



CYLINDERS & ACCESSORIES



Prince Manufacturing Corporation
North Sioux City, South Dakota

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HYDRAULIC CYLINDERS

Welded Cylinders

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2"	Sword	PMC-42000	C5
2 1/4"	Wizard	F225	C3-C4
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2 1/2"	Sword	PMC-42500	C5
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BORE SIZE	NAME	MODEL	PAGE
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3"	Majestic	SAE-7100	C15
3"	3000 PSI	B300000	C10-C13
3 1/2"	Majestic	SAE-7200A	C15
3 1/2"	3000 PSI	B350000	C10-C13
4"	Majestic	SAE-8600	C15
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PLEASE NOTE: Pressure ratings as listed in the sales catalog charts provide a minimum safety factor of 2:1 based on burst strength of the cylinder body. Rod column loading limitations (rod bending) can greatly reduce the safe operating pressure, especially on heavy loads and long strokes. Any references to intermittent pressure ratings in our literature no longer apply. Please contact our engineering department for help.

PRINCE FOR SERVICE, HIGH QUALITY AND FAIR PRICE

Pride in individual work and accomplishment is the trade. It means more than just getting the order out. All cylinders or components, whatever the size or type get individual skilled attention. You will find that Prince cylinders meet all of your highest requirements and that you receive years of maintenance-free dependable usage. Prince builds most of their own tools, jigs and fixtures with a fully staffed and equipped tool room. Modern precision equipment is

utilized to produce and maintain these high production tools. Prince maintains a vast assortment of tubing, bars, casting and packing to give customers the best possible service available. Prince Manufacturing is relieved of any liability due to typographical errors in specifications. If you have any questions regarding any product specifications, please contact your representative.

THE "WIZARD" Welded-DA-37° JIC Male Ports



FEATURES:

- Honed tubing
- Chromed, ground & polished rod
- Ductile iron piston & gland
- Optional end fittings available
- Urethane u-cup and wiper
- Crown seal standard, "T" seal optional
- Wear ring on piston
- Thread in gland with o-ring to protect threads
- Standard color is gloss black

Model No.	Style	Wt.	PSI	Column Load (Lbs)	Ret (B)	Rod Dia.	A	C	D (Dia.)	E (45°)	Crosstube Adder (F)	Tang Adder (G)	Clevis Adder (G)	Ports
F150040	1 1/2 X 4	7	3000	FULL PSI	9 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F150060	1 1/2 X 6	8	3000	FULL PSI	11 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F150080	1 1/2 X 8	8	3000	FULL PSI	13 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F150100	1 1/2 X 10	9	3000	4,770 LBS	15 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F150120	1 1/2 X 12	10	3000	3,640 LBS	17 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F150160	1 1/2 X 16	10	3000	2,315 LBS	21 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F150200	1 1/2 X 20	12	3000	1,600 LBS	25 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F150240	1 1/2 X 24	14	3000	1,175 LBS	29 1/2	3/4	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175040	1 3/4 X 4	9	3000	FULL PSI	9 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175060	1 3/4 X 6	10	3000	FULL PSI	11 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175080	1 3/4 X 8	11	3000	FULL PSI	13 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175100	1 3/4 X 10	12	3000	FULL PSI	15 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175120	1 3/4 X 12	13	3000	FULL PSI	17 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175160	1 3/4 X 16	15	3000	7,120 LBS	21 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175200	1 3/4 X 20	17	3000	4,935 LBS	25 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F175240	1 3/4 X 24	20	3000	3,620 LBS	29 1/2	1	3/16	1	.760	.22	3/4	1 3/4	1 3/4	9/16-37°
F200040	2 X 4	12	3000	FULL PSI	9 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200060	2 X 6	13	3000	FULL PSI	11 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200080	2 X 8	14	3000	FULL PSI	13 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200100	2 X 10	15	3000	FULL PSI	15 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200120	2 X 12	17	3000	FULL PSI	17 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200160	2 X 16	18	3000	FULL PSI	21 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200200	2 X 20	22	3000	7,855 LBS	25 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200240	2 X 24	24	3000	5,760 LBS	29 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F200300	2 X 30	28	3000	3,900 LBS	35 1/2	1 1/8	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225040	2 1/4 X 4	14	3000	FULL PSI	9 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225060	2 1/4 X 6	15	3000	FULL PSI	11 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225080	2 1/4 X 8	16	3000	FULL PSI	13 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225100	2 1/4 X 10	18	3000	FULL PSI	15 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225120	2 1/4 X 12	19	3000	FULL PSI	17 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225160	2 1/4 X 16	22	3000	FULL PSI	21 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225200	2 1/4 X 20	25	3000	11,900 LBS	25 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225240	2 1/4 X 24	28	3000	8,730 LBS	29 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F225300	2 1/4 X 30	33	3000	5,912 LBS	35 1/2	1 1/4	3/16	1	.760	.25	3/4	1 3/4	1 3/4	9/16-37°
F250040	2 1/2 X 4	15	3000	FULL PSI	9 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250060	2 1/2 X 6	17	3000	FULL PSI	11 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250080	2 1/2 X 8	18	3000	FULL PSI	13 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250100	2 1/2 X 10	20	3000	FULL PSI	15 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250120	2 1/2 X 12	21	3000	FULL PSI	17 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250160	2 1/2 X 16	25	3000	FULL PSI	21 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250200	2 1/2 X 20	29	3000	FULL PSI	25 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250240	2 1/2 X 24	32	3000	12,705 LBS	29 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250300	2 1/2 X 30	37	3000	8,605 LBS	35 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F250360	2 1/2 X 36	43	3000	6,212 LBS	41 1/2	1 3/8	3/16	1	.760	.31	3/4	1 3/4	1 3/4	9/16-37°
F275040	2 3/4 X 4	16	3000	FULL PSI	9 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275060	2 3/4 X 6	18	3000	FULL PSI	11 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275080	2 3/4 X 8	20	3000	FULL PSI	13 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275100	2 3/4 X 10	22	3000	FULL PSI	15 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275120	2 3/4 X 12	24	3000	FULL PSI	17 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275160	2 3/4 X 16	28	3000	FULL PSI	21 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275200	2 3/4 X 20	32	3000	FULL PSI	25 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275240	2 3/4 X 24	36	3000	FULL PSI	29 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275300	2 3/4 X 30	42	3000	12,120 LBS	35 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°
F275360	2 3/4 X 36	48	3000	8,750 LBS	41 1/2	1 1/2	3/16	1	.760	.38	3/4	1 3/4	1 3/4	9/16-37°



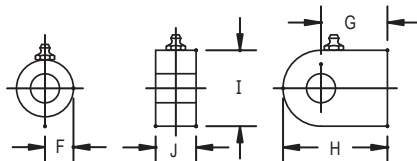
THE WIZARD LINE

3000 PSI EXTENDED DUTY

BASE END FITTINGS

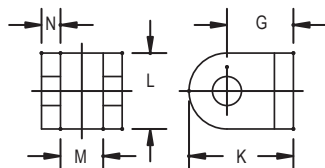
BASE END CROSSTUBE

MODEL	F	LENGTH	CROSSTUBE
F150	3/4	2 1/4	210300217
F175	3/4	2 1/2	210300216
F200	3/4	2 3/4	210300215
F225	3/4	3	210300214
F250	3/4	3 1/4	210300213
F275	3/4	3 1/2	210300210



BASE END TANG DIMENSIONS

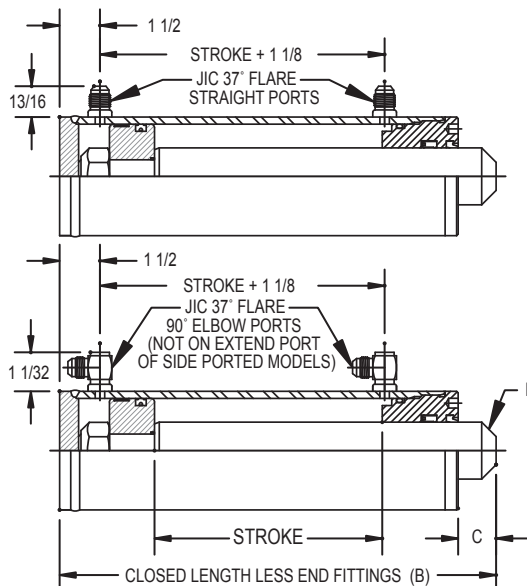
MODEL	G	H	I	J	TANG
F150	1 3/4	2 5/8	1 1/2	3/4	130400245
F175	1 3/4	2 5/8	1 1/2	3/4	130400245
F200	1 3/4	2 3/4	2	1	130400244
F225	1 3/4	2 3/4	2	1	130400244
F250	1 3/4	2 7/8	2 1/4	1	130400243
F275	1 3/4	2 7/8	2 1/4	1	130400243



BASE END CLEVIS DIMENSIONS

MODEL	G	K	L	M	N	CLEVIS
F150	1 3/4	2 5/8	1 1/2	7/8	3/8	110000073
F175	1 3/4	2 5/8	1 1/2	7/8	3/8	110000073
F200	1 3/4	2 3/4	2	1 1/8	1/2	110000071
F225	1 3/4	2 3/4	2	1 1/8	1/2	110000071
F250	1 3/4	2 3/4	2	1 1/8	1/2	110000071
F275	1 3/4	2 3/4	2	1 1/8	1/2	110000071

BASIC "WIZARD" CYLINDER



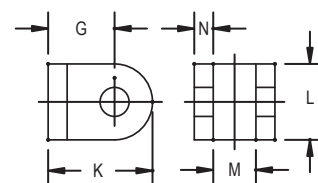
IMPORTANT: EXTEND ROD BEFORE WELDING ON END FITTINGS. SEAL DAMAGE WILL OCCUR FROM EXCESSIVE HEAT

ROD END FITTINGS



ROD END CROSSTUBE

MODEL	F	LENGTH	CROSSTUBE
F150	3/4	1 1/2	210300218
F175	3/4	1 1/2	210300218
F200	3/4	1 1/2	210300218
F225	3/4	2	210300211
F250	3/4	2	210300211
F275	3/4	2	210300211



ROD END CLEVIS DIMENSIONS

MODEL	G	K	L	M	N	CLEVIS
F150	1 3/4	2 5/8	1 1/2	7/8	3/8	110000073
F175	1 3/4	2 5/8	1 1/2	7/8	3/8	110000073
F200	1 3/4	2 3/4	2	1 1/8	1/2	110000073
F225	1 3/4	2 3/4	2	1 1/8	1/2	110000071
F250	1 3/4	2 3/4	2	1 1/8	1/2	110000071
F275	1 3/4	2 3/4	2	1 1/8	1/2	110000071

MODEL NUMBER SYSTEM

F 2 2 5 2 4 3 C S S T X C

ALL PORTS ARE JIC 37° FLARE
#6 MALE THREADS ARE STANDARD

BASE MODEL NUMBER IDENTIFIES BORE SIZE
EXAMPLE: 225 IS 2 1/4 BORE

STROKE. THE FIRST TWO DIGITS ARE INCHES. THE LAST DIGIT IS 1/8'S OF AN INCH (CUSTOM MODELS ONLY)*.
EXAMPLE: 243 IS 24 3/8" STROKE

PISTON SEAL:
C=CROWN SEAL
H=HIGH PSI TEFLON SEAL
T="T" SEAL

ROD END FITTING: C=CLEVIS
X=CROSSTUBE
N=BLANK

BASE END FITTING: C=CLEVIS
X=CROSSTUBE
T=TANG
N=BLANK

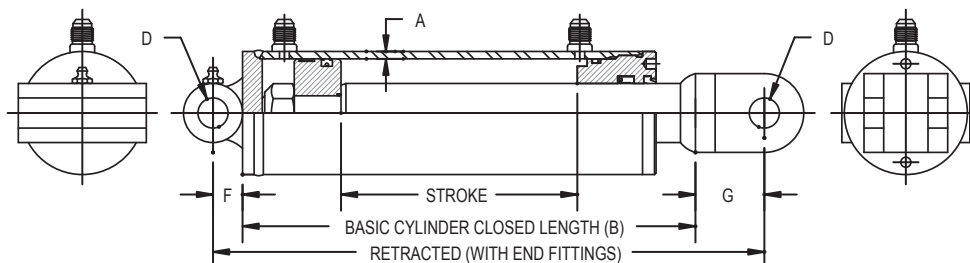
PORT LOCATION:
T=TOP PORT - PERPENDICULAR TO PIN HOLE
S=SIDE PORT - IN LINE WITH PIN HOLE

RETRACT PORT:
S=STRAIGHT
E=90° ELBOW - AVAILABLE ON TOP AND SIDE PORTED MODELS

EXTEND PORT:
S=STRAIGHT
E=90° ELBOW - AVAILABLE ON TOP PORTED MODELS ONLY

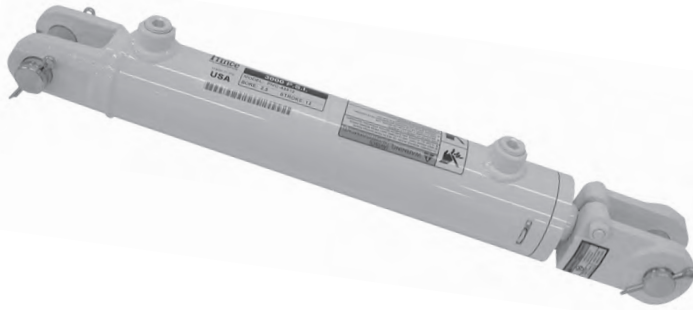
WIZARD LINE BASE MODELS

F150040CSSTNN
F150060CSSTNN
F150080CSSTNN
F150100CSSTNN
F150120CSSTNN
F150160CSSTNN
F150200CSSTNN
F175060CSSTNN
F175080CSSTNN
F200040CSSTNN
F200060CSSTNN
F200300CSSTNN
F250040CSSTNN
F250060CSSTNN
F250160CSSTNN
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F275040CSSTNN
F275060CSSTNN
F275100CSSTNN
F275300CSSTNN



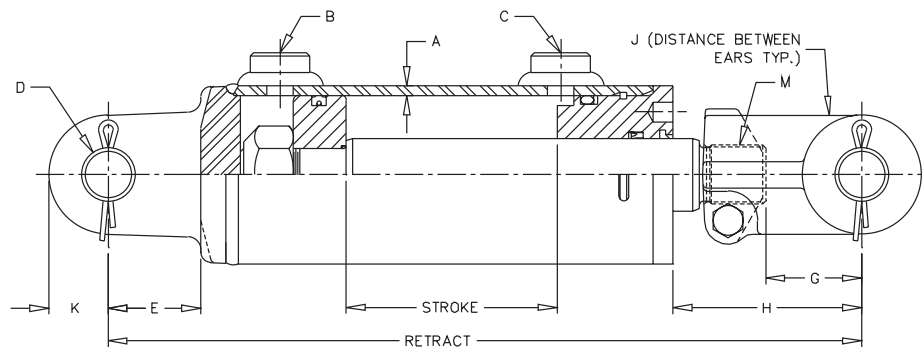
* CUSTOM STROKE LENGTHS ARE AVAILABLE. MINIMUM ORDER MAY BE REQUIRED.
CONTACT YOUR SALES REPRESENTATIVE WITH YOUR REQUIREMENTS

THE "SWORD" Welded-DA-Heavy Duty-3000 PSI



FEATURES:

- Skived/honed tubing
- Heavy duty welded construction
- Chromed, ground & polished piston rod
- Ductile iron piston, gland & clevis, cast steel base end
- Urethane u-cup & urethane wiper in gland, crown seal on piston
- Square ring gland retainer provides positive lock
- Pins, clips & cotters included
- Standard color is white
- Stroke control may be installed on 8" strokes



Rods are sized for a maximum safe push load (2:1 safety factor) given in the table. This is based on the pin configuration shown with no center support.

Model No.	Style	Wt.	PSI	Column Load (Lbs.)	Retract	Rod Dia.	A	B NPTF	C NPTF	D	E	G	H	J	K	M
PMC-19408*	1 1/2 x 8	13	3000	FULL PSI	20 1/4	3/4	3/16	3/8	3/8	.765	2 5/8	2 5/8	5 1/4	5/8	3/4	-
PMC-19410*	1 1/2 x 10	14	3000	4,600 LBS	20 1/4	3/4	3/16	3/8	3/8	.765	2 5/8	2 5/8	3 1/4	5/8	3/4	-
PMC-19412*	1 1/2 x 12	16	3000	3,525 LBS	22 1/4	3/4	3/16	3/8	3/8	.765	2 5/8	2 5/8	3 1/4	5/8	3/4	-
PMC-19416*	1 1/2 x 16	20	3000	1,525 LBS	31 1/2	3/4	3/16	3/8	3/8	.765	2 5/8	2 5/8	8 1/2	5/8	3/4	-
PMC-42008	2 x 8	19	3000	FULL PSI	20 1/4	1 1/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	5 9/16	1 1/16	1	1 1/8-12
PMC-42010	2 x 10	20	3000	FULL PSI	20 1/4	1 1/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-42012	2 x 12	22	3000	FULL PSI	22 1/4	1 1/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-42016	2 x 16	25	3000	FULL PSI	31 1/2	1 1/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	8 13/16	1 1/16	1	1 1/8-12
PMC-42020	2 x 20	28	3000	7,575 LBS	30 1/4	1 1/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-42024	2 x 24	31	3000	5,600 LBS	34 1/4	1 1/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-42508	2 1/2 x 8	21	3000	FULL PSI	20 1/4	1 1/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	5 9/16	1 1/16	1	1 1/8-12
PMC-42510	2 1/2 x 10	22	3000	FULL PSI	20 1/4	1 1/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-42512	2 1/2 x 12	23	3000	FULL PSI	22 1/4	1 1/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-42516	2 1/2 x 16	27	3000	10,800 LBS	31 1/2	1 1/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	8 13/16	1 1/16	1	1 1/8-12
PMC-42520	2 1/2 x 20	31	3000	11,700 LBS	30 1/4	1 1/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-42524	2 1/2 x 24	35	3000	8,600 LBS	34 1/4	1 1/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8-12
PMC-43008	3 x 8	23	3000	FULL PSI	20 1/4	1 3/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	5 9/16	1 1/16	1 1/8	1 1/8-12
PMC-43010	3 x 10	26	3000	FULL PSI	20 1/4	1 3/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8-12
PMC-43012	3 x 12	28	3000	FULL PSI	22 1/4	1 3/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8-12
PMC-43016	3 x 16	33	3000	16,900 LBS	31 1/2	1 3/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	8 13/16	1 1/16	1 1/8	1 1/8-12
PMC-43020	3 x 20	39	3000	17,300 LBS	30 1/4	1 3/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8-12
PMC-43024	3 x 24	43	3000	12,800 LBS	34 1/4	1 3/8	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8-12
PMC-43508	3 1/2 x 8	29	3000	FULL PSI	20 1/4	1 1/2	3/16	1/2	1/2	1.015	1 3/4	1 13/16	5 3/8	1 1/8	1 1/4	1 1/2-12
PMC-43510	3 1/2 x 10	31	3000	FULL PSI	20 1/4	1 1/2	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-43512	3 1/2 x 12	33	3000	FULL PSI	22 1/4	1 1/2	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-43516	3 1/2 x 16	38	3000	24,200 LBS	31 1/2	1 1/2	3/16	1/2	1/2	1.015	1 3/4	1 13/16	8 3/8	1 1/8	1 1/4	1 1/2-12
PMC-43520	3 1/2 x 20	43	3000	24,700 LBS	30 1/4	1 1/2	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-43524	3 1/2 x 24	48	3000	18,250 LBS	34 1/4	1 1/2	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-44008	4 x 8	40	3000	FULL PSI	20 1/4	1 3/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	5 3/8	1 1/8	1 1/4	1 1/2-12
PMC-44010	4 x 10	43	3000	FULL PSI	20 1/4	1 3/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-44012	4 x 12	45	3000	FULL PSI	22 1/4	1 3/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-44016	4 x 16	54	3000	FULL PSI	31 1/2	1 3/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	8 3/8	1 1/8	1 1/4	1 1/2-12
PMC-44020	4 x 20	58	3000	FULL PSI	30 1/4	1 3/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-44024	4 x 24	60	3000	33,525 LBS	34 1/4	1 3/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12
PMC-44030	4 x 30	65	3000	22,900 LBS	40 1/4	1 3/4	3/16	1/2	1/2	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2-12

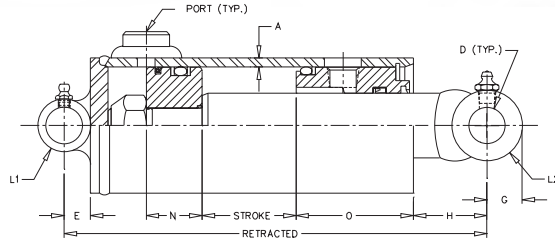
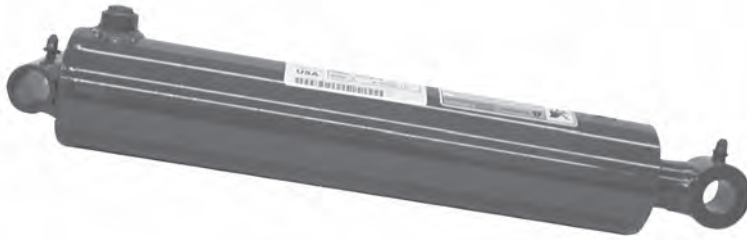
*Uses formed clevis & 3/4" pin.



THE ROYAL LINE

2500 PSI

THE "ROYAL" Welded-DA-Heavy Duty-Universal Mountings



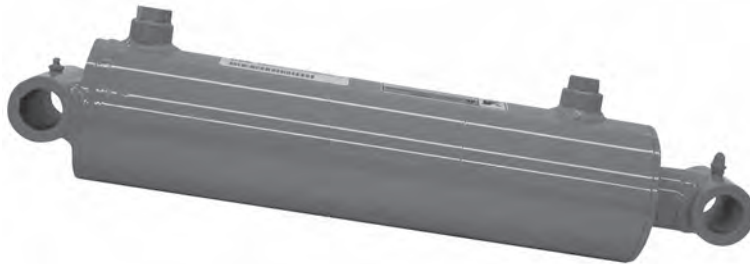
FEATURES:

- Double Acting
- Honed tubing
- Welded construction
- Chromed, ground & polished rod
- Ductile iron piston & gland
- Crosstube end fittings with grease zerks
- Urethane u-cup and urethane wiper in gland
- O-ring with backup washers & cast iron ring piston seals
- Truarc snap ring gland retainer
- Standard color is red
- Rod seal is a urethane u-cup

Model No.	Style	Wt.	PSI	Column Load (Lbs)	Ret	Rod Dia.	A	PORTS NPTF	D	E	G	H	L1	L2	N	O
PMC-5408	2 1/2 X 8	17	2500	FULL PSI	16	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5412	2 1/2 X 12	20	2500	FULL PSI	20	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5414	2 1/2 X 14	22	2500	FULL PSI	22	1 3/8	3/16	3/8	.760	7/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5416	2 1/2 X 16	23	2500	FULL PSI	24	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5420	2 1/2 X 20	27	2500	FULL PSI	28	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5424	2 1/2 X 24	30	2500	FULL PSI	32	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5430	2 1/2 X 30	35	2500	8,975 LBS	38	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5432	2 1/2 X 32	41	2500	8,000 LBS	40	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5436	2 1/2 X 36	44	2500	6,475 LBS	44	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-5442	2 1/2 X 42	47	2500	4,870 LBS	50	1 3/8	3/16	3/8	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMC-8308	3 X 8	22	2500	FULL PSI	16	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8312	3 X 12	26	2500	FULL PSI	20	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8314	3 X 14	29	2500	FULL PSI	22	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8316	3 X 16	31	2500	FULL PSI	24	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8320	3 X 20	35	2500	FULL PSI	28	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8324	3 X 24	41	2500	FULL PSI	32	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8330	3 X 30	46	2500	13,000 LBS	38	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8332	3 X 32	48	2500	11,540 LBS	40	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8336	3 X 36	52	2500	9,320 LBS	44	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8340	3 X 40	56	2500	7,660 LBS	48	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8342	3 X 42	59	2500	7,020 LBS	50	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-8348	3 X 48	65	2500	5,460 LBS	56	1 1/2	3/16	1/2	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMC-5508	3 1/2 X 8	26	2500	FULL PSI	16	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5512	3 1/2 X 12	29	2500	FULL PSI	20	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5514	3 1/2 X 14	32	2500	FULL PSI	22	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5516	3 1/2 X 16	34	2500	FULL PSI	24	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5520	3 1/2 X 20	38	2500	FULL PSI	28	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5524	3 1/2 X 24	44	2500	20,210 LBS	32	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5530	3 1/2 X 30	48	2500	13,540 LBS	38	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5532	3 1/2 X 32	52	2500	12,040 LBS	40	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5536	3 1/2 X 36	56	2500	9,700 LBS	44	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5540	3 1/2 X 40	60	2500	7,975 LBS	48	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5542	3 1/2 X 42	64	2500	7,300 LBS	50	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5548	3 1/2 X 48	70	2500	5,680 LBS	56	1 1/2	3/16	1/2	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMC-5608	4 X 8	35	2500	FULL PSI	17	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5612	4 X 12	41	2500	FULL PSI	21	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5614	4 X 14	45	2500	FULL PSI	23	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5616	4 X 16	48	2500	FULL PSI	25	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5620	4 X 20	56	2500	FULL PSI	29	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5624	4 X 24	62	2500	FULL PSI	33	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5630	4 X 30	72	2500	FULL PSI	39	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5632	4 X 32	74	2500	FULL PSI	41	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5636	4 X 36	80	2500	28,710 LBS	45	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5640	4 X 40	85	2500	23,700 LBS	49	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5642	4 X 42	92	2500	21,680 LBS	51	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5648	4 X 48	100	2500	16,930 LBS	57	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8
PMC-5660	4 X 60	120	2500	11,160 LBS	69	2	3/16	1/2	1.265	15/16	1 1/8	2 1/8	4 1/2	2	1 5/16	2 7/8

NOTE: If disassembly is necessary - Be sure to put a wire or "O" Ring in snap ring groove so when the piston is pulled out - The cast iron ring will not catch in groove

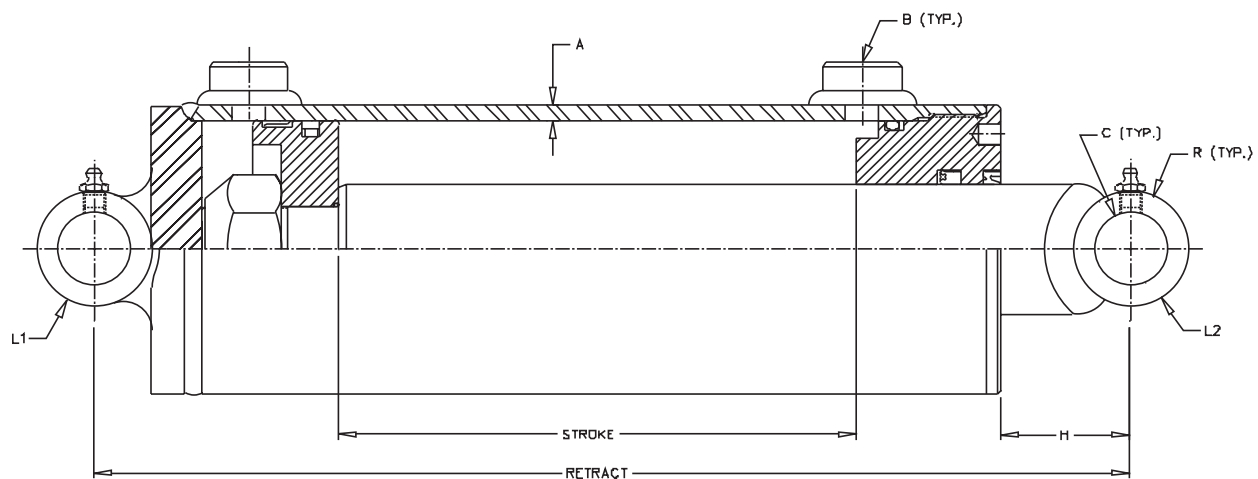
THE "FORTRESS" Welded-DA-Heavy Duty-3000 PSI



FEATURES:

- Heavy duty welded construction
- Chromed, ground, and polished piston rod
- Skived tubing
- Ductile iron piston
- Thread-in ductile iron gland
- Urethane u-cup, metal encased wiper, teflon cap seal and wear ring
- Crosstube end fittings with grease zerks
- Painted: highway yellow
- Matches closed length of Royal line cylinders (up to 42" stroke)

* Spacers included in these models



Rods are sized for a maximum safe push load (2:1 safety factor) given in the table. This is based on the pin configuration shown with no center support.

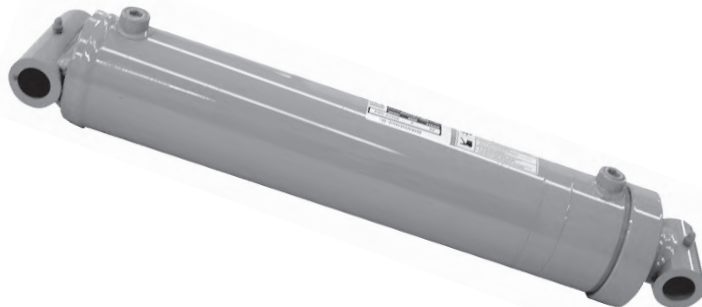
Model No.	Style	Wt	PSI	Column Load (Lbs)	Ret	Rod Dia.	A	B	C	R	H	L1	L2
SAE-64008	4 X 8	42	3000	FULL PSI	17	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64012	4 X 12	48	3000	FULL PSI	21	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64016	4 X 16	55	3000	FULL PSI	25	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64020	4 X 20	62	3000	FULL PSI	29	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64024	4 X 24	69	3000	FULL PSI	33	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64030	4 X 30	79	3000	FULL PSI	39	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64032	4 X 32	83	3000	FULL PSI	41	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64036	4 X 36	90	3000	28,710 LBS	45	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64040	4 X 40	96	3000	23,700 LBS	49	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64042	4 X 42	100	3000	21,680 LBS	51	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64048*	4 X 48	115	3000	16,640 LBS	59	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64060*	4 X 60	138	3000	10,890 LBS	73	2	7/32	#10 SAE	1.265	1	2 1/4	4 3/4	3 1/4
SAE-64508	4 1/2 X 8	54	3000	FULL PSI	17	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64512	4 1/2 X 12	62	3000	FULL PSI	21	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64516	4 1/2 X 16	71	3000	FULL PSI	25	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64520	4 1/2 X 20	80	3000	FULL PSI	29	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64524	4 1/2 X 24	89	3000	FULL PSI	33	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64530	4 1/2 X 30	104	3000	FULL PSI	39	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64532	4 1/2 X 32	106	3000	FULL PSI	41	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64536	4 1/2 X 36	115	3000	48,860 LBS	45	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64540	4 1/2 X 40	124	3000	38,650 LBS	49	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64542	4 1/2 X 42	128	3000	35,330 LBS	51	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64548*	4 1/2 X 48	147	3000	26,690 LBS	59	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4
SAE-64560*	4 1/2 X 60	177	3000	17,210 LBS	73	2 1/4	1/4	#10 SAE	1.265	1	2 1/4	5 1/4	3 1/4



THE GLADIATOR LINE

3000 PSI EXTENDED DUTY

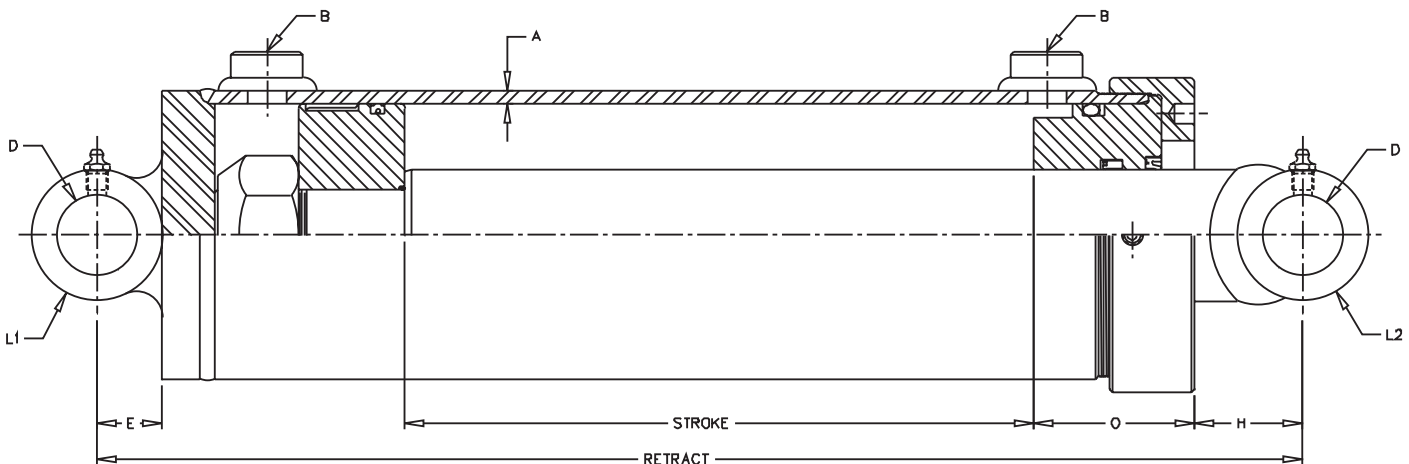
THE "GLADIATOR" Welded-DA-Heavy Duty-3000 PSI



FEATURES:

- Heavy duty welded construction
- Externally threaded gland cap
- Chromed, ground, and polished piston rod
- Skived tubing
- Ductile iron piston
- Urethane u-cup, metal encased wiper, polyurethane crown seal and wear ring
- Crosstube end fittings with grease zerks
- Painted: highway yellow
- Matches closed length of Royal line cylinders (up to 42" stroke)

* Spacer included in these models



Rods are sized for a maximum safe push load (2:1 safety factor) given in the table. This is based on the pin configuration shown with no center support.

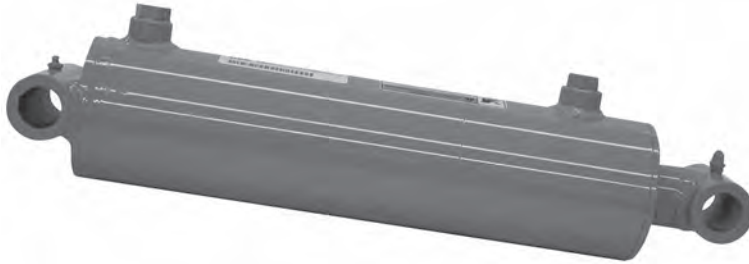
Model No.	Style	Wt.	PSI	Column Load (Lbs.)	Retract	Rod Dia.	A	B NPTF	D	E	H	L1	O	L2
PMC-21008	5 x 8	75	3000	FULL PSI	19"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21012	5 x 12	85	3000	FULL PSI	23"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21016	5 x 16	90	3000	FULL PSI	27"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21020	5 x 20	105	3000	FULL PSI	31"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21024	5 x 24	115	3000	FULL PSI	35"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21030	5 x 30	130	3000	FULL PSI	41"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21036	5 x 36	145	3000	FULL PSI	47"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21048*	5 x 48	180	3000	39,125 LBS	61"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21054*	5 x 54	195	3000	31,150 LBS	68"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-21060*	5 x 60	215	3000	25,360 LBS	75"	2 1/2	1/4	3/4"	1.515	1 1/4	2 1/16	5 3/4	3 1/8	4"
PMC-22008	6 x 8	100	3000	FULL PSI	19"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22012	6 x 12	110	3000	FULL PSI	23"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22016	6 x 16	125	3000	FULL PSI	27"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22024	6 x 24	150	3000	FULL PSI	35"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22030	6 x 30	170	3000	FULL PSI	41"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22036	6 x 36	190	3000	FULL PSI	47"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22048*	6 x 48	240	3000	79,700 LBS	61"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22054*	6 x 54	265	3000	63,400 LBS	68"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"
PMC-22060*	6 x 60	290	3000	51,700 LBS	75"	3	1/4	3/4"	1.515	1 1/4	2 1/16	6 3/4	3 1/16	4"



8 INCH BORE WELDED CYLINDER

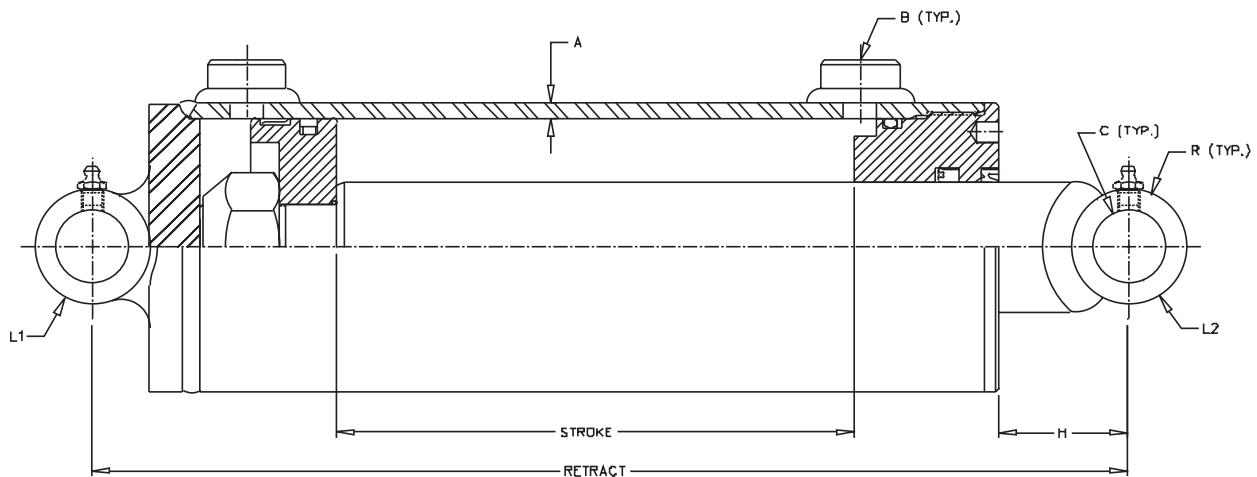
3000 PSI STANDARD DUTY

8 INCH BORE Welded-Double Acting-3000 PSI



FEATURES:

- Welded construction
- Chromed, ground, and polished piston rod
- Skived tubing
- Ductile iron piston & thread-in Ductile iron gland
- Teflon cap seal & wear ring on piston
- Urethane u-cup, metal encased wiper, & wear ring on piston rod
- Crosstube end fittings with grease zerks
- Painted: Gloss black
- 3000 PSI maximum operating pressure
- 3000 PSI maximum peak spike pressure



Rods are sized for a maximum safe push load (2:1 safety factor) given in the table. This is based on the pin configuration shown with no center support.
Recommended pin material 100,000 PSI minimum yield strength

Model No.	Style	Wt	PSI	Column Load (Lbs)	Ret	Rod Dia.	A	B	C	R	H	L1	L2
SAE-68008	8 x 8	250	3000	Full PSI	24	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68012	8 x 12	275	3000	Full PSI	28	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68016	8 x 16	300	3000	Full PSI	32	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68020	8 x 20	325	3000	Full PSI	36	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68024	8 x 24	350	3000	Full PSI	40	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68030	8 x 30	385	3000	Full PSI	46	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68036	8 x 36	425	3000	Full PSI	52	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68048*	8 x 48	500	3000	Full PSI	66	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68054*	8 x 54	540	3000	Full PSI	73	4	.38	#16 SAE	2.515	4	3	9	5
SAE-68060*	8 x 60	580	3000	Full PSI	80	4	.38	#16 SAE	2.515	4	3	9	5

Application Note:

This Prince standard cylinder is designed for standard duty applications. It is not appropriate for applications that experience high shock loads, high spike pressures, high side loads, or have a high duty cycle. This product is not intended for use on personnel lift or crane applications. Consult your sales representative for cylinders designed to meet these applications.

Note: * Spacers included in these models

3000 P.S.I. Rated Tie-Rod

3 / 7 Warranty

3 year warranty on standard products means you can confidently utilize equipment year after year. RoyalPlate Plus® rods are warranted against rust and corrosion for 7 years.

RoyalPlate Plus® Plating

Prevents rust and corrosion more than twice as long as hard chrome plating and gas nitride treated steel bar.

Flexible Configurations

Cylinders are easily configured by available options such as port size and location, stroke length, pin size and paint color.

Exceptional Paint Performance

Aircraft quality two-part chemical cure polyester urethane paint will not fade and will outperform powder coating for the life of the cylinder.



Prince

TIE-ROD MODEL CODE IDENTIFICATION MATRIX

MODEL CODE SYSTEM B 350 160 ABAAA07B

MODELS:

B=B SERIES-3000 PSI
A=ASAE VERSION OF B SERIES
(8" & 16" Strokes only,
8" stroke not available
in 4.5" & 5" bore size.)

BORE SIZE:

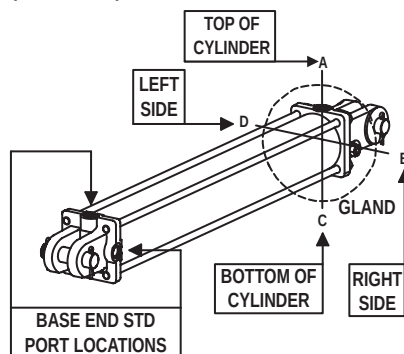
200=2.00" Bore 400=4.00" Bore
250=2.50" Bore 450=4.50" Bore
300=3.00" Bore 500=5.00" Bore
350=3.50" Bore

STROKE: (Inches)

First two digits are in inches
Third digit is 0-7 representing
1/8's of an inch for custom strokes.
Consult Prince for over 48"

GLAND PORT LOCATIONS: (See Pictorial Below)

A=(Top Port, STD)
B=(R. Side Port)
C=(Bottom Port)
D=(L. Side Port)



PORT LOCATION DETERMINED FROM VIEWING
CYLINDER FROM BASE END.

(See Table Below) PORT STYLE & SIZE:

CODE	PORT TYPE & SIZE	CYLINDER BORE SIZE (Inch)						
		2.00	2.50	3.00	3.50	4.00	4.50	5.00
A	#6 SAE ORB (9/16-18)	O	O	O	O	O	O	O
B	#8 SAE ORB (3/4-16)	S	S	S	S	S	S	O
C	#10 SAE ORB (7/8-14)						S	S
D	NPTF 3/8	O	O	O	O	O	O	O
E	NPTF 1/2	O	O	O	O	O	O	O
F	NPTF 3/4							O

Table Identifiers: (For Tables Above)

S-STANDARD O-OPTIONAL BLANK-NOT AVAILABLE

CARTON & DECAL CODE

A=No carton-Std decals, Installed
B=Carton-Std decals, Installed (STD)
C=No carton-Std decals, Loose
D=Carton-Std decals, Loose
E=No carton-Std decals, customer I.D. decal, Installed
F=Carton-Std decals, customer I.D. decal, Installed
G=No carton-Std decals, customer I.D. decal, Loose
H=Carton-Std decals, customer I.D. decal, Loose
J=No carton-Customer I.D. decal, Installed
K=Carton-Customer I.D. decal, Installed
L=No carton-Customer I.D. decal, Loose
M=Carton-Customer I.D. decal, Loose
N=No carton-Warning decals, Installed
P=Carton-Warning decals, Installed
Q=No carton-Warning decal, Loose
R=Carton-Warning decals, Loose
S=No carton-Warning, Customer I.D. decal, Installed
T=Carton-Warning, Customer I.D. decal Installed
U=No carton-Warning, Customer I.D. decal, Loose
V=Carton-Warning, Customer I.D. decal, Loose

PAINT:

00=No Paint
01=Gloss Red
03=Highway Yellow
04=Canary Yellow
05=Green
06=Blue
07=Gloss Black (STD)
14=Gloss White
20=Red Primer
30=Black Primer
35=Naval Gray
50=Yellow Primer
53=Gray Primer
55=Silver Gray
58=Gray

CLEVIS PIN INSTALLATION & RETAINER OPTIONS:

A=Cotter Pins & Clevis Pin(s) Shipped Loose (STD)
B=Cotter Pins & Clevis Pin(s) Installed
C=No Retainers, Clevis Pin(s) Shipped Loose if Selected

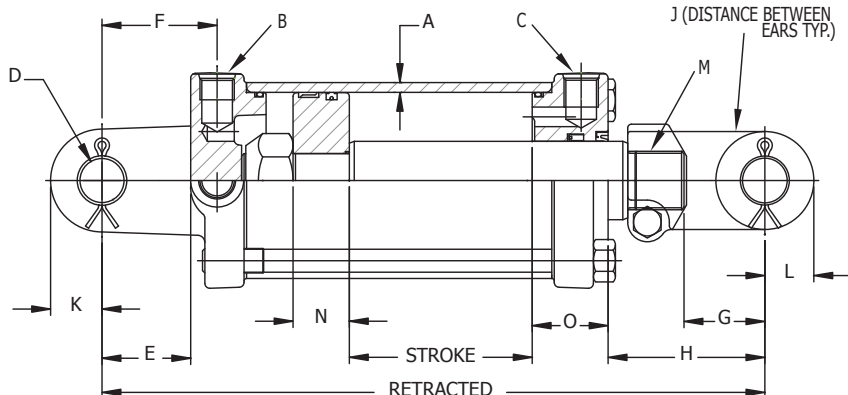
AVAILABLE CLEVIS PIN OPTIONS	CYLINDER BORE SIZE (Inch)						
	2.00	2.50	3.00	3.50	4.00	4.50	5.00
1.00"Ø PIN	S	S	S	S			
1.00"Ø HARDENED PIN	O	O	O	O	S		
1.25"Ø HARDENED PIN					O	S	S

CLEVIS PIN OPTIONS & AVAILABILITY: (See Table Above)

A=2-1.00"Ø Pins
B=Reserved
C=2-1.00"Ø Hardened Pins
D=2-1.25"Ø Hardened Pins
E=1-1.00"Ø Pin
F=Reserved
G=1-1.00"Ø Hardened Pin
H=1-1.25"Ø Hardened Pin
J= No Pins

END FITTING OPTIONS: (See Table Above)

A=Ø1.00" Pin Holes, Both Ends
B=Ø1.00" Base End Pin Hole, No Rod Clevis
C=Ø1.00" Pin Holes, Both Ends, Stroke Control Assy *
D=Ø1.25" Pin Holes, Both Ends
E=Ø1.25" Base End Pin Hole, No Rod Clevis
*(ASAE Version 2.0-3.5" Bore with 8" stroke only)



FEATURES:

- Honed tubing
- Heavy duty, high strength tie-rods
- Induction hardened piston rods plated with RoyalPlate Plus® (piston rods on 2" bore not hardened)
- Ductile iron piston, butt, gland & clevis
- Urethane u-cup & metal encased wiper 2 1/2" bore & larger models
- Crown seal on piston
- Pins & cotter pins (Hardened pins on 4", 4 1/2" & 5" models)
- Standard color is gloss black
- Stroke control may be installed on 8" strokes (2" - 3.5" bore, A models only)
- Side ports available on request
- Nylon bearing ring on 4", 4 1/2" & 5" bore models
- 3000 PSI continuous operating pressure

2 INCH BORE CYLINDERS

New Standard Model No.	Old Standard Model No. 2500 PSI / 3000 PSI	Stroke	Wt	Column Load (lbs)	Retract	Tare Dist. (H)	Standard Dimensions of 2 Inch Bore Cylinders
B200040ABAAA07B	none /SAE-32004	4"	17	9425 lbs	14 1/4	3 1/2	Note: 1 1/8" rod diameter Outside Sq. Dim. Butt - 2.875, Gland 2.875 A 3/16" cylinder tube wall thickness B, C SAE 3/4-16 extend & retract ports D 1.015" clevis pin hole size E, F 1 13/16" base clevis throat depth with 2 3/8" from pin center to port center G 1 13/16" rod clevis throat depth J 1.06" min. distance between ears at pin center line K 1 15/16" base clevis ear radius L 1 1/8" rod clevis ear radius M 1 1/8" - 12 UNF-3 piston rod clevis thread size N 7/8" piston width O 2 3/16" gland width
B200060ABAAA07B	none /SAE-32006	6"	19	9425 lbs	16 1/4	3 1/2	
A200080ABAAA07B	none /SAE-32008	8"	21	9425 lbs	20 1/4	5 1/2	
B200100ABAAA07B	none /SAE-32010	10"	22	9425 lbs	20 1/4	3 1/2	
B200120ABAAA07B	SAE-9012 /SAE-32012	12"	23	9425 lbs	22 1/4	3 1/2	
B200140ABAAA07B	SAE-9014 /SAE-32014	14"	25	9425 lbs	24 1/4	3 1/2	
A200160ABAAA07B	SAE-9016 /SAE-32016	16"	28	7630 lbs	31 1/2	8 3/4	
B200180ABAAA07B	SAE-9018 /SAE-32018	18"	28	9200 lbs	28 1/4	3 1/2	
B200200ABAAA07B	SAE-9020 /SAE-32020	20"	30	7760 lbs	30 1/4	3 1/2	
B200240ABAAA07B	SAE-9024 /SAE-32024	24"	33	5730 lbs	34 1/4	3 1/2	
B200300ABAAA07B	SAE-9030 /SAE-32030	30"	37	3910 lbs	40 1/4	3 1/2	

2.5 INCH BORE CYLINDERS

New Standard Model No.	Old Standard Model No. 2500 PSI / 3000 PSI	Stroke	Wt	Column Load (lbs)	Retract	Tare Dist. (H)	Standard Dimensions of 2.5 Inch Bore Cylinders
B250060ABAAA07B	none /SAE-32506	6"	22	14730 lbs	16 1/4	3 9/16	Note: 1 1/4" rod diameter Outside Sq. Dim. Butt - 3.375, Gland 3.375 A 3/16" cylinder tube wall thickness B, C SAE 3/4-16 extend & retract ports D 1.015" clevis pin hole size E, F 1 7/8" base clevis throat depth with 2 13/16" from pin center to port center G 1 13/16" rod clevis throat depth J 1.06" min. distance between ears at pin center line K 1 15/16" base clevis ear radius L 1 1/8" rod clevis ear radius M 1 1/8" - 12 UNF-3 piston rod clevis thread size N 1" piston width O 2 3/8" gland width
A250080ABAAA07B	SAE-9108 /SAE-32508	8"	25	14730 lbs	20 1/4	5 9/16	
B250100ABAAA07B	SAE-9110 /SAE-32510	10"	26	14730 lbs	20 1/4	3 9/16	
B250120ABAAA07B	SAE-9112 /SAE-32512	12"	28	14730 lbs	22 1/4	3 9/16	
B250140ABAAA07B	SAE-9114 /SAE-32514	14"	30	14730 lbs	24 1/4	3 9/16	
A250160ABAAA07B	SAE-9116 /SAE-32516	16"	34	11520 lbs	31 1/2	8 9/16	
B250180ABAAA07B	SAE-9118 /SAE-32518	18"	34	13880 lbs	28 1/4	3 9/16	
B250200ABAAA07B	SAE-9120 /SAE-32520	20"	36	11720 lbs	30 1/4	3 9/16	
B250240ABAAA07B	SAE-9124 /SAE-32524	24"	41	8670 lbs	34 1/4	3 9/16	
B250300ABAAA07B	SAE-9130 /SAE-32530	30"	47	5930 lbs	40 1/4	3 9/16	

3 INCH BORE CYLINDERS

New Standard Model No.	Old Standard Model No. 2500 PSI / 3000 PSI	Stroke	Wt	Column Load (lbs)	Retract	Tare Dist. (H)	Standard Dimensions of 3 Inch Bore Cylinders
B300060ABAAA07B	none /SAE-33006	6"	26	21210 lbs	16 1/4	3 3/4	Note: 1 3/8" rod diameter Outside Sq. Dim. Butt - 3.875, Gland 3.875 A 3/16" cylinder tube wall thickness B, C SAE 3/4-16 extend & retract ports D 1.015" clevis pin hole size E, F 1 7/8" base clevis throat depth with 2 7/16" from pin center to port center G 1 13/16" rod clevis throat depth J 1.06" min. distance between ears at pin center line K 1 15/16" base clevis ear radius L 1 1/8" rod clevis ear radius M 1 1/8" - 12 UNF-3 piston rod clevis thread size N 1" piston width O 1 15/16" gland width
A300080ABAAA07B	SAE-9208 /SAE-33008	8"	29	21210 lbs	20 1/4	5 3/4	
B300100ABAAA07B	SAE-9210 /SAE-33010	10"	30	21210 lbs	20 1/4	3 3/4	
B300120ABAAA07B	SAE-9212 /SAE-33012	12"	33	21210 lbs	22 1/4	3 3/4	
B300140ABAAA07B	SAE-9214 /SAE-33014	14"	35	21210 lbs	24 1/4	3 3/4	
A300160ABAAA07B	SAE-9216 /SAE-33016	16"	40	16730 lbs	31 1/2	9	
B300180ABAAA07B	SAE-9218 /SAE-33018	18"	40	20120 lbs	28 1/4	3 3/4	
B300200ABAAA07B	SAE-9220 /SAE-33020	20"	42	17010 lbs	30 1/4	3 3/4	
B300240ABAAA07B	SAE-9224 /SAE-33024	24"	47	12620 lbs	34 1/4	3 3/4	
B300300ABAAA07B	SAE-9230 /SAE-33030	30"	54	8640 lbs	40 1/4	3 3/4	
B300360ABAAA07B	SAE-9236 /SAE-33036	36"	61	6290 lbs	46 1/4	3 3/4	
B300480ABAAA07B	SAE-9248 /SAE-33048	48"	75	3760 lbs	58 1/4	3 7/8	

3.5 INCH BORE CYLINDERS

New Standard Model No.	Old Standard Model No. 2500 PSI / 3000 PSI	Stroke	Wt	Column Load (lbs)	Retract	Tare Dist. (H)	Standard Dimensions of 3.5 Inch Bore Cylinders
A350080ABAAA07B	SAE-9308A /SAE-33508	8"	35	28860 lbs	20 ¼	5 ¾	Note: 1 ¾" rod diameter Outside Sq. Dim. Butt - 4.313, Gland 4.313 A ¾" cylinder tube wall thickness B, C SAE ¾ -16 extend & retract ports D 1.015" clevis pin hole size E, F 1 7/8" base clevis throat depth with 2 7/16" from pin center to port center G 1 13/16" rod clevis throat depth J 1.06" min. distance between ears at pin center line K 1 ¼" base clevis ear radius L 1 ¼" rod clevis ear radius M 1 5/16" - 12 UNF-3 piston rod clevis thread size N 1" piston width O 1 15/16" gland width
B350100ABAAA07B	SAE-9310A /SAE-33510	10"	37	28860 lbs	20 ¼	3 ¾	
B350120ABAAA07B	SAE-9312A /SAE-33512	12"	39	28860 lbs	22 ¼	3 ¾	
B350140ABAAA07B	SAE-9314A /SAE-33514	14"	42	28860 lbs	24 ¼	3 ¾	
A350160ABAAA07B	SAE-9316A /SAE-33516	16"	46	16900 lbs	31 ½	9	
B350180ABAAA07B	SAE-9318A /SAE-33518	18"	47	20400 lbs	28 ¼	3 ¾	
B350200ABAAA07B	SAE-9320A /SAE-33520	20"	49	17240 lbs	30 ¼	3 ¾	
B350240ABAAA07B	SAE-9324A /SAE-33524	24"	54	12780 lbs	34 ¼	3 ¾	
B350300ABAAA07B	SAE-9330A /SAE-33530	30"	62	8760 lbs	40 ¼	3 ¾	
B350360ABAAA07B	SAE-9336A /SAE-33536	36"	69	6370 lbs	46 ¼	3 ¾	
B350480ABAAA07B	SAE-9348A /SAE-33548	48"	85	3800 lbs	58 ¼	3 ¾	

4 INCH BORE CYLINDERS

New Standard Model No.	Old Standard Model No. 2500 PSI / 3000 PSI	Stroke	Wt	Column Load (lbs)	Retract	Tare Dist. (H)	Standard Dimensions of 4 Inch Bore Cylinders
A400080ABACA07B	SAE-9408 /SAE-34008	8"	48	37700 lbs	20 ¼	5 ¾	Note: 1 ¾" rod diameter Outside Sq. Dim. Butt - 5.063, Gland 5.063 A ¾" cylinder tube wall thickness B, C SAE ¾ -16 extend & retract ports D 1.015" clevis pin hole size E, F 1 ¾" base clevis throat depth with 2 7/16" from pin center to port center G 1 7/8" rod clevis throat depth J 1.06" min. distance between ears at pin center line K 1 ¼" base clevis ear radius L 1 ¼" rod clevis ear radius M 1 ½" - 12 UNF-3 piston rod clevis thread size N 1 ¼" piston width O 1 15/16" gland width
B400100ABACA07B	SAE-9410 /SAE-34010	10"	50	37700 lbs	20 ¼	3 ¾	
B400120ABACA07B	SAE-9412 /SAE-34012	12"	54	37700 lbs	22 ¼	3 ¾	
B400140ABACA07B	SAE-9414 /SAE-34014	14"	57	37700 lbs	24 ¼	3 ¾	
A400160ABACA07B	SAE-9416 /SAE-34016	16"	64	37700 lbs	31 ½	8 ½	
B400180ABACA07B	SAE-9418 /SAE-34018	18"	64	37700 lbs	28 ¼	3 ¾	
B400200ABACA07B	SAE-9420 /SAE-34020	20"	68	37700 lbs	30 ¼	3 ¾	
B400240ABACA07B	SAE-9424 /SAE-34024	24"	75	33710 lbs	34 ¼	3 ¾	
B400300ABACA07B	SAE-9430 /SAE-34030	30"	85	22990 lbs	40 ¼	3 ¾	
B400360ABACA07B	SAE-9436 /SAE-34036	36"	95	16680 lbs	46 ¼	3 ¾	
B400480ABACA07B	SAE-9448 /SAE-34048	48"	116	9920 lbs	58 ¼	3 ¾	

4.5 INCH BORE CYLINDERS

New Standard Model No.	Old Standard Model No. 2500 PSI / 3000 PSI	Stroke	Wt	Column Load (lbs)	Retract	Tare Dist. (H)	Standard Dimensions of 4.5 Inch Bore Cylinders
B450080ACDDA07B	none /SAE-34508	8"	60	47710 lbs	20 ¼	4	Note: 2" rod diameter Outside Sq. Dim. Butt - 5.5, Gland 5.5 A ¼" cylinder tube wall thickness B, C SAE 7/8 -14 extend & retract ports D 1.265" clevis pin hole size E, F 2 ¼" base clevis throat depth with 2 5/16" from pin center to port center G 2" rod clevis throat depth J 1.13" min. distance between ears at pin center line K 1 5/16" base clevis ear radius L 1 ¼" rod clevis ear radius M 1 ½" - 12 UNF-3 piston rod clevis thread size N 1 7/16" piston width O 1 15/16" gland width
B450120ACDDA07B	none /SAE-34512	12"	69	47710 lbs	24 ¼	4	
B450140ACDDA07B	none /SAE-34514	14"	74	47710 lbs	26 ¼	4	
A450160ACDDA07B	none /SAE-34516	16"	81	47710 lbs	31 ½	7 ¼	
B450180ACDDA07B	none /SAE-34518	18"	83	47710 lbs	30 ¼	4	
B450200ACDDA07B	none /SAE-34520	20"	87	47710 lbs	32 ¼	4	
B450240ACDDA07B	none /SAE-34524	24"	97	44710 lbs	36 ¼	4	
B450300ACDDA07B	none /SAE-34530	30"	110	37530 lbs	42 ¼	4	
B450360ACDDA07B	none /SAE-34536	36"	124	27430 lbs	48 ¼	4	
B450480ACDDA07B	none /SAE-34548	48"	152	16470 lbs	60 ¼	4	

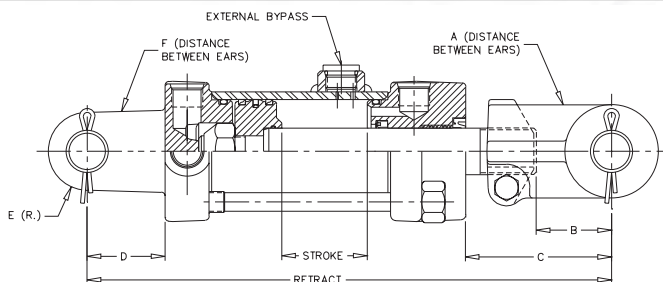
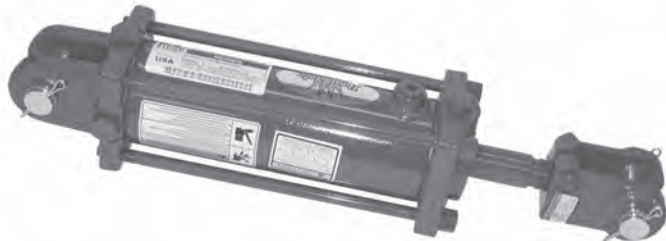
5 INCH BORE CYLINDERS

New Standard Model No.	Old Standard Model No. 2500 PSI / 3000 PSI	Stroke	Wt	Column Load (lbs)	Retract	Tare Dist. (H)	Standard Dimensions of 5 Inch Bore Cylinders
B500080ACDDA07B	SAE-9508 /SAE-35008	8"	72	58900 lbs	20 ¼	4	Note: 2" rod diameter Outside Sq. Dim. Butt - 5.875, Gland 5.875 A ¼" cylinder tube wall thickness B, C SAE 7/8 -14 extend & retract ports D 1.265" clevis pin hole size E, F 1 ¾" base clevis throat depth with 2 5/8" from pin center to port center G 2" rod clevis throat depth J 1.13" min. distance between ears at pin center line K 1 3/8" base clevis ear radius L 1 ¼" rod clevis ear radius M 1 ½" - 12 UNF-3 piston rod clevis thread size N 1 7/16" piston width O 2 ½" gland width
B500120ACDDA07B	SAE-9512 /SAE-35012	12"	83	58900 lbs	24 ¼	4	
B500140ACDDA07B	SAE-9514 /SAE-35014	14"	88	58900 lbs	26 ¼	4	
A500160ACDDA07B	SAE-9516 /SAE-35016	16"	96	58900 lbs	31 ½	7 ¼	
B500180ACDDA07B	SAE-9518 /SAE-35018	18"	98	58900 lbs	30 ¼	4	
B500200ACDDA07B	SAE-9520 /SAE-35020	20"	103	58900 lbs	32 ¼	4	
B500240ACDDA07B	SAE-9524 /SAE-35024	24"	113	54510 lbs	36 ¼	4	
B500300ACDDA07B	SAE-9530 /SAE-35030	30"	129	37620 lbs	42 ¼	4	
B500360ACDDA07B	SAE-9536 /SAE-35036	36"	144	27520 lbs	48 ¼	4	
B500480ACDDA07B	SAE-9548 /SAE-35048	48"	175	16550 lbs	60 ¼	4	



SERIES CYLINDER SYSTEMS

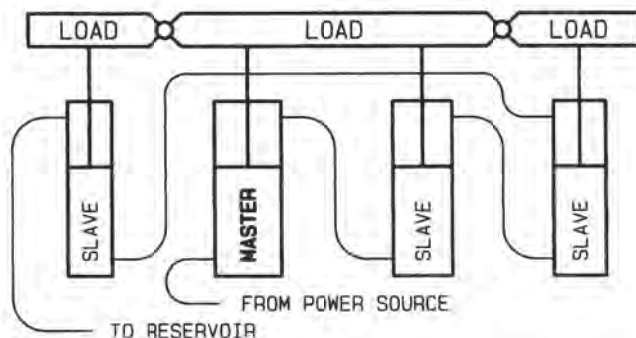
TIE ROD CONSTRUCTION - EXTERNAL STYLE BYPASS



FEATURES:

- Heavy duty tie-rod construction
- Induction hardened piston rods plated with RoyalPlate Plus®
- "DU" bushing
- #8 S.A.E.(3/4-16 ORB) ports
- For use with 1" pins
- Pins, clips & cotters included
- ORB to pipe adaptors are included
- Standard color is red
- Same high quality features found in all Prince Tie-rod Cylinders with the addition of an external bypass (rephase)

TO RAISE LOADS EQUALLY



NOTES:

- Master cylinder provides power for the entire system
- Each cylinder in series has less pressure in proportion to the load on it
- Designed for use in a series cylinder circuit at a maximum of 3000 PSI, cylinder not to be used at 3000 PSI in push or pull as a single cylinder
- Stroke control assemblies may be installed on 8" stroke models
- Can be used with remote stroke control valve PM-SC-10
- Can be used with holding valves HC-V-AA21 and HC-V-AA22
- Master cylinder equipped with series/rephase and stroke control are available. Contact Prince Sales Department.
- Custom designs in welded or tie-rod style for larger or smaller bore sizes
- Exact matched sets available
- Contact Prince Engineering Department for special applications

Bore	Rod Dia.	8" Stroke 20 1/4" Retract	10" Stroke 22 1/4" Retract	12" Stroke 24 1/4" Retract	16" Stroke 28 1/4" Retract	A	B	C	D	E	F
2 1/2	1 1/8	PMS-AM-2586	PMS-AM-2629	Consult Factory		1 1/16	1 13/16	5 9/32	1 7/8	15/16	1 1/16
2 3/4	1 1/8	PMS-AM-2580	PMS-AM-2627	For Availability		1 1/16	1 13/16	5 23/32	1 7/8	15/16	1 1/16
3	1 1/4	PMS-AM-2574	PMS-AM-2625	PMS-AM-2576	PMS-AM-2578	1 1/16	1 13/16	5 27/32	1 7/8	15/16	1 1/16
3 1/4	1 1/4	PMS-AM-2568	PMS-AM-2623	PMS-AM-2570	PMS-AM-2572	1 1/16	1 13/16	5 27/32	1 7/8	1 1/4	1 1/16
3 1/2	1 1/4	PMS-AM-2562	PMS-AM-2621	PMS-AM-2564	PMS-AM-2566	1 1/16	1 13/16	5 27/32	1 7/8	1 1/4	1 1/16
3 3/4	1 3/8	PMS-AM-2556A	PMS-AM-2619A	PMS-AM-2558A	PMS-AM-2560A	1 1/8	1 7/8	5 11/32	1 3/4	1 1/4	1 1/16
4	1 3/8	PMS-AM-2550A	PMS-AM-2617A	PMS-AM-2552A	PMS-AM-2554A	1 1/8	1 7/8	5 11/32	1 3/4	1 1/4	1 1/16
4 1/2	2	PMS-AM-2544	PMS-AM-2615	PMS-AM-2546	PMS-AM-2548	1 1/8	1 7/8	4 1/32	1 3/4	1 1/4	1 1/8
4 3/4	1 1/2	PMS-AM-2538	PMS-AM-2613	PMS-AM-2540	PMS-AM-2542	1 1/8	1 13/16	4 1/32	1 3/4	1 1/4	1 1/8
5	1 1/2	PMS-AM-2532	PMS-AM-2611	PMS-AM-2534	PMS-AM-2536	1 1/8	1 13/16	4 1/32	1 3/4	1 1/4	1 1/8

THE "MAJESTIC LINE" Tie-Rod-DA-Medium Duty Rods

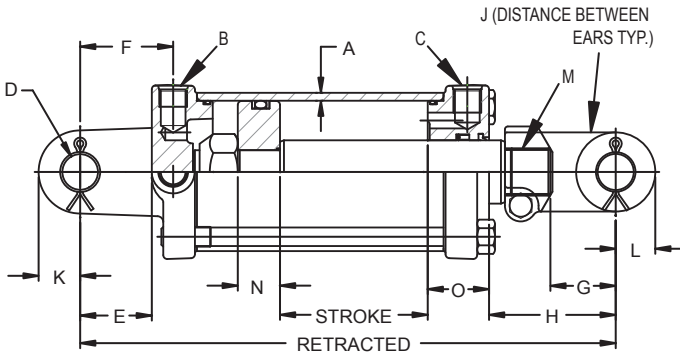


FEATURES:

- Honed tubing
- Chromed, ground & polished piston rod will operate at full pressure through 16" stroke
- Ductile iron piston, butt, gland & clevis
- Urethane u-cup & urethane wiper in gland
- Pins, clips & cotters included
- Standard color is red
- Stroke control may be installed on 8" strokes
- Side ports available on request at no additional cost

CYLINDER DIMENSIONAL FEATURES: For dimensional data of configured cylinders, please refer to the Standard Dimensions column of the standard cylinder tables on page C12-C13. For outside cylinder dimensions and clevis widths for both A & B models, see table below.

Bore Size	Outside Sq. Dim		Clevis Width	
	Butt	Gland	Butt	Rod
2"	2.875"	2.875"	2.375"	2.500"
2.5"	3.375"	3.375"	2.344"	2.500"
3"	3.875"	3.875"	2.375"	2.500"
3.5"	4.313"	4.313"	2.625"	2.875"
4"	5.063"	5.063"	2.750"	2.875"
4.5"	5.500"	5.500"	2.938"	2.875"
5"	5.875"	5.875"	2.938"	2.875"



Rods are sized for a maximum safe push load (2:1 safety factor) given in the table. This is based on the pin configuration shown with no center support.

Model No.	Style	Wt.	PSI	Column Load (Lbs.)	Re-tract	Rod Dia.	A SAE	B SAE	C SAE	D	E	F	G	H	J	K	L	M	N	O
SAE-8404	2 x 4	18	2500	FULL PSI	14 1/4	1	1/8	3/4-16	3/4-16	1.015	1 13/16	2 3/8	1 13/16	3 1/2	1.06	15/16	1 1/8	1-14	7/8	2 1/4
SAE-8406	2 x 6	19	2500	FULL PSI	16 1/4	1	1/8	3/4-16	3/4-16	1.015	1 13/16	2 3/8	1 13/16	3 1/2	1.06	15/16	1 1/8	1-14	7/8	2 1/4
SAE-8408	2 x 8	20	2500	FULL PSI	20 1/4	1	1/8	3/4-16	3/4-16	1.015	1 13/16	2 3/8	1 13/16	5 1/2	1.06	15/16	1 1/8	1-14	7/8	2 1/4
SAE-8410	2 x 10	21	2500	FULL PSI	20 1/4	1	1/8	3/4-16	3/4-16	1.015	1 13/16	2 3/8	1 13/16	3 1/2	1.06	15/16	1 1/8	1-14	7/8	2 1/4
SAE-7006	2 1/2 x 6	22	2500	FULL PSI	16 1/4	1 1/8	1/8	3/4-16	3/4-16	1.015	1 7/8	2 13/32	1 13/16	3 1/2	1.06	15/16	1 1/8	1 1/8-12	1	2 3/8
SAE-7008	2 1/2 x 8	23	2500	FULL PSI	20 1/4	1 1/8	1/8	3/4-16	3/4-16	1.015	1 7/8	2 13/32	1 13/16	5 1/2	1.06	15/16	1 1/8	1 1/8-12	1	2 3/8
SAE-7106	3 x 6	24	2500	FULL PSI	16 1/4	1 1/8	3/16	3/4-16	3/4-16	1.015	1 7/8	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8	1 1/8-12	1	1 15/16
SAE-7108	3 x 8	26	2500	FULL PSI	20 1/4	1 1/8	3/16	3/4-16	3/4-16	1.015	1 7/8	2 7/16	1 13/16	5 3/4	1.06	15/16	1 1/8	1 1/8-12	1	1 15/16
SAE-7208A	3 1/2 x 8	31	2500	FULL PSI	20 1/4	1 1/8	3/16	3/4-16	3/4-16	1.015	1 7/8	2 7/16	1 13/16	5 7/8	1.06	1 1/4	1 1/4	1 1/8-12	1	1 13/16
SAE-8608	4 x 8	42	2500	FULL PSI	20 1/4	1 1/2	3/16	3/4-16	3/4-16	1.015	1 3/4	2 7/16	1 7/8	5 1/4	1.06	1 1/4	1 1/4	1 1/2-12	1	1 13/16
SAE-8610	4 x 10	45	2500	FULL PSI	20 1/4	1 1/2	3/16	3/4-16	3/4-16	1.015	1 3/4	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/4	1 1/2-12	1	1 13/16
SAE-8208	5 x 8	64	2500	FULL PSI	20 1/4	1 3/4	1/4	7/8-14	7/8-14	1.265	1 3/4	2 5/8	2	4	1.06	1 1/4	1 1/4	1 1/2-12	1	2 1/2
SAE-8210	5 x 10	67	2500	FULL PSI	22 1/4	1 3/4	1/4	7/8-14	7/8-14	1.265	1 3/4	2 5/8	2	4	1.06	1 1/4	1 1/4	1 1/2-12	1	2 1/2

3000 PSI Tie-Rod-DA-With 2" Rod

Model No.	Style	Wt.	PSI	Column Load (Lbs.)	Re-tract	Rod Dia.	A	B SAE	C SAE	D	E	F	G	H	J	K, L	M	N	O
C400080ABDDA03B	4 x 8	50	3000PSI	Full PSI	20 1/4	2	3/16	3/4 - 16	3/4 - 16	1.265	1 3/4	2 7/16	1.875	5 1/4	1.06	1 1/4	1 1/2-12	1.25	1 13/16
C400160ABDDA03B	4 x 16	68	3000PSI	Full PSI	31 1/2	2	3/16	3/4 - 16	3/4 - 16	1.265	1 3/4	2 7/16	1.875	8 1/2	1.06	1 1/4	1 1/2-12	1.25	1 13/16
C400240ABDDA03B	4 x 24	81	3000PSI	Full PSI	36 1/4	2	3/16	3/4 - 16	3/4 - 16	1.265	1 3/4	2 7/16	1.875	5 1/4	1.06	1 1/4	1 1/2-12	1.25	1 13/16
C400260ABDDA03B	4 x 26	84	3000PSI	Full PSI	38 1/4	2	3/16	3/4 - 16	3/4 - 16	1.265	1 3/4	2 7/16	1.875	5 1/4	1.06	1 1/4	1 1/2-12	1.25	1 13/16

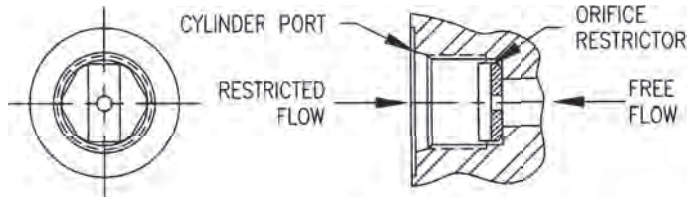
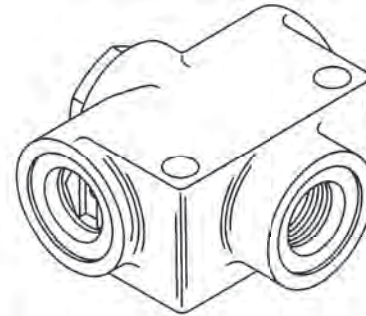
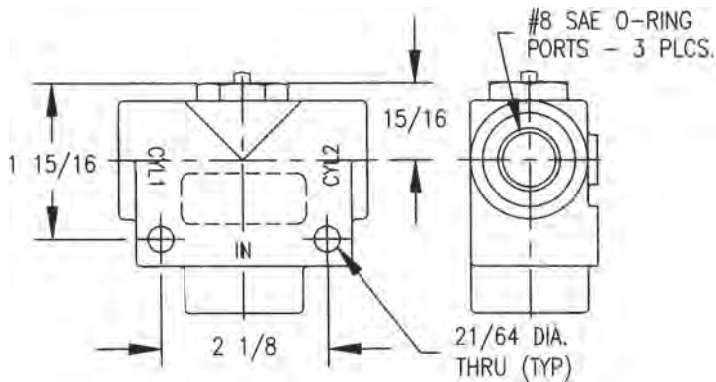
ALSO AVAILABLE FROM STOCK

A complete line of Hydraulic Directional Control Valves,
Gear Pumps, LSHT Motors as well as Custom Designed Products to fit your needs.



REMOTE STROKE CONTROL VALVE

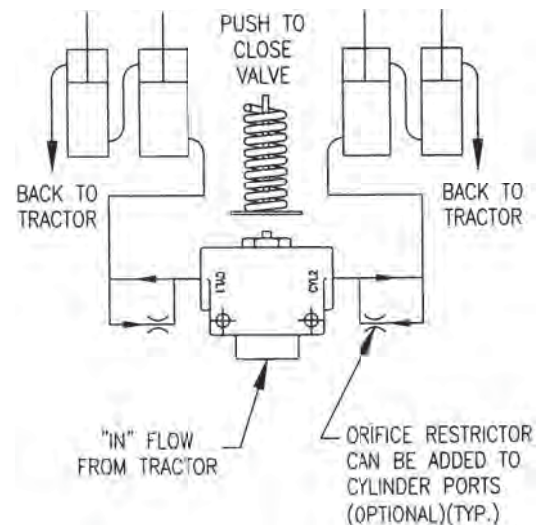
MODEL PM-SC-10 (with optional orifice restrictor)



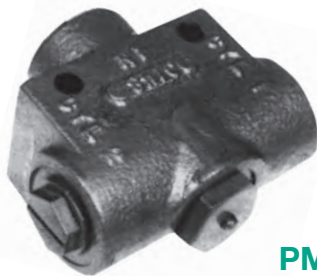
ORIFICE RESTRICTORS AVAILABLE FOR CYLINDER PORTS (OPTIONAL):

- 670805062 .062 ORIFICE
- 670805125 .125 ORIFICE
- 670805000 NO ORIFICE (CUSTOMER DRILL)

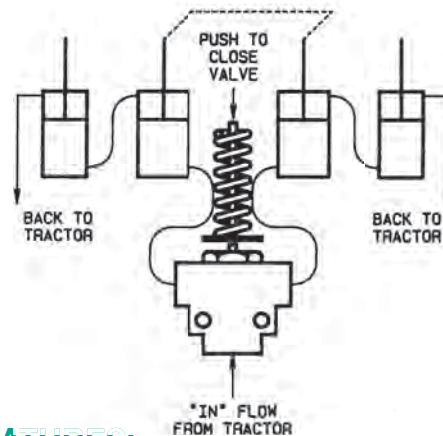
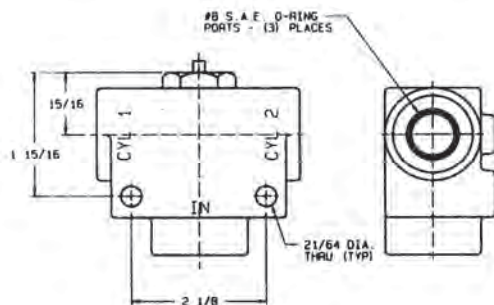
IF ANOTHER SIZE ORIFICE IS REQUIRED, PLEASE LET US KNOW.



REMOTE STROKE CONTROL VALVE



MODEL PM-SC-10



FEATURES:

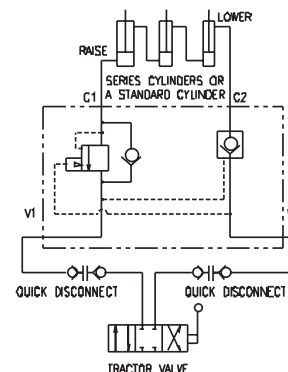
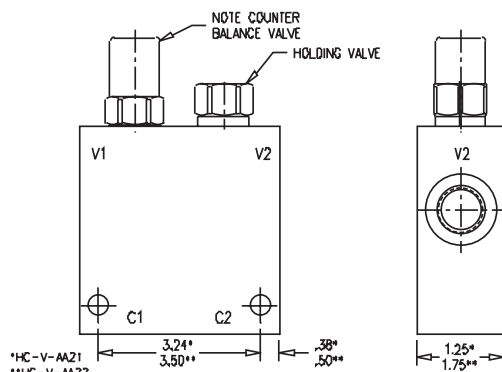
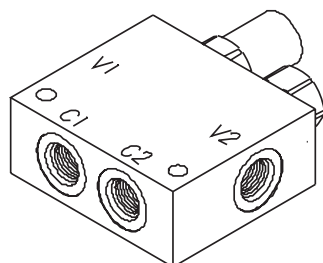
- (1) piece cast iron body
- Unitized stroke control valve cartridge
- Valve stem treated for corrosion resistance
- Valve closes to prevent return flow to tractor



CYLINDER HOLDING VALVE

Model: HC-V-AA21

Model: HC-V-AA22



FEATURES:

- Helps eliminate drifting and/or raising of implement wings.
- Counterbalance valve prevents free fall of cylinders thus preventing cavitation, air ingestion, and jerking.
- Prevents chatter when all air is completely bled.
- Locks ports to give a stiff hydraulic system and prevent lurching from side to side.
- Two cartridge valve block prevents bleed down seen in 3 cartridge valve systems.
- Can be used with single non-rephase cylinders. Hookup may vary from circuit above.
- Contact Prince Engineering Department for assistance.
- Valves available:
 - HC-V-AA21: use with lower flows, smaller tractors, and smaller hoses (typically up to 15 GPM)
 - HC-V-AA22: use with larger flows, larger tractors, and larger hoses (typically over 12-15 GPM and up to 30 GPM)

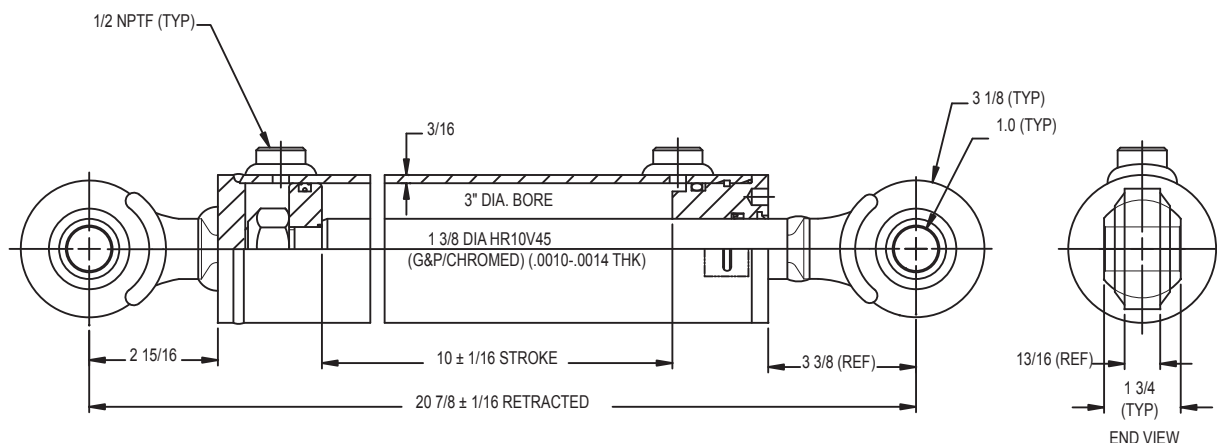
TOP LINK CYLINDER

Model Number BD-0228 - Category II



FEATURES:

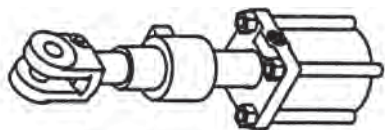
- 3000 PSI Working Pressure
- 3" Bore x 10" Stroke
- Double Acting
- 1/2" NPTF Ports
- 1 3/8" Hard Chrome Plated Rod
- 20 7/8" Closed Length (Pin Center to Pin Center)
- Swivel End Fittings At Both Ends For 1" Diameter Pins





OTHER PRINCE ACCESSORIES

STROKE CONTROL ASSEMBLY



All components plated (including the base casting) to retard rust.

THREE-SLEEVE STROKE CONTROL ASSEMBLY



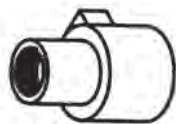
Practical, efficient and easily adapted to Prince Standard Series Cylinders. Positive stroke control adjustment
Open 5 5/8" Closed 2 1/2"

MODEL: PM-SC-1—Adapting Sleeve Thread size 1"-14 and will accept shaft size thru 1 1/8" Dia. Wt. 3 lbs. Will fit models: SAE-8408.

MODEL: PM-SC-8—Adapting Sleeve Thread size - 1 1/8"-12. Wt. 3 lbs. Will accept shaft size thru 1 3/8" Dia. Will fit models: SAE-7008, SAE-7108, SAE-7208A, PMC-42008, PMC-42508, PMC-43008, A200080, A250080, A300080.

MODEL: PMC-SC-11—Adapting Sleeve Thread size 1 5/16"-12. Will fit models: A350080.

TWO-SLEEVE STROKE CONTROL ASSEMBLY



Open 3 1/2" Closed 2 5/16"

MODEL: PM-SC-3, PM-SC-12—Wt. 3 lbs. Adapting Sleeve Thread size 1 1/2"-12. Accepts 1 1/2" shaft size. Will fit model SAE-8608, PMC-43508.

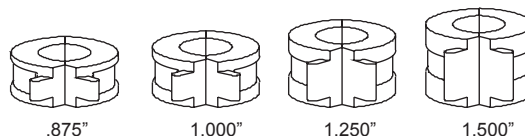
REMOTE HYDRAULIC STROKE CONTROL

A remote hydraulic stroke control is available. This stroke control makes use of the same reliable cartridge used in the internal stroke control cylinder. But it can be mounted remotely to control 2 cylinders. (See pg. C15)

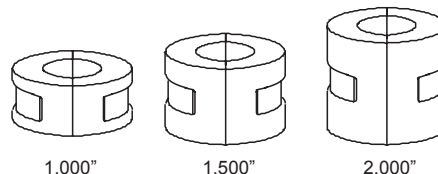


Collars are made of die cast aluminum in split halves. Flat steel springs are easy to open and snap onto the cylinder rod.

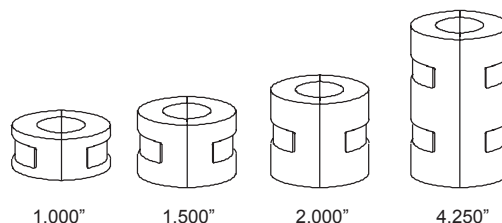
- Light Weight
- Durable
- Non-Abrasive



PM-SLCS-10: For 1.125 THRU 1.500 DIA RODS
(THIS SET HAS FINGER TABS, WITH RELIEF NOTCHES)



PM-SLCS-14: For 1.750 THRU 2.000 DIA RODS
(THIS SET HAS NO FINGER TABS)



PM-SLCS-15: For 1.750 THRU 2.000 DIA RODS
(THIS SET HAS NO FINGER TABS)

RESTRICTORS



Full-flow in one direction, with restriction of flow on return. Simple design permits complete reversible mounting for restricting either output or return. Interchangeable discs of various sizes for different flow metering can be quickly changed in the field. Use with pumps up to 12 GPM. 5,000 psi. 1/2" NPTF, inlet and outlet.

MODEL	SIZE	WT.
PM-R-10	BLANK	3 oz.
PM-R-12	1/16"	3 oz.
PM-R-13	3/32"	3 oz.
PM-R-14	1/8"	3 oz.
PM-R-15	5/32"	3 oz.
PM-R-16	3/16"	3 oz.
PM-R-17	7/32"	3 oz.
PM-R-18	1/4"	3 oz.
PM-R-19	.041"	3 oz.
PM-R-20	1/64"	3 oz.
PM-R-21	.031"	3 oz.
PM-R-22	.078"	3 oz.



OTHER PRINCE ACCESSORIES

BREATHER FILTERS



MODEL	NPT	WT.
PM-BHF-1	1/2"	8 oz.
PM-BHF-2	3/8"	8 oz.

Primarily for use on a double acting unit being used as single action. Filters dirt out of cylinder end displacing air. Used often on oil reservoirs, or any part of hydraulic circuit where air is displaced. Filter material can be removed easily and cleaned for re-use. 1/2" or 3/8" NPT.

BRONZE BREATHERS



LOW-PROFILE BRONZE BREATHERS

1/8 NPTF - 270003001 - PM-BHF-7
1/4 NPTF - 270003015 - PM-BHF-8
3/8 NPTF - 270003019 - PM-BHF-9
1/2 NPTF - 270003016 - PM-BHF-10
3/4 NPTF - 270003017 - PM-BHF-11

SMALL BREATHERS



MODEL	THREAD SIZE	WT.
PM-BHF-3	1/2" NPT	3 oz.
PM-BHF-4	3/8" NPT	3 oz.
PM-BHF-5	7/8" ORB. (with "O" Ring)	3 oz.
PM-BHF-6	3/4" ORB. (with "O" Ring)	3 oz.

Plug-type breather/filter for converting double action unit to single action. Aluminum body contains two fine filter screens retained by star washer. A low-cost, non-reusable, "throw-away" unit.

HYDRAULIC PRESSURE GAUGE



MODEL	WT.	PSI
PM-HG-1	8 oz.	2000
PM-HG-2	8 oz.	5000

- 2-1/2" Round Face
- 1/4" NPT Bottom Mount with snubber
- Clear Front for Easy Reading
- Individually packaged

HARDENED PIN HOLE BUSHING



MODEL	SIZE
210400140	1 1/4 OD x 1" ID x 7/8" Long
210400084	1 1/4 OD x 1" ID x 1" Long

Now you can easily install a bushing in a 1 1/4" hole (such as the pin hole size on the PMC-8200) and reduce the size to accommodate a 1" pin.

SPECIFICATIONS

Material: High carbon spring steel hardened, tempered and oiled; hardness: Rockwell C 45-50.

1" DIA. CLEVIS PINS



Part #190400005 (PSP-1376) 1" x 2 1/8" Between Retainer grooves which use #220001504 Cotter Pins

Part #190400001 (PSP-1377) 1" x 2 3/4" Between Retainer grooves which use #220001504 Cotter Pins

Part #190400004 1" x 3 1/4" Between Retainer grooves which use #220001504 Cotter Pins

1" DIA. SWAGED WASHER ONE END CLEVIS PINS WITH HOLE



Part #190400012 1" x 2-1/8" Between Retainers with 13/64" hole drilled in one end to use #220001504 Cotter Pins

Part #190400013 1" x 2-3/4" Between Retainer with 13/64" hole drilled in one end to use #220001504 Cotter Pins

Part #220001504 Cotter Pin for above.



1 1/4" DIA. CLEVIS PINS



Part #190600016 1 1/4" x 3-3/16" Between Retainers with 13/64" hole drilled in BOTH ends to use #220001504 Cotter Pins shown above.

1" DIA. HARDENED PINS



Part #190400035 1" x 3 1/4" Between Retainer grooves which use #220001504 Cotter Pins

1 1/4" DIA. HARDENED PINS

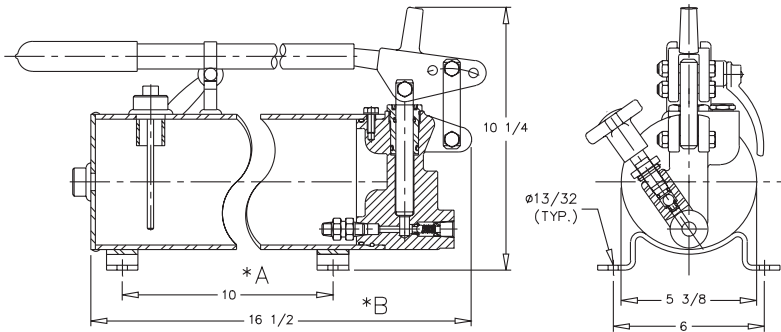


Part #190600024 1 1/4" x 3 3/16" Between Retainer grooves which use #220001504 Cotter Pins

Part #190600025 1 1/4" x 3" Between Retainer grooves which use #220001504 Cotter Pins



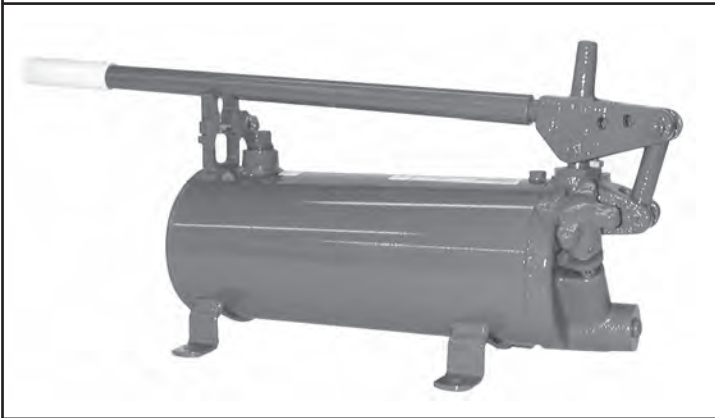
PRINCE HAND PUMP



MODEL	WT.	RESERVOIR SIZE
PM-HP-10-B	30lbs.	1 Gallon
PM-HP- 5-B	27lbs.	1/2 Gallon

Used for 1000-3000 PSI

	A	B
PM-HP-10-B	10	16 1/2
PM-HP-5-B	3 7/16	9 15/16



FEATURES

The Prince Hand Pump offers definite advantages over similar components of higher cost. The pump has unique design features which insure versatility. The handle can be used in (2) positions. The pump can be mounted vertically and horizontally. There are (3) different volume and pressure settings.

Position 1: 1.25 cu. in. per stroke—1500 psi*
Position 2: .95 cu. in. per stroke—2000 psi*
Position 3: .60 cu. in. per stroke—3000 psi*

*At applied force of 60-65 lbs. on handle. (Pressure to 6,000 psi can be developed with more force)

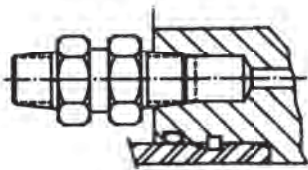
APPLICATIONS

This hand pump is designed for use wherever hydraulic pressure is needed without large flow requirements. Its sturdy design and positive sealing features will provide excellent service with a minimum of care. Uses range from mobile equipment to shop presses. Recommended temperatures may range from -40°F to 300°F. Most general purpose hydraulic oils can be used.

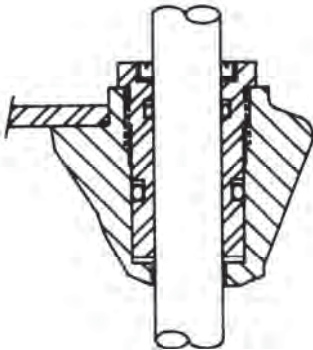
HYDRAULIC CYLINDER APPLICATIONS

This pump is designed for use with single acting cylinders. It may be used with double acting cylinders provided a two-way hand valve is used to direct the flow and a return port is installed on the reservoir.

FEATURES



REPLACEABLE INLET CHECK VALVE
Zero leakage check valve assembly can be easily replaced when necessary.



REMOVABLE PACKING GLAND
Packing gland seals can be easily replaced when necessary. Gland is removable with standard tools. New seals are readily available.

SPECIFICATIONS

PISTON 11/16" dia. Chromed & Ground Steel
PRESSURE SEALS ... O-ring & Hytrel Back-up Washers
HANDLEExtra—heavy Pipe, 14 3/4" long
HANDLE POSITION..... Selective — two-position
PORT SIZE..... 3/8 NPTF
RESERVOIR Steel Tubing
MOUNTING FIXTURES 4-Bolt Foot Mount for 3/8 Bolts
MOUNTINGHorizontal or vertical
FLOAT CHECK..... Prevent oil from sloshing out
DIPSTICK To check oil level
HANDLE CARRIER..... To prevent losing handle



FA & FB SERIES LINE TYPE HYDRAULIC OIL FILTER

FA SERIES

FEATURES:

- Spin-on filter type element interchangeable with Cross and Gresen. See page C21 for additional interchange information.
- Standard elements available with 10 Micron Phenol Coated Paper. 100 mesh suction strainer elements also available.
- Filter condition indicator available.
- Compatible with all petroleum base fluids.
- The Prince FA Series Line Type Hydraulic Filter is a high quality, low cost filtration device for use on systems with flows up to 20 GPM. A built in bypass valve is incorporated in the rugged aluminum housing.
- Four return line application, a 15 PSI bypass spring is standard, with a 5 PSI spring available for suction line applications.



(optional accessory)

FB SERIES

FEATURES:

- Compatible with all petroleum base fluids.
- Spin-on type filter element interchangeable with Cross and Gresen. See page C22 for additional information.
- Standard elements available with 10 Micron Phenol Coated Paper. 100 mesh suction strainer elements also available.
- The Prince FB series line type hydraulic filter is intended for systems with flows up to 45 GPM.
- The spin-on feature enables element changes to be made quickly and easily. An optional condition indicator enables element changes to be made as they are needed.
- A bypass valve is incorporated in the filter housing to serve as a safety feature in the event of a clogged filter. Various bypass springs are available for suction or return line applications.

MODEL CODING INFORMATION

FA 1 2 0 0 - 0 0

PORT OPTION

1—3/4" NPTF

BY PASS SPRING

0—NONE
1— 5 PSI
2—15 PSI
3—25 PSI

INDICATOR PORT LOCATION

0—NONE
1—SUCTION LINE (Std.)
2—RETURN LINE (Std.)
3—SUCTION LINE
4—RETURN LINE
A—PORTS 1, 2, 3 and 4 DRILLED AND TAPPED.
INCLUDES (3) 1/8" PIPE PLUGS, NOT INSTALLED

00—NO ELEMENT

ELEMENT SOLD
SEPARATELY BELOW
CASE LOTS OF 12

INDICATOR GAGE

0—NONE
1—RETURN LINE
(0-200 PSI)
2—SUCTION LINE
(0-30" Vacuum)

MODEL CODING INFORMATION

FB 1 2 0 0 - 0 0

PORT OPTION

1—1 1/4" NPTF

BY PASS SPRING

0—NONE
1— 5 PSI
2—15 PSI
3—25 PSI

INDICATOR PORT LOCATION

0—NONE
1—SUCTION LINE (Std.)
2—RETURN LINE (Std.)
3—SUCTION LINE
4—RETURN LINE
A—PORTS 1, 2, 3 and 4 DRILLED AND TAPPED.
INCLUDES (3) 1/8" PIPE PLUGS, NOT INSTALLED

00—NO ELEMENT

ELEMENT SOLD
SEPARATELY BELOW
CASE LOTS OF 6

INDICATOR GAGE

0—NONE
1—RETURN LINE
(0-200 PSI)
2—SUCTION LINE
(0-30" Vacuum)

SERVICE COMPONENTS

PART NUMBER.....	DESCRIPTION
FA10.....	10 MICRON ELEMENT (FA10 ELEMENT REPLACES PREVIOUS FA25 ELEMENT)
FA150.....	150 MICRON ELEMENT
FA.....	CANISTER THREAD SIZE 1-12 UNF-2A THREAD
270018001.....	NO BYPASS KIT
270018002.....	.5 PSI BYPASS KIT
270018003.....	.15 PSI BYPASS KIT
270018004.....	.25 PSI BYPASS KIT
180900669.....	0-200 PSI RETURN LINE GAGE
180900778.....	0-30" VACUUM GAGE

SEE PAGE C21

SERVICE COMPONENTS

PART NUMBER.....	DESCRIPTION
FB10.....	10 MICRON ELEMENT (FB10 ELEMENT REPLACES PREVIOUS FB25 ELEMENT)
FB150.....	150 MICRON ELEMENT
FB.....	CANISTER THREAD SIZE 1 1/2-16 UN-2A THREAD
270018021.....	NO BYPASS KIT
270018022.....	.5 PSI BYPASS KIT
270018023.....	.15 PSI BYPASS KIT
270018024.....	.25 PSI BYPASS KIT
180900669.....	0-200 PSI RETURN LINE GAGE
180900778.....	0-30" VACUUM GAGE

SEE PAGE C22



FA SERIES LINE TYPE HYDRAULIC OIL FILTER

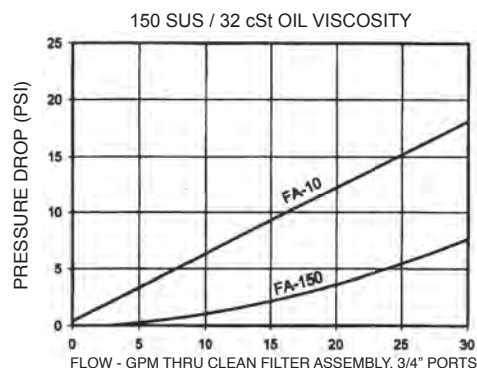
SPECIFICATIONS

Max. Working Pressure 150 PSI
 Flow Up to 20 GPM
 Operating Temperature..... -65°F to 250°F
 Filter Head Material Cast Aluminum
 Gasket Material Buna N
 Shipping Wt. 2 lbs.

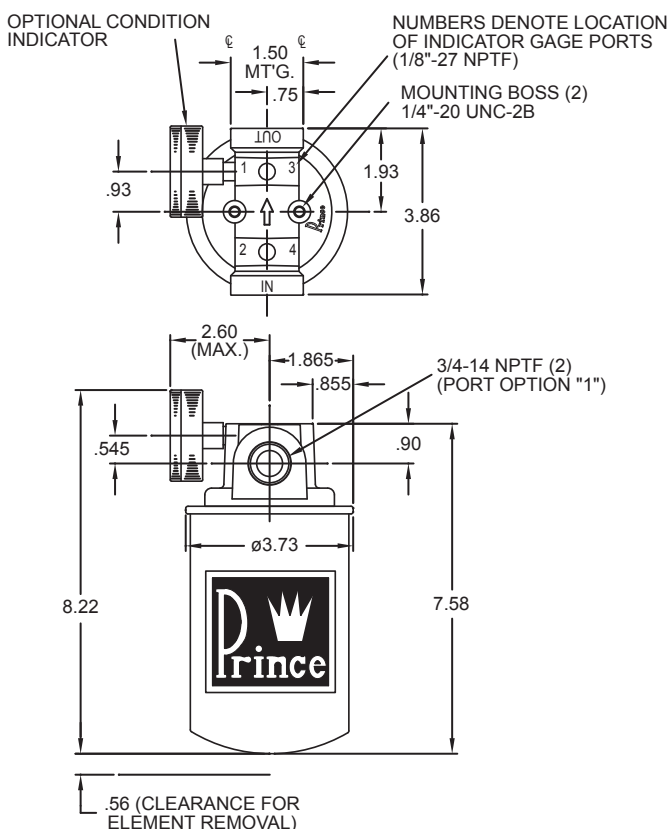
INTERCHANGE INFORMATION

MANUFACTURER	PART NUMBER	PRINCE PART NUMBER
CAN-FLO	RSE-30-10 RSE-30-25	FA10
CASE	S62427	FA10
CLARK/MICHIGAN 6516722	6515541	FA10
CROSS	1A9021 1A9023	FA10
DAVIS	H217307	FA10
DITCH WITCH	155910	FA10
ELGIN SWEEPER	71052	FA10
FIAT-ALLIS	70248399 702483998 72532042	FA10
FORD	193509 CONN6708A CONN8951B CONN8951C	FA10
FORD FRAM	SFD18502	FA10
GMC	6436232 6437228	FA10
GRESEN	1551, 1551001 K22001 1553, 1553003 K22002	FA10
HYSTER	180595	FA10
IHC	201021 C1 528250R1	FA10
JOHN DEERE	3080020 AT38431	FA10
JOY	1228371 1228372	FA10
KRALINATOR	L37, L54	FA10
LENZ	CP75210 CP75230	FA10
LHA	SPE1510 SPE1525	FA10
MASSEY FERGUSON	1033356M1	FA10
MICHIGAN FLUID POWER	S28 S29	FA10
PARKER HANNIFIN	92199 925023	FA10
RIPLEY	DP75210 DP75230	FA10
RYCO	Z42, Z53 Z136	FA10
SUNSTRAND	93220010	FA10
TENNANT	52582	FA10
TORO	239740	FA10
TOWMOTOR	665934	FA10
ZINGA	AE10 AE25	FA10

PRESSURE DROP



DIMENSIONAL INFORMATION



DIMENSIONS ARE IN INCHES, REFERENCE ONLY

PRINCE MANUFACTURING CORPORATION

P.O. BOX 7000

NORTH SIOUX CITY, SD 57049-7000

PHONE: 605-235-1220 FAX: 605-235-1082

FB SERIES LINE TYPE HYDRAULIC OIL FILTER

SPECIFICATIONS

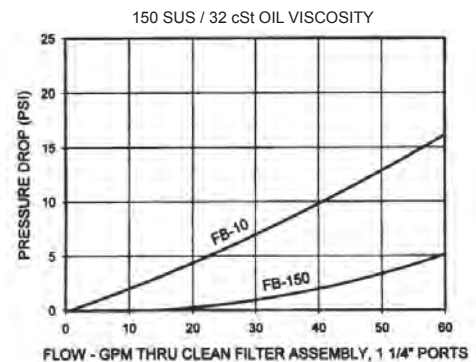
Max. Working Pressure 150 PSI
 Flow Up to 45 GPM
 Operating Temperature..... -65°F to 250°F
 Filter Head Material Cast Aluminum
 Gasket Material Buna N
 Shipping Wt. 4 1/2 lbs.

INTERCHANGE INFORMATION

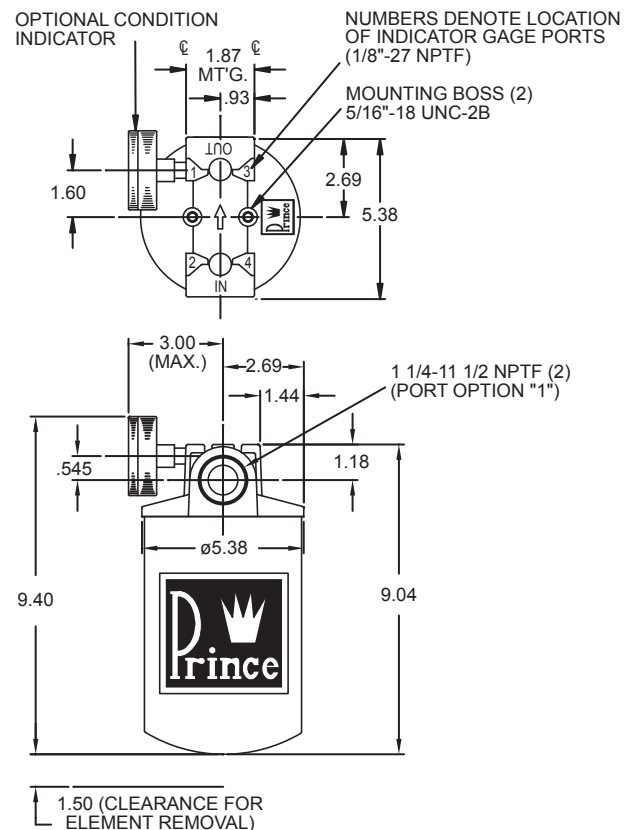
* INDICATED APPLICATIONS REQUIRE GASKET #180900772
 PLEASE ORDER SEPARATELY.

MANUFACTURER	PART NUMBER	PRINCE PART NUMBER
CAN-FLO	CF50E10 RSE5010 RSE5025N	FB10*
CASE	H341974 R25844	FB10*
CATERPILLAR	342449 8J1600	FB10*
CLARK/MICHIGAN	6511280	FB10*
	6519239 6591038 6552507	FB10*
CROSS	1A9251 1A9253	FB10*
GMC	25011184	FB10*
GRESEN	K23018 K23019	FB10*
HYDRA-MAC	3401303	FB10*
IHC	69149C1	FB10*
JOHN DEERE	AT44696 AT58368 R16943 AR43261 AR43634	FB10*
KRALINATOR	L194	FB10*
LENZ	CP128255	FB10*
LHA	SPE5010 SPE5025	FB10*
MICHIGAN FLUID POWER	2020600 3800004 3800077 S58	FB10*
	2020030 S59	FB10*
NEW HOLLAND	262546	FB10*
OWATONNA	17032375	FB10*
PALL	HC7500SUJ4H HC9500SUJ4H	FB10*
PARKER HANNIFIN	926163B	FB10*
SULLAIR	408242	FB10*
SUNSTRAND	97006553	FB10*
TORO	8076001 445340	FB10*
TOWMOTOR	342449	FB10*
VERSATILE	15801	FB10*
VICKERS	575942 575943	FB10*
ZINGA	GCE10 GCE25	FB10*
	SE10 SE25	FB10*

PRESSURE DROP



DIMENSIONAL INFORMATION

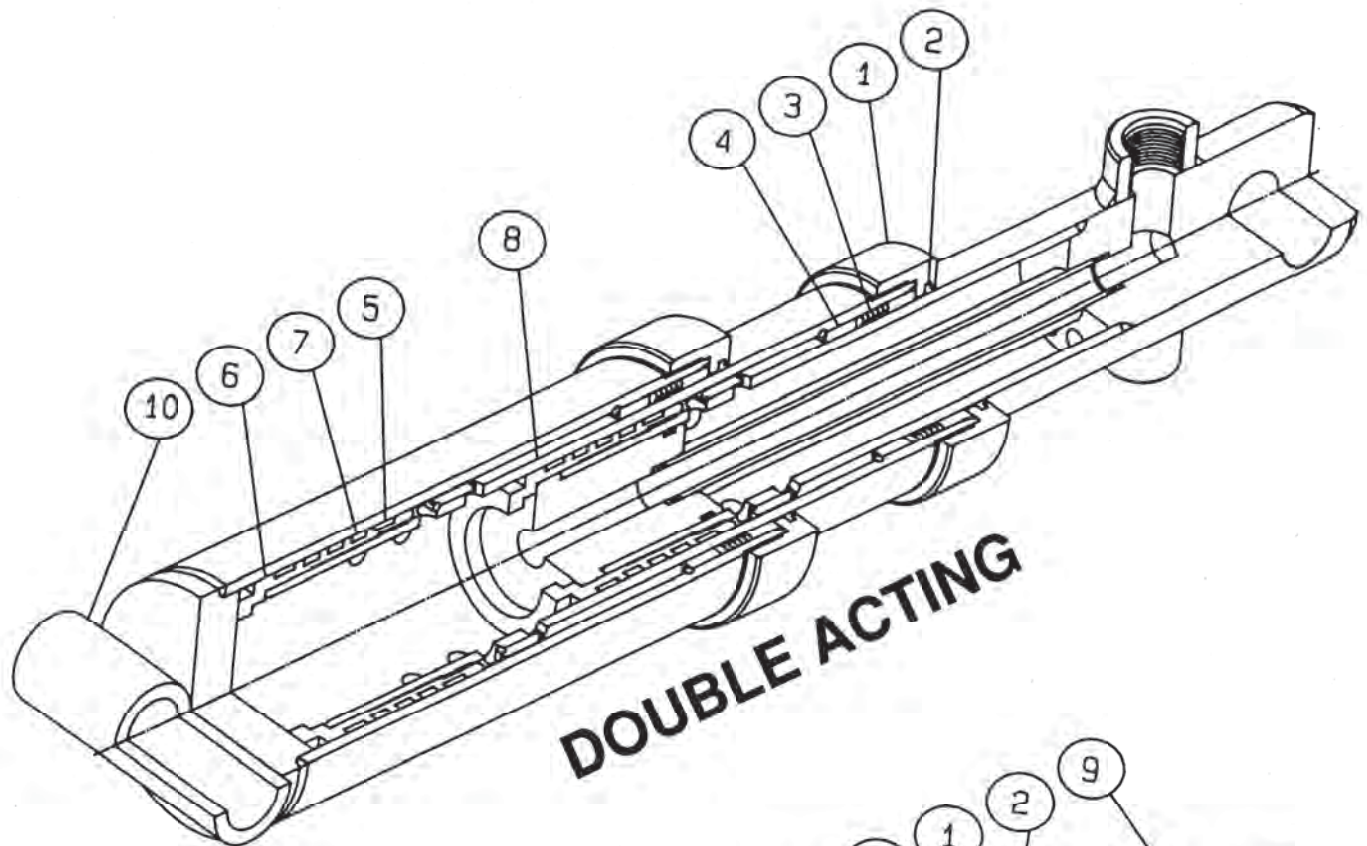


DIMENSIONS ARE IN INCHES REFERENCE ONLY

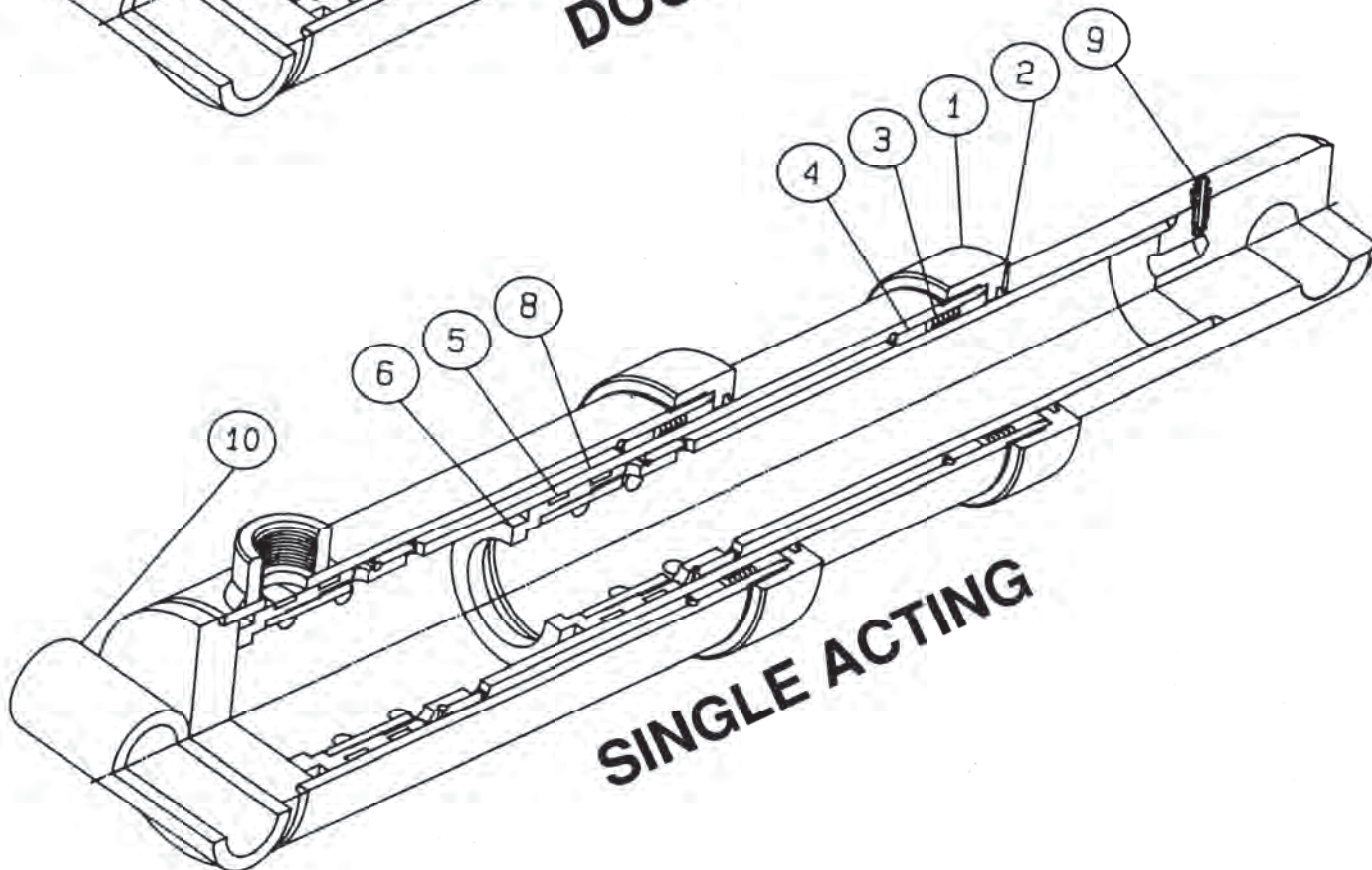


TELESCOPIC CYLINDERS FROM PRINCE

Double & Single Acting



DOUBLE ACTING



SINGLE ACTING



FEATURES OF THE PRINCE TELESCOPIC CYLINDER

- | | |
|---------------------------|--|
| 1. GLAND CAP | All steel, externally threaded gland caps provide adjustment of the vee packing. |
| 2. WIPER | Urethane wiper in gland cap to help keep dirt from getting to the seals. |
| 3. ROD SEALS | Homogenous vee sets made of alternating hytrel and nylon. |
| 4. GLAND BEARINGS | Glass-filled nylon bearing rings are used on both sides of the vee seals to eliminate metal-to-metal contact of the chromed stages. |
| 5. PISTON BEARINGS | Glass-filled nylon bearing rings are used at each end of the steel piston to eliminate metal-to-metal contact in the precision tube bores. |
| 6. PISTONS | One-piece threaded construction. The pistons are grooved to contain the bearing rings and the sealing piston rings (double acting only). Each piston also serves to catch the next smaller stage when the cylinder is retracted. |
| 7. PISTON SEALS | Interlocking step-cut cast iron rings provide port passing capability for the cross holes that feed the retracting oil to each stage. |
| 8. TUBE STAGES | Stage construction is of C-1026 carbon steel, precision skived and burnished or honed for control of roundness and surface finish. Tube outside diameters are ground and chromed to provide close control of tolerance, reduce friction and improve wear resistance. |
| 9. BLEEDER | Provided in the small stage of the single acting models to remove trapped air. Bleeders are not usually needed in the double acting since the cylinder fills with oil on both ends. |
| 10. END FITTINGS | An assortment of end fittings are provided for both ends of the cylinder to fit various applications. |
| 11. CUSTOM DESIGN | Special designs are also manufactured. One of our plants specializes the manufacture of telescopic's of all types. Extra short closed lengths, special chrome, no-drift designs, both ports on the main tube, and load holding checks are examples of special telescopic's made by Prince. Variations to the standard models will require additional documentation. Please contact your Prince Sales Representative. |



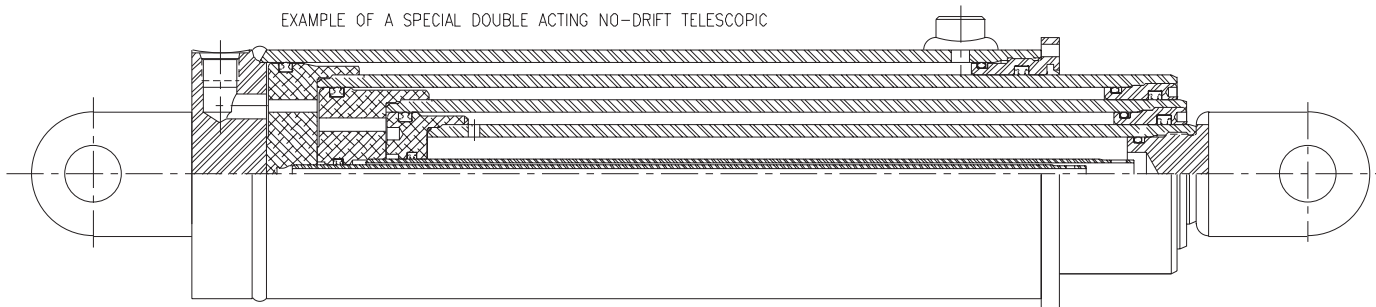
CUSTOM TELESCOPIC CYLINDERS

For some applications, the standard cylinders may not meet all requirements. When this happens, Prince has a staff of engineering personnel to create the special design that is required.

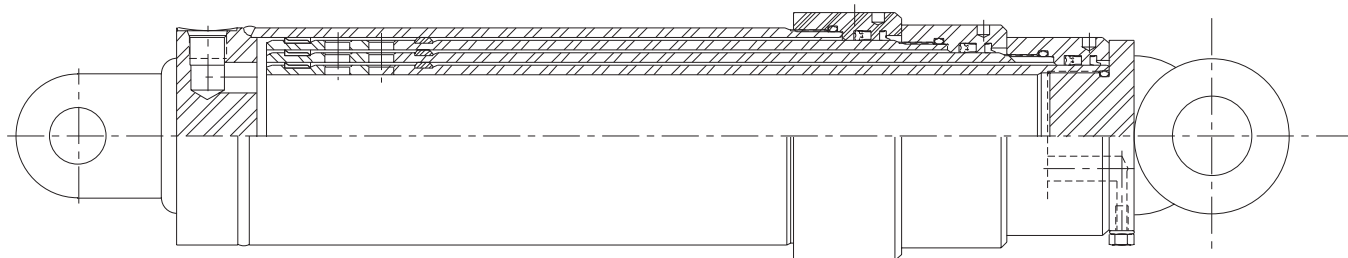
Examples of items a custom telescopic cylinder may require:

- Extra short retracted length.
- Special end fittings.
- Higher pressures.
- Special plating for the stages.
- Holding valves.
- Special seals.
- No-drift piston seals. This is a different design concept where the cross-holes in the stages are eliminated. This design allows the use of soft (urethane, teflon, etc.) piston seals which in turn will allow no drift to take place.

EXAMPLE OF A SPECIAL DOUBLE ACTING NO-DRIFT TELESCOPIC



EXAMPLE OF A SPECIAL SINGLE ACTING, COMPACT DESIGN, CHROME STAGED TELESCOPIC



CODE NO.	D.DIA.	L	T	W	MAX PIN LOAD (SEE NOTE 6 & 9)
CT-1	1.015	.75	4.50	.25	30,000 lbs
CT2	1.265	.94	5.50	.31	50,000 lbs
CT-3	1.515	1.13	6.5	.38	71,000 lbs
CT-4	2.015	1.38	8	.38	110,000 lbs
CT-5	2.515	1.75	10	.50	161,000 lbs
CT-6	3.031	2.00	12	.50	225,000 lbs

CODE NO.	D.DIA.	L	T	R	MAX PIN LOAD (SEE NOTE 6 & 9)
TG-1	1.015	1.75	1.00	1.00	30,000 lbs
TG-2	1.265	2.00	1.50	1.25	50,000 lbs
TG-3	1.515	2.25	1.75	1.50	71,000 lbs
TG-4	2.015	2.75	2.00	2.00	110,000 lbs
TG-5	2.515	3.00	2.50	2.25	161,000 lbs
TG-6	3.031	3.25	3.00	2.50	225,000 lbs

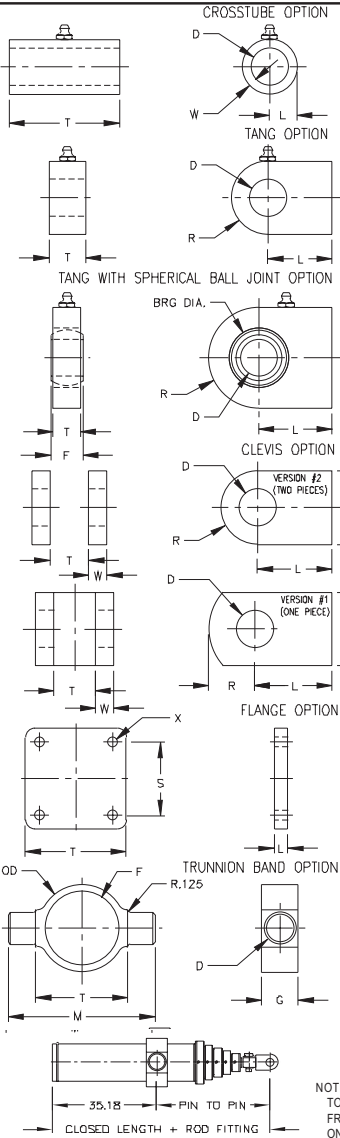
CODE NO	D DIA.	L	T	F	R	BRG. DIA.	MAX PIN LOAD (SEE NOTE 6 & 9)
BJ-1	1.00	2.00	.75	.88	1.38	1.625	30,000 lbs
BJ-2	1.25	2.50	1.00	1.09	1.88	2.000	50,000 lbs
BJ-3	1.50	3.00	1.13	1.31	2.38	2.437	71,000 lbs
BJ-4	2.00	3.50	1.50	1.75	2.88	3.187	110,000 lbs
BJ-5	2.50	4.25	1.88	2.19	3.31	3.937	161,000 lbs
BJ-6	3.00	4.50	2.25	2.63	3.75	4.751	225,000 lbs

CODE NO.	D.DIA.	L	T	W	R	H	VERSION	MAX PIN LOAD (SEE NOTE 6 & 9)
CL-1	1.015	2.38	1.13	.50	1.25	2.00	VER. 1	30,000 lbs
CL-2	1.265	2.50	1.38	.63	1.25	2.50	VER. 1	50,000 lbs
CL-3	1.515	2.75	1.63	.75	1.50	3.00	VER. 2	71,000 lbs
CL-4	2.015	3.00	2.13	1.00	2.00	4.00	VER. 2	110,000 lbs
CL-5	2.515	3.25	2.38	1.25	2.25	4.50	VER. 2	161,000 lbs
CL-6	3.031	3.50	2.63	1.50	2.50	5.00	VER. 2	225,000 lbs

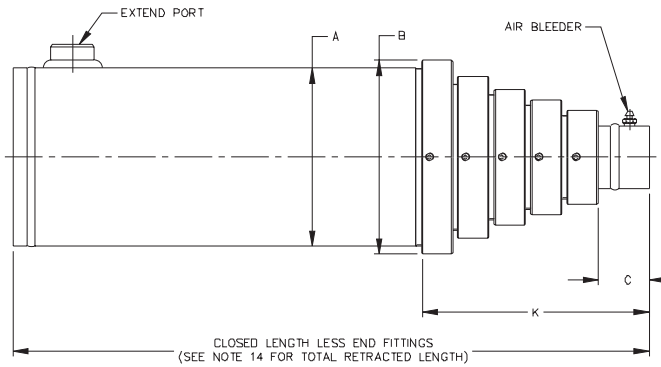
NOTE:
FLANGE OPTION TO BE WELDED DIRECTLY TO CYLINDER BASE END,
IN PLACE OF THE STANDARD BUTT PLATE.

CODE NO.	X.DIA.	L	T SQ.	SSQ.	MAX PIN LOAD (SEE NOTE 6 & 9)
FL-1	.53	.75	5.50	4.00	30,000 lbs
FL-2	.66	1.00	7.00	5.25	50,000 lbs
FL-3	.78	1.25	8.00	6.00	71,000 lbs
FL-4	1.03	1.50	9.50	7.25	110,000 lbs
FL-5	1.28	1.75	11.25	8.50	161,000 lbs
FL-6	1.53	2.00	13.50	10.00	225,000 lbs

CODE NO.	MATL	D DIA.	G	T	M	F	OD	MAX PIN LOAD (SEE NOTE 6 & 9)
TR-1(-)	A-36	1.75	2.00	5.00	8.00	4.00	4.75	30,000 lbs
TR-2(-)	A-36	2.25	2.50	6.00	10.00	5.00	5.75	50,000 lbs
TR-3(-)	A-36	2.50	3.00	7.00	11.00	6.00	6.75	71,000 lbs
TR-4(-)	A-36	3.00	3.50	9.00	14.00	7.50	8.50	110,000 lbs
TR-5(-)	T-1	3.00	3.50	10.50	15.50	9.00	10.00	161,000 lbs
TR-6(-)	T-1	3.50	4.00	12.50	18.50	10.75	12.00	225,000 lbs

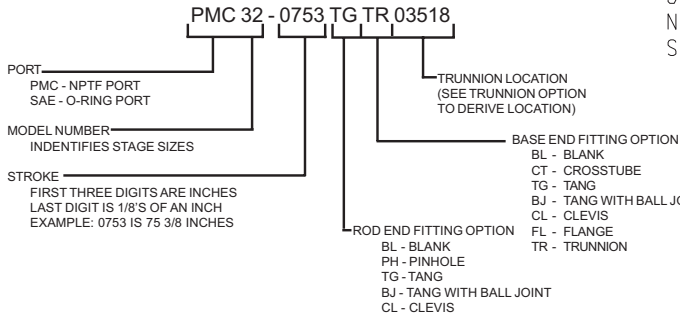


STANDARD SINGLE ACTING TELESCOPIC CYLINDER SPECIFICATIONS



* MODEL NUMBER STEM

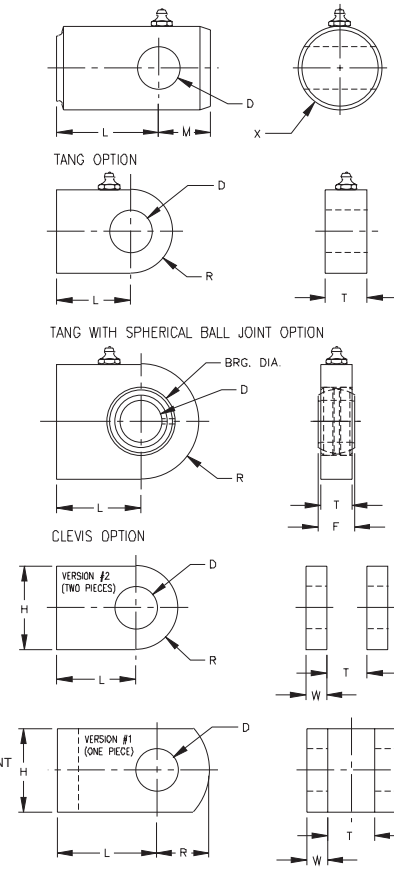
TO SPECIFY YOUR CYLINDER CHOOSE THE SIZES AND NUMBER OF STAGES REQUIRED, THEN ADD THE STROKE AND END FITTING OPTIONS. EXAMPLE:



THIS IS A 4 STAGE CYLINDER WITH 6 X 5 X 4 X 3 RODS,
75 3/8 INCHES TOTAL STROKE, TANG END OPTION ON ROD END,
AND TRUNNION OPTION 35.18 INCHES FROM BASE END.

NOTE:
TO DESIGNATE THE TRUNNION LOCATION, ENTER THE DISTANCE, IN INCHES,
FROM THE BASE END OF THE CYLINDER TO THE CENTER LINE OF THE PIN
ON THE TRUNNION BAND.
EXAMPLE: TR03518 THIS TRUNNION WILL BE 35.18 INCHES FROM THE
BASE END OF THE CYLINDER.

CROSS DRILLED PINHOLE OPTION



- NOTES:
1. MAXIMUM DESIGN AND TEST PRESSURE: 3000 P.S.I.
 2. NORMAL OPERATING PRESSURE: 3000 P.S.I. (EXCEPT AS NOTED IN SPECIFICATIONS)
 3. PAINT INSTRUCTIONS: PRIME PER: PMS-00120
 4. MOVING STAGES ARE HARD CHROME PLATED .0010 MIN.
 5. DO NOT REDUCE PORT SIZE. RESTRICTION OF FLOW IN ANY WAY MAY NOT ALLOW THE CYLINDER TO CYCLE SMOOTHLY.
 6. PIN SIZE IS BASED ON PIN MATERIAL OF 120,000 P.S.I. MIN. TENSILE STRENGTH. RATING CAN BE INCREASED BY USING CORRESPONDINGLY STRONGER MATERIAL.
 7. IF THE CYLINDER IS TO BE USED WITH THE ROD END UP, USE THE AIR BLEEDER TO REMOVE AIR FROM THE CYLINDER PRIOR TO USE.
 8. MAXIMUM STROKE LENGTHS ARE BASED ON A SAFETY FACTOR OF 2 TO 1 RELATIVE TO LOAD FOR LONG COLUMNS SUBJECT TO BUCKLING. CONTACT STRESS ON THE PISTON WEAR RINGS ALSO LIMITS MAXIMUM LENGTH IN SOME CASES.

- NOTES:
9. MAXIMUM LOAD SHOULD NOT EXCEED THE RATING FOR THE ROD END PIN. (IN SOME CASES IT IS SMALLER THAN THE BASE END PIN - REF: LOAD LIMITS ON END FITTINGS.)
 10. MAXIMUM EXTEND LOADS ARE BASED ON MAXIMUM PIN LOADS FOR THE ROD END FITTINGS. SEE ALSO COLUMN DATA.
 11. THIS PRODUCT IS DESIGNED WITH A MINIMUM FACTOR OF SAFETY OF 2:1 BASED ON THE YIELD STRENGTH OF THE MATERIALS.
 12. UNLESS OTHERWISE SPECIFIED THIS PRODUCT IS DESIGNED FOR USE WITH A GOOD QUALITY PETROLEUM BASE HYDRAULIC FLUID.
 13. THIS DRAWING IS THE PROPERTY OF PRINCE MFG. CORP. AND USE IN ANY MANNER DETRIMENTAL TO THE INTEREST OF PRINCE MFG. CORP. IS PROHIBITED.
 14. TOTAL RETRACT EQUALS CLOSED LENGTH PLUS DIMENSION "L" OF THE END FITTINGS WITH A TOLERANCE OF +/- 1/8 FOR EACH STAGE.

CODE NO.	D.DIA.	L	M	X DIA.	MAX PIN LOAD (SEE NOTE 6 & 9)
PH-1	1.015	.50	1.25	2	30,000 lbs
PH-2	1.265	.75	1.38	3	50,000 lbs
PH-3	1.515	1.25	1.50	4	71,000 lbs
PH-4	2.015	2.00	1.75	5	110,000 lbs
PH-5	2.515	2.75	2.00	6	161,000 lbs
PH-6	3.031	3.00	2.50	7.5	225,000 lbs

CODE NO.	D.DIA.	L	T	R	MAX PIN LOAD (SEE NOTE 6 & 9)
TG-1	1.015	1.75	1.00	1.00	30,000 lbs
TG-2	1.265	2.00	1.50	1.25	50,000 lbs
TG-3	1.515	2.25	1.75	1.50	71,000 lbs
TG-4	2.015	2.75	2.00	2.00	110,000 lbs
TG-5	2.515	3.00	2.50	2.25	161,000 lbs
TG-6	3.031	3.25	3.00	2.50	225,000 lbs

CODE NO.	D DIA.	L	T	F	R	BRG. DIA.	MAX PIN LOAD (SEE NOTE 6 7 & 9)
BJ-1	1.00	2.00	.75	.88	1.38	1.625	30,000 lbs
BJ-2	1.25	2.50	1.00	1.09	1.88	2.000	50,000 lbs
BJ-3	1.50	3.00	1.13	1.31	2.38	2.437	71,000 lbs
BJ-4	2.00	3.50	1.50	1.75	2.88	3.187	110,000 lbs
BJ-5	2.50	4.25	1.88	2.19	3.31	3.937	161,000 lbs
BJ-6	3.00	4.50	2.25	2.63	3.75	4.751	225,000 lbs

CODE NO.	D.DIA.	L	T	W	R	H	VERSION	MAX PIN LOAD (SEE NOTE 6 & 9)
CL-1	1.015	2.38	1.13	.50	1.25	2.00	VER. 1	30,000 lbs
CL-2	1.265	2.50	1.38	.63	1.25	2.50	VER. 1	50,000 lbs
CL-3	1.515	2.75	1.63	.75	1.50	3.00	VER. 2	71,000 lbs
CL-4	2.015	3.00	2.13	1.00	2.00	4.00	VER. 2	110,000 lbs
CL-5	2.515	3.25	2.38	1.25	2.25	4.50	VER. 2	161,000 lbs
CL-6	3.031	3.50	2.63	1.50	2.50	5.00	VER. 2	225,000 lbs

MODEL NO.	SPECIFICATION								COLUMN DATA					EXTEND AREA					PORT INFO. (SEE NOTE 5)	ROD END FITTING OPTIONS (SEE NOTE9)					BASE END FITTING OPTIONS (SEE NOTE 9)							
2-STAGE	ROD SIZES	BORE SIZES	MAX EXTEND LOAD	CLOSED LENGTH	A	B	C	K	MAX STROKE AT OPER. P.S.I.					FIRST STAGE	SECOND STAGE	THIRD STAGE	FOURTH STAGE	FIFTH STAGE	EXTEND PORT	BLANK	PH	TG	BJ	CL	BLANK	CT	TG	BJ	CL	FL	TR	
									3000	2500	2000	1500	1000																			
PMC/SAE-11	3 X 2	3.5 X 2.5	30,000 lbs.	(STROKE + 2) + 10.38	4	4.5	1.50	4.75	75 in.	84 in.	95 in.	111 in.	120 in.	7.07 SQ.IN.	3.14 SQ.IN.				1/2 NPTF - 7/8 SAE	BL	PH-1	TG-1	BJ-1	CL-1	BL	CT-1	TG-1	BJ-1	CL-1	FL-1	TR-1()	
PMC/SAE-12	4 X 3	4.5 X 3.5	50,000 lbs.	(STROKE + 2) + 10.88	5	5.5	1.75	5.00	94 in.	104 in.	118 in.	138 in.	165 in.	12.57 SQ.IN.	7.07 SQ.IN.				1 NPTF - 1 5/16 SAE	BL	PH-2	TG-2	BJ-2	CL-2	BL	CT-2	TG-2	BJ-2	CL-2	FL-2	TR-2()	
PMC/SAE-13	5 X 4	5.5 X 4.5	71,000 lbs.	(STROKE + 2) + 11.13	6	6.75	2.00	5.25	107 in.	118 in.	134 in.	158 in.	195 in.	19.63 SQ.IN.	12.57 SQ.IN.				1 1/4 NPTF - 1 5/8 SAE	BL	PH-3	TG-3	BJ-3	CL-3	BL	CT-3	TG-3	BJ-3	CL-3	FL-3	TR-3()	
PMC/SAE-14	6 X 5	6.75 X 5.5	110,000 lbs.	(STROKE + 2) + 11.63	7.5	8.25	2.25	5.50	119 in.	134 in.	150 in.	175 in.	196 in.	28.27 SQ.IN.	19.63 SQ.IN.				1 1/2 NPTF - 1 7/8 SAE	BL	PH-4	TG-4	BJ-4	CL-4	BL	CT-4	TG-4	BJ-4	CL-4	FL-4	TR-4()	
PMC/SAE-15	7.5 X 6	8.25 X 6.75	161,000 lbs.	(STROKE + 2) + 11.88	9	9.75	2.25	5.50	140 in.	158 in.	164 in.	164 in.	164 in.	44.18 SQ.IN.	28.27 SQ.IN.				1 1/2 NPTF - 1 7/8 SAE	BL	PH-5	TG-5	BJ-5	CL-5	BL	CT-5	TG-5	BJ-5	CL-5	FL-5	TR-5()	
PMC/SAE-16	9 X 7.5	9.75 X 8.25	225,000 lbs.	(STROKE + 2) + 12.38	10.75	11.38	2.50	5.75	170 in.	170 in.	170 in.	170 in.	170 in.	63.61 SQ.IN.	44.18 SQ.IN.				1 1/2 NPTF - 1 7/8 SAE	BL	PH-6	TG-6	BJ-6	CL-6	BL	CT-6	TG-6	BJ-6	CL-6	FL-6	TR-6()	
3-STAGE	ROD SIZES	BORE SIZES	MAX EXTEND LOAD (SEE NOTES 6 & 10)	CLOSED LENGTH	A	B	C	K	MAX STROKE AT OPER. P.S.I.					FIRST STAGE	SECOND STAGE	THIRD STAGE	FOURTH STAGE	FIFTH STAGE	EXTEND PORT	BLANK	PH	TG	BJ	BJ	BLANK	CT	TG	BJ	CL	FL	TR	
									3000	2500	2000	1500	1000																			
PMC/SAE-21	4 X 3 X 2	4.5 X 3.5 X 2.5	30,000 lbs.	(STROKE + 3) + 11.50	5	5.5	1.50	6.50	99 in.	109 in.	124 in.	145 in.	145 in.	12.57 SQ.IN.	7.07 SQ.IN.	3.14 SQ.IN.			1 NPTF - 1 5/16 SAE	BL	PH-1	TG-1	BJ-1	CL-1	BL	CT-2	TG-2	BJ-2	CL-2	FL-2	TR-2()	
PMC/SAE-22	5 X 4 X 3	5.5 X 4.5 X 3.5	50,000 lbs.	(STROKE + 3) + 11.75	6	6.75	1.75	6.75	120 in.	132 in.	150 in.	166 in.	195 in.	19.63 SQ.IN.	12.57 SQ.IN.	7.07 SQ.IN.			1 1/4 NPTF - 1 5/8 SAE	BL	PH-2	TG-2	BJ-2	CL-2	BL	CT-3	TG-3	BJ-3	CL-3	FL-3	TR-3()	
PMC/SAE-23	6 X 5 X 4	6.75 X 5.5 X 4.5	71,000 lbs.	(STROKE + 3) + 12.25	7.5	8.25	2.00	7.00	132 in.	146 in.	167 in.	196 in.	220 in.	28.27 SQ.IN.	19.63 SQ.IN.	12.57 SQ.IN.			1 1/2 NPTF - 1 7/8 SAE	BL	PH-3	TG-3	BJ-3	CL-3	BL	CT-4	TG-4	BJ-4	CL-4	FL-4	TR-4()	
PMC/SAE-24	7.5 X 6 X 5	8.25 X 6.75 X 5.5	110,000 lbs.	(STROKE + 3) + 12.75	9	9.75	2.25	7.25	149 in.	167 in.	188 in.	195 in.	195 in.	44.18 SQ.IN.	28.27 SQ.IN.	19.63 SQ.IN.			1 1/2 NPTF - 1 7/8 SAE	BL	PH-4	TG-4	BJ-4	CL-4	BL	CT-5	TG-5	BJ-5	CL-5	FL-5	TR-5()	
PMC/SAE-25	9 X 7.5 X 6	9.75 X 8.25 X 6.75	161,000 lbs.	(STROKE + 3) + 13.00	10.75	11.38	2.25	7.25	176 in.	185 in.	185 in.	185 in.	185 in.	63.61 SQ.IN.	44.18 SQ.IN.	28.27 SQ.IN.			1 1/2 NPTF - 1 7/8 SAE	BL	PH-5	TG-5	BJ-5	CL-5	BL	CT-6	TG-6	BJ-6	CL-6	FL-6	TR-6()	
4-STAGE	ROD SIZES	BORE SIZES	MAX EXTEND LOAD (SEE NOTES 6 & 10)	CLOSED LENGTH	A	B	C	K	MAX STROKE AT OPER. P.S.I.					FIRST STAGE	SECOND STAGE	THIRD STAGE	FOURTH STAGE	FIFTH STAGE	EXTEND PORT	BLANK	PH	TG	BJ	BJ	BLANK	CT	TG	BJ	CL	FL	TR	
									3000	2500	2000	1500	1000																			
PMC/SAE-31	5 X 4 X 3 X 2	5.5 X 4.5 X 3.5 X 2.5	30,000 lbs.	(STROKE + 4) + 12.38	6	6.75	1.50	8.25	118 in.	132 in.	150 in.	155 in.	155 in.	19.63 SQ.IN.	12.57 SQ.IN.	7.07 SQ.IN.	3.14 SQ.IN.		1 1/4 NPTF - 1 5/8 SAE	BL	PH-1	TG-1	BJ-1	CL-1	BL	CT-3	TG-3	BJ-3	CL-3	FL-3	TR-3()	
PMC/SAE-32	6 X 5 X 4 X 3	6.75 X 5.5 X 4.5 X 3.5	50,000 lbs.	(STROKE + 4) + 12.88	7.5	8.25	1.75	8.50	140 in.	156 in.	177 in.	190 in.	190 in.	28.27 SQ.IN.	19.63 SQ.IN.	12.57 SQ.IN.	7.07 SQ.IN.		1 1/2 NPTF - 1 7/8 SAE	BL	PH-2	TG-2	BJ-2	CL-2	BL	CT-4	TG-4	BJ-4	CL-4	FL-4	TR-4()	
PMC/SAE-33	7.5 X 6 X 5 X 4	8.25 X 6.75 X 5.5 X 4.5	71,000 lbs.	(STROKE + 4) + 13.38	9	9.75	2.00	8.75	155 in.	172 in.	196 in.	210 in.	210 in.	44.18 SQ.IN.	28.27 SQ.IN.	19.63 SQ.IN.	12.57 SQ.IN.		1 1/2 NPTF - 1 7/8 SAE	BL	PH-3	TG-3	BJ-3	CL-3	BL	CT-5	TG-5	BJ-5	CL-5	FL-5	TR-5()	
PMC/SAE-34	9 X 7.5 X 6 X 5	9.75 X 8.25 X 6.75 X 5.5	110,000 lbs.	(STROKE + 4) + 13.88	10.75	11.38	2.25	9.00	175 in.	190 in.	190 in.	190 in.	190 in.	63.61 SQ.IN.	44.18 SQ.IN.	28.27 SQ.IN.	19.63 SQ.IN.		1 1/2 NPTF - 1 7/8 SAE	BL	PH-4	TG-4	BJ-4	CL-4	BL	CT-6	TG-6	BJ-6	CL-6	FL-6	TR-6()	
5-STAGE	ROD SIZES	BORE SIZES	MAX EXTEND LOAD (SEE NOTES 6 & 10)	CLOSED LENGTH	A	B	C	K	MAX STROKE AT OPER. P.S.I.					FIRST STAGE	SECOND STAGE	THIRD STAGE	FOURTH STAGE	FIFTH STAGE	EXTEND PORT	BLANK	PH	TG	BJ	BJ	BLANK	CT	TG	BJ	CL	FL	TR	
									3000	2500	2000	1500	1000																			
PMC/SAE-41	6 X 5 X 4 X 3 X 2	6.75 X 5.5 X 4.5 X 3.5 X 2.5	30,000 lbs.	(STROKE + 5) + 13.50	7.5	8.25	1.50	10.00	134 in.	148 in.	150 in.	150 in.	150 in.	28.27 SQ.IN.	19.63 SQ.IN.	12.57 SQ.IN.	7.07 SQ.IN.	3.14 SQ.IN.		1 1/2 NPTF - 1 7/8 SAE	BL	PH-1	TG-1	BJ-1	CL-1	BL	CT-4	TG-1	BJ-4	CL-4	FL-4	TR-4()
PMC/SAE-42	7.5 X 6 X 5 X 4 X 3	8.25 X 6.75 X 5.5 X 4.5 X 3.5	50,000 lbs.	(STROKE + 5) + 14.00	9	9.75	1.75	10.25	158 in.	176 in.	180 in.	180 in.	180 in.	44.18 SQ.IN.	28.27 SQ.IN.	19.63 SQ.IN.	12.57 SQ.IN.	7.07 SQ.IN.		1 1/2 NPTF - 1 7/8 SAE	BL	PH-2	TG-2	BJ-2	CL-2	BL	CT-3	TG-5	BJ-5	CL-5	FL-5	TR-5()
PMC/SAE-43	9 X 7.5 X 6 X 5 X 4	9.75 X 8.25 X 6.75 X 5.5 X 4.5	71,000 lbs.	(STROKE + 5) + 14.50	10.75	11.38	2.00	10.50	173 in.	199 in.	200 in.	220 in.	200 in.	63.61 SQ.IN.	28.27 SQ.IN.	19.63 SQ.IN.	12.57 SQ.IN.	12.57 SQ.IN.		1 1/2 NPTF - 1 7/8 SAE	BL	PH-3	TG-3	BJ-3	CL-3	BL	CT-2	TG-6	BJ-6	CL-6	FL-6	TR-6()

CODE NO.	D.DIA.	L	T	W	MAX PIN LOAD (SEE NOTE 6 & 9)
CT-1	1.015	.75	4.50	.25	30,000 lbs
CT-2	1.265	.94	5.50	.31	50,000 lbs
CT-3	1.515	1.13	6.5	.38	71,000 lbs
CT-4	2.015	1.38	8	.38	110,000 lbs
CT-5	2.515	1.75	10	.50	161,000 lbs
CT-6	3.031	2.00	123	.50	225,000 lbs

CODE NO.	D.DIA.	L	T	R	MAX PIN LOAD (SEE NOTE 6 & 9)
TG-1	1.015	1.75	1.00	1.00	30,000 lbs
TG-2	1.265	2.00	1.50	1.25	50,000 lbs
TG-3	1.515	2.25	1.75	1.50	71,000 lbs
TG-4	2.015	2.75	2.00	2.00	110,000 lbs
TG-5	2.515	3.00	2.50	2.25	161,000 lbs
TG-6	3.031	3.25	3.00	2.50	225,000 lbs

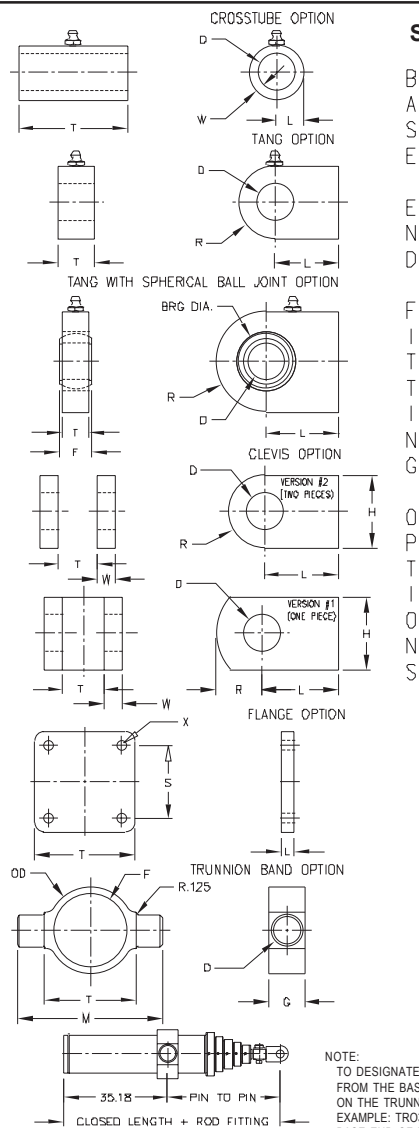
CODE NO	D.DIA.	L	T	F	R	BRG. DIA.	MAX PIN LOAD (SEE NOTE 6 & 9)
BJ-1	1.00	2.00	.75	.88	1.38	1.625	30,000 lbs
BJ-2	1.25	2.50	1.00	1.09	1.88	2.000	50,000 lbs
BJ-3	1.50	3.00	1.125	1.31	2.38	2.437	71,000 lbs
BJ-4	2.00	3.50	1.50	1.75	2.88	3.187	110,000 lbs
BJ-5	2.50	4.25	1.875	2.19	3.31	3.937	161,000 lbs
BJ-6	3.00	4.50	2.250	2.63	3.75	4.751	225,000 lbs

CODE NO.	D.DIA.	L	T	W	R	H	VERSION	MAX PIN LOAD (SEE NOTE 6 & 9)
CL-1	1.015	2.38	1.13	.50	1.25	2.00	VER. 1	30,000 lbs
CL-2	1.265	2.50	1.38	.63	1.25	2.50	VER. 1	50,000 lbs
CL-3	1.515	2.75	1.63	.75	1.50	3.00	VER. 2	71,000 lbs
CL-4	2.015	3.00	2.13	1.00	2.00	4.00	VER. 2	110,000 lbs
CL-5	2.515	3.25	2.38	1.25	2.25	4.50	VER. 2	161,000 lbs
CL-6	3.031	3.50	2.63	1.50	2.50	5.00	VER. 2	225,000 lbs

NOTE:
FLANGE OPTION TO BE WELDED DIRECTLY TO CYLINDER BASE END,
IN PLACE OF THE STANDARD BUTT PLATE.

CODE NO.	X.DIA.	L	T SQ.	SSQ.	MAX PIN LOAD (SEE NOTE 6 & 9)
FL-1	.53	.75	5.50	4.00	30,000 lbs
FL-2	.66	1.00	7.00	5.25	50,000 lbs
FL-3	.78	1.25	8.00	6.00	71,000 lbs
FL-4	1.03	1.50	9.50	7.25	110,000 lbs
FL-5	1.28	1.75	11.25	8.50	161,000 lbs
FL-6	1.53	2.00	13.50	10.00	225,000 lbs

CODE NO.	MATL	D DIA.	G	T	M	F	OD	MAX PIN LOAD (SEE NOTE 6 & 9)
TR-1-(-)	A-36	1.75	2.00	5.00	8.00	4.00	4.75	30,000 lbs
TR-2-(-)	A-36	2.25	2.50	6.00	10.00	5.00	5.75	50,000 lbs
TR-3-(-)	A-36	2.50	3.00	7.00	11.00	6.00	6.75	71,000 lbs
TR-4-(-)	A-36	3.00	3.50	9.00	14.00	7.50	8.50	110,000 lbs
TR-5-(-)	T-1	3.00	3.50	10.50	15.50	9.00	10.00	161,000 lbs
TR-6-(-)	T-1	3.50	4.00	12.50	18.50	10.75	12.00	225,000 lbs



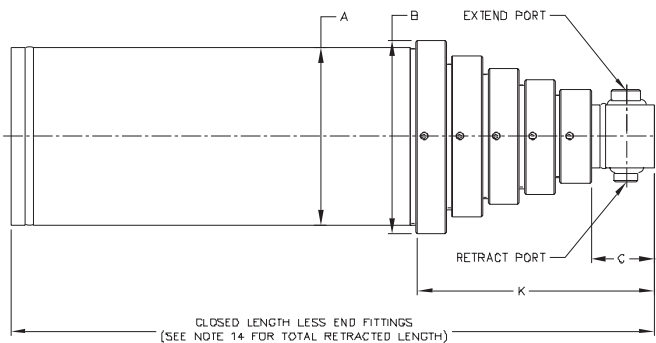
STANDARD DOUBLE ACTING TELESCOPIC CYLINDER SPECIFICATIONS

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* MODEL NUMBER STEM

TO SPECIFY YOUR CYLINDER CHOOSE THE SIZES AND NUMBER OF STAGES REQUIRED, THEN ADD THE STROKE AND END FITTING OPTIONS. EXAMPLE:

PMC 72 - 0753 TG TR 03518

PORT -
PMC - NPTF PORTS
SAE - O-RING PORTS

MODEL NUMBER
IDENTIFIES STAGE SIZES

STROKE -
FIRST THREE DIGITS ARE INCHES
LAST DIGIT IS 1/8'S OF AN INCH
EXAMPLE: 0753 IS 75 3/8 INCHES

TRUNNION LOCATION
(SEE TRUNNION OPTION
TO DERIVE LOCATION)

BASE END FITTING OPTION
BL - BLANK
CT - CROSSTUBE
TG - TANG
BJ - TANG WITH BALL JOINT
CL - CLEVIS
FL - FLANGE
TR - TRUNNION

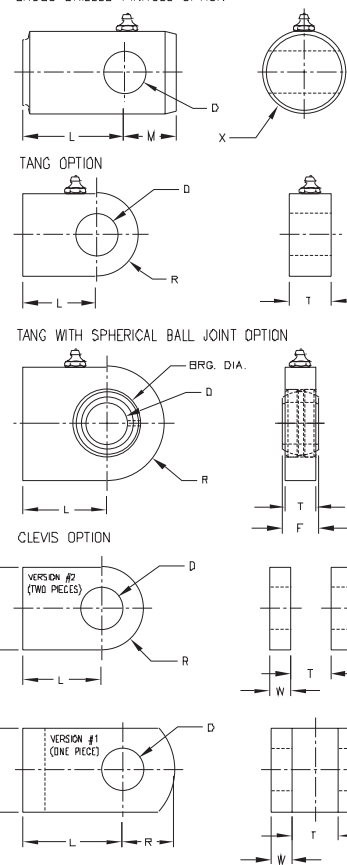
ROD END FITTING OPTION
BL - BLANK
PH - PINHOLE
TG - TANG
BJ - TANG WITH BALL JOINT
CL - CLEVIS

THIS IS A 4 STAGE CYLINDER WITH 6.75 X 5.5 X 4.5 X 3.5 BORES
75 3/8 INCHES TOTAL STROKE, TANG OPTION ON ROD END
TRUNNION OPTION 35.18 INCHES FROM BASE END.



NOTE:
TO DESIGNATE THE TRUNNION LOCATION, ENTER THE DISTANCE, IN INCHES,
FROM THE BASE END OF THE CYLINDER TO THE CENTER LINE OF THE PIN
ON THE TRUNNION BAND.
EXAMPLE: TR03518 THIS TRUNNION WILL BE 35.18 INCHES FROM THE
BASE END OF THE CYLINDER.

CROSS DRILLED PINHOLE OPTION



NOTES:

1. MAXIMUM DESIGN AND TEST PRESSURE: 3000 P.S.I.
2. NORMAL OPERATING PRESSURE: 3000 P.S.I. (EXCEPT AS NOTED IN SPECIFICATIONS)
3. PAINT INSTRUCTIONS: PRIME PER PMS-0010
4. MOVING STAGES ARE HARD CHROME PLATED .0010 MIN.
5. MAXIMUM FLOW RATE IS BASED ON THE MAXIMUM ALLOWABLE FLOW INTO THE RETRACT PORT LIMITED BY BACK PRESSURE ON FLOW EXITING THE EXTEND PORT.
6. PIN SIZE IS BASED ON PIN MATERIAL OF 120,000 P.S.I. MIN. TENSILE STRENGTH. RATING CAN BE INCREASED BY USING CORRESPONDINGLY STRONGER MATERIAL.
7. IF QUICK DISCONNECTS ARE USED ON THE PORTS, FAILURE TO COMPLETELY FASTEN THE DISCONNECT ON THE RETRACT PORT MAY RESULT IN INTERNAL FAILURE WHEN THE CYLINDER IS EXTENDED.
8. MAXIMUM STROKE LENGTHS ARE BASED ON A SAFETY FACTOR OF 2 TO 1 RELATIVE TO LOAD FOR LONG COLUMNS SUBJECT TO BUCKLING. CONTACT STRESS ON THE PISTON WEAR RINGS ALSO LIMITS MAXIMUM LENGTH IN SOME CASES.

9. MAXIMUM LOAD SHOULD NOT EXCEED THE RATING FOR THE ROD END PIN. (IN SOME CASES IT IS SMALLER THAN THE BASE END PIN. - REF. LOAD LIMITS ON END FITTINGS)
10. MAXIMUM EXTEND LOADS ARE BASED ON MAXIMUM PIN LOADS FOR THE ROD END FITTINGS. SEE ALSO COLUMN DATA.
11. THIS PRODUCT IS DESIGNED WITH A MINIMUM FACTOR OF SAFETY OF 2:1 BASED ON THE YIELD STRENGTH OF THE MATERIALS.
12. UNLESS OTHERWISE SPECIFIED THIS PRODUCT IS DESIGNED FOR USE WITH A GOOD QUALITY PETROLEUM BASE HYDRAULIC FLUID.
13. THIS DRAWING IS THE PROPERTY OF PRINCE MFG. CORP. AND USE IN ANY MANNER DETRIMENTAL TO THE INTEREST OF PRINCE MFG. CORP. IS PROHIBITED.
14. TOTAL RETRACT EQUALS CLOSED+/- LENGTH PLUS DIMENSION +/- OF THE END BOXES FITTINGS WITH A TOLERANCE OF 7/16 FOR EACH STAGE.

CODE NO.	D.DIA.	L	M	X DIA.	MAX PIN LOAD (SEE NOTE 6 & 9)
PH-1	1.015	.50	1.25	2	30,000 lbs
PH-2	1.265	.75	1.38	3	50,000 lbs
PH-3	1.515	1.25	1.50	4	71,000 lbs
PH-4	2.015	2.00	1.75	5	110,000 lbs
PH-5	2.515	2.75	2.00	6	161,000 lbs
PH-6	3.031	3.00	2.50	7.5	225,000 lbs

CODE NO.	D.DIA.	L	T	R	MAX PIN LOAD (SEE NOTE 6 & 9)
TG-1	1.015	1.75	1.00	1.00	30,000 lbs
TG-2	1.265	2.00	1.50	1.25	50,000 lbs
TG-3	1.515	2.25	1.75	1.50	71,000 lbs
TG-4	2.015	2.75	2.00	2.00	110,000 lbs
TG-5	2.515	3.00	2.50	2.25	161,000 lbs
TG-6	3.031	3.25	3.00	2.50	225,000 lbs

CODE NO.	D DIA.	L	T	F	R	BRG. DIA.	MAX PIN LOAD (SEE NOTE 6 & 9)
BJ-1	1.00	2.00	.75	.88	1.38	1.625	30,000 lbs
BJ-2	1.25	2.50	1.00	1.09	1.88	2.000	50,000 lbs
BJ-3	1.50	3.00	1.13	1.31	2.38	2.437	71,000 lbs
BJ-4	2.00	3.50	1.50	1.75	2.88	3.187	110,000 lbs
BJ-5	2.50	4.25	1.88	2.19	3.31	3.937	161,000 lbs
BJ-6	3.00	4.50	2.25	2.63	3.75	4.751	225,000 lbs

CODE NO.	D.DIA.	L	T	W	R	H	VERSION	MAX PIN LOAD (SEE NOTE 6 & 9)
CL-1	1.015	2.38	1.13	.50	1.25	2.00	VER. 1	130,000 lbs
CL-2	1.265	2.50	1.38	.63	1.25	2.50	VER. 1	50,000 lbs
CL-3	1.515	2.75	1.63	.75	1.50	3.00	VER. 2	71,000 lbs
CL-4	2.015	3.00	2.13	1.00	2.00	4.00	VER. 2	110,000 lbs
CL-5	2.515	3.25	2.38	1.25	2.25	4.50	VER. 2	161,000 lbs
CL-6	3.031	3.50	2.63	1.50	2.50	5.00	VER. 2	225,000 lbs

MODEL NO.*	SPECIFICATIONS					COLUMN DATA					LARGEST STAGE			PORTING INFORMATION				ROD END FITTING OPTIONS (SEE NOTE 9)					BASE END FITTING OPTIONS (SEE NOTE 9)									
2-STAGE	BORE SIZES	ROD SIZES	MAX EXTEND LOAD (SEE NOTES 6 & 10)	CLOSED LENGTH	A	B	C	K	3000	2500	2000	1500	1000	EXTEND AREA	EFFECTIVE RETRACT AREA FOR ALL STAGES	VOLUME OR AREA RATIO	RETRACT PORT	EXTEND PORT	MANIFOLD I.D.	MAX FLOW RATE (SEE NOTE 5)	BLANK	PH	TG	BJ	CL	BLANK	CT	TG	BJ	CL	FL	TR
PMC/SAE-51	3.5 X 2.5	3 X 2	30,000 lbs.	(STROKE + 2) + 13.38	4	4.5	3.00	6.25	55 in.	61 in.	70 in.	84 in.	106 in.	9.62 SQ.IN.	1.77 SQ. IN.	3.77	3/8 NPTF-3/4 SAE	1/2 NPTF-7/8 SAE	.50	17 G.P.M.	BL	PH-1	TG-1	BJ-1	CL-1	BL	CT-1	TG-1	BJ-1	CL-1	FL-1	TR-1(-)
PMC/SAE-52	4.5 X 3.5	4 X 3	50,000 lbs.	(STROKE + 2) + 14.38	5	5.5	3.75	7.00	74 in.	83 in.	95 in.	113 in.	140 in.	15.90 SQ.IN.	2.55 SQ. IN.	4.77	3/4 NPTF-1 1/16 SAE	1 NPTF-1 5/16 SAE	.75	31 G.P.M.	BL	PH-2	TG-2	BJ-2	CL-2	BL	CT-2	TG-2	BJ-2	CL-2	FL-2	TR-2(-)
PMC/SAE-53	5.5 X 4.5	5 X 4	71,000 lbs.	(STROKE + 2) + 14.88	6	6.75	4.25	7.50	86 in.	98 in.	113 in.	133 in.	167 in.	23.76 SQ.IN.	3.34 SQ. IN.	5.76	1 NPTF-1 5/16 SAE	1 1/4 NPTF-1 5/8 SAE	1.25	38 G.P.M.	BL	PH-3	TG-3	BJ-3	CL-3	BL	CT-3	TG-3	BJ-3	CL-3	FL-3	TR-3(-)
PMC/SAE-54	6.75 X 5.5	6 X 5	110,000 lbs.	(STROKE + 2) + 15.38	7.5	8.25	4.50	7.75	100 in.	114 in.	131 in.	154 in.	192 in.	35.79 SQ.IN.	4.12 SQ. IN.	4.77	1 1/4 NPTF-1 5/8 SAE	1 1/2 NPTF-1 7/8 SAE	1.50	41 G.P.M.	BL	PH-4	TG-4	BJ-4	CL-4	BL	CT-4	TG-4	BJ-4	CL-4	FL-4	TR-4(-)
PMC/SAE-55	8.25 X 6.75	7.5 X 6	161,000 lbs.	(STROKE + 2) + 15.63	9	9.75	4.50	7.75	90 in.	132 in.	155 in.	184 in.	210 in.	53.46 SQ.IN.	7.51 SQ. IN.	5.76	1 1/4 NPTF-1 5/8 SAE	1 1/2 NPTF-1 7/8 SAE	1.50	41 G.P.M.	BL	PH-5	TG-5	BJ-5	CL-5	BL	CT-5	TG-5	BJ-5	CL-5	FL-5	TR-5(-)
PMC/SAE-56	9.75 X 8.25	9 X 7.5	225,000 lbs.	(STROKE + 2) + 15.88	10.75	11.38	4.50	7.75	128 in.	168 in.	190 in.	190 in.	190 in.	74.66 SQ.IN.	9.28 SQ. IN.	6.76	1 1/4 NPTF-1 5/8 SAE	1 1/2 NPTF-1 7/8 SAE	1.50	41 G.P.M.	BL	PH-6	TG-6	BJ-6	CL-6	BL	CT-6	TG-6	BJ-6	CL-6	FL-6	TR-6(-)
3-STAGE	BORE SIZES	ROD SIZES	MAX EXTEND LOAD (SEE NOTES 6 & 10)	CLOSED LENGTH	A	B	C	K	3000	2500	2000	1500	1000	EXTEND AREA	EFFECTIVE RETRACT AREA FOR ALL STAGES	VOLUME OR AREA RATIO	RETRACT PORT	EXTEND PORT	MANIFOLD I.D.	MAX FLOW RATE (SEE NOTE 5)	BLANK	PH	TG	BJ	CL	BLANK	CT	TG	BJ	CL	FL	TR
PMC/SAE-61	4.5 X 3.5 X 2.5	4 X 3 X 2	30,000 lbs.	(STROKE + 3) + 14.50	5	5.5	3.00	8.00	84 in.	93 in.	106 in.	126 in.	157 in.	15.90 SQ.IN.	1.77 SQ. IN.	4.77	3/8 NPTF-3/4 SAE	1/2 NPTF-7/8 SAE	.50	13 G.P.M.	BL	PH-1	TG-1	BJ-1	CL-1	BL	CT-2	TG-2	BJ-2	CL-2	FL-2	TR-2(-)
PMC/SAE-62	5.5 X 4.5 X 3.5	5 X 4 X 3	50,000 lbs.	(STROKE + 3) + 15.25	6	6.75	3.75	8.75	93 in.	105 in.	121 in.	143 in.	179 in.	23.76 SQ.IN.	2.55 SQ. IN.	5.76	3/4 NPTF-1 1/16 SAE	1 NPTF-1 5/16 SAE	.75	26 G.P.M.	BL	PH-2	TG-2	BJ-2	CL-2	BL	CT-3	TG-3	BJ-3	CL-3	FL-3	TR-3(-)
PMC/SAE-63	6.75 X 5.5 X 4.5	6 X 5 X 4	71,000 lbs.	(STROKE + 3) + 16.00	7.5	8.25	4.25	9.25	106 in.	122 in.	142 in.	167 in.	208 in.	35.79 SQ.IN.	3.34 SQ. IN.	4.77	NPTF-1 5/16 SAE	1 1/4 NPTF-1 5/8 SAE	1.25	38 G.P.M.	BL	PH-3	TG-3	BJ-3	CL-3	BL	CT-4	TG-4	BJ-4	CL-4	FL-4	TR-4(-)
PMC/SAE-64	8.25 X 6.75 X 5.5	7.5 X 6 X 5	110,000 lbs.	(STROKE + 3) + 16.50	9	9.75	4.50	9.50	125 in.	144 in.	165 in.	195 in.	225 in.	53.46 SQ.IN.	4.12 SQ. IN.	5.76	1 1/4 NPTF-1 5/8 SAE	1 1/2 NPTF-1 7/8 SAE	1.50	41 G.P.M.	BL	PH-4	TG-4	BJ-4	CL-4	BL	CT-5	TG-5	BJ-5	CL-5	FL-5	TR-5(-)
PMC/SAE-65	9.75 X 8.25 X 6.75	9 X 7.5 X 6	161,000 lbs.	(STROKE + 3) + 16.75	10.75	11.38	4.50	9.50	108 in.	165 in.	196 in.	215 in.	215 in.	74.66 SQ.IN.	7.51 SQ. IN.	6.76	1 1/4 NPTF-1 5/8 SAE	1 1/2 NPTF-1 7/8 SAE	1.50	41 G.P.M.	BL	PH-5	TG-5	BJ-5	CL-5	BL	CT-6	TG-6	BJ-6	CL-6	FL-6	TR-6(-)
4-STAGE	BORE SIZES	ROD SIZES	MAX EXTEND LOAD (SEE NOTES 6 & 10)	CLOSED LENGTH	A	B	C	K	3000	2500	2000	1500	1000	EXTEND AREA	EFFECTIVE RETRACT AREA FOR ALL STAGES	VOLUME OR AREA RATIO	RETRACT PORT	EXTEND PORT	MANIFOLD I.D.	MAX FLOW RATE (SEE NOTE 5)	BLANK	PH	TG	BJ	CL	BLANK	CT	TG	BJ	CL	FL	TR
PMC/SAE-71	5.5 X 4.5 X 3.5 X 2.5	5 X 4 X 3 X 2	30,000 lbs.	(STROKE + 4) + 15.38	6	6.75	3.00	9.75	82 in.	94 in.	108 in.	130 in.	164 in.	23.76 SQ.IN.	1.77 SQ. IN.	5.76	3/8 NPTF-3/4 SAE	1/2 NPTF-7/8 SAE	.50	13 G.P.M.	BL	PH-1										



Additional Data for Standard Prince Double Acting Telescopic Cylinders

Stage Size bore dia /rod dia	Effective extend area of stage (square inches)	Effective retract area of stage (square inches)	Extend volume of stage per foot stroke (gallon / ft)	Retract volume of stage per foot stroke (gallon / ft)	Volume or Area Ratio
2.50 / 2.00	4.91	1.77	.255	.092	2.77
3.50 / 3.00	9.62	2.55	.500	.133	3.77
4.50 / 4.00	15.90	3.34	.826	.173	4.77
5.50 / 5.00	23.76	4.12	1.234	.214	5.76
6.75 / 6.00	35.78	7.51	1.859	.390	4.77
8.25 / 7.50	53.46	9.28	2.777	.482	5.76
9.75 / 9.00	74.66	11.04	3.878	.574	6.76

Basic Hydraulic cylinder formula: Force (pounds) = Pressure (psi) x Area (square inches)

Effective Extend Area: The chart above gives the extend area for each stage size used in the standard Prince Double Acting Telescopic cylinders. These can be used to determine the maximum extend force a cylinder can produce as it extends through each stage. For example we can look at a PMC-71 four stage cylinder in an application that has a maximum system pressure of 1250 psi. The stages are in order 5.50, 4.50, 3.50, and 2.5 inches in diameter. The maximum extend forces will be 29,700 lbs, 19,875 lbs, 12,025 lbs, and 6,137 lbs respectively. As you can see, the maximum extend force is reduced as each stage becomes active.

Effective Retract Area: The chart above gives the retract area for each stage size used in the standard Prince Double acting Telescopic cylinders. These can be used to determine the maximum retract force a cylinder can produce as it retracts through each stage. However, it is the area of the smallest stage that is used to determine the maximum retract force. For example we can look at a PMC-71 four stage cylinder in an application that has a maximum system pressure of 1250 psi. The stages are in order 5.50, 4.50, 3.50, and 2.50 inches in diameter. The smallest stage is 2.50 inches and has a corresponding retract area of 1.77 square inches. The maximum retract force throughout the entire retract stroke of the 4 stage telescopic cylinder in this example will be 2,212 lbs.

Extend and Retract Volume: This information can be used to determine two things, first, how much oil it will take to extend and retract each stage of the cylinder, and second, how much time it will take to extend and retract the cylinder. For example we can look at a PMC-61 three stage cylinder with 72 inches (or 6 feet) of stroke in an application that has 10 gpm of flow available. The stages are in order 4.50, 3.50, and 2.50 inches and, in this example, each will have 24 inches of stroke. It will take 1.652 gallons to extend the first stage 24 inches, 1.00 gallon to extend the second stage 24 inches, and .51 gallon to extend the third stage 24 inches. The total needed to extend the cylinder 72 inches is 3.16 gallons. To calculate the extend time of the cylinder divide this total by the system gpm to get 0.316 minutes (or 18.97 sec) to fully extend this cylinder 72 inches at 10 gpm. For retract it will take .184 gallon to retract the third stage 24 inches, .266 gallon to retract the second stage 24 inches, and .346 gallon to retract the first stage 24 inches. The total needed to retract the cylinder 72 inches is .80 gallon. To calculate the retract time of the cylinder, divide this total by the system gpm to get .08 minutes (or 4.8 sec) to fully retract this cylinder 72 inches at 10 gpm.

Volume ratio: Because of the unique design of a telescopic cylinder, the total extend volume of each stage is considerably larger than the total retract volume. This creates an oil flow amplification out of the extend port during the retract stroke. The volume ratio in the chart above can be used to determine this. Using the previous example of a PMC-61 three stage cylinder the flow out of the extend port will be 27.7 gpm as the 2.50 / 2.00 dia stage retracts, 37.7 gpm as the 3.50 / 3.00 stage retracts, and 47.7 gpm as the 4.50 / 4.00 stage retracts when 10 gpm is pumped into the retract port. This needs to be taken into account when designing a system using a double acting telescopic cylinder.



Standard Prince PMC/SAE-50, -60, -70 & 80 Series Double Acting Telescopic Design Considerations

The successful application of a standard Prince double acting telescopic cylinder requires an understanding of the distinctive way in which this type of cylinder functions. The information contained herein is not intended to cover all aspects of designing a hydraulic powered machine using telescopic cylinders. It is just intended to outline some basic design considerations that make these cylinders unique. Failure to take these considerations into account will affect the safe and effective use of the product. Consult your sales representative if you have questions about your application.

A double acting telescopic cylinder can be hydraulically powered in both extend and retract. It is used in applications where a single acting telescopic cylinder will not work because either an external load is not present or it is not large enough to retract the cylinder. The standard Prince double acting telescopic cylinder is best suited for non-critical applications that require a high force on the extend or push out cycle and a low force on the retract or pull back cycle. Examples would be truck hoists and packer ejectors.

A telescopic cylinder should not be considered to be the structural member in the design of a machine. It is not rigid enough to provide stable structural support and should only be considered as the device that generates force. As with all types of hydraulic cylinders, high side load conditions should be avoided whenever possible. There must be enough swing clearance at the end fitting to prevent binding. Also, the cylinder must not come in contact with anything as it moves through its range of stroke. In addition two telescopic cylinders cannot normally be synchronized using a hydraulic flow divider. The standard Prince telescopic cylinder should not be expected to hold a load in place for an extended period of time during the extend stroke. Further, it should never be used where it is necessary to hold a load during the retract stroke. The standard Prince telescopic cylinder design uses cast iron rings to seal the piston. There will be some leakage flow across these cast iron piston rings that will allow the load to drift. The best application for a standard telescopic is one where the normal cycle of operation is to extend the cylinder as needed to perform the required function then retract the cylinder. Generally speaking, the standard Prince double acting telescopic cylinder should be fully retracted at the end of each hydraulic cycle. The standard Prince double acting telescopic cylinder should never be used in a personnel lift application. It is not advisable to use the cylinder when an over-center load reversal takes place part way through the extend cycle. Further, impact forces created by external loads should be avoided at the full extend position.

A telescopic cylinder is made up of a group of nested telescoping tubes called stages. During the extend cycle the largest stage should completely extend first then each progressively smaller stage should in turn completely extend. For a constant input flow the cylinder extend speed will get progressively faster as each smaller stage becomes active. It is normally best to have a minimum system flow of 8 to 12 gpm for proper operation. For a constant load condition the extend pressure will increase as each smaller stage becomes active. However, it should be noted that it is common for the load to decrease as the cylinder extends due to changes in mechanical advantage or a reduction in the load. This will affect the extend pressure needed. Because of their design, double acting telescopic cylinders act as pressure intensifiers while extending and flow intensifiers while retracting. This is caused by the relatively large difference between the extend and retract area/volume. If, during the extend cycle of the cylinder, the retract port is restricted or blocked the potential exists for the pressure to be intensified by the extend to retract area ratio. This area ratio can be as much as 7 to 1. If the system pressure is 2,000 psi this could potentially result in a pressure intensification up to 14,000 psi. Permanent and potentially hazardous damage will occur to the cylinder well before a pressure of this magnitude is reached. The system must be designed to prevent this from occurring. During the retract cycle of a double acting telescopic cylinder, oil is pumped into the retract port and the oil contained on the extend side of the cylinder is forced out the extend port. Again, because of the area or volume ratio of the cylinder, the flow out of the extend port will be amplified. If the system flow is 15 gpm this could potentially result in a flow amplification up to 105 gpm. This needs to be considered when sizing the other components in the system. If these components are sized too small they could potentially fail to operate properly and restrict the flow exiting the extend port.

In summary, telescopic cylinders have their own unique performance characteristics and it is the responsibility of the user to take them into account when selecting one for their specific application.