"	2.18"	2.18"

TC Telescopic Cylinders for Pin and Trunnion Mount



How to Order

6 3 - 156 TC - 4480

- 6 = Nominal OD of Largest Stage
- 3 = Number of Stage
- 156 = Stroke (inches)
- TC = Telescopic Cylinder
- 4480 = Design Code / Series*

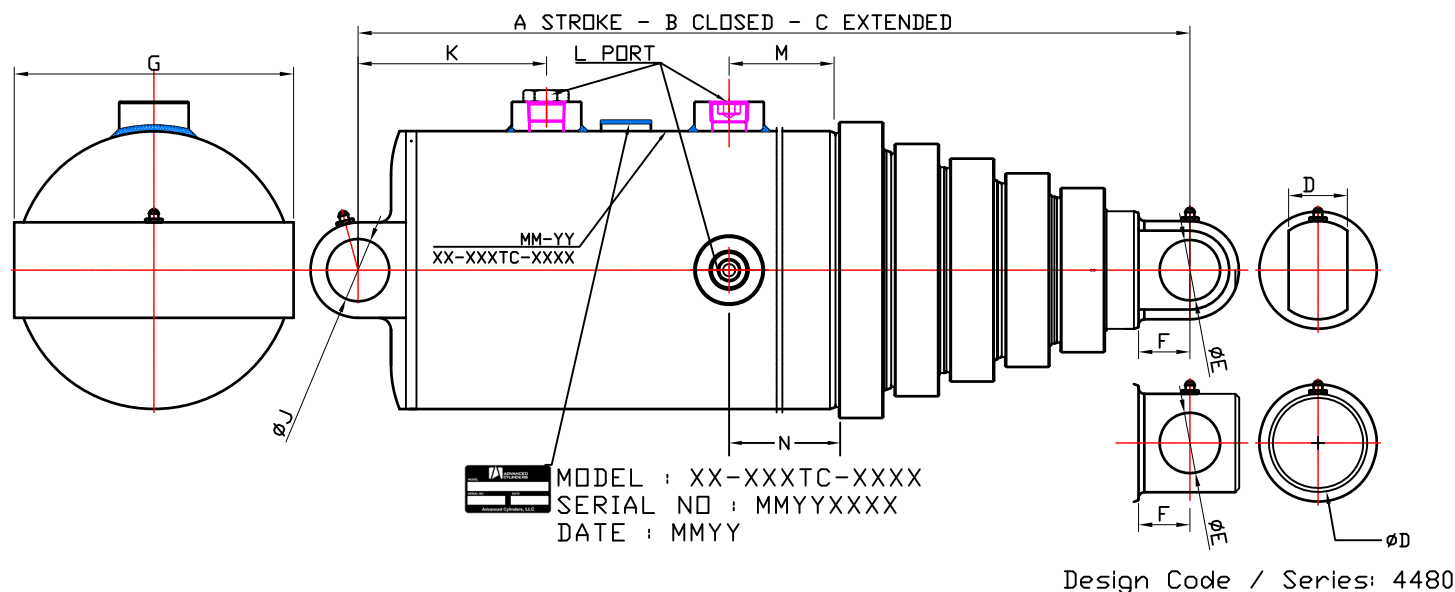
Note * = 4689 and 4526 are Trunnion Mount. All others are Pin Mount.

Specifications

Single-Acting with Pin Mount and Trunnion Mount Design.

TC Telescopic Cylinders for Pin and Trunnion Mount

Pin Mount



Available Model Numbers - Pin Mount

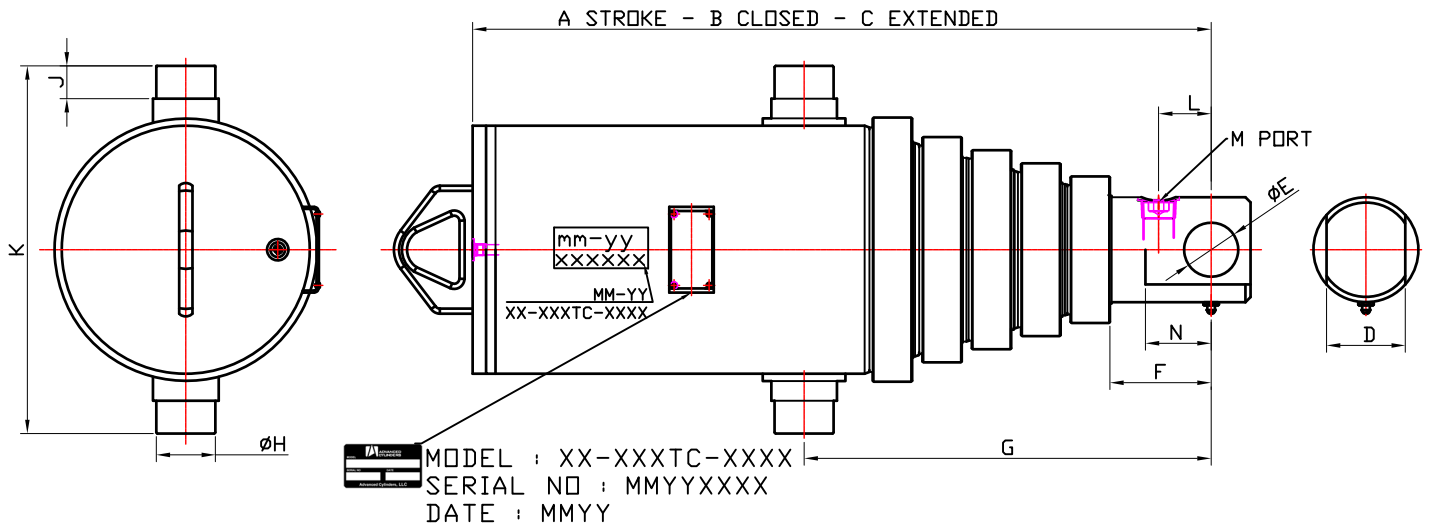
PIN MOUNT MODEL NO	A	B	C	D	E	F	G	J	K	L	M	N	GAL OF OIL		WT
	IN	IN	IN	IN	IN	IN	IN	IN	IN	PORT	IN	IN	FILL	EXT	LB
53-72TC-4630	71.94	36.62	108.56	1.5	2.06	2	7	2.06	19.5	3/4" NPT	N/A	N/A	1.3	4	155
53-84TC-4630	84.19	41.12	125.31	1.5	2.06	2	7	2.06	19.5	3/4" NPT	N/A	N/A	1.4	4.7	181
53-106TC-4630	106.06	48	154.06	1.5	2.06	2	7	2.06	19.5	3/4" NPT	N/A	N/A	1.7	6	218
53-128TC-4648	125.94	54.5	180.44	1.5	1.78	2	7	2.06	26.5	SAE #16	N/A	N/A	2	7.1	227
53-130TC-4649	126.13	54.56	180.69	2	1.78	1.88	7	2.06	33.5	1" NPT	N/A	N/A	2	7.1	231
63-84TC-4680	84.38	41	125.38	2	2.06	1.75	7	2.13	19.5	1" NPT	N/A	N/A	1.8	7.3	238
63-104TC-4680	103.75	47.62	151.37	2	2.06	1.75	7	2.13	19.5	1" NPT	N/A	N/A	2.1	9	269
63-108TC-4680	108.38	49	157.38	2	2.06	1.75	7	2.13	19.5	1" NPT	N/A	N/A	2.2	9.4	278
63-120TC-4680	120.38	53	173.38	2	2.06	1.75	7	2.13	19.5	1" NPT	N/A	N/A	2.4	10.4	291
63-126TC-4680	126.38	55	181.38	2	2.06	1.75	7	2.13	19.5	1" NPT	N/A	N/A	2.5	11	300
63-132TC-4680	132.38	57	189.38	2	2.06	1.75	7	2.13	19.5	1" NPT	N/A	N/A	2.7	11.5	302
63-140TC-4680	140.62	59.75	200.37	2	2.06	1.75	7	2.13	19.5	1" NPT	N/A	N/A	2.8	12.2	326
64-135TC-4480	134.75	47.13	181.88	2.69	1.56	1.63	8	1.88	N/A	1" NPT	4.5	4.5	2.5	9.7	286
64-156TC-4480	155.75	52.38	208.13	2.69	1.56	1.63	8	1.88	N/A	1" NPT	4.5	4.5	2.8	11.2	319
64-156TC-4483	155.75	52.63	208.38	1.75	2.03	1.88	7.25	2.06	6.38	1" NPT	5	N/A	2.8	11.2	300
73-110TC-4569	108.94	49.88	158.81	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	2.7	13.5	318
73-118TC-4569	117.19	52.13	169.31	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	2.8	14.5	332
73-127TC-4569	126.19	55.13	181.31	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3	15.7	352
73-142TC-4569	141.19	60.13	201.31	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3.3	17.5	380
73-151TC-4569	150.19	63.13	213.31	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3.5	18.7	407
74-120TC-4561	119.94	44.75	164.69	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	2.8	12.6	309
74-135TC-4561	134.69	48.25	182.94	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3.1	14.2	348

Available Model Numbers - Pin Mount

PIN MOUNT MODEL NO	A	B	C	D	E	F	G	J	K	L	M	N	GAL OF OIL		WT
	IN	IN	IN	IN	IN	IN	IN	IN	IN	PORT	IN	IN	FILL	EXT	LB
74-140TC-4561	139.69	49.5	189.19	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3.2	14.8	346
74-156TC-4561	154.56	53.38	207.94	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3.5	16.2	385
74-161TC-4561	159.56	54.63	214.19	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3.6	16.8	384
74-167TC-4561	166.06	56.25	222.31	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	3.7	17.5	409
74-180TC-4561	179.06	59.5	238.56	2	2.06	1.75	8.63	2.13	6.5	1" NPT	12	N/A	4	18.9	440
84-148TC-4502	145	51.5	196.5	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	3.9	21.2	451
84-156TC-4502	153	53.5	206.5	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	4.1	22.4	474
84-161TC-4502	157.5	54.88	212.38	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	4.2	23.1	483
84-170TC-4502	167	57	224	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	4.4	24.5	504
84-180TC-4502	176.5	59.5	236	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	4.6	25.9	527
85-170TC-4402	168.63	49.88	218.5	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	4.2	21.3	462
85-190TC-4402	188.63	53.88	242.5	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	4.6	23.8	526
85-200TC-4402	198.62	55.88	254.5	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	4.9	25.3	519
85-220TC-4402	218.63	59.88	278.5	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	5.2	27.7	583
85-235TC-4402	234.25	65	299.25	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	5.8	29.7	643
85-250TC-4402	249.25	68	317.25	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	6.1	31.7	691
85-265TC-4402	263.63	70.88	334.5	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	5.6	33.9	746
85-265TC-4510	264.25	74.38	338.63	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	6.8	33.7	710
85-280TC-4510	279.25	77.5	356.75	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	7.1	35.7	746
85-285TC-4510	284.25	78.5	362.75	2	2.06	1.75	9.5	2.13	6.63	1" NPT	12.75	N/A	7.2	36.4	758
95-220TC-4500	219.63	60.88	280.5	2	2.06	1.75	10.69	2.13	6.5	1" NPT	12.75	N/A	6.6	38	723
95-235TC-4500	232.75	65	297.75	2	2.06	1.75	10.69	2.13	6.5	1" NPT	12.75	N/A	7.2	40.1	783
95-250TC-4500	249.88	72.63	322.5	2	2.06	1.75	10.69	2.13	6.5	1" NPT	12.75	N/A	8.2	43.6	891
95-280TC-4500	279.88	78.63	358.5	2	2.06	1.75	10.69	2.13	6.5	1" NPT	12.75	N/A	8.9	48.9	956
95-300TC-4500	299.88	82.63	382.5	2	2.06	1.75	10.69	2.13	6.5	1" NPT	12.75	N/A	9.5	52.4	1002
95-340TC-4509	338.94	87	425.94	2	2.06	1.75	10.69	2.13	6.5	1" NPT	N/A	N/A	8.9	59.3	1078

TC Telescopic Cylinders for Pin and Trunnion Mount

Trunnion Mount



Available Model Numbers - Trunnion Mount

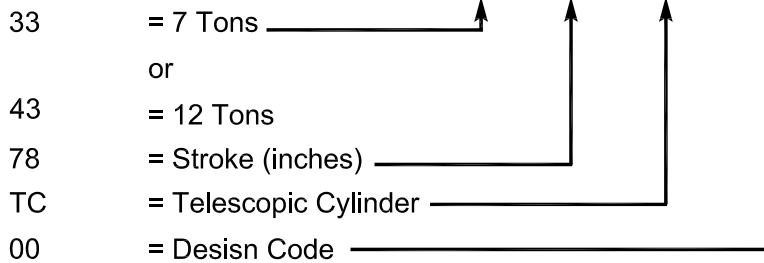
TRUNNION MOUNT MODEL NO	A	B	C	D	E	F	G	H	J	K	L	M	N	GAL OF OIL		WT
	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	PORT	IN	FILL	EXT	LB
63-120TC-4689	120.00	53.38	173.38	3.44	1.56	3.44	14.38	1.75	1.69	12.38	2	1" NPT	N/A	4.1	10.5	313
63-140TC-4689	139.88	60.00	199.88	3.44	1.56	3.44	14.38	1.75	1.69	12.38	2	1" NPT	N/A	4.7	12.2	317
63-150TC-4689	150.00	63.50	213.5	3.44	1.56	3.44	14.38	1.75	1.69	12.38	2	1" NPT	N/A	5	13.1	352
63-168TC-4689	168.00	69.75	237.75	3.44	1.56	3.44	14.38	1.75	1.69	12.38	2	1" NPT	N/A	5.6	14.8	390
85-200TC-4526	199.88	56.38	256.25	3.75	2.06	3.75	15.5	2.25	1.25	14	2	1" NPT	2.5	6.6	25.6	522
85-220TC-4526	219.88	60.38	280.25	3.75	2.06	3.75	15.5	2.25	1.25	14	2	1" NPT	2.5	7.3	28.2	583
85-235TC-4526	234.88	65.38	300.25	3.75	2.06	3.75	15.5	2.25	1.25	14	2	1" NPT	2.5	7.8	30.1	643
85-250TC-4526	249.88	68.38	318.25	3.75	2.06	3.75	15.5	2.25	1.25	14	2	1" NPT	2.5	8.2	32	691
85-265TC-4526	264.88	74.88	339.75	3.75	2.06	3.75	15.5	2.25	1.25	14	2	1" NPT	2.5	8.7	33.9	746
85-280TC-4526	279.88	77.88	357.75	3.75	2.06	3.75	15.5	2.25	1.25	14	2	1" NPT	2.5	9.2	35.8	795

TC Telescopic Cylinders for 7 Tons and 12 Tons Inverse



How to Order

33 - 078 TC - 00



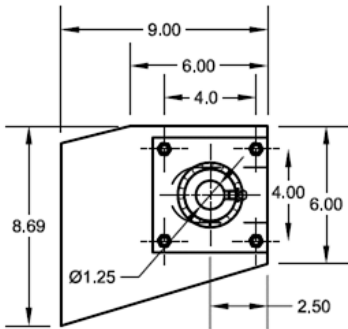
Specifications

Tons Inverse - 7 Tons and 12 Tons
 Strokes - 78" ~ 144"

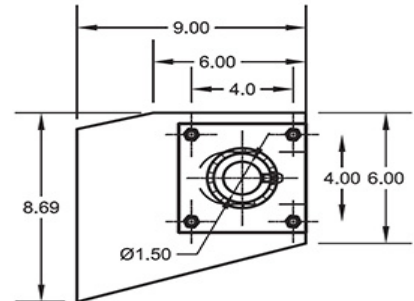
Pressure - 3000 PSI
 Ports - SAE Port

Mounting Accessories

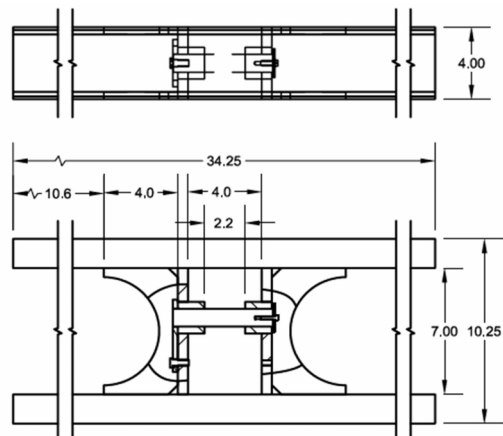
MB7 - 7 Tons Mounting Bracket



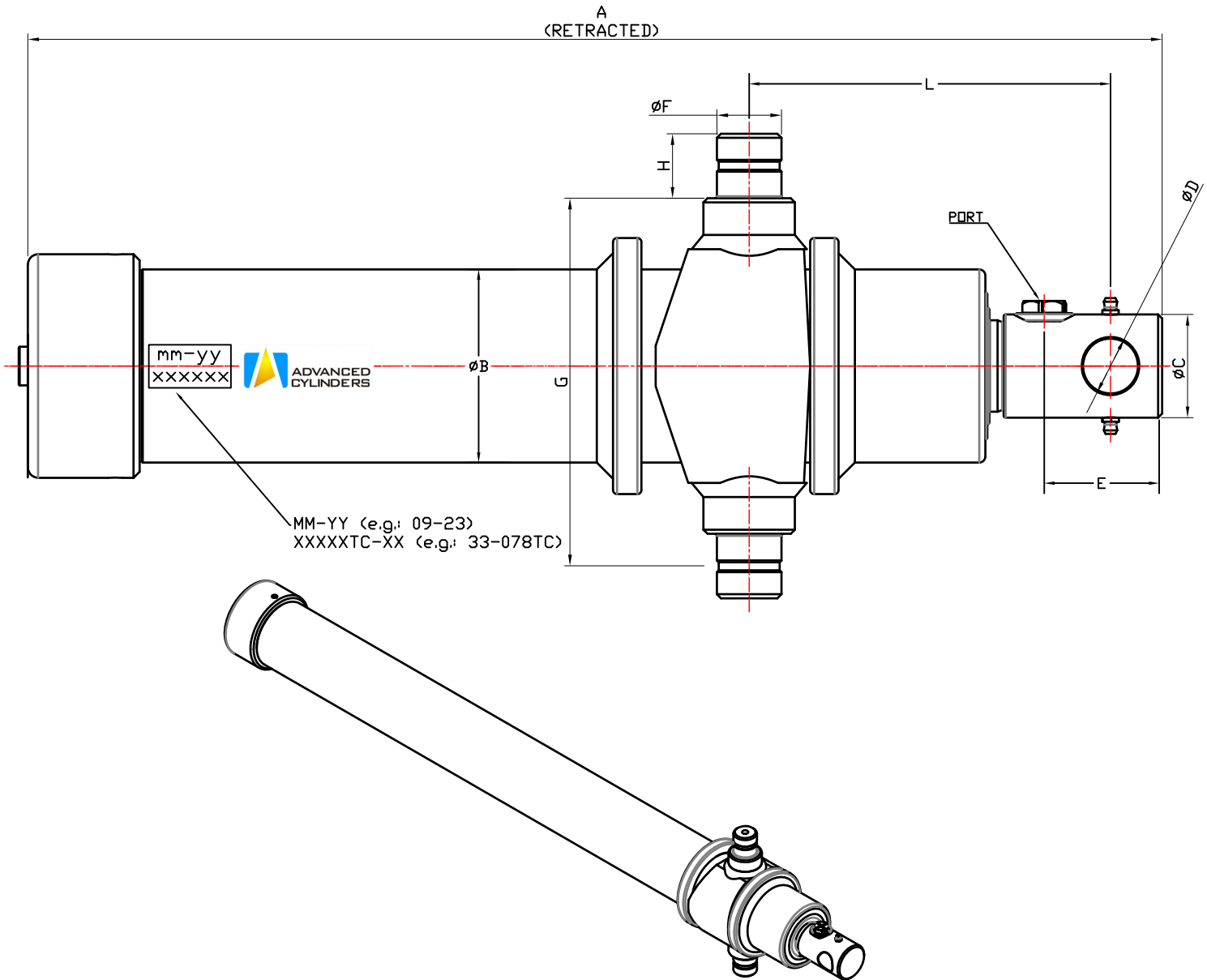
MB12 - 12 Tons Mounting Bracket



SB0712 - 7 and 12 Tons Support Frame



TC Telescopic Cylinders for 7 Tons and 12 Tons Inverse

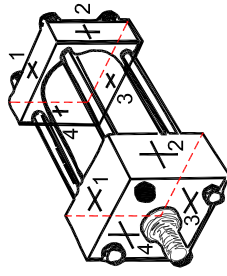


Available Model Numbers

MODEL NO	STROKE	A	B	C	D	E	F	G	H	L	PORT	WEIGHT LB	VOLUME GAL
33-078TC	78"	35.5"	3.75"	2"	1.063"	2.25"	1.25"	6.5"	1.25"	7"	SAE 8	68	1.6
33-090TC	90"	39.5"	3.75"	2"	1.063"	2.25"	1.25"	6.5"	1.25"	7"	SAE 8	75	1.8
33-108TC	108"	45.5"	3.75"	2"	1.063"	2.25"	1.25"	6.5"	1.25"	7"	SAE 8	101	2.2
43-078TC	78"	34.75"	4.4"	2"	1.063"	2.25"	1.5"	7.5"	1.5"	7"	SAE 8	106	2.5
43-090TC	90"	38.75"	4.4"	2"	1.063"	2.25"	1.5"	7.5"	1.5"	7"	SAE 8	107	2.8
43-108TC	108"	44.75"	4.4"	2"	1.063"	2.25"	1.5"	7.5"	1.5"	7"	SAE 8	132	3.4
43-120TC	120"	48.75"	4.4"	2"	1.063"	2.25"	1.5"	7.5"	1.5"	7"	SAE 8	143	3.8
43-144TC	144"	56.78"	4.4"	2"	1.063"	2.25"	1.5"	7.5"	1.5"	7"	SAE 8	166	4.6

Cylinder Ordering Guide

H	MOUNT	BORE	ROD	STROKE	CUSHIONS	ROD END	PORTS	HEAD END	PORT LOCATION	OPTIONS
H	MF5	-	1.38	X	-	1	S	-	11	S
	MX1	1.50	0.63		N (None)	1 (KK Male)	S (SAE)	HEAD END	CAP END	S (STD)
	MX2	2.00	1.00		H (Head End)	2 (KK Female)	N (NPTF)	1	1	X (MODIFIED) *
	MX3	2.50	1.38		C (Cap End)	3 (CC Intermediate Male)		2	2	
	ME5	3.25	1.75		B (Both Ends)			3	3	
	ME6	4.00	2.00					4	4	
	MF1	5.00	2.50							
	MF2	6.00	3.00							
	MF5	7.00	3.50							
	MF6	8.00	4.00							
	MS2	10.00	4.50							
	MS3	12.00	5.00							
	MS4	14.00	5.50							
	MS7	16.00	7.00							
	MT1	18.00	8.00							
	MT2	20.00	9.00							
	MT4		10.00							
	MP1									



Note: * All modification must be with either complete notes or drawings.

Standard Specifications

Nominal Pressure - 3000 PSI*

Bore Sizes - 1 1/2" through 8"

Rod Sizes - 5/8" through 5 1/2"

Mounting Styles - 17 Standard styles***

Strokes - Available in any practical stroke length

Cushions - Optional at either end or both ends

Standard - Externally removable bolted gland assembly

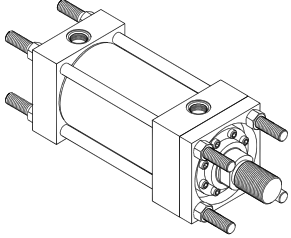
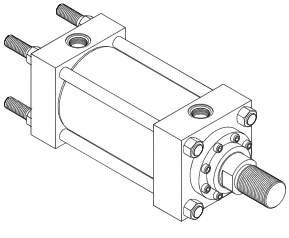
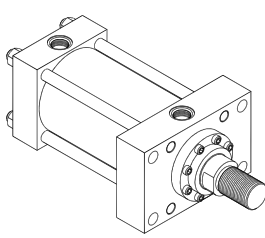
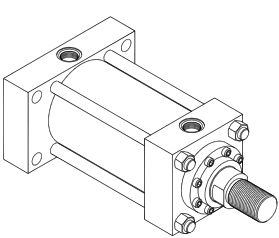
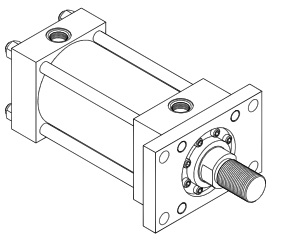
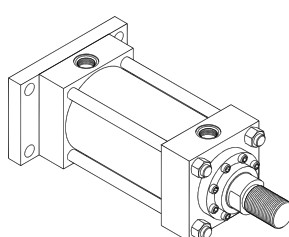
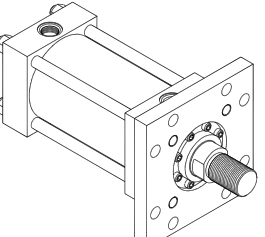
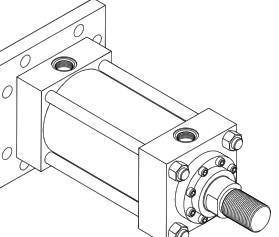
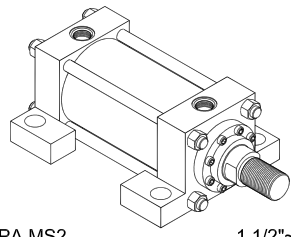
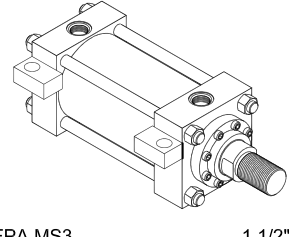
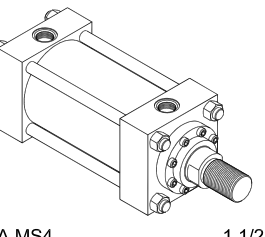
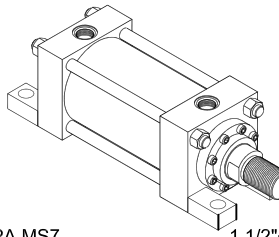
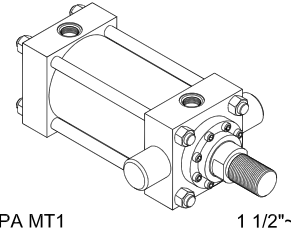
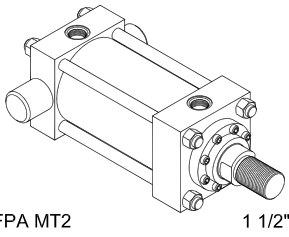
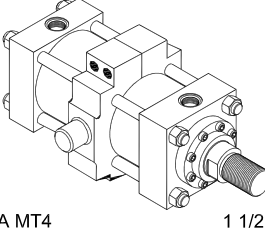
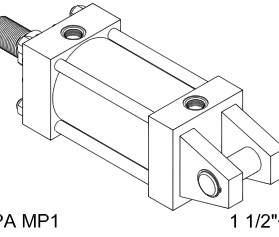
Standard Temperature - -10°F to +200°F**

* If pressure is from 3000 ~ 4000 PSI or higher, specify it during order

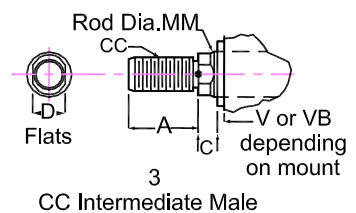
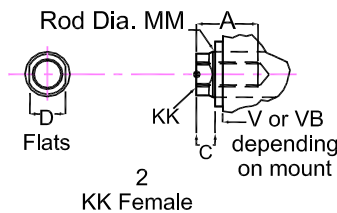
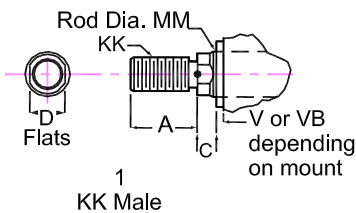
** If temperature is from 200 ~ 400°F or higher, specify it during order

*** Supplied drawings with all other mounting styles and specials

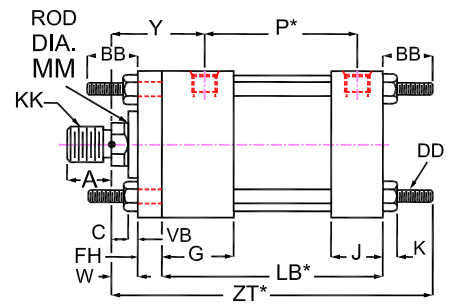
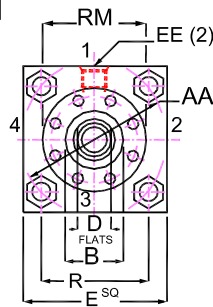
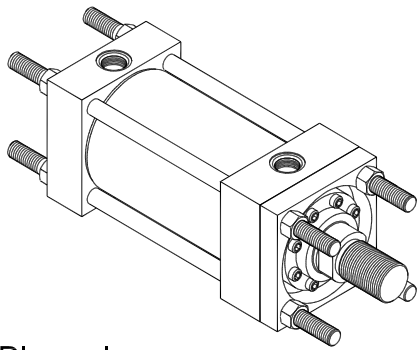
Mounting Styles

<p>Tie Rod Extended Both/Head End</p>  <p>NFPA MX1, MX3 1 1/2"-8"</p>	<p>Tie Rod Extended Cap End</p>  <p>NFPA MX2 1 1/2"-8"</p>	<p>Head Rectangular</p>  <p>NFPA ME5 1 1/2"-8"</p>	<p>Cap Rectangular</p>  <p>NFPA ME6 1 1/2"-8"</p>
<p>Head Rectangular Flange</p>  <p>NFPA MF1 1 1/2"-8"</p>	<p>Cap Rectangular Flange</p>  <p>NFPA MF2 1 1/2"-8"</p>	<p>Head Square Flange</p>  <p>NFPA MF5 1 1/2"-8"</p>	<p>Cap Square Flange</p>  <p>NFPA MF6 1 1/2"-8"</p>
<p>Side Lugs</p>  <p>NFPA MS2 1 1/2"-8"</p>	<p>Center-Line Lugs</p>  <p>NFPA MS3 1 1/2"-8"</p>	<p>Side Tapped</p>  <p>NFPA MS4 1 1/2"-8"</p>	<p>End Lugs</p>  <p>NFPA MS7 1 1/2"-8"</p>
<p>Head Trunnion</p>  <p>NFPA MT1 1 1/2"-8"</p>	<p>Cap Trunnion</p>  <p>NFPA MT2 1 1/2"-8"</p>	<p>Intermediate Trunnion</p>  <p>NFPA MT4 1 1/2"-8"</p>	<p>Cap Fixed Clevis</p>  <p>NFPA MP1 1 1/2"-8"</p>

Rod End Styles



NFPA MX1 - Tie Rods Extended Both End
 NFPA MX3 - Tie Rods Extended Head End



* Add stroke to starred dimension

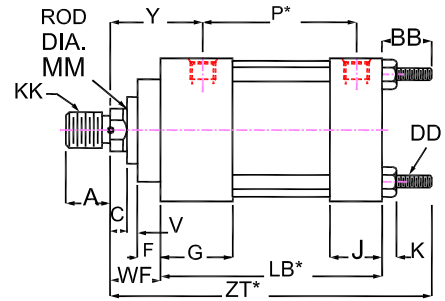
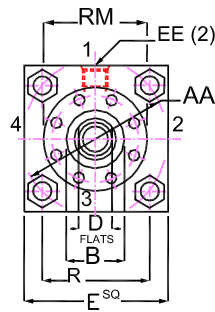
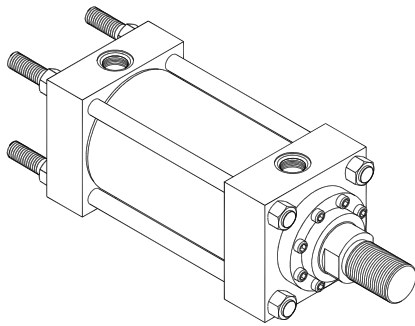
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	AA	BB	DD	FH	R
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	2.3	1 3/8	3/8-24	3/8	1.63
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	2.9	11 3/16	1/2-20	5/8	2.05
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	3.6	11 3/16	1/2-20	5/8	2.55
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	4.6	2 5/16	5/8-18	3/4	3.25
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	5.4	2 5/16	5/8-18	7/8	3.82
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	7.0	3 3/16	7/8-14	7/8	4.95
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	8.1	3 5/8	1-14	1	5.73
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	9.3	4 1/8	1 1/8-12	1	6.58
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	10.6	4 1/2	1 1/4-12	1	7.5

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	VB	W	Y	ZT*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	1/4	5/8	2 15/32	7
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/2	1	2 15/32	7 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/4	3/4	2 15/32	7 13/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1	2 23/32	8 1/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/4	3/4	2 15/32	7 15/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1	2 23/32	8 3/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3/8	1 1/8	2 31/32	8 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	1/4	7/8	2 23/32	9 7/16
4	1 3/4	1 1/4-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3/8	1 1/4	3 3/32	9 11/16
	2	1 1/2-12	1 3/4-12	2	2 3/8	3/4	1 1/2	3 15/32	1/4	1	2 31/32	9 15/16
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3/8	1 3/8	3 11/32	10 1/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1/4	1 1/8	3 3/32	11 7/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3/8	1 3/8	3 11/32	11 11/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	3/8	1 3/8	3 11/32	11 11/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	3/8	1 3/8	3 11/32	11 11/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1/4	1 1/4	3 19/32	13 1/4
8	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1/4	1 1/4	3 19/32	13 1/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	3 19/32	13 1/4
9	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	3 19/32	13 1/4
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1/4	1 1/4	3 15/16	14 7/8
10	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	3 15/16	14 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	3 15/16	14 7/8
11	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1/4	1 1/4	3 15/16	14 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	1/4	1 1/4	3 15/16	14 7/8
12	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	4 1/16	16 1/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	4 1/16	16 1/4
13	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1/4	1 1/4	4 1/16	16 1/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	1/4	1 1/4	4 1/16	16 1/4
14	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	1/4	1 1/4	4 1/16	16 1/4

NFPA MX2 - Tie Rods Extended Cap End



* Add stroke to starred dimension

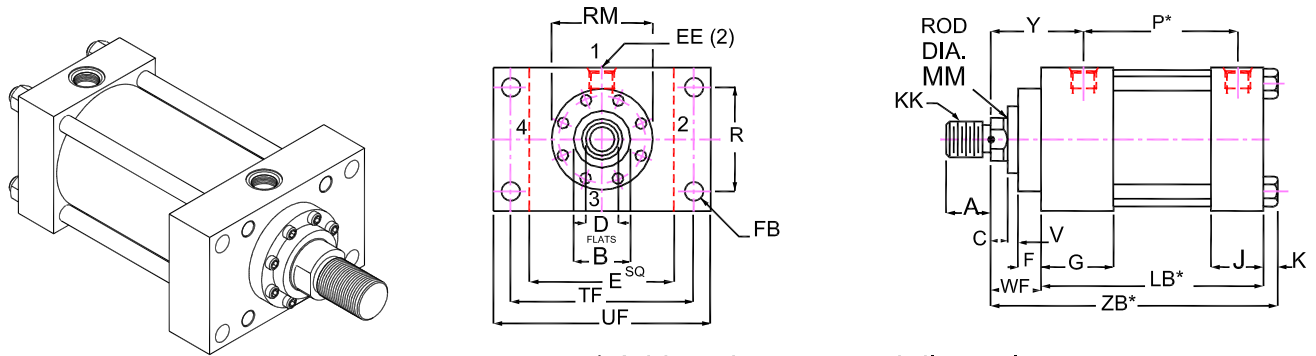
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	AA	BB	DD	R
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	2.3	1 3/8	3/8-24	1.63
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	2.9	11 3/16	1/2-20	2.05
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	3.6	11 3/16	1/2-20	2.55
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	4.6	2 5/16	5/8-18	3.25
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	5.4	2 5/16	5/8-18	3.82
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	7.0	3 3/16	7/8-14	4.95
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	8.1	3 5/8	1-14	5.73
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	9.3	4 1/8	1 1/8-12	6.58
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	10.6	4 1/2	1 1/4-12	7.5

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	V	WF	Y	ZT*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	1	2 15/32	7
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	1 3/8	2 15/32	7 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	1 3/8	2 15/32	7 13/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	8 1/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	3/8	1 3/8	2 15/32	7 15/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	8 3/16
2 1/2	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/2	1 7/8	2 31/32	8 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	13/32	1 5/8	2 23/32	9 7/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	1 7/8	2 31/32	9 11/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	3/8	2	3 3/32	9 13/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	17/32	1 7/8	2 31/32	9 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	2	3 3/32	10 1/16
4	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 11/32	10 5/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	2	3 3/32	11 7/16
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 11/32	11 11/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 11/32	11 11/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 11/32	11 11/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 19/32	13 1/4
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 19/32	13 1/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 19/32	13 1/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	3 19/32	13 1/4
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 15/16	14 7/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 15/16	14 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	3 15/16	14 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	3 15/16	14 7/8
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	2 1/4	3 15/16	14 7/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	4 1/16	16 1/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	4 1/16	16 1/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	4 1/16	16 1/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	2 1/4	4 1/16	16 1/4
8	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	3/8	2 1/4	4 1/16	16 1/4

NFPA ME5 - Head Rectangular



* Add stroke to starred dimension

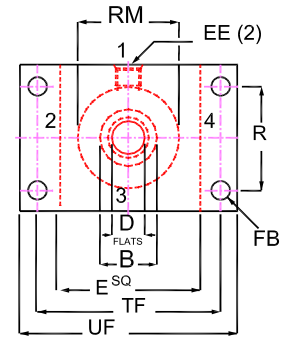
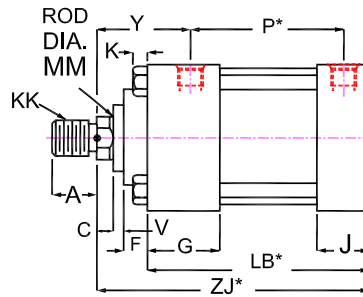
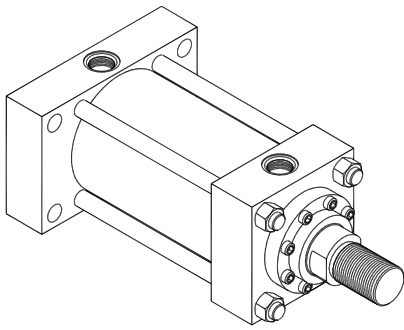
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	1.63	3 7/16	4 1/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	2.05	4 1/8	5 1/8
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	V	WF	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	1	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	1 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	1 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	3/8	1 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	6 13/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/2	1 7/8	2 31/32	7 1/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	13/32	1 5/8	2 23/32	7 11/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	1 7/8	2 31/32	8 1/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	1 7/8	2 31/32	8 3/16
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2	3 3/32	8 5/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	2	3 3/32	9 1/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 11/32	9 5/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 11/32	9 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 19/32	10 9/16
8	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 19/32	10 9/16
9	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 15/16	11 3/4
10	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	3 15/16	11 3/4
11	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	2 1/4	3 15/16	11 3/4
12	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	4 1/16	12 7/8
13	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	4 1/16	12 7/8
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14	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	3/8	2 1/4	4 1/16	12 7/8

NFPA ME6 - Cap Rectangular



* Add stroke to starred dimension

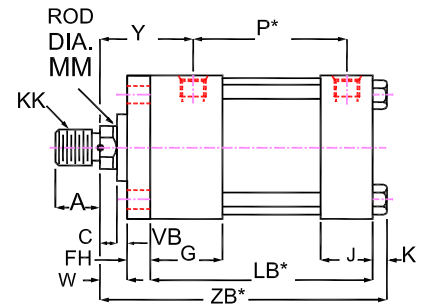
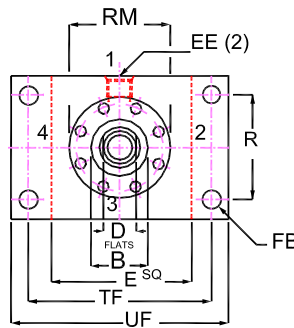
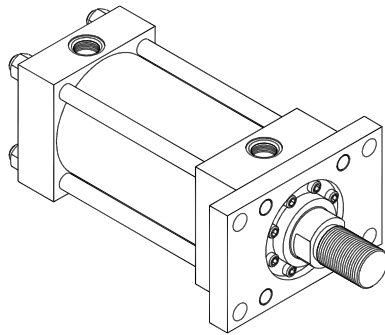
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	1.63	3 7/16	4 1/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	2.05	4 1/8	5 1/8
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	V	Y	ZJ*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	2 15/32	5 5/8
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	2 15/32	6
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	2 15/32	6
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	2 23/32	6 1/4
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	3/8	2 15/32	6 1/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	2 23/32	6 3/8
2 1/2	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/2	2 31/32	6 5/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	13/32	2 23/32	7 1/8
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	2 31/32	7 3/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	3/8	3 3/32	7 1/2
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	17/32	2 31/32	7 5/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	3 3/32	7 3/4
4	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	3 11/32	8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	3 3/32	8 1/4
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	3 11/32	8 1/2
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	3 11/32	8 1/2
5	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	3 11/32	8 1/2
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	3 19/32	9 5/8
6	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	3 19/32	9 5/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	3 19/32	9 5/8
6	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	3 19/32	9 5/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	3 15/16	10 3/4
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	3 15/16	10 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	3 15/16	10 3/4
7	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	3 15/16	10 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	3 15/16	10 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	4 1/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	4 1/16	11 3/4
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	4 1/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	4 1/16	11 3/4
8	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	3/8	4 1/16	11 3/4

NFPA MF1 - Head Rectangular Flange



* Add stroke to starred dimension

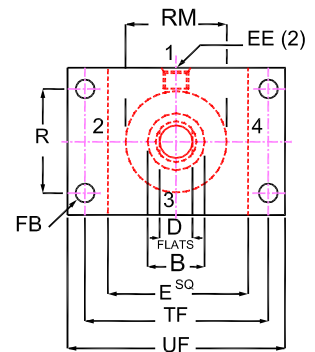
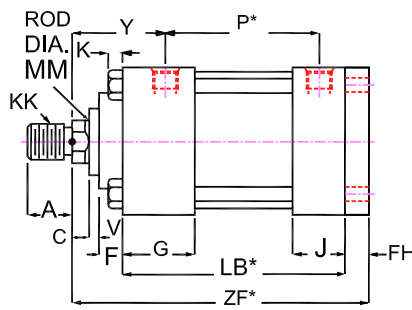
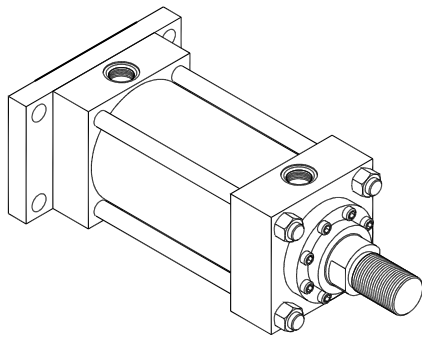
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	1.63	3 7/16	4 1/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2.05	4 1/8	5 1/8
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	MAX PRESSURE PSI	VB	W	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	1500	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1000	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	2000	1/4	3/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	1200	3/8	1	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	2000	1/4	3/4	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	1500	3/8	1	2 23/32	6 13/16
2 1/2	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	1100	1/2	1 1/4	2 31/32	7 1/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	800	1/4	7/8	2 23/32	7 11/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	800	3/8	1 1/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	600	3/8	1 1/4	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	1000	1/4	1	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1000	1/4	1 1/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	700	3/8	1 3/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	850	1/4	1 1/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	850	3/8	1 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	450	3/8	1 3/8	3 11/32	9 5/16
5	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	800	3/8	1 3/8	3 11/32	9 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	650	1/4	1 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	650	1/4	1 1/4	3 19/32	10 9/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	400	1/4	1 1/4	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	400	1/4	1 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1400	1/4	1 1/4	3 15/16	11 3/4
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1200	1/4	1 1/4	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1100	1/4	1 1/4	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1000	1/4	1 1/4	3 15/16	11 3/4
7	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	800	1/4	1 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1100	1/4	1 1/4	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1000	1/4	1 1/4	4 1/16	12 7/8
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1000	1/4	1 1/4	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	800	1/4	1 1/4	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	800	1/4	1 1/4	4 1/16	12 7/8

NFPA MF2 - Cap Rectangular Flange



* Add stroke to starred dimension

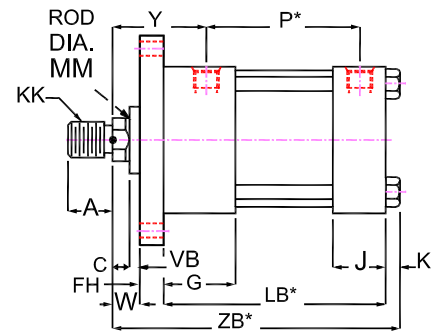
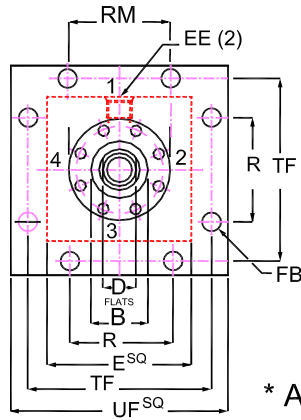
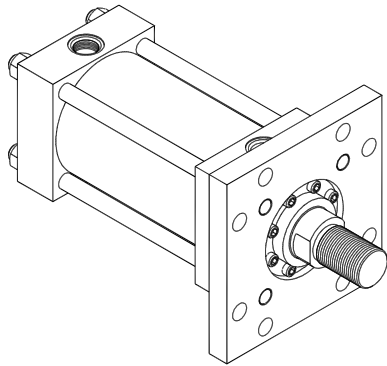
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	1.63	3 7/16	4 1/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2.05	4 1/8	5 1/8
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	MAX PRESSUR E PSI	F	VB	W	Y	ZF*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	2500	3/8	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3000	3/8	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3000	3/8	1/4	3/4	2 15/32	6 5/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3000	3/8	3/8	1	2 23/32	6 7/8
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3000	3/8	1/4	3/4	2 15/32	6 3/4
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3000	3/8	3/8	1	2 23/32	7
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3000	5/8	1/2	1 1/4	2 31/32	7 1/4
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3000	3/8	1/4	7/8	2 23/32	7 7/8
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3000	5/8	3/8	1 1/8	2 31/32	8 1/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3000	5/8	3/8	1 1/4	3 3/32	8 1/4
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3000	5/8	1/4	1	2 31/32	8 1/2
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3000	5/8	1/4	1 1/8	3 3/32	8 5/8
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3000	5/8	3/8	1 3/8	3 11/32	8 7/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	2000	5/8	1/4	1 1/8	3 3/32	9 1/8
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	2000	5/8	3/8	1 3/8	3 11/32	9 3/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	2500	7/8	3/8	1 3/8	3 11/32	9 3/8
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	3000	15/16	3/8	1 3/8	3 11/32	9 3/8
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1800	5/8	1/4	1 1/4	3 19/32	10 5/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	2000	7/8	1/4	1 1/4	3 19/32	10 5/8
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	2000	15/16	1/4	1 1/4	3 19/32	10 5/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	2500	15/16	1/4	1 1/4	3 19/32	10 5/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1400	7/8	1/4	1 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1200	15/16	1/4	1 1/4	3 15/16	11 3/4
8	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1100	15/16	1/4	1 1/4	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1000	15/16	1/4	1 1/4	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	800	15/16	1/4	1 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1100	15/16	1/4	1 1/4	4 1/16	12 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1000	15/16	1/4	1 1/4	4 1/16	12 3/4
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1000	15/16	1/4	1 1/4	4 1/16	12 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	800	15/16	1/4	1 1/4	4 1/16	12 3/4
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	800	15/16	1/4	1 1/4	4 1/16	12 3/4

NFPA MF5 - Head Square Flange



* Add stroke to starred dimension

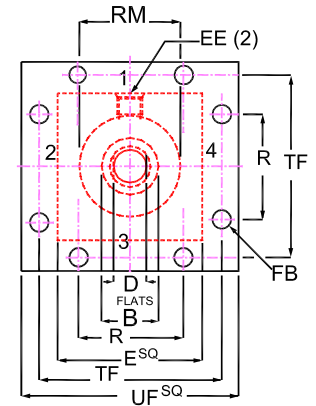
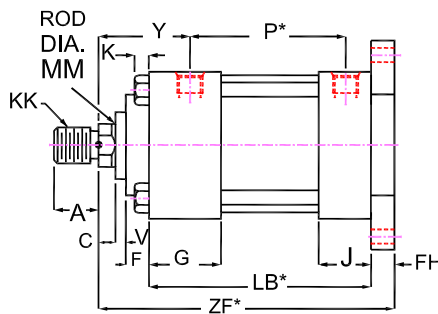
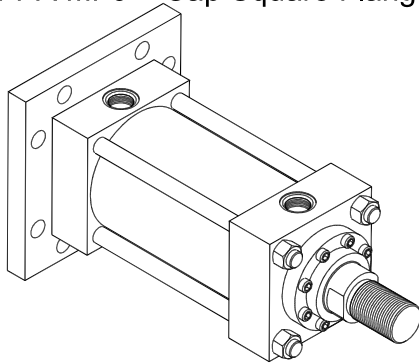
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	1.63	3 7/16	4 1/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2.05	4 1/8	5 1/8
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	MAX PRESSURE PSI	VB	W	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3000	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3000	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3000	1/4	3/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3000	3/8	1	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3000	1/4	3/4	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3000	3/8	1	2 23/32	6 13/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3000	1/4	7/8	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3000	3/8	1 1/8	2 31/32	7 15/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3000	3/8	1 1/4	3 3/32	8 1/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3000	3/8	1 1/4	3 3/32	8 1/16
5	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3000	1/4	1	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3000	1/4	1 1/8	3 3/32	8 5/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3000	3/8	1 3/8	3 11/32	8 9/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3000	1/4	1 1/8	3 3/32	9 1/16
7	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3000	3/8	1 3/8	3 11/32	9 5/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	3000	3/8	1 3/8	3 11/32	9 5/16
8	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3000	1/4	1 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	3000	1/4	1 1/4	3 19/32	10 9/16
9	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	2700	1/4	1 1/4	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	2700	1/4	1 1/4	3 19/32	10 9/16
10	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	3000	1/4	1 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	3000	1/4	1 1/4	3 15/16	11 3/4
11	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	3000	1/4	1 1/4	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	3000	1/4	1 1/4	3 15/16	11 3/4
12	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	2700	1/4	1 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	3000	1/4	1 1/4	4 1/16	12 7/8
13	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	2500	1/4	1 1/4	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	2500	1/4	1 1/4	4 1/16	12 7/8
14	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	2500	1/4	1 1/4	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	2300	1/4	1 1/4	4 1/16	12 7/8

NFPA MF6 - Cap Square Flange



* Add stroke to starred dimension

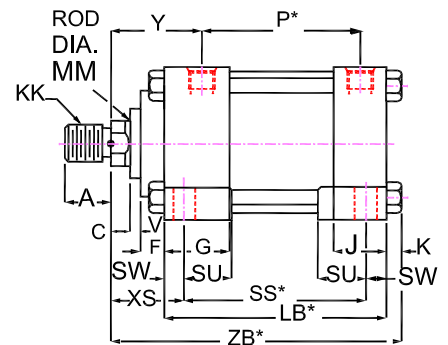
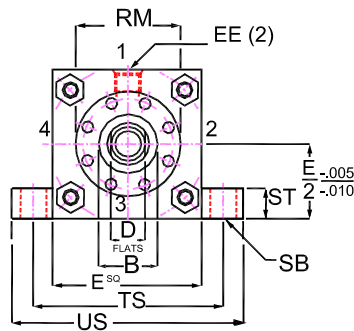
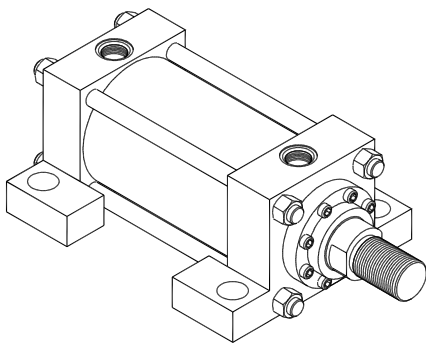
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	1.63	3 7/16	4 1/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2.05	4 1/8	5 1/8
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	VB	W	Y	ZF*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	3/4	2 15/32	6 5/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1	2 23/32	6 7/8
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	3/4	2 15/32	6 3/4
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1	2 23/32	7
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1/4	7/8	2 23/32	7 7/8
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	1 1/8	2 31/32	8 1/8
4	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	3/8	1 1/4	3 3/32	8 1/4
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/4	1	2 31/32	8 1/2
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	3/8	1 3/8	3 11/32	8 7/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	1/4	1 1/8	3 3/32	9 1/8
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	3/8	1 3/8	3 11/32	9 3/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	3/8	1 3/8	3 11/32	9 3/8
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	3/8	1 3/8	3 11/32	9 3/8
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	1/4	1 1/4	3 19/32	10 5/8
8	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	1/4	1 1/4	3 19/32	10 5/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	1/4	1 1/4	3 19/32	10 5/8
9	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	1/4	1 1/4	3 19/32	10 5/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	1/4	1 1/4	3 15/16	11 3/4
10	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	1/4	1 1/4	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	1/4	1 1/4	3 15/16	11 3/4
11	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	1/4	1 1/4	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	1/4	1 1/4	3 15/16	11 3/4
12	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	1/4	1 1/4	4 1/16	12 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	1/4	1 1/4	4 1/16	12 3/4
13	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	1/4	1 1/4	4 1/16	12 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	1/4	1 1/4	4 1/16	12 3/4
14	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	1/4	1 1/4	4 1/16	12 3/4

NFPA MS2 - Side Lugs



* Add stroke to starred dimension

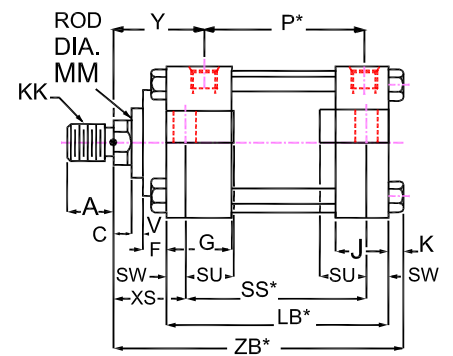
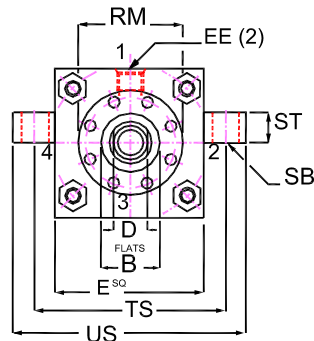
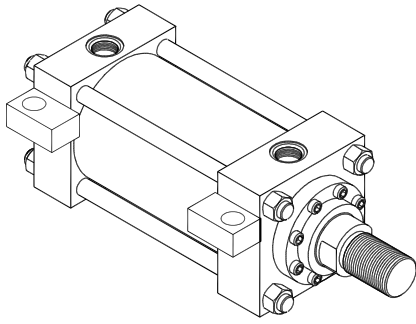
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	SB	SS*	ST	SU	SW	TS	US
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3 7/8	1/2	15/16	3/8	3 1/4	4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	3 5/8	3/4	1 1/4	1/2	4	5
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	13/16	3 3/8	1	1 9/16	11/16	4 7/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	13/16	4 1/8	1	1 9/16	11/16	5 7/8	7 1/4
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 1/16	4	1 1/4	2	7/8	6 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 1/16	4 1/2	1 1/4	2	7/8	8 1/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 5/16	5 1/8	1 1/2	2 1/2	1 1/8	9 3/4	12
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 9/16	5 3/4	1 3/4	2 7/8	1 3/8	11 1/4	14
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 9/16	6 3/4	1 3/4	2 7/8	1 3/8	12 1/4	15

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XT	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 3/4	2 23/32	7 11/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 1/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	3	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 11/32	9 5/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 11/32	9 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/2	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/2	3 19/32	10 9/16
7	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 13/16	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 13/16	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 13/16	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 13/16	3 15/16	11 3/4
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 13/16	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	4 1/16	12 7/8
5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 15/16	4 1/16	12 7/8	

NFPA MS3 - Center-Line Lugs



* Add stroke to starred dimension

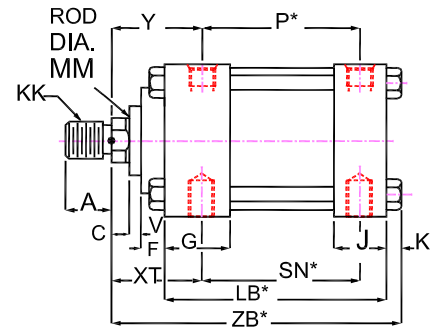
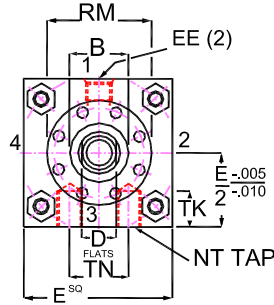
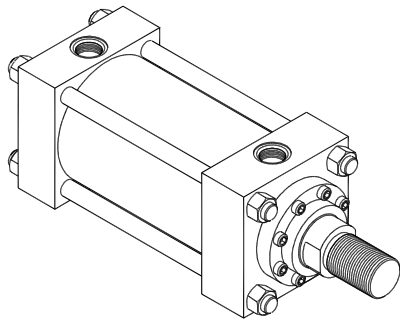
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	SB	SS*	ST	SU	SW	TS	US
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3 7/8	1/2	15/16	3/8	3 1/4	4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	3 5/8	3/4	1 1/4	1/2	4	5
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	13/16	3 3/8	1	1 9/16	11/16	4 7/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	13/16	4 1/8	1	1 9/16	11/16	5 7/8	7 1/4
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 1/16	4	1 1/4	2	7/8	6 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 1/16	4 1/2	1 1/4	2	7/8	8 1/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 5/16	5 1/8	1 1/2	2 1/2	1 1/8	9 3/4	12
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 9/16	5 3/4	1 3/4	2 7/8	1 3/8	11 1/4	14
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 9/16	6 3/4	1 3/4	2 7/8	1 3/8	12 1/4	15

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XT	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 3/4	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	3	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 1/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	3	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 11/32	9 5/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 11/32	9 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/2	3 19/32	10 9/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/2	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 13/16	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	4 1/16	12 7/8
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 15/16	4 1/16	12 7/8

NFPA MS4 - Side Tapped



* Add stroke to starred dimension

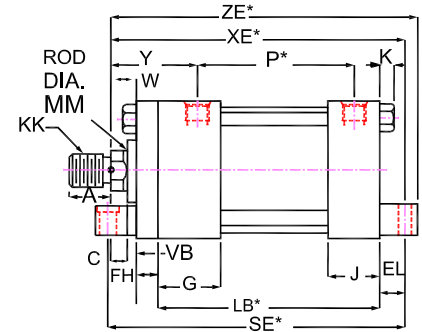
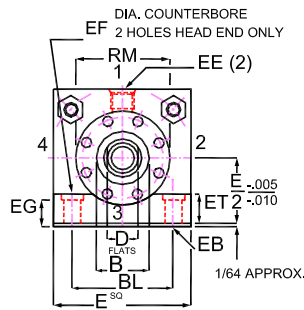
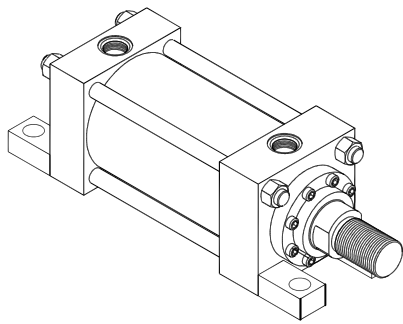
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	NT	P*	SN*	TK	TN
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	3/8-16	2 11/16	2 7/8	9/16	3/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	1/2-13	2 11/16	2 7/8	1/2	15/16
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	5/8-11	2 13/16	3	13/16	1 5/16
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3/4-10	3 9/16	3 1/2	3/4	1 1/2
4	5	12	3/4	2	1 3/4	9/16	5 3/4	1-8	3 13/16	3 3/4	1	2 1/16
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	1-8	4 5/16	4 1/4	1 1/8	2 15/16
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	1 1/4-7	4 11/16	5 1/8	1 5/16	3 5/16
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	1 1/2-6	5 1/8	5 7/8	2 1/8	3 3/4
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	1 1/2-6	5 7/8	6 5/8	1 9/16	4 1/4

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XT	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 3/4	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	3	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 1/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	3	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 11/32	9 5/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 11/32	9 5/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/2	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/2	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 1/2	3 19/32	10 9/16
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 13/16	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 13/16	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 13/16	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 13/16	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 13/16	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 15/16	4 1/16	12 7/8

NFPA MS7 - End Lugs



* Add stroke to starred dimension

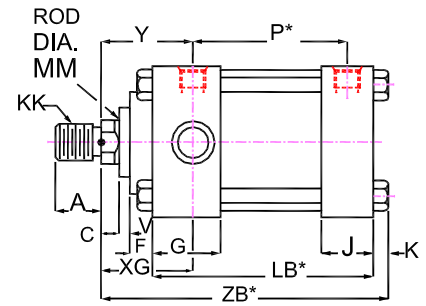
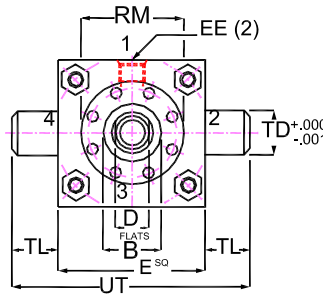
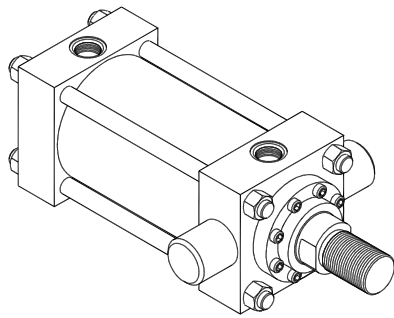
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	BL	EB	EF	EG	EL	ET	FH	SE*
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1.63	7/16	5/8	11/16	7/8	7/8	3/8	6 3/4
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	2.07	9/16	13/16	3/4	15/16	1	5/8	7 1/8
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	2.56	9/16	13/16	3/4	15/16	1	5/8	7 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	3.27	11/16	1	1 1/16	1 1/8	1 1/4	3/4	8 1/2
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	3.84	11/16	1	7/8	1 1/8	1 1/4	7/8	8 7/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	4.95	15/16	1 3/8	1 1/4	1 1/2	1 1/2	7/8	10 1/8
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	5.74	1 1/16	1 5/8	1 1/2	1 11/16	1 3/4	1	11 3/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	6.58	1 3/16	1 5/8	1 1/2	1 13/16	2	1	13 1/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	7.51	1 5/16	2 3/32	1 3/4	2	2	1	14 1/2

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	F	RM	VB	W	XE*	Y	ZB*	ZE*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	5/8	6 1/2	2 15/32	6	6 7/8
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	1	6 7/8	2 15/32	6 3/8	7 1/4
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	3/4	6 15/16	2 15/32	6 7/16	7 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	1	7 3/16	2 23/32	6 11/16	7 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	3/4	7 1/16	2 15/32	6 9/16	7 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	1	7 5/16	2 23/32	6 13/16	7 13/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	1 1/4	7 9/16	2 31/32	7 1/16	8 1/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	1/4	7/8	8 1/4	2 23/32	7 11/16	8 7/8
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	1 1/8	8 1/2	2 31/32	7 15/16	9 1/8
4	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	1 1/4	8 5/8	3 3/32	8 1/16	9 1/4
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/4	1	8 3/4	2 31/32	8 3/16	9 3/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	1/4	1 1/8	8 7/8	3 3/32	8 5/16	9 1/2
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	3/8	1 3/8	9 1/8	3 11/32	8 9/16	9 3/4
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	1/4	1 1/8	9 3/4	3 3/32	9 1/16	10 1/2
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	3/8	1 3/8	10	3 11/32	9 5/16	10 3/4
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	3/8	1 3/8	10	3 11/32	9 5/16	10 3/4
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	3/8	1 3/8	10	3 11/32	9 5/16	10 3/4
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
7	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8

NFPA MT1 - Head Trunnion



* Add stroke to starred dimension

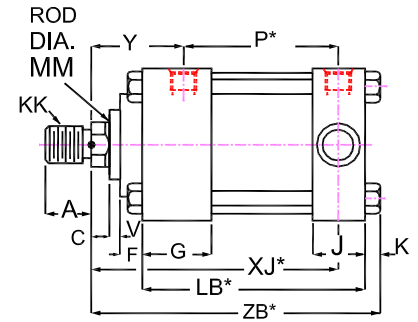
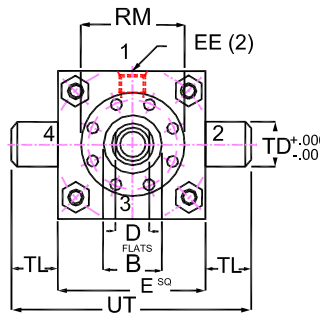
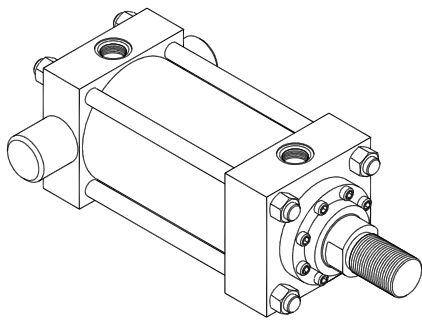
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	TD	TL	UT
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1	1	4 1/2
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 3/8	1 3/8	5 3/4
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 3/8	1 3/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	1 3/4	1 3/4	8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 3/4	1 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 3/4	1 3/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	2	2	11 1/2
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	2 1/2	2 1/2	13 1/2
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3	3	15 1/2

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XG	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	1 7/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 1/4	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 1/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 1/2	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 1/4	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 1/2	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 3/4	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 5/8	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	2 7/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	2 7/8	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/4	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/4	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/4	3 11/32	9 5/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/4	3 11/32	9 5/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 3/8	3 19/32	10 9/16
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 5/8	3 15/32	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 5/8	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 5/8	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 5/8	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 5/8	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/4	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 3/4	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 3/4	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 3/4	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 3/4	4 1/16	12 7/8

NFPA MT2 - Cap Trunnion



* Add stroke to starred dimension

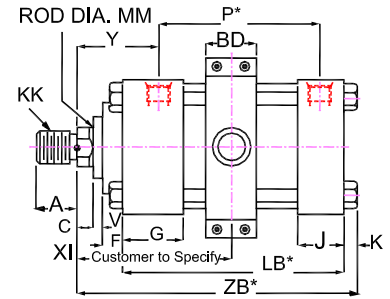
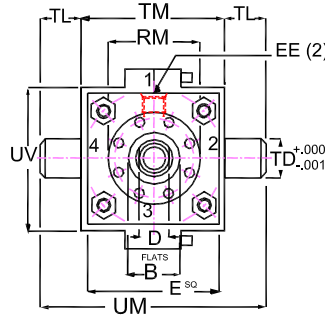
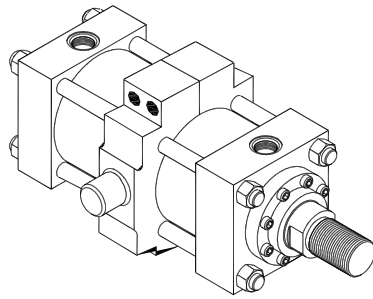
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	TD	TL	UT
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1	1	4 1/2
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 3/8	1 3/8	5 3/4
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 3/8	1 3/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	1 3/4	1 3/4	8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 3/4	1 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 3/4	1 3/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	2	2	11 1/2
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	2 1/2	2 1/2	13 1/2
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3	3	15 1/2

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XJ*	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	4 7/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	5 1/4	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	5 1/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	5 1/2	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	5 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	5 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	5 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	6 1/4	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	6 1/2	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	6 5/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	6 3/4	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	6 7/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	7 1/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	7 3/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	7 5/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	7 5/8	3 11/32	9 5/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	7 5/8	3 11/32	9 5/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	8 3/8	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	8 3/8	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	8 3/8	3 19/32	10 9/16
7	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	8 3/8	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	9 3/8	3 15/32	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	9 3/8	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	9 3/8	3 15/16	11 3/4
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	9 3/8	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	9 3/8	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	10 1/4	4 1/16	12 7/8
8	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	10 1/4	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	10 1/4	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	10 1/4	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	10 1/4	4 1/16	12 7/8

NFPA MT4 - Intermediate Trunnion



* Add stroke to starred dimension

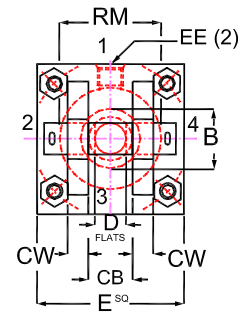
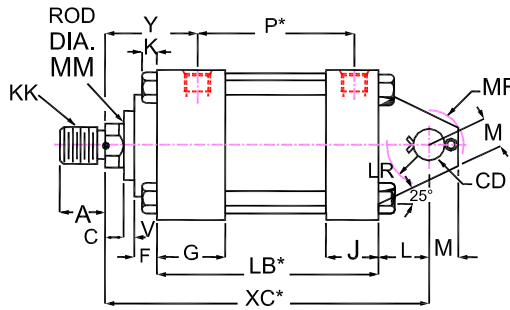
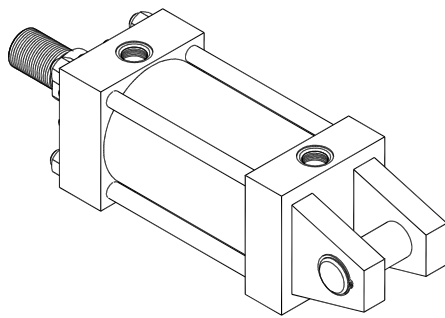
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	BD	TD	TM
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1 1/2	1	3
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 1/2	1 3/8	3 1/2
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 1/2	1 3/8	4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	2	1 3/4	5
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	2	1 3/4	5 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	2 1/2	1 3/4	7
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	3	2	8 1/2
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	3	2 1/2	9 3/4
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3 1/2	3	11

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 11/32	9 5/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 11/32	9 5/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 19/32	10 9/16
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 15/32	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	4 1/16	12 7/8

NFPA MP1 - Cap Fixed Clevis



* Add stroke to starred dimension

Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	CB	CD	CW	L	LR	M	MR
1 1/2	2 1/2	8	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	3/4	1/2	1/2	3/4	9/16	1/2	9/16
2	3	8	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 1/4	3/4	5/8	1 1/4	1 1/16	3/4	1 1/16
2 1/2	3 1/2	8	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 1/4	3/4	5/8	1 1/4	1 1/16	3/4	1 1/16
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	1 1/2	1	3/4	1 1/2	1 1/4	1	1 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	2	1 3/8	1	2 1/8	1 7/8	1 3/8	1 3/4
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	2 1/2	1 3/4	1 1/4	2 1/4	1 15/16	1 3/4	1 7/8
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	2 1/2	2	1 1/4	2 1/2	2 1/16	2	2 1/8
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	3	2 1/2	1 1/2	3	2 9/16	2 1/2	2 1/2
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3	3	1 1/2	3 1/4	2 11/16	2 3/4	2 3/4

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	Y	XC*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2 15/32	6 3/8
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 15/32	6 3/4
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 15/32	7 1/4
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	7 1/2
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 15/32	7 3/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	7 5/8
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 31/32	7 7/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 23/32	8 5/8
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	2 31/32	8 7/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 3/32	9
5	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	2 31/32	9 3/4
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	9 7/8
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	10 1/8
6	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	10 1/2
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	10 3/4
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 11/32	10 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 11/32	10 3/4
7	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 19/32	12 1/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 19/32	12 1/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 19/32	12 1/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 19/32	12 1/8
8	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 15/32	13 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	13 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	13 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	13 3/4
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	13 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	4 1/16	15
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	4 1/16	15
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	4 1/16	15
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	4 1/16	15
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	4 1/16	15

Standard Specifications

Nominal Pressure - 3000 PSI*

Bore Sizes - 10" through 20"

Rod Sizes - 4 1/2" through 10"

Mounting Styles - 9 Standard styles***

Strokes - Available in any practical stroke length

Cushions - Optional at either end or both ends

Standard - Externally removable bolted gland assembly

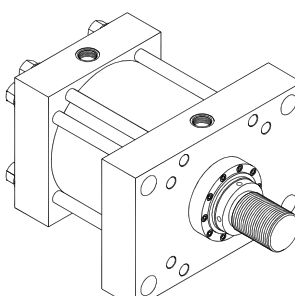
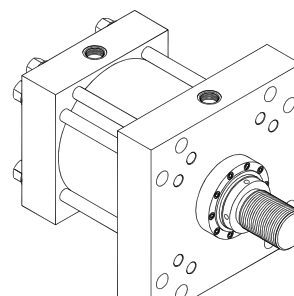
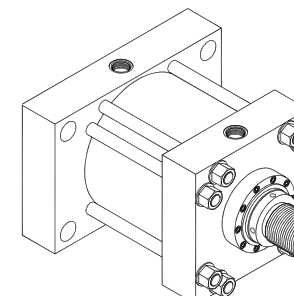
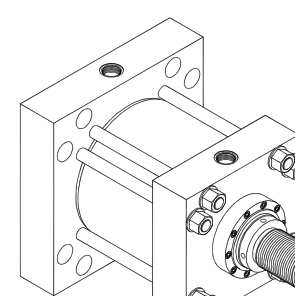
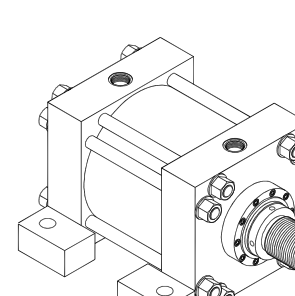
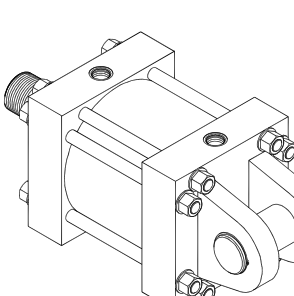
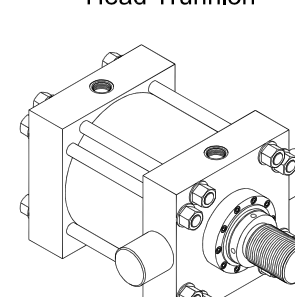
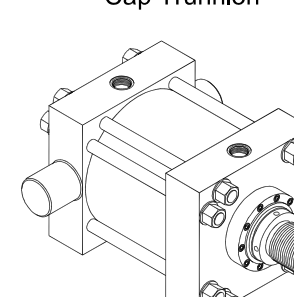
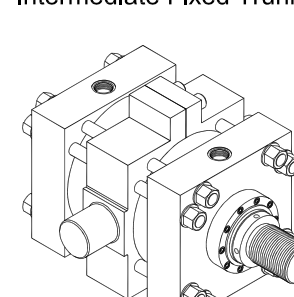
Standard Temperature - -10°F to +200°F**

* If pressure is from 3000 ~ 4000 PSI or higher, specify it during order

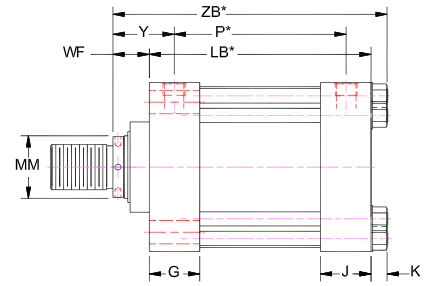
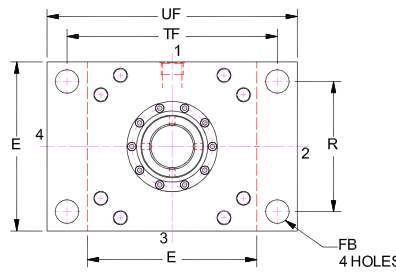
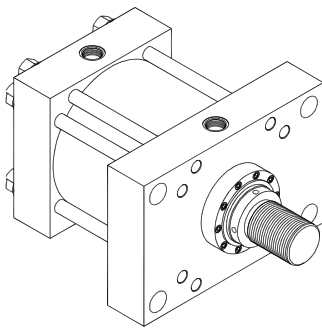
** If temperature is from 200 ~ 400°F or higher, specify it during order

*** Supplied drawings with all other mounting styles and specials

Mounting Styles

<p>Head Rectangular</p>  <p>NFPA ME5 10"~14"</p>	<p>Head Square Flange</p>  <p>NFPA MF5 10"~20"</p>	<p>Cap Rectangular</p>  <p>NFPA ME6 10"~14"</p>
<p>Cap Square Flange</p>  <p>NFPA MF6 10"~20"</p>	<p>Side Lugs</p>  <p>NFPA MS2 10"~14"</p>	<p>Cap Fixed Clevis</p>  <p>NFPA MP1 10"~20"</p>
<p>Head Trunnion</p>  <p>NFPA MT1 10"~14"</p>	<p>Cap Trunnion</p>  <p>NFPA MT2 10"~14"</p>	<p>Intermediate Fixed Trunnion</p>  <p>NFPA MT4 10"~14"</p>

NFPA ME5 - Head Rectangular



* Add stroke to starred dimension

Body Dimensions

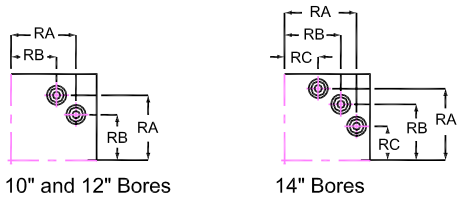
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 13/16	9.62	15 7/8	19
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	2 1/16	11.45	18 1/2	22
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	2 5/16	13.26	21	25

Rod End Dimensions

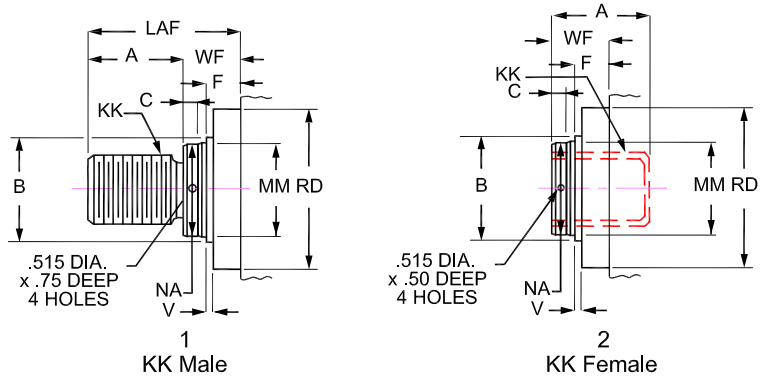
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	21 17/32

Tie Rod Dimensions

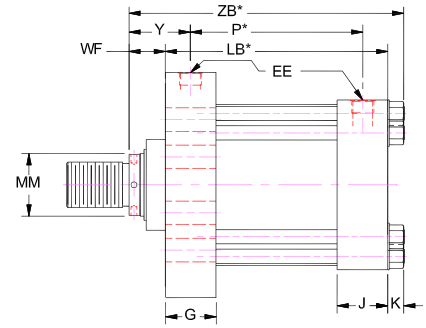
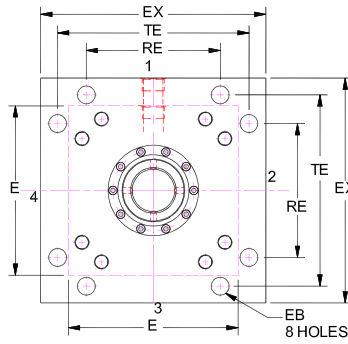
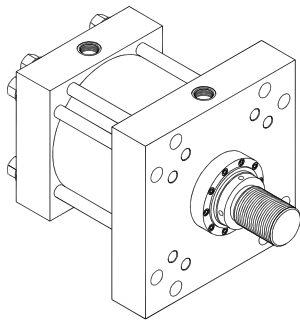
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MF5 - Head Square Flange



Body Dimensions

* Add stroke to starred dimension

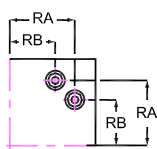
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	EB	EX	RE	TE
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 5/16	16 5/8	9.89	14.13
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1 9/16	19 3/4	11.75	16.79
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1 13/16	21 3/4	12.90	18.43
16	19	24	-	5 7/8	5 7/8	1 29/32	18 1/8	12 1/8	1 13/16	24 1/2	15.28	21.03
18	22	24	-	6 7/8	6 7/8	1 29/32	21 1/8	15 1/8	2 1/16	26 1/2	16.45	22.65
20	24	24	-	7 7/8	7 7/8	1 29/32	23 5/8	17 5/8	2 1/16	29	18.07	24.87

Rod End Dimensions

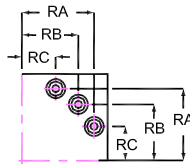
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	21 17/32
16	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	7	24 1/32
	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	24 9/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	24 17/32
18	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	27 9/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	27 17/32
20	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	30 1/32

Tie Rod Dimensions

BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12
16	8.086	6.093	-	1 1/2-12
18	9.589	7.910	5.761	1 1/2-12
20	10.437	8.750	6.649	1 1/2-12

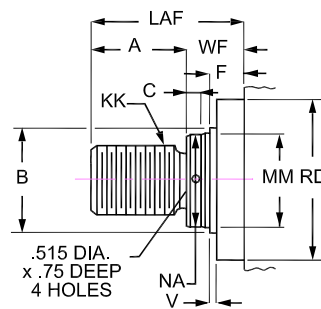


10", 12" and 16" Bores

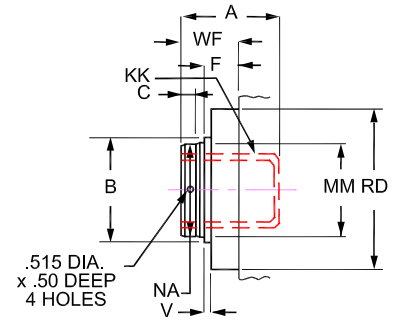


14", 18" and 20" Bores

Rod End Styles

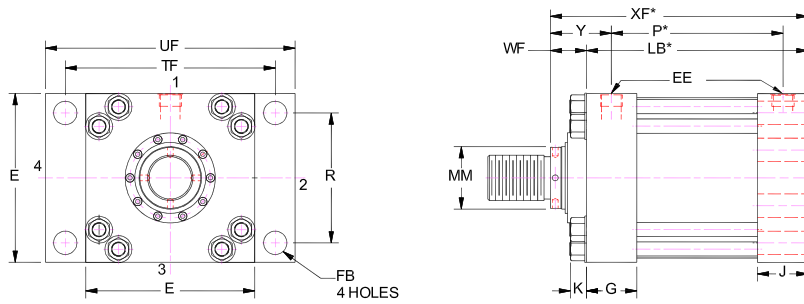
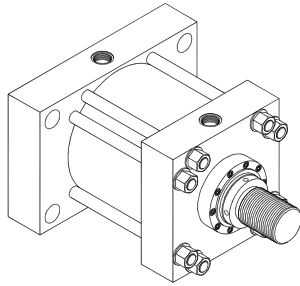


1 KK Male



2 KK Female

NFPA ME6 - Cap Rectangular



* Add stroke to starred dimension

Body Dimensions

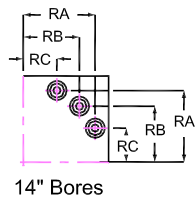
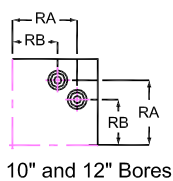
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 13/16	9.62	15 7/8	19
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	2 1/16	11.45	18 1/2	22
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	2 5/16	13.26	21	25

Rod End Dimensions

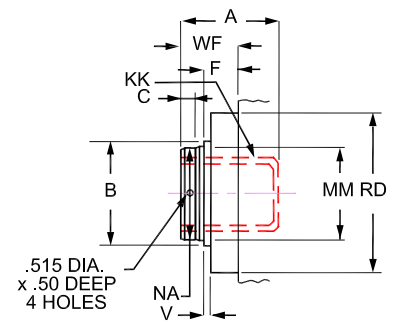
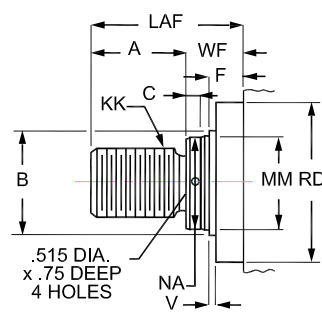
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	XF*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	15 1/16
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	15 5/16
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	15 5/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	15 5/8
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	17 11/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	18
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	18 1/2
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	19 1/8
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	19 5/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	20 1/8

Tie Rod Dimensions

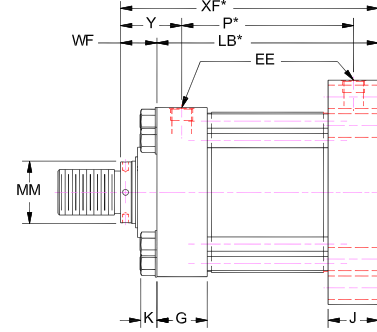
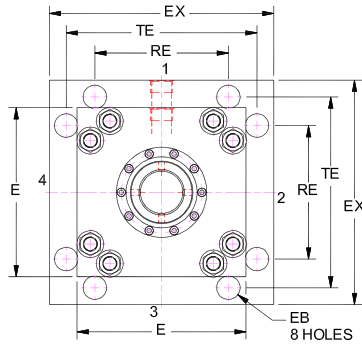
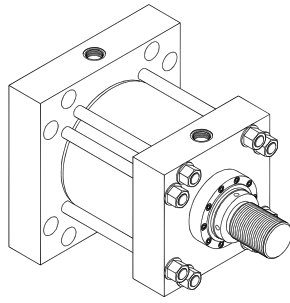
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MF6 - Cap Square Flange



Body Dimensions

* Add stroke to starred dimension

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	EB	EX	RE	TE
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 5/16	16 5/8	9.89	14.13
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1 9/16	19 3/4	11.75	16.79
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1 13/16	21 3/4	12.90	18.43
16	19	24	-	5 7/8	5 7/8	1 29/32	18 1/8	12 1/8	1 13/16	24 1/2	15.28	21.03
18	22	24	-	6 7/8	6 7/8	1 29/32	21 1/8	15 1/8	2 1/16	26 1/2	16.45	22.65
20	24	24	-	7 7/8	7 7/8	1 29/32	23 5/8	17 5/8	2 1/16	29	18.07	24.87

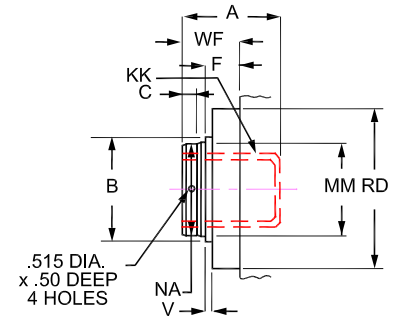
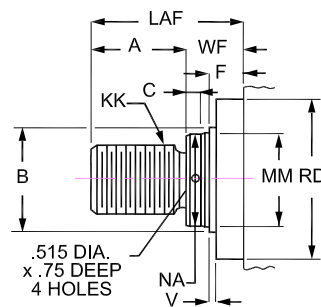
Rod End Dimensions

BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	XF*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	15 1/16
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	15 5/16
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	15 5/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	15 5/8
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	17 11/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	18
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	18 1/2
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	19 1/8
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	19 5/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	20 1/8
16	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	7	22 1/8
	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	22 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	22 5/8
18	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	25 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	25 5/8
20	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	28 1/8

Tie Rod Dimensions

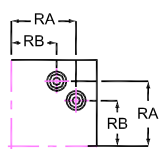
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12
16	8.086	6.093	-	1 1/2-12
18	9.589	7.910	5.761	1 1/2-12
20	10.437	8.750	6.649	1 1/2-12

Rod End Styles

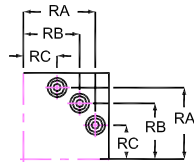


1 KK Male

2 KK Female

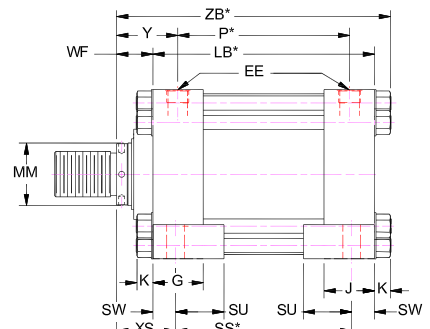
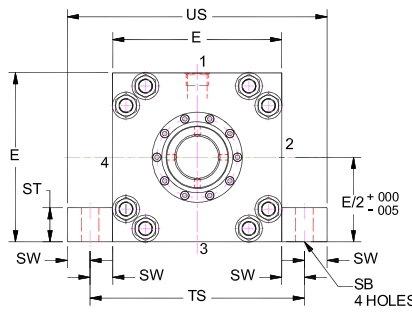
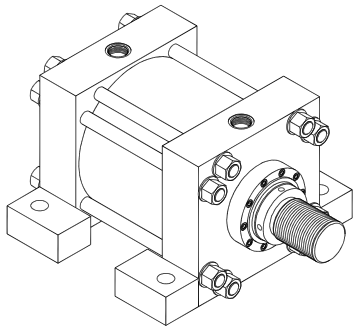


10", 12" and 16" Bores



14", 18" and 20" Bores

NFPA MS2 - Side Lugs



* Add stroke to starred dimension

Body Dimensions

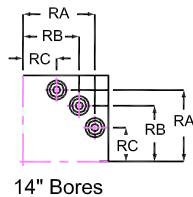
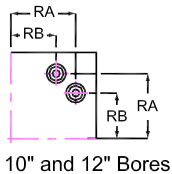
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	SB	SS*	ST	SU	SW	TS	US
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 9/16	8 7/8	2 1/4	3 1/2	1 5/8	15 7/8	19 1/8
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1 9/16	10 1/2	3	4 1/4	2	18 7/8	22 7/8
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	2 5/16	11 1/8	4	4 3/4	2 1/4	21 5/8	26 1/8

Rod End Dimensions

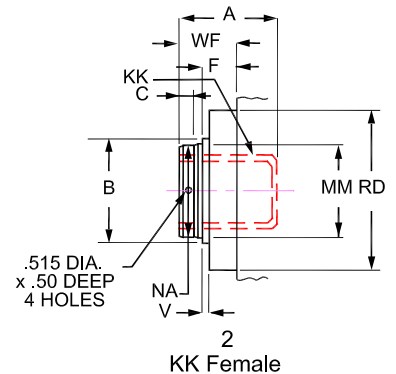
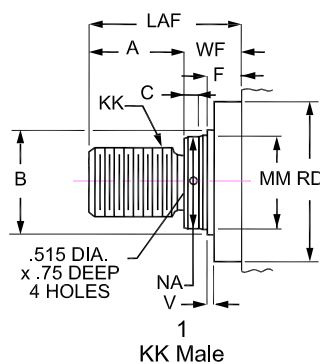
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	XS	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	4 9/16	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	4 13/16	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	4 13/16	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	5 1/8	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	5 3/16	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	5 1/2	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	6	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	5 3/4	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	6 1/4	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	6 3/4	21 17/32

Tie Rod Dimensions

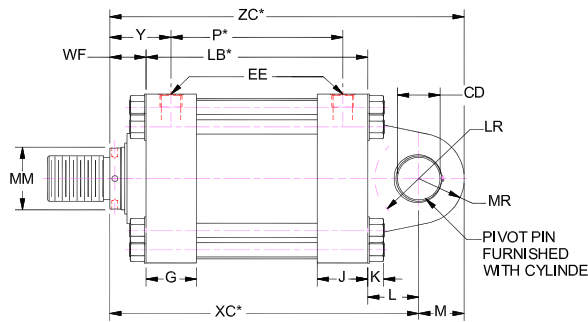
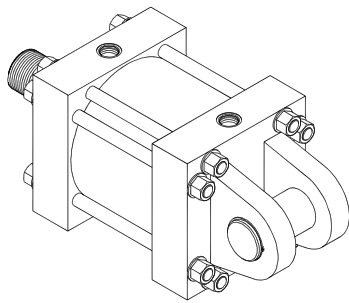
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MP1 - Cap Fixed Clevis



* Add stroke to starred dimension

Body Dimensions

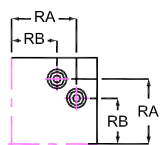
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	CB	CD +.001/ -.003	CW	L	LR	M	MR
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	4	3.500	2	4	3 3/8	3 1/2	3 1/2
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	4 1/2	4.000	2 1/4	4 1/2	3 7/8	4	4
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	6	5.000	3	5 3/4	4 3/16	5	5
16	19	24	-	5 7/8	5 7/8	1 29/32	18 1/8	12 1/8	7	6.000	3 1/2	7	6 1/4	6	6
18	22	24	-	6 7/8	6 7/8	1 29/32	21 1/8	15 1/8	8	6.500	4	7 5/8	6 3/4	6 1/2	6 1/2
20	24	24	-	7 7/8	7 7/8	1 29/32	23 5/8	17 5/8	9	7.500	4 1/2	8 3/4	7 3/4	7 1/2	7 1/2

Rod End Dimensions

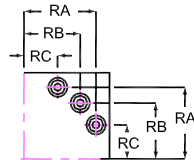
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	XC*	ZC*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	19 1/16	22 9/16
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	19 5/16	22 13/16
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	19 5/16	22 13/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	19 5/8	23 1/8
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	22 3/16	26 3/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	22 1/2	26 1/2
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	23	27
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	24 7/8	29 7/8
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	25 3/8	30 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	25 7/8	30 7/8
16	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	7	29 1/8	35 1/8
	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	29 3/8	35 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	29 5/8	35 5/8
18	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	33	39 1/2
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	33 1/4	39 3/4
20	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	36 7/8	44 3/8

Tie Rod Dimensions

BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12
16	8.086	6.093	-	1 1/2-12
18	9.589	7.910	5.761	1 1/2-12
20	10.437	8.750	6.649	1 1/2-12

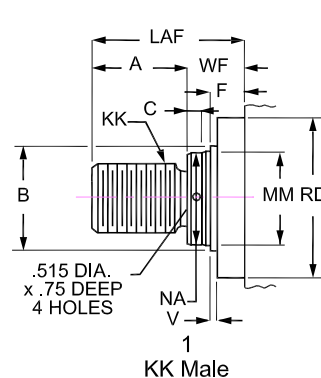


10", 12" and 16" Bores

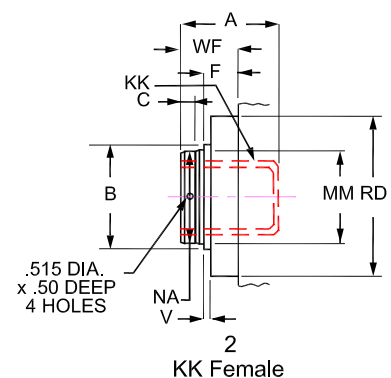


14", 18" and 20" Bores

Rod End Styles

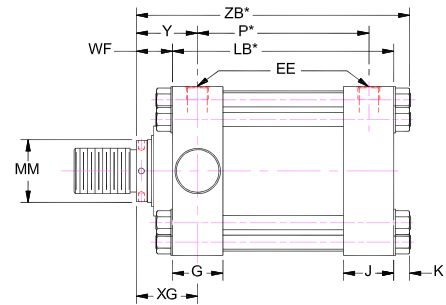
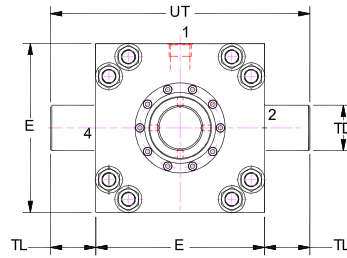
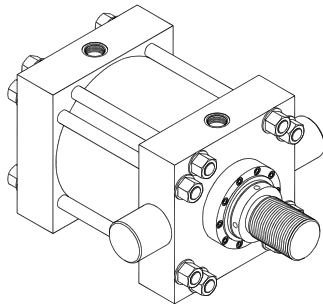


KK Male



KK Female

NFPA MT1 - Head Trunnion



* Add stroke to starred dimension

Body Dimensions

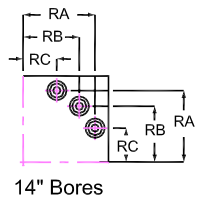
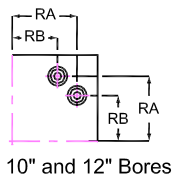
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	MAX PRESSURE PSI	TD -.000/-.001	TL	UT
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1600	3.500	3 1/2	19 5/8
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1500	4.000	4	22 7/8
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1400	4.500	4 1/2	26 1/8

Rod End Dimensions

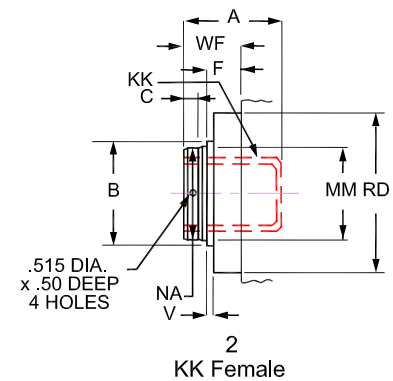
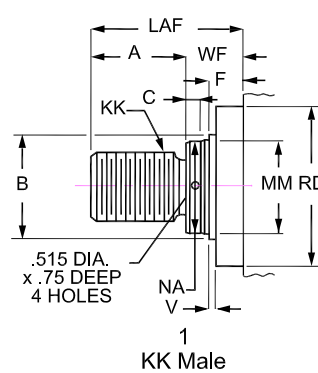
BORE	MM	KK	A	B -.001/-.005	C	F	LAF	NA	RD	V	WF	Y	XG	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	5 15/16	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	6 7/16	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	6 15/16	21 17/32

Tie Rod Dimensions

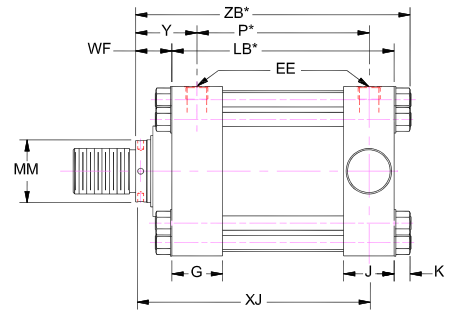
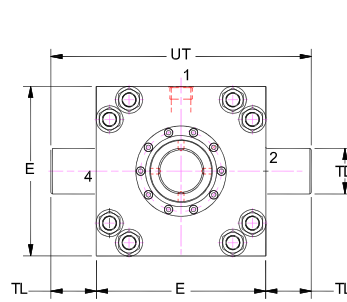
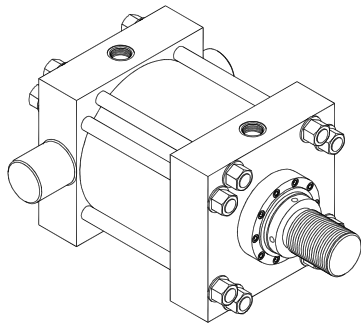
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MT2 - Cap Trunnion



* Add stroke to starred dimension

Body Dimensions

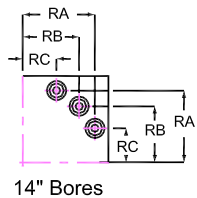
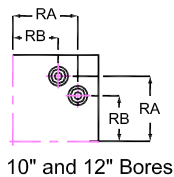
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	MAX PRESSURE PSI	TD -.000/-.001	TL	UT
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1600	3.500	3 1/2	19 5/8
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1500	4.000	4	22 7/8
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1400	4.500	4 1/2	26 1/8

Rod End Dimensions

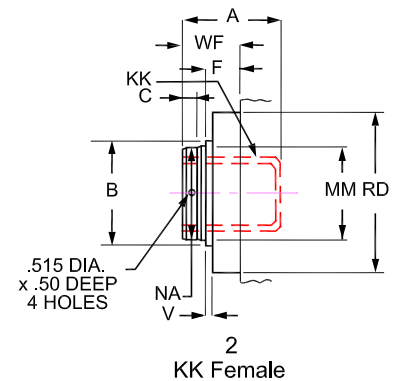
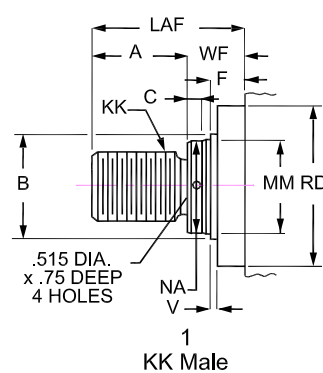
BORE	MM	KK	A	B -.001/-.005	C	F	LAF	NA	RD	V	WF	Y	XJ	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	13 3/8	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	13 15/16	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	13 5/8	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	13 5/8	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	15 1/2	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	16 5/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	15 13/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	16 11/16	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	17 11/16	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	17 3/16	21 17/32

Tie Rod Dimensions

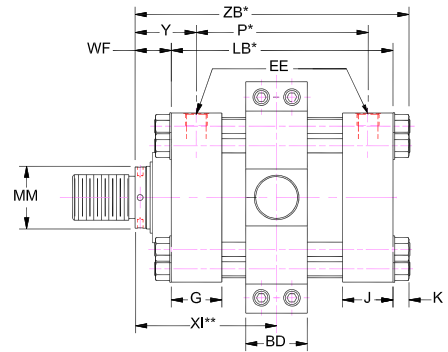
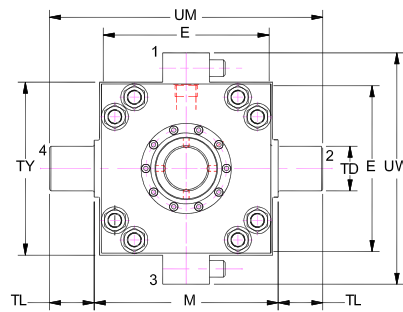
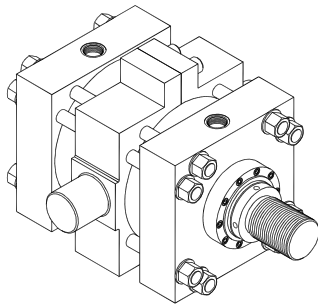
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MT4 - Intermediate Fixed Trunnion



* Add stroke to starred dimension

** Dimension XI to be specified by customer

Body Dimensions

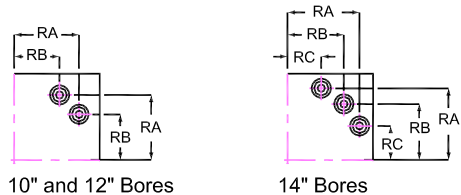
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	MAX PRESSURE PSI	TD -.000/-.001	TL	TM	TY	UM	UW
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1600	3.500	3 1/2	14	13	21	17 1/2
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1500	4.000	4	16 1/2	15 1/2	24 1/2	20 3/4
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1400	4.500	4 1/2	19 1/2	19 1/4	28 1/2	24 3/4

Rod End Dimensions

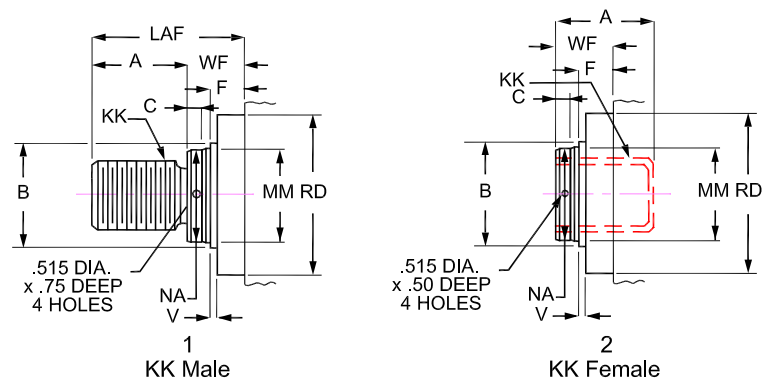
BORE	MM	KK	A	B -.001/-.005	C	F	LAF	NA	RD	V	WF	Y	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	21 17/32

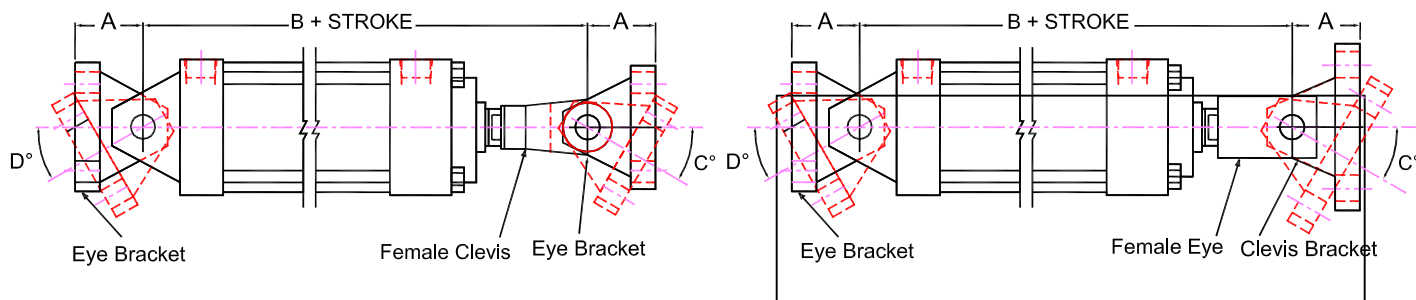
Tie Rod Dimensions

BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



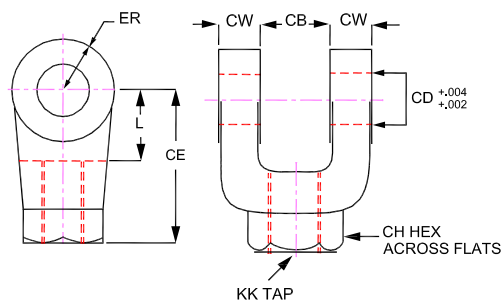
Rod End Styles





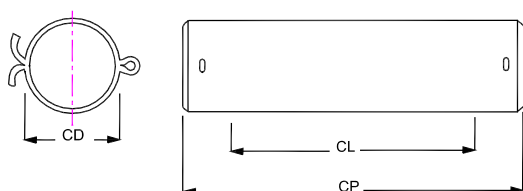
BORE	A	B	Eye Bracket	Female Clevis	Clevis Bracket	Female Eye	Pivot Pin	C°	D°
1 1/2	1 1/8	7 7/8	EB -1003	FC -1005	CB -1003	FE -1003	PP -1003	90°	60°
2	1 7/8	9 5/8	EB -1004	FC -1008	CB -1004	FE -1004	PP -1004	90°	65°
2 1/2	1 7/8	9 3/4	EB -1004	FC -1008	CB -1005	FE -1004	PP -1004	90°	65°
3 1/4	2 3/8	11 3/4	EB -1006	FC -1011	CB -1006	FE -1006	PP -1006	80°	65°
4	3	13 7/8	EB -1008	FC -1014	CB -1008	FE -1008	PP -1008	90°	70°
5	3 3/8	15	EB -1010	FC -1016	CB -1010	FE -1010	PP -1010	75°	65°
6	4	17 5/8	EB -1012	FC -1020	CB -1012	FE -1012	PP -1012	75°	65°
7	4	20 1/4	EB -1014	FC -1024	CB -1014	FE -1014	PP -1014	70°	65°
8	4 1/4	21 3/4	EB -1016	FC -1028	CB -1016	FE -1016	PP -1016	70°	65°
10	5 11/16	27 9/16	EB -1020	FC -1036	CB -1020	FE -1020	PP -1020	70°	60°
12	6 7/16	32 3/16	EB -1024	FC -1044	CB -1024	FE -1024	PP -1024	65°	60°

Female Clevis (FC)



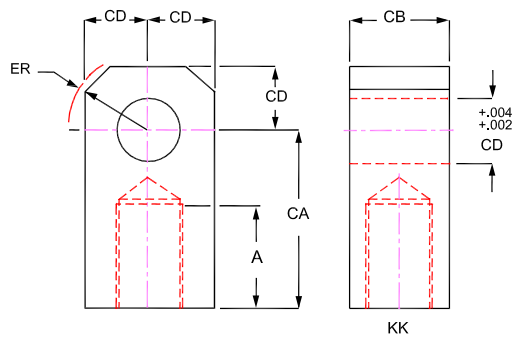
Part No.	CB	CD	CE	CH	CW	ER	KK	L
FC -1005	3/4	1/2	1 1/2	7/8	1/2	1/2	7/16-20	3/4
FC -1008	1 1/4	3/4	2 3/8	1 3/8	5/8	3/4	3/4-16	1 1/4
FC -1011	1 1/2	1	3 1/8	1 5/8	3/4	1	1-14	1 1/2
FC -1014	2	1 3/8	4 1/8	2	1	1 3/8	1 1/4-12	2 1/8
FC -1016	2 1/2	1 3/4	4 1/2	2 3/8	1 1/4	1 3/4	1 1/2-12	2 1/4
FC -1020	2 1/2	2	5 1/2	2 15/16	1 1/4	2	1 7/8-12	2 1/2
FC -1024	3	2 1/2	6 1/2	3 1/2	1 1/2	2 1/2	2 1/4-12	3
FC -1028	3	3	6 3/4	3 7/8	1 1/2	2 3/4	2 1/2-12	3 1/4
FC -1036	4	3 1/2	8 1/2	5	2	3 1/2	3 1/4-12	4
FC -1044	4 1/2	4	10	6 1/8	2 1/4	4	4-12	4 1/2

Pivot Pin (PP)



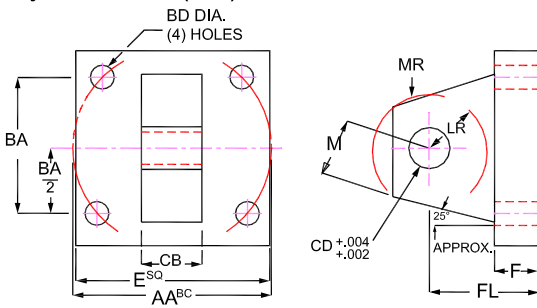
Part No.	CD	CL	CP
PP -1003	1/2	1 3/4	2 3/8
PP -1004	3/4	2 1/2	3 1/8
PP -1006	1	3	3 3/4
PP -1008	1 3/8	4	4 3/4
PP -1010	1 3/4	5	6 1/32
PP -1012	2	5	6 1/32
PP -1014	2 1/2	6	7 1/32
PP -1016	3	6	7 1/8
PP -1020	3 1/2	8	9 5/8
PP -1024	4	9	10 5/8

Female Eye (FE)

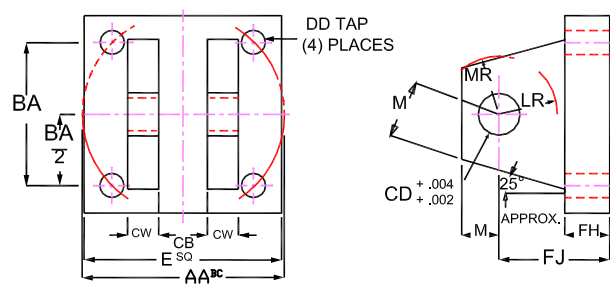


Part No.	A	CA	CB	CD	ER	KK
FE-1002	3/4	1 1/2	7/16	7/16	19/32	5/16-24
FE-1003	3/4	1 1/2	3/4	1/2	5/8	7/16-20
FE-1004	1 1/8	2 1/16	1 1/4	3/4	7/8	3/4-16
FE-1006	1 5/8	2 13/16	1 1/2	1	1 3/16	1-14
FE-1008	2	3 7/16	2	1 3/8	1 9/16	1 1/4-12
FE-1010	2 1/4	4	2 1/2	1 3/4	2	1 1/2-12
FE-1012	3	5	2 1/2	2	2 1/4	1 7/8-12
FE-1014	3 1/2	5 13/16	3	2 1/2	2 13/16	2 1/4-12
FE-1016	3 1/2	6 1/8	3	3	3 1/4	2 1/2-12
FE-1020	4 1/2	7 5/8	4	3 1/2	3 7/8	3 1/4-12
FE-1024	5 1/2	9 1/8	4 1/2	4	4 7/16	4-12

Eye Bracket (EB)

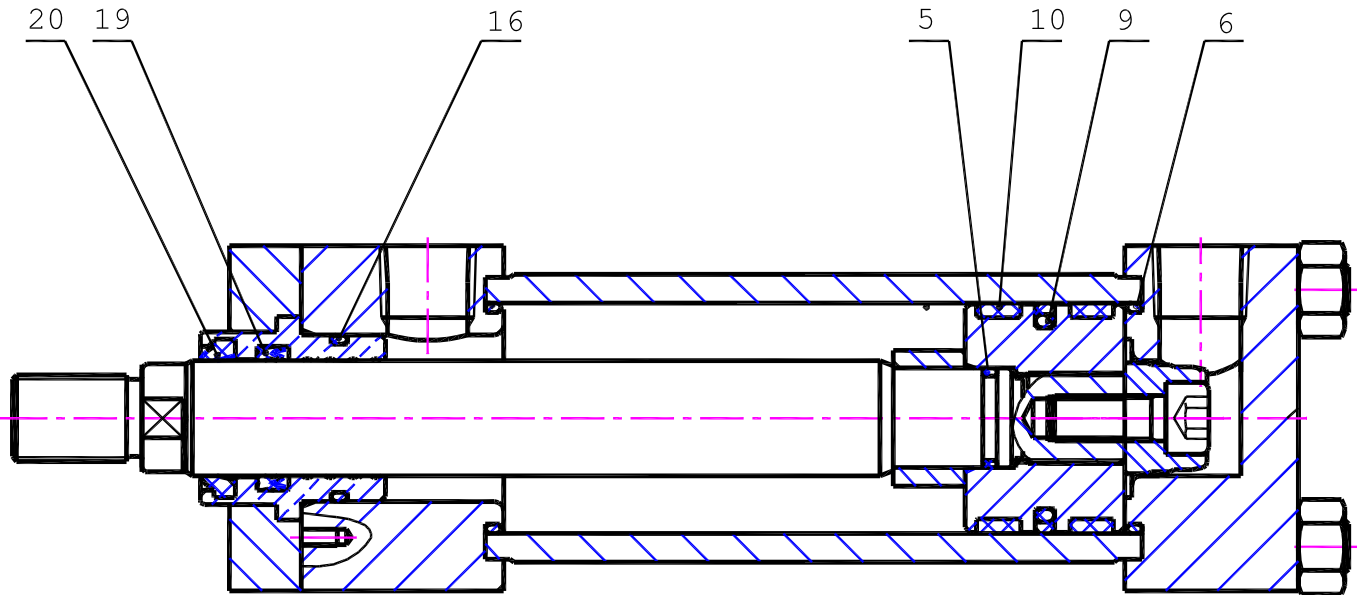


Clevis Bracket (CB)



Part No.	AA	BA	BD	CB	CD	E	F	FL	LR	M	MR
EB -1003	2.3	1 5/8	13/32	3/4	1/2	2 1/2	3/8	1 1/8	1/2	1/2	9/16
EB -1004	3.6	2 9/16	17/32	1 1/4	3/4	3 1/2	5/8	1 7/8	1	3/4	1 1/16
EB -1006	4.6	3 1/4	21/32	1 1/2	1	4 1/2	7/8	2 3/8	1	1	1 1/8
EB -1008	5.4	3 13/16	21/32	2	1 3/8	5	7/8	3	1 1/8	1 3/8	1 3/4
EB -1010	7.0	4 15/16	29/32	2 1/2	1 3/4	6 1/2	1 1/8	3 3/8	1 3/4	1 3/4	1 7/8
EB -1012	8.1	5 3/4	1 1/32	2 1/2	2	7 1/2	1 1/2	4	2	2	2 1/8
EB -1014	9.3	6 19/32	1 5/32	3	2 1/2	8 1/2	13/4	4 3/4	2 1/2	2 1/2	2 1/2
EB -1016	10.6	7 1/2	1 9/32	3	3	9 1/2	2	5 1/4	2 3/4	2 3/4	2 3/4
EB -1020	13.6	9 5/8	1 25/32	4	3 1/2	12 5/8	1 11/16	5 11/16	3 1/2	3 1/2	3 1/2
EB -1024	16.2	11 1/2	2 1/32	4 1/2	4	14 7/8	1 15/16	6 7/16	3 7/8	4	4

Part No.	AA	BA	CB	CD	CW	DD	E	FH	FJ	LR	M	MR
CB -1003	2.3	1 5/8	25/32	1/2	1/2	3/8-24	2 1/2	3/8	1 1/8	1/2	1/2	9/16
CB -1004	2.9	2 1/16	1 9/32	3/4	5/8	1/2-20	3	5/8	1 7/8	1	3/4	1 1/16
CB -1005	3.6	2 9/16	1 9/32	3/4	5/8	1/2-20	3 1/2	5/8	1 7/8	1 1/16	3/4	1 1/16
CB -1006	4.6	3 1/4	1 17/32	1	3/4	5/8-18	4 1/2	3/4	2 1/4	1 1/4	1	1 1/8
CB -1008	5.4	3 13/16	2 1/32	1 3/8	1	5/8-18	5	7/8	3	1 7/8	1 3/8	1 3/4
CB -1010	7.0	4 15/16	2 17/32	1 3/4	1 1/4	7/8-14	6 1/2	7/8	3 1/8	2	1 3/4	1 7/8
CB -1012	8.1	5 3/4	2 17/32	2	1 1/4	1-14	7 1/2	1	3 1/2	2 1/8	2	2 1/8
CB -1014	9.3	6 19/32	3 1/32	2 1/2	1 1/2	1 1/8-12	8 1/2	1	4	2 5/8	2 1/2	2 1/2
CB -1016	10.6	7 1/2	3 1/32	3	1 1/2	1 1/4-12	9 1/2	1	4 1/4	2 7/8	2 3/4	2 3/4
CB -1020	13.6	9 5/8	4 1/16	3 1/2	2	1 3/4-12	12 5/8	1 11/16	5 11/16	3 5/8	3 1/2	3 1/2
CB -1024	16.2	11 1/2	4 9/16	4	2 1/4	2-12	14 7/8	1 15/16	6 7/16	4	4	4



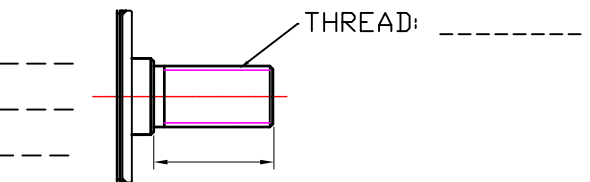
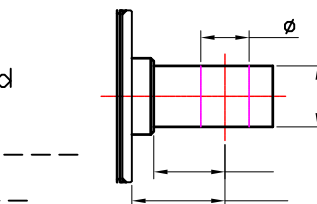
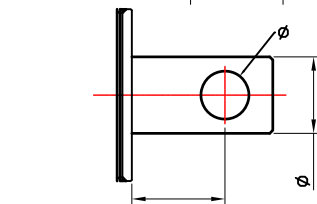
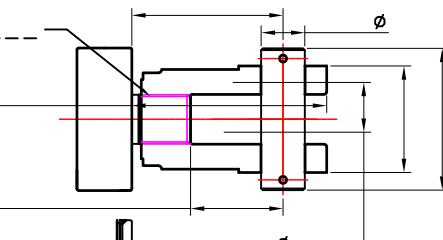
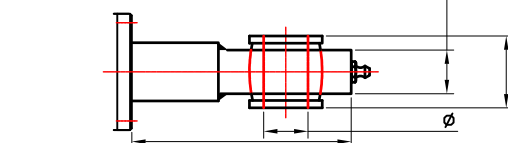
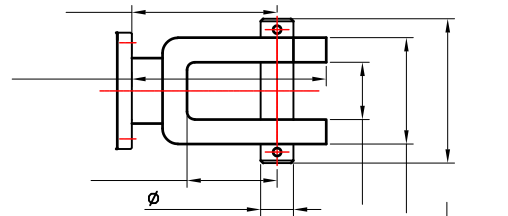
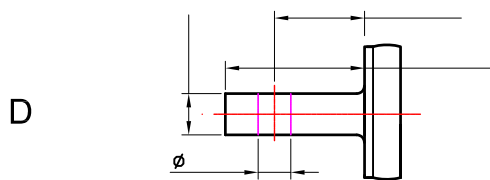
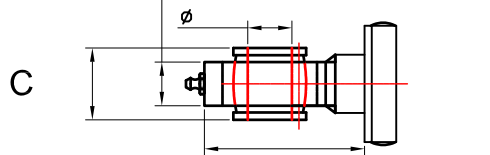
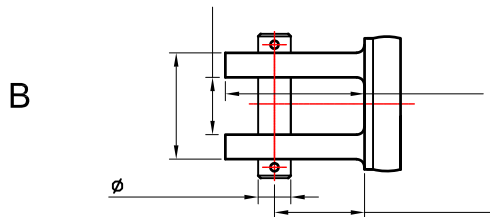
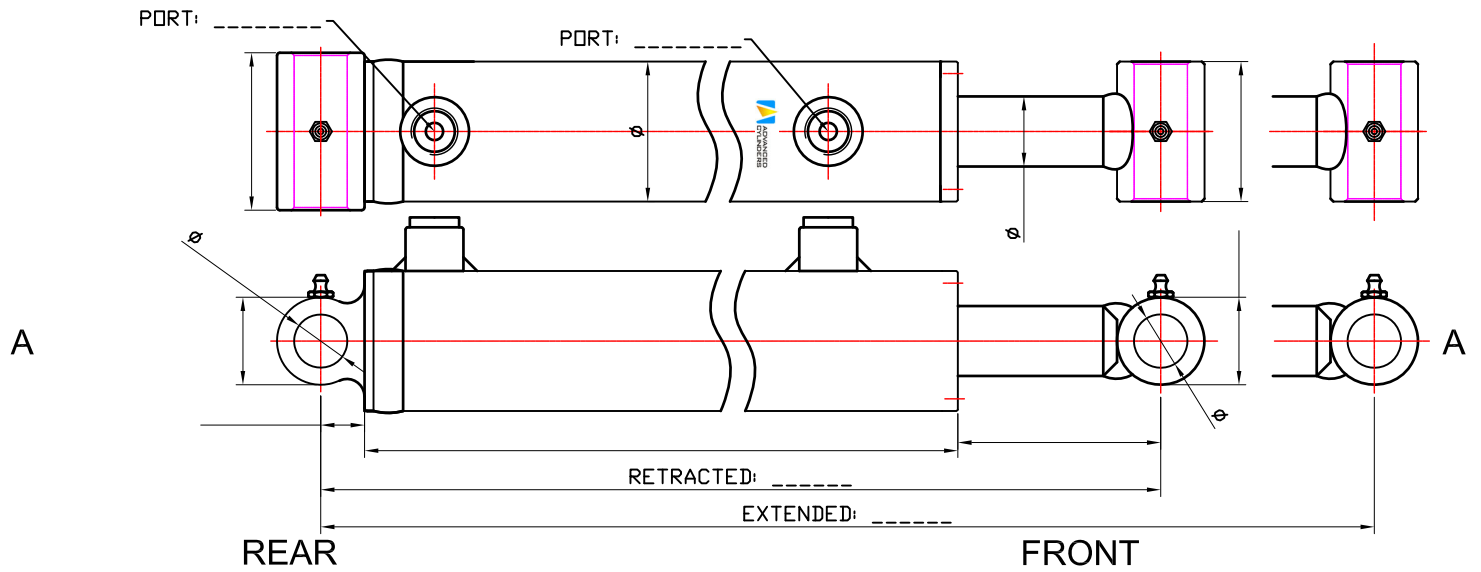
Seal Parts Identification

Part. No.	Description	Parker Seal Type
20	Rod Wiper	SHD
19	Rod Seal	BPP - B PolyPak
10	Wear Ring *	0401 PDT
16	Rod Bushing O-Ring	4300 568
6	End Seal O-Ring (2)	4300 568
9	Piston Seal	OE
5	Piston O-Ring	4300 568

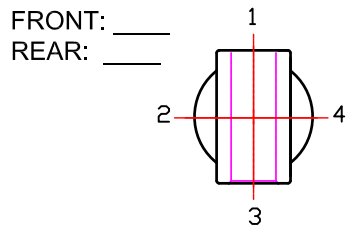
* Part #10 QTY is depend on Bore Dia
 Bore Dia QTY
 1 1/2 - 3 1/4 1
 4 - 10 2
 12 - 20 4

MODEL NO	DESCRIPTION
SK-H01500063	1 1/2" BORE X 5/8" ROD SEAL KIT
SK-H01500100	1 1/2" BORE X 1" ROD SEAL KIT
SK-H02000100	2" BORE X 1" ROD SEAL KIT
SK-H02000138	2" BORE X 1 3/8" ROD SEAL KIT
SK-H02500100	2 1/2" BORE X 1" ROD SEAL KIT
SK-H02500138	2 1/2" BORE X 1 3/8" ROD SEAL KIT
SK-H02500175	2 1/2" BORE X 1 3/4" ROD SEAL KIT
SK-H03250138	3 1/4" BORE X 1 3/8" ROD SEAL KIT
SK-H03250175	3 1/4" BORE X 1 3/4" ROD SEAL KIT
SK-H03250200	3 1/4" BORE X 2" ROD SEAL KIT
SK-H04000175	4" BORE X 1 3/4" ROD SEAL KIT
SK-H04000200	4" BORE X 2" ROD SEAL KIT
SK-H04000250	4" BORE X 2 1/2" ROD SEAL KIT

CUSTOM CYLINDER ORDER FORM



PORT LOCATION



Always View Cylinder Through Rear Cap End

Cylinder Size: _____

Type - REAR: _____ FRONT: _____

QTY: _____

Contact Name: _____

Company Name: _____

Email: _____

Phone: _____



**ADVANCED
CYLINDERS**

CUSTOM ENGINEERED CYLINDERS



Advanced Cylinders, LLC

13575 Yorba Ave.

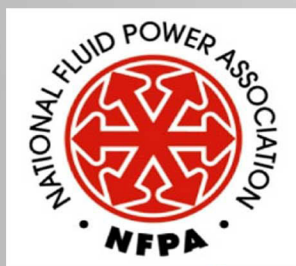
Chino, CA 91710

Tel: (909)920-6437

Fax: (909)498-3712

Email: sales@advancedcylindersllc.com

www.advancedcylindersllc.com



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