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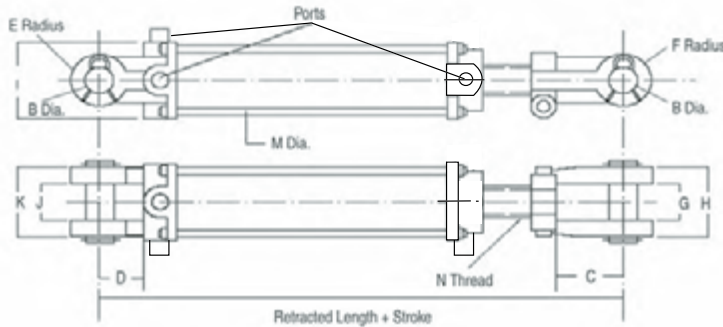


Tie-Rod Cylinders



THE HTR LINE

2500 PSI DOUBLE ACTING CYLINDERS



FEATURES:

- Ductile iron piston.
- Ductile iron gland, drilled oil passages.
- Honed steel tube, precision finished for extended seal life.
- High tensile, hard chrome plated rod.
- Ductile iron end mounts, female clevises with pins and clips included.
- Tube Seal: O-ring
- Rod Seal: Deep polypak with B lip design; metal canned wiper.
- Crown Seal.
- All Seals: Manufactured to US specifications.

BORE (INCH)	B	C	D	E	F	G = J
2.0	1.015	2.125	1.625	1.000	1.000	1.142
2.5	1.015	2.125	1.625	1.000	1.000	1.142
3.0	1.015	2.125	1.625	1.125	1.000	1.142
3.5	1.015	2.125	1.625	1.125	1.125	1.142
4.0	1.015	2.125	1.625	1.125	1.125	1.142
5.0	1.015	2.125	2.250	1.250	1.500	1.260

PART NUMBER	WT LBS.	BORE (INCH)	ROD DIA (INCH)	H	I	K	M	N	TUBE OD	PORTS (NPTF)	PIN CTR RE-TRACTED	STROKE
HTR-2004	14.30	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	14.25	4
HTR-2006	15.84	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	16.25	6
HTR-2008	17.60	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	18.25	8
HTR-2008A	17.60	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	20.25	8
HTR-2010	18.70	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	20.25	10
HTR-2012	20.24	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	22.25	12
HTR-2014	22.00	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	24.25	14
HTR-2016	23.54	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	26.25	16
HTR-2018	25.08	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	28.25	18
HTR-2020	26.62	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	30.25	20
HTR-2024	29.70	2.0	1-1/8	2.520	2.835	2.520	M10	1-1/8-12UNF	2.375	3/8 NPT	34.25	24
HTR-2504	16.28	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	14.25	4
HTR-2506	18.04	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	16.25	6
HTR-2508	20.24	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	18.25	8
HTR-2508A	22.00	2.5	1-1/4	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	20.25	8
HTR-2510	21.34	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	20.25	10
HTR-2512	23.10	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	22.25	12
HTR-2514	24.86	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	24.25	14
HTR-2516	26.62	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	26.25	16
HTR-2518	28.38	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	28.25	18
HTR-2520	30.14	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	30.25	20
HTR-2524	33.66	2.5	1-1/8	2.520	3.150	2.520	M10	1-1/8-12UNF	2.875	3/8 NPT	34.25	24
HTR-3004	21.56	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	14.25	4
HTR-3006	23.76	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	16.25	6
HTR-3008	26.62	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	18.25	8
HTR-3008A	27.50	3.0	1-3/8	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	20.25	8
HTR-3010	28.16	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	20.25	10
HTR-3012	30.36	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	22.25	12
HTR-3014	32.56	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	24.25	14
HTR-3016	34.76	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	28.25	16

Tie-Rod Cylinders

THE HTR LINE

2500 PSI DOUBLE ACTING CYLINDERS

PART NUMBER	WT LBS.	BORE (INCH)	ROD DIA (INCH)	H	I	K	M	N	TUBE OD	PORTS (NPTF)	PIN CTR RE-TRACTED	STROKE
HTR-3016A	42.90	3.0	1-3/8	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	31.50	16
HTR-3018	36.96	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	28.25	18
HTR-3020	39.16	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	30.25	20
HTR-3024	43.34	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	34.25	24
HTR-3030	48.00	3.0	1-1/4	2.600	3.740	2.520	M12	1-1/4-12UNF	3.375	1/2 NPT	40.25	30
HTR-3504	23.32	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	14.25	4
HTR-3506	25.52	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	16.25	6
HTR-3508	28.82	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	18.25	8
HTR-3508A	29.70	3.5	1-3/8	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	20.25	8
HTR-3510	29.92	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	20.25	10
HTR-3512	32.34	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	22.25	12
HTR-3514	34.76	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	24.25	14
HTR-3516	37.18	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	28.25	16
HTR-3516A	50.60	3.5	1-3/8	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	31.50	16
HTR-3518	39.60	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	28.25	18
HTR-3520	42.02	3.5	1-1/4	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	30.25	20
HTR-3524	51.70	3.5	1-1/2	2.600	4.134	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	34.25	24
HTR-3530	55.00	3.5	1-1/2	2.600	4.130	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	40.25	30
HTR-3532	58.00	3.5	1-1/2	2.600	4.130	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	42.25	32
HTR-3536	62.00	3.5	1-1/2	2.600	4.130	2.520	M12	1-1/4-12UNF	3.875	1/2 NPT	46.25	36
HTR-4004	29.48	4.0	1-1/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	14.25	4
HTR-4006	32.34	4.0	1-1/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	16.25	6
HTR-4008	35.86	4.0	1-1/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	18.25	8
HTR-4008A	37.40	4.0	1-3/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2NPT	20.25	8
HTR-4010	37.84	4.0	1-1/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	20.25	10
HTR-4012	40.70	4.0	1-1/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	22.25	12
HTR-4014	43.56	4.0	1-1/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	24.25	14
HTR-4016	46.42	4.0	1-1/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	26.25	16
HTR-4016-175	57.20	4.0	1-3/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	31.50	16
HTR-4016A	57.20	4.0	1-3/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2NPT	31.50	16
HTR-4018	50.60	4.0	1-1/2	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	28.25	18
HTR-4020	53.46	4.0	1-1/2	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	30.25	20
HTR-4024	59.18	4.0	1-1/2	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	32.25	24
HTR-4024-1.5	59.20	4.0	1-1/2	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	34.25	24
HTR-4024-2	68.00	4.0	2	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	34.25	24
HTR-4024A	64.02	4.0	1-3/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	34.25	24
HTR-4030	75.00	4.0	1-3/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	40.25	30
HTR-4030-2	78.00	4.0	2	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	40.25	30
HTR-4036	82.00	4.0	1-3/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	46.25	36
HTR-4048-175	98.00	4.0	1-3/4	2.600	4.724	2.600	M12	1-1/4-12UNF	4.375	1/2 NPT	48.25	48
HTR-5004	53.46	5.0	1-1/2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	16.25	4
HTR-5006	56.76	5.0	1-1/2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	18.25	6
HTR-5008	61.16	5.0	1-1/2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	20.25	8
HTR-5010	63.36	5.0	1-1/2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	22.25	10
HTR-5012	73.04	5.0	2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	24.25	12
HTR-5014	77.00	5.0	2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	26.25	14
HTR-5016	81.18	5.0	2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	28.25	16
HTR-5018	85.14	5.0	2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	30.25	18
HTR-5020	89.10	5.0	2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	32.25	20
HTR-5024	97.24	5.0	2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	36.25	24
HTR-5030	109.56	5.0	2	2.677	6.000	3.500	M16	1-1/4-12UNF	5.453	1/2 NPT	42.25	30

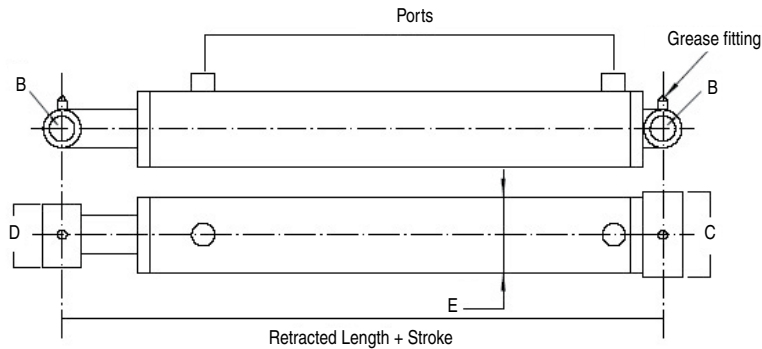


Mechanical Welded Cylinders



THE HMW LINE

3000 PSI DOUBLE ACTING CYLINDERS



FEATURES:

- Honed tubing
- Heavy duty welded construction
- Chromed, ground & polished piston rod
- Cast iron piston & gland
- Pin eye mounting on both ends
- Loaded u-seal & urethane wiper in gland
- O-ring/backup washers & u-seals for piston seals
- Threaded gland retainer
- Standard color is black

Bore	B	C	D	E	Ports(NPT)
1.50	0.77	2.25	2.00	2.0	1/4 NPT
2.00	1.02	2.75	2.25	2.5	3/8 NPT
2.50	1.02	3.25	2.25	3.0	1/2 NPT
3.00	1.02	3.75	2.25	3.5	1/2 NPT
3.50	1.27	4.25	2.25	4.0	1/2 NPT
4.00	1.52	4.75	2.50	4.5	1/2 NPT
5.00	1.77	5.75	3.25	5.5	1/2 NPT

PART NUMBER	WEIGHT LBS	BORE	ROD DIA (INCH)	PIN CENTERS RETRACTED (INCH)	PIN CENTERS EXTENDED (INCH)	STROKE (INCH)
HMW-1504	9.04	1.50	1"	12.00	16.00	4
HMW-1506	10.14	1.50	1"	14.00	20.00	6
HMW-1508	11.47	1.50	1"	16.00	24.00	8
HMW-1510	12.79	1.50	1"	18.00	28.00	10
HMW-2008	13.45	2.00	1-1/4"	16.00	24.00	8
HMW-2010	15.21	2.00	1-1/4"	18.00	28.00	10
HMW-2012	16.98	2.00	1-1/4"	20.00	32.00	12
HMW-2014	18.74	2.00	1-1/4"	22.00	36.00	14
HMW-2016	20.51	2.00	1-1/4"	24.00	40.00	16
HMW-2018	22.27	2.00	1-1/4"	26.00	44.00	18
HMW-2020	24.03	2.00	1-1/4"	28.00	48.00	20
HMW-2024	27.56	2.00	1-1/4"	32.00	56.00	24
HMW-2028	31.09	2.00	1-1/4"	36.00	64.00	28
HMW-2030	32.85	2.00	1-1/4"	38.00	68.00	30
HMW-2032	34.84	2.00	1-1/4"	40.00	72.00	32
HMW-2036	38.37	2.00	1-1/4"	44.00	80.00	36
HMW-2040	41.90	2.00	1-1/4"	48.00	88.00	40
HMW-2048	48.95	2.00	1-1/4"	56.00	104.00	48
HMW-2508	19.85	2.50	1-1/2"	16.00	24.00	8
HMW-2510	21.83	2.50	1-1/2"	18.00	28.00	10

Mechanical Welded Cylinders

THE HMW LINE

2500 and 3000 PSI DOUBLE ACTING CYLINDERS (4" Bore = 3000 PSI, 5" Bore = 2500 PSI)

PART NUMBER	WEIGHT LBS	BORE	ROD DIA (INCH)	PIN CENTERS RETRACTED (INCH)	PIN CENTERS EXTENDED (INCH)	STROKE (INCH)
HMW-2512	24.03	2.50	1-1/2"	20.00	32.00	12
HMW-2514	26.24	2.50	1-1/2"	22.00	36.00	14
HMW-2516	28.44	2.50	1-1/2"	24.00	40.00	16
HMW-2518	30.65	2.50	1-1/2"	26.00	44.00	18
HMW-2520	32.85	2.50	1-1/2"	28.00	48.00	20
HMW-2524	37.26	2.50	1-1/2"	32.00	56.00	24
HMW-2528	41.45	2.50	1-1/2"	36.00	64.00	28
HMW-2530	43.66	2.50	1-1/2"	38.00	68.00	30
HMW-2532	45.86	2.50	1-1/2"	40.00	72.00	32
HMW-2536	50.27	2.50	1-1/2"	44.00	80.00	36
HMW-2540	54.68	2.50	1-1/2"	48.00	88.00	40
HMW-2548	63.28	2.50	1-1/2"	56.00	104.00	48
HMW-3008	24.70	3.00	1-1/2"	16.00	24.00	8
HMW-3010	27.12	3.00	1-1/2"	18.00	28.00	10
HMW-3012	29.55	3.00	1-1/2"	20.00	32.00	12
HMW-3014	31.97	3.00	1-1/2"	22.00	36.00	14
HMW-3016	34.40	3.00	1-1/2"	24.00	40.00	16
HMW-3018	36.82	3.00	1-1/2"	26.00	44.00	18
HMW-3020	39.25	3.00	1-1/2"	28.00	48.00	20
HMW-3024	44.10	3.00	1-1/2"	32.00	56.00	24
HMW-3028	48.95	3.00	1-1/2"	36.00	64.00	28
HMW-3030	51.38	3.00	1-1/2"	38.00	68.00	30
HMW-3032	53.58	3.00	1-1/2"	40.00	72.00	32
HMW-3036	58.43	3.00	1-1/2"	44.00	80.00	36
HMW-3040	63.28	3.00	1-1/2"	48.00	88.00	40
HMW-3048	72.99	3.00	1-1/2"	56.00	104.00	48
HMW-3508	32.63	3.50	1-3/4"	18.00	26.00	8
HMW-3510	35.72	3.50	1-3/4"	20.00	30.00	10
HMW-3512	38.81	3.50	1-3/4"	22.00	34.00	12
HMW-3514	41.67	3.50	1-3/4"	24.00	38.00	14
HMW-3516	44.76	3.50	1-3/4"	26.00	42.00	16
HMW-3518	47.63	3.50	1-3/4"	28.00	46.00	18
HMW-3520	50.72	3.50	1-3/4"	30.00	50.00	20
HMW-3524	56.67	3.50	1-3/4"	34.00	58.00	24
HMW-3528	62.62	3.50	1-3/4"	38.00	66.00	28
HMW-3530	65.71	3.50	1-3/4"	40.00	70.00	30
HMW-3532	68.80	3.50	1-3/4"	42.00	74.00	32
HMW-3536	74.75	3.50	1-3/4"	46.00	82.00	36
HMW-3540	80.70	3.50	1-3/4"	50.00	90.00	40
HMW-3548	92.61	3.50	1-3/4"	58.00	106.00	48
HMW-4008	40.79	4.00	2"	18.00	26.00	8
HMW-4010	44.54	4.00	2"	20.00	30.00	10
HMW-4012	48.29	4.00	2"	22.00	34.00	12
HMW-4014	51.82	4.00	2"	24.00	38.00	14
HMW-4016	55.57	4.00	2"	26.00	42.00	16
HMW-4018	59.09	4.00	2"	28.00	46.00	18
HMW-4020	62.84	4.00	2"	30.00	50.00	20
HMW-4024	70.12	4.00	2"	34.00	58.00	24
HMW-4028	77.40	4.00	2"	38.00	66.00	28
HMW-4030	81.14	4.00	2"	40.00	70.00	30



Mechanical Welded Cylinders



THE HMW LINE

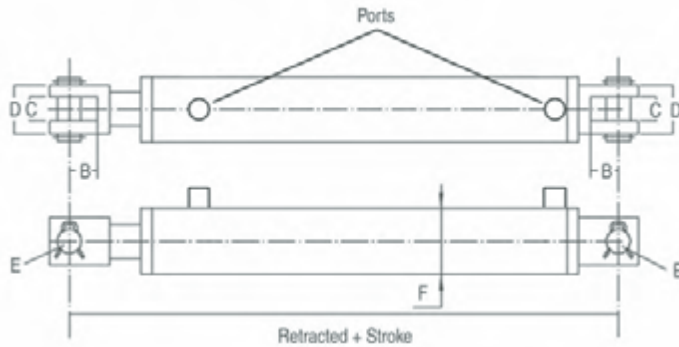
2500 and 3000 PSI DOUBLE ACTING CYLINDERS (4" Bore = 3000 PSI, 5" Bore = 2500 PSI)

PART NUMBER	WEIGHT LBS	BORE	ROD DIA (INCH)	PIN CENTERS RETRACTED (INCH)	PIN CENTERS EXTENDED (INCH)	STROKE (INCH)
HMW-4032	84.67	4.00	2"	42.00	74.00	32
HMW-4036	91.95	4.00	2"	46.00	82.00	36
HMW-4040	99.23	4.00	2"	50.00	90.00	40
HMW-4048	114.00	4.00	2"	58.00	106.00	48
HMW-5008	71.88	5.00	2-1/2"	20.00	28.00	8
HMW-5010	76.07	5.00	2-1/2"	22.00	32.00	10
HMW-5012	80.48	5.00	2-1/2"	24.00	36.00	12
HMW-5014	84.67	5.00	2-1/2"	26.00	40.00	14
HMW-5016	89.08	5.00	2-1/2"	28.00	44.00	16
HMW-5018	93.49	5.00	2-1/2"	30.00	48.00	18
HMW-5020	97.68	5.00	2-1/2"	32.00	52.00	20
HMW-5024	106.28	5.00	2-1/2"	36.00	60.00	24
HMW-5028	115.10	5.00	2-1/2"	40.00	68.00	28
HMW-5030	119.29	5.00	2-1/2"	42.00	72.00	30
HMW-5032	123.70	5.00	2-1/2"	44.00	76.00	32
HMW-5036	132.30	5.00	2-1/2"	48.00	84.00	36
HMW-5040	140.90	5.00	2-1/2"	52.00	92.00	40
HMW-5048	158.10	5.00	2-1/2"	60.00	108.00	48

Clevis Welded Cylinders

THE HCW LINE

3000 PSI DOUBLE ACTING CYLINDERS



FEATURES:

- Skived, honed tubing
- Heavy duty welded construction
- Chromed, ground & polished piston rod will operate at full pressure through 16" stroke
- Cast iron piston, cast steel butt, gland & clevis
- Loaded u-seal & urethane wiper in gland, u-seal on piston
- Threaded gland
- Pins & clips included
- Standard color is black
- Stroke control may be installed on 8" strokes



Bore	B	C	D	E	F	Ports(NPT)
2.00	2.125	1.125	2.07	1.00	2.5	3/8 NPT
2.50	2.125	1.125	2.07	1.00	3.0	1/2 NPT
3.00	2.125	1.125	2.07	1.00	3.5	1/2 NPT
3.50	2.125	1.125	2.07	1.00	4.0	1/2 NPT
4.00	2.000	1.125	2.07	1.00	4.5	1/2 NPT
5.00	2.000	1.500	2.44	1.00	5.5	1/2 NPT

PART NUMBER	WEIGHT LBS	BORE	ROD DIA (INCH)	PIN CENTERS RETRACTED (INCH)	PIN CENTERS EXTENDED (INCH)	STROKE (INCH)
HCW-2004	12.79	2.00	1-1/4"	14.25	18.25	4
HCW-2006	14.55	2.00	1-1/4"	16.25	22.25	6
HCW-2008	16.32	2.00	1-1/4"	20.25	28.25	8
HCW-2010	17.86	2.00	1-1/4"	20.25	30.25	10
HCW-2012	19.40	2.00	1-1/4"	22.25	34.25	12
HCW-2014	21.17	2.00	1-1/4"	24.25	38.25	14
HCW-2016	22.93	2.00	1-1/4"	26.25	42.25	16
HCW-2018	24.48	2.00	1-1/4"	28.25	46.25	18
HCW-2020	26.24	2.00	1-1/4"	30.25	50.25	20
HCW-2024	29.55	2.00	1-1/4"	34.25	58.25	24
HCW-2028	32.85	2.00	1-1/4"	38.25	66.25	28
HCW-2030	34.62	2.00	1-1/4"	40.25	70.25	30
HCW-2032	36.16	2.00	1-1/4"	42.25	74.25	32
HCW-2034	37.93	2.00	1-1/4"	44.25	78.25	34
HCW-2036	39.69	2.00	1-1/4"	46.25	82.25	36
HCW-2504	16.98	2.50	1-1/2"	14.25	18.25	4
HCW-2506	19.18	2.50	1-1/2"	16.25	22.25	6
HCW-2508	21.39	2.50	1-1/2"	20.25	28.25	8
HCW-2510	23.37	2.50	1-1/2"	20.25	30.25	10
HCW-2512	25.58	2.50	1-1/2"	22.25	34.25	12
HCW-2514	27.78	2.50	1-1/2"	24.25	38.25	14
HCW-2516	29.77	2.50	1-1/2"	26.25	42.25	16
HCW-2518	31.97	2.50	1-1/2"	28.25	46.25	18
HCW-2520	34.18	2.50	1-1/2"	30.25	50.25	20
HCW-2524	38.37	2.50	1-1/2"	34.25	58.25	24
HCW-2528	42.56	2.50	1-1/2"	38.25	66.25	28
HCW-2530	44.76	2.50	1-1/2"	40.25	70.25	30
HCW-2532	46.97	2.50	1-1/2"	42.25	74.25	32
HCW-2534	48.95	2.50	1-1/2"	44.25	78.25	34
HCW-2536	51.16	2.50	1-1/2"	46.25	82.25	36

Clevis Welded Cylinders



THE HCW LINE

3000 PSI DOUBLE ACTING CYLINDERS

PART NUMBER	WEIGHT LBS	BORE	ROD DIA (INCH)	PIN CENTERS RETRACTED (INCH)	PIN CENTERS EXTENDED (INCH)	STROKE (INCH)
HCW-3004	21.83	3.00	1-1/2"	14.25	18.25	4
HCW-3006	24.26	3.00	1-1/2"	16.25	22.25	6
HCW-3008	26.90	3.00	1-1/2"	20.25	28.25	8
HCW-3010	29.11	3.00	1-1/2"	20.25	30.25	10
HCW-3012	31.53	3.00	1-1/2"	22.25	34.25	12
HCW-3014	33.96	3.00	1-1/2"	24.25	38.25	14
HCW-3016	36.60	3.00	1-1/2"	26.25	42.25	16
HCW-3018	39.03	3.00	1-1/2"	28.25	46.25	18
HCW-3020	41.45	3.00	1-1/2"	30.25	50.25	20
HCW-3024	46.31	3.00	1-1/2"	34.25	58.25	24
HCW-3028	51.16	3.00	1-1/2"	38.25	66.25	28
HCW-3030	53.58	3.00	1-1/2"	40.25	70.25	30
HCW-3032	56.23	3.00	1-1/2"	42.25	74.25	32
HCW-3034	58.65	3.00	1-1/2"	44.25	78.25	34
HCW-3036	61.08	3.00	1-1/2"	46.25	82.25	36
HCW-3504	26.24	3.50	1-3/4"	14.25	18.25	4
HCW-3506	29.33	3.50	1-3/4"	16.25	22.25	6
HCW-3508	32.41	3.50	1-3/4"	20.25	28.25	8
HCW-3510	35.50	3.50	1-3/4"	20.25	30.25	10
HCW-3512	38.59	3.50	1-3/4"	22.25	34.25	12
HCW-3514	41.67	3.50	1-3/4"	24.25	38.25	14
HCW-3516	44.76	3.50	1-3/4"	26.25	42.25	16
HCW-3518	48.07	3.50	1-3/4"	28.25	46.25	18
HCW-3520	51.16	3.50	1-3/4"	30.25	50.25	20
HCW-3524	57.33	3.50	1-3/4"	34.25	58.25	24
HCW-3528	63.50	3.50	1-3/4"	38.25	66.25	28
HCW-3530	66.59	3.50	1-3/4"	40.25	70.25	30
HCW-3532	69.90	3.50	1-3/4"	42.25	74.25	32
HCW-3534	72.99	3.50	1-3/4"	44.25	78.25	34
HCW-3536	76.07	3.50	1-3/4"	46.25	82.25	36
HCW-4004	30.65	4.00	2"	14.25	18.25	4
HCW-4006	34.40	4.00	2"	16.25	22.25	6
HCW-4008	39.25	4.00	2"	20.25	28.25	8
HCW-4010	42.12	4.00	2"	20.25	30.25	10
HCW-4012	46.08	4.00	2"	22.25	34.25	12
HCW-4014	50.05	4.00	2"	24.25	38.25	14
HCW-4016	53.80	4.00	2"	26.25	42.25	16
HCW-4018	57.77	4.00	2"	28.25	46.25	18
HCW-4020	61.52	4.00	2"	30.25	50.25	20
HCW-4024	69.46	4.00	2"	34.25	58.25	24
HCW-4028	77.18	4.00	2"	38.25	66.25	28
HCW-4030	81.14	4.00	2"	40.25	70.25	30
HCW-4032	84.89	4.00	2"	42.25	74.25	32
HCW-4034	88.86	4.00	2"	44.25	78.25	34
HCW-4036	92.61	4.00	2"	46.25	82.25	36
HCW-5004	63.95	5.00	2-1/2"	16.25	20.25	4
HCW-5006	68.36	5.00	2-1/2"	18.25	24.25	6
HCW-5008	72.77	5.00	2-1/2"	20.25	28.25	8
HCW-5010	77.18	5.00	2-1/2"	22.25	32.25	10
HCW-5012	81.59	5.00	2-1/2"	24.25	36.25	12

Clevis Welded Cylinders

THE HCW LINE

3000 PSI DOUBLE ACTING CYLINDERS

PART NUMBER	WEIGHT LBS	BORE	ROD DIA (INCH)	PIN CENTERS RETRACTED (INCH)	PIN CENTERS EXTENDED (INCH)	STROKE (INCH)
HCW-5014	86.00	5.00	2-1/2"	26.25	40.25	14
HCW-5016	90.41	5.00	2-1/2"	28.25	44.25	16
HCW-5018	94.82	5.00	2-1/2"	30.25	48.25	18
HCW-5020	99.23	5.00	2-1/2"	32.25	52.25	20
HCW-5024	108.05	5.00	2-1/2"	36.25	60.25	24
HCW-5028	116.87	5.00	2-1/2"	40.25	68.25	28
HCW-5030	121.28	5.00	2-1/2"	42.25	72.25	30
HCW-5032	125.69	5.00	2-1/2"	44.25	76.25	32
HCW-5034	130.10	5.00	2-1/2"	46.25	80.25	34
HCW-5036	134.51	5.00	2-1/2"	48.25	84.25	36



THE HTC LINE

3000 PSI SINGLE ACTING CYLINDERS

PART NUMBER	CAPACITY	STROKE	CLOSED	PORT	WEIGHT LBS.	LIST PRICE
HTC-33108	7 TONS	108"	45"	1/2" NPT	120 LBS	\$ 566.54
HTC-3378	7 TONS	78"	35.5"	1/2" NPT	108 LBS	499.11
HTC-3390	7 TONS	90"	39.5"	1/2" NPT	100 LBS	527.47
HTC-43108	12 TONS	108"	44.75"	1/2" NPT	156 LBS	711.76
HTC-43120	12 TONS	120"	48.75"	1/2" NPT	167 LBS	765.36
HTC-4378	12 TONS	78"	34.75"	1/2" NPT	129 LBS	631.20
HTC-4390	12 TONS	90"	38.75"	1/2" NPT	129 LBS	665.09

COMPLETE DIMENSIONS FOR THE HTC LINE IS AVAILABLE UPON REQUEST.

7 ton units will run with the following Power Units:

HPU12VCFVDO2-RC HPU12VCHCHVD02-RC

12 ton units will run with the following Power Units:

HPU12VCHCFWD02-RC HPU12VCFEFD02-RC

See page 27 for a complete list of Power Units and pricing.



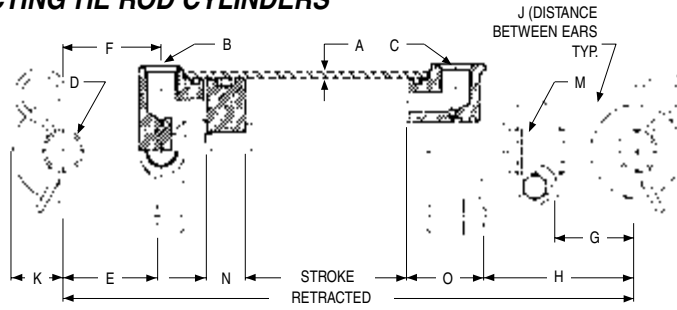
Tie-Rod Cylinders



Ask About Our HB 3000 PSI Equivalent



THE MAJESTIC AND ROYAL PLATE LINE 2500 PSI (MAJESTIC) AND 3000 PSI (ROYAL) DOUBLE ACTING TIE ROD CYLINDERS



FEATURES:

- Honed tubing (SAE-9000 & SAE 9100 series have cylinder finish tubing)
- Heavy duty, high strength tie rods
- Chromed, ground & polished piston rod will operate at full pressure through 16" stroke
- Cast iron piston, ductile iron butt, gland & clevis
- Carboxilated nitrile u-cup & urethane wiper in gland
- Pins & clips included
- Standard color is red
- Stroke control may be installed on 8" strokes
- Side ports available on request at no additional cost

PTR	MFGR NO.	BORE	STROKE	ROD DIA.	RE-TRACT. DIMEN.	SHIP WT.	A	B/C PORT SIZE	D	E	F	G	H	J	K	M	N	O
PTR-2004	8404	2	4	1	14 1/4	18	1/8	3/4-16 SAE	1.015	2 5/16	2 7/16	1 13/16	3 1/4	1.06	15/16	1-14	7/8	2 1/4
PTR-2006	8406	2	6	1	16 1/4	19	1/8	3/4-16 SAE	1.015	2 5/16	2 7/16	1 13/16	3 1/4	1.06	15/16	1-14	7/8	2 1/4
PTR-2008	8408	2	8	1	20 1/4	20	1/8	3/4-16 SAE	1.015	2 5/16	2 7/16	1 13/16	3 1/4	1.06	15/16	1-14	7/8	2 1/4
PTR-2010	8410	2	10	1	20 1/4	21	1/8	3/4-16 SAE	1.015	2 5/16	2 7/16	1 13/16	3 1/4	1.06	15/16	1-14	7/8	2 1/4
PTR-2012	9012	2	12	1 1/8	22 1/4	25	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	7/8	2 3/8
PTR-2014	9014	2	14	1 1/8	24 1/4	26	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	7/8	2 3/8
PTR-2016A	9016	2	16	1 1/8	31 1/2	28	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	8 1/2	1.06	15/16	1 1/8-12	7/8	2 3/8
PTR-2018	9018	2	18	1 1/8	28 1/4	29	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	7/8	2 3/8
PTR-2020	9020	2	20	1 1/8	30 1/4	31	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	7/8	2 3/8
PTR-2024	9024	2	24	1 1/8	34 1/4	35	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	7/8	2 3/8
PTR-2030	9030	2	30	1 1/8	40 1/4	39	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	7/8	2 3/8
PTR-2506	7006	2 1/2	6	1 1/8	16 1/4	22	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2508	9108	2 1/2	8	1 1/4	20 1/4	25	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	5 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2510	9110	2 1/2	10	1 1/4	20 1/4	26	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2512	9112	2 1/2	12	1 1/4	22 1/4	27	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2514	9114	2 1/2	14	1 1/4	24 1/4	29	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2516	9116	2 1/2	16	1 1/4	31 1/2	33	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	8 1/2	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2518	9118	2 1/2	18	1 1/4	28 1/4	34	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2520	9120	2 1/2	20	1 1/4	30 1/4	36	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2524	9124	2 1/2	24	1 1/4	34 1/4	39	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-2530	9130	2 1/2	30	1 1/4	40 1/4	44	1/8	3/4-16 SAE	1.015	2 7/16	2 3/8	1 13/16	3 1/4	1.06	15/16	1 1/8-12	1	2 3/8
PTR-3006	7106	3	6	1 1/8	16 1/4	24	1/8	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3008	9208	3	8	1 3/8	20 1/4	32	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	5 3/4	1.06	15/16	1 1/8-12	1	1 15/16

Tie-Rod Cylinders



THE MAJESTIC AND ROYAL PLATE LINE

2500 PSI (MAJESTIC) AND 3000 PSI (ROYAL) DOUBLE ACTING TIE ROD CYLINDERS

PTR	MFGR NO.	BORE	STROKE	ROD DIA.	RE-TRACT. DIMEN.	SHIP WT.	A	B/C PORT SIZE	D	E	F	G	H	J	K	M	N	O
PTR-3010	9210	3	10	1 3/8	20 1/4	33	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3012	9212	3	12	1 3/8	22 1/4	33	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3014	9214	3	14	1 3/8	24 1/4	35	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3016	10616	3	16	1 3/8	26 1/4	29	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 15/16
PTR-3016A	9216	3	16	1 3/8	31 1/2	39	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	9	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3018	9218	3	18	1 3/8	28 1/4	42	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3020	9220	3	20	1 3/8	30 1/4	45	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3024	9224	3	24	1 3/8	34 1/4	47	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3030	9230	3	30	1 3/8	40 1/4	53	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3036	9236	3	36	1 3/8	46 1/4	61	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3048	9248	3	48	1 3/8	58 1/4	66	3/16	3/4-16 SAE	1.015	2 7/16	2 7/16	1 13/16	3 3/4	1.06	15/16	1 1/8-12	1	1 15/16
PTR-3508A	9308A	3 1/2	8	1 3/8	20 1/4	35	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	5 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3510	9310A	3 1/2	10	1 3/8	20 1/4	36	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3512	9312A	3 1/2	12	1 3/8	22 1/4	38	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3514	9314A	3 1/2	14	1 3/8	24 1/4	41	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3516A	9316A	3 1/2	16	1 3/8	31 1/2	46	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	9	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3518	9318A	3 1/2	18	1 3/8	28 1/4	47	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3520	9320A	3 1/2	20	1 3/8	30 1/4	49	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3524	9324A	3 1/2	24	1 3/8	34 1/4	54	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3530	9330A	3 1/2	30	1 3/8	40 1/4	64	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3536	9336A	3 1/2	36	1 3/8	46 1/4	66	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-3548	9348A	3 1/2	48	1 3/8	58 1/4	73	3/16	3/4-16 SAE	1.015	2 3/8	2 7/16	1 13/16	3 3/4	1.06	1 1/4	1 1/8-12	1	1 13/16
PTR-4008	9408	4	8	1 3/4	20 1/4	45	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	5 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4008-1.5R	8608	4	8	1 1/2	20 1/4	42	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	5 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4010	9410	4	10	1 3/4	20 1/4	48	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4012	9412	4	12	1 3/4	22 1/4	49	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4014	9414	4	14	1 3/4	24 1/4	51	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4016	108816	4	16	1 3/4	26 1/4	48	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4016A	9416	4	16	1 3/4	31 1/2	61	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	8 1/2	1.06	1 1/4	1 1/2-12	1	1 13/16



Tie-Rod Cylinders



THE MAJESTIC AND ROYAL PLATE LINE

2500 PSI (MAJESTIC) AND 3000 PSI (ROYAL) DOUBLE ACTING TIE ROD CYLINDERS

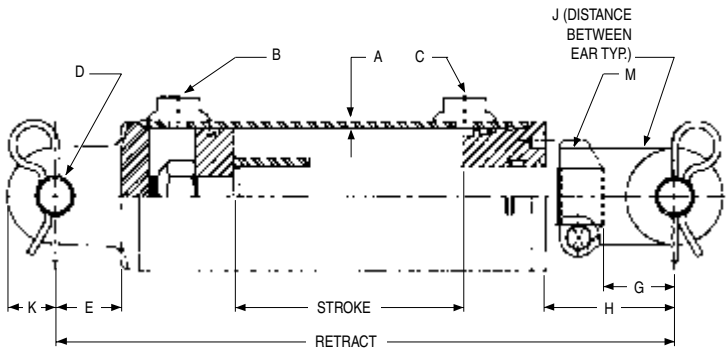
PTR	MFGR NO.	BORE	STROKE	ROD DIA.	RE-TRACT. DIMEN.	SHIP WT.	A	B/C PORT SIZE	D	E	F	G	H	J	K	M	N	O
PTR-4018	9418	4	18	1 3/4	28 1/4	62	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4020	9420	4	20	1 3/4	30 1/4	72	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4024	9424	4	24	1 3/4	34 1/4	74	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4030	9430	4	30	1 3/4	40 1/4	77	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4036	9436	4	36	1 3/4	46 1/4	83	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-4048	9448	4	48	1 3/4	58 1/4	109	3/16	3/4-16 SAE	1.015	2 5/16	2 7/16	1 7/8	3 1/4	1.06	1 1/4	1 1/2-12	1	1 13/16
PTR-5008	9508	5	8	2	20 1/4	67	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5012	9512	5	12	2	24 1/4	75	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5014	9514	5	14	2	26 1/4	80	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5016A	9516	5	16	2	31 1/2	84	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	7 1/4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5018	9518	5	18	2	28 1/4	90	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5020	9520	5	20	2	32 1/4	95	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5024	9524	5	24	2	36 1/4	100	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5030	9530	5	30	2	42 1/4	108	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5036	9536	5	36	2	48 1/4	118	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2
PTR-5048	9548	5	48	2	60 1/4	161	1/4	7/8-16 SAE	1.265	2 3/4	2 5/8	2	4	1.06	1 1/4	1 1/2-12	1	2 1/2

Welded Cylinders



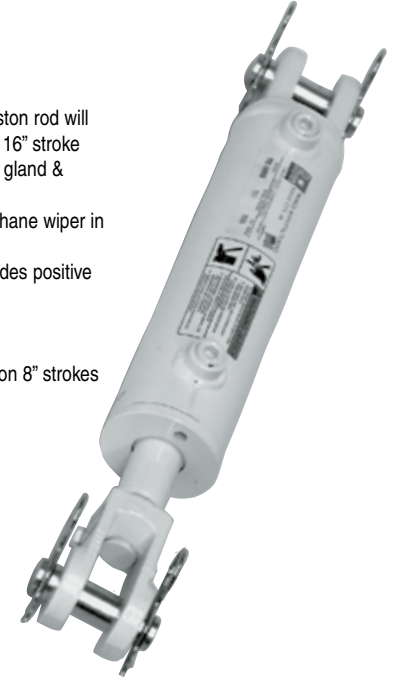
THE SWORD LINE

3000 PSI DOUBLE ACTING CYLINDERS



FEATURES:

- Skived, honed tubing
- Heavy duty welded construction
- Chromed, ground & polished piston rod will operate at full pressure through 16" stroke
- Cast iron piston, cast steel butt, gland & clevis
- Carboxilated nitrile u-cup & urethane wiper in gland, crown seal on piston
- Square ring gland retainer provides positive lock
- Pins & clips included
- Standard color is white
- Stroke control may be installed on 8" strokes



PCW	MFGR. NO.	BORE	STROKE	ROD DIA.	RE-TRACT. DIMEN.	SHIP WT.	A	B/C PORT SIZE	D	E	G	H	J	K	M
PCW-2008	42008	2	8	1 1/8	20 1/4	10	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	5 9/16	1 1/16	1	1 1/8 12
PCW-2010	42010	2	10	1 1/8	20 1/4	20	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-2012	42012	2	12	1 1/8	22 1/4	22	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-2016	42016	2	16	1 1/8	31 1/2	25	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	8 13/16	1 1/16	1	1 1/8 12
PCW-2020	42020	2	20	1 1/8	30 1/4	28	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-2024	42024	2	24	1 1/8	34 1/4	31	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-2508	42508	2 1/2	8	1 1/4	20 1/4	21	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	5 9/16	1 1/16	1	1 1/8 12
PCW-2510	42510	2 1/2	10	1 1/4	20 1/4	22	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-2512	42512	2 1/2	12	1 1/4	22 1/4	23	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-2516	42516	2 1/2	16	1 1/4	31 1/2	27	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	8 13/16	1 1/16	1	1 1/8 12
PCW-2520	42520	2 1/2	20	1 1/4	30 1/4	31	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-2524	42524	2 1/2	24	1 1/4	34 1/4	35	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1	1 1/8 12
PCW-3008	43008	3	8	1 3/8	20 1/4	23	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	5 9/16	1 1/16	1 1/8	1 1/8 12
PCW-3010	43010	3	10	1 3/8	20 1/4	26	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8 12
PCW-3012	43012	3	12	1 3/8	22 1/4	28	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8 12
PCW-3016A	43016	3	16	1 3/8	31 1/2	33	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	8 13/16	1 1/16	1 1/8	1 1/8 12
PCW-3020	43020	3	20	1 3/8	30 1/4	39	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8 12
PCW-3024	43024	3	24	1 3/8	34 1/4	43	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 9/16	1 1/16	1 1/8	1 1/8 12
PCW-3508	43508	3 1/2	8	1 1/2	20 1/4	29	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	5 3/8	1 1/16	1 1/4	1 1/2 12

Welded Cylinders



THE SWORD LINE

3000 PSI DOUBLE ACTING CYLINDERS



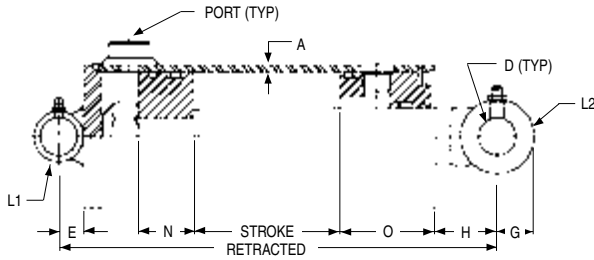
PCW	MFGR. NO.	BORE	STROKE	ROD DIA.	RE-TRACT. DIMEN.	SHIP WT.	A	B/C PORT SIZE	D	E	G	H	J	K	M
PCW-3510	43510	3 1/2	10	1 1/2	20 1/4	31	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/16	1 1/4	1 1/2 12
PCW-3512	43512	3 1/2	12	1 1/2	22 1/4	33	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/16	1 1/4	1 1/2 12
PCW-3516A	43516	3 1/2	16	1 1/2	31 1/2	38	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	8 3/8	1 1/16	1 1/4	1 1/2 12
PCW-3520	43520	3 1/2	20	1 1/2	30 1/4	43	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/16	1 1/4	1 1/2 12
PCW-3524	43524	3 1/2	24	1 1/2	34 1/4	48	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/16	1 1/4	1 1/2 12
PCW-4008	44008	4	8	1 3/4	20 1/4	40	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	5 3/8	1 1/8	1 1/4	1 1/2 12
PCW-4010	44010	4	10	1 3/4	20 1/4	43	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2 12
PCW-4012	44012	4	12	1 3/4	22 1/4	45	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2 12
PCW-4016A	44016	4	16	1 3/4	31 1/2	54	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	8 3/8	1 1/8	1 1/4	1 1/2 12
PCW-4020	44020	4	20	1 3/4	30 1/4	58	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2 12
PCW-4024	44024	4	24	1 3/4	34 1/4	60	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2 12
PCW-4030	44030	4	30	1 3/4	40 1/4	65	3/16	1/2 NPTF	1.015	1 3/4	1 13/16	3 3/8	1 1/8	1 1/4	1 1/2 12

Welded Cylinders



THE ROYAL LINE

2500 PSI DOUBLE ACTING CYLINDERS



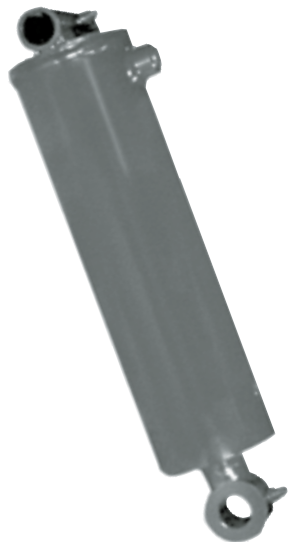
FEATURES:

- Honed tubing
- Heavy duty welded construction
- Chromed, ground & polished piston rod
- Cast iron piston & gland
- Pin eye mounting on both ends
- Quad ring/backup washer & urethane wiper in gland
- O-ring/backup washers & cast iron ring for piston seals
- Truarc type gland retainer
- Standard color is red



PMW	MFGR. NO.	BORE	STROKE	ROD DIA.	RE-TRACT. DIMEN.	PORT SIZE	SHIP WT.	A	D	E	G	H	L1	L2	N	O
PMW-2508	5408	2 1/2	8	1 3/8	16	3/8 NPTF	17	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2512	5412	2 1/2	12	1 3/8	20	3/8 NPTF	20	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2516	5416	2 1/2	16	1 3/8	24	3/8 NPTF	23	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2520	5420	2 1/2	20	1 3/8	28	3/8 NPTF	27	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2524	5424	2 1/2	24	1 3/8	32	3/8 NPTF	30	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2530	5430	2 1/2	30	1 3/8	38	3/8 NPTF	35	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2532	5432	2 1/2	32	1 3/8	40	3/8 NPTF	41	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2536	5436	2 1/2	36	1 3/8	44	3/8 NPTF	44	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-2542	5442	2 1/2	42	1 3/8	50	3/8 NPTF	47	3/16	.760	9/16	3/4	2 9/16	3	1 3/8	1 1/4	2 1/2
PMW-3008	8308	3	8	1 1/2	16	1/2 NPTF	22	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3012	8312	3	12	1 1/2	20	1/2 NPTF	26	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3016	8316	3	16	1 1/2	24	1/2 NPTF	31	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3020	8320	3	20	1 1/2	28	1/2 NPTF	35	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3024	8324	3	24	1 1/2	32	1/2 NPTF	41	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3030	8330	3	30	1 1/2	38	1/2 NPTF	46	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3032	8332	3	32	1 1/2	40	1/2 NPTF	48	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3036	8336	3	36	1 1/2	44	1/2 NPTF	52	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3040	8340	3	40	1 1/2	48	1/2 NPTF	56	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3042	8342	3	42	1 1/2	50	1/2 NPTF	59	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8

Welded Cylinders



THE ROYAL LINE 2500 PSI DOUBLE ACTING CYLINDERS

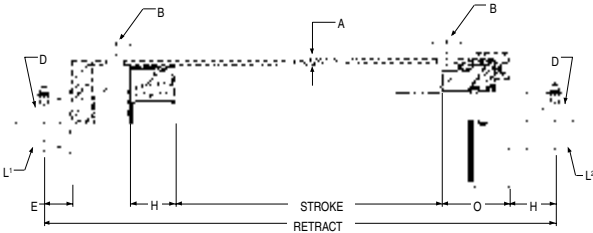
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PMW-3048	8348	3	48	1 1/2	56	1/2 NPTF	65	3/16	1.015	11/16	1	2 5/16	3 1/2	1 1/2	1 1/4	2 5/8
PMW-3508	5508	3 1/2	8	1 1/2	16	1/2 NPTF	26	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3512	5512	3 1/2	12	1 1/2	20	1/2 NPTF	29	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3516	5516	3 1/2	16	1 1/2	24	1/2 NPTF	34	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3520	5520	3 1/2	20	1 1/2	28	1/2 NPTF	38	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3524	5524	3 1/2	24	1 1/2	32	1/2 NPTF	44	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3530	5530	3 1/2	30	1 1/2	38	1/2 NPTF	48	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3532	5532	3 1/2	32	1 1/2	40	1/2 NPTF	52	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3536	5536	3 1/2	36	1 1/2	44	1/2 NPTF	56	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3540	5540	3 1/2	40	1 1/2	48	1/2 NPTF	60	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3542	5542	3 1/2	42	1 1/2	50	1/2 NPTF	64	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-3548	5548	3 1/2	48	1 1/2	56	1/2 NPTF	70	3/16	1.015	11/16	1	1 11/16	4	1 1/2	1 1/2	2 5/8
PMW-4008	5608	4	8	2	17	1/2 NPTF	35	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4012	5612	4	12	2	21	1/2 NPTF	41	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4016	5616	4	16	2	25	1/2 NPTF	48	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4020	5620	4	20	2	29	1/2 NPTF	56	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4024	5624	4	24	2	33	1/2 NPTF	62	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4030	5630	4	30	2	39	1/2 NPTF	72	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4032	5632	4	32	2	41	1/2 NPTF	74	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4036	5636	4	36	2	45	1/2 NPTF	80	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4040	5640	4	40	2	49	1/2 NPTF	85	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4042	5642	4	42	2	51	1/2 NPTF	92	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4048	5648	4	48	2	57	1/2 NPTF	100	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8
PMW-4060	5660	4	60	2	69	1/2 NPTF	120	3/16	1.265	15/16	1/4	2	4 1/2	2	1 5/16	2 7/8

Welded Cylinders



THE GLADIATOR LINE

3000 PSI DOUBLE ACTING CYLINDERS



FEATURES:

- Heavy duty welded construction
- 3000 PSI (2:1 safety factor for buckling on 36" stroke and less. Longer stroke consult factory)
- Steel gland cap retainer with lock screw
- 3/4 NPTF full-flow ports
- Standard color is highway yellow
- High grade gray iron piston & gland
- Precision skived tube for long seal life
- All steel spacer tube for bearing length on 48" or more of stroke
- Ground and polished chrome C-1045 steel piston rod for maximum life
- Heavy duty torqued locknut for piston retainer
- Polyurethane "U" cup and heavy duty wiper in gland. Crown seal with bearing rings on piston



PMW2	MFGR. NO.	BORE	STROKE	ROD DIA.	RE-TRACT. DIMEN.	SHIP WT.	A	B PORT SIZE	D	E	H	L1	O	L2
PMW-5008	21008	5	8	2 1/2	19	75	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5012	21012	5	12	2 1/2	23	85	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5016	21016	5	16	2 1/2	27	90	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5020	21020	5	20	2 1/2	31	105	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5024	21024	5	24	2 1/2	35	115	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5030	21030	5	30	2 1/2	41	130	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5036	21036	5	36	2 1/2	47	145	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5048	21048	5	48	2 1/2	61	180	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5054	21054	5	54	2 1/2	68	195	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-5060	21060	5	60	2 1/2	75	215	1/4	3/4 NPTF	1.515	1 1/4	1 7/8	5 3/4	2 15/16	4
PMW-6008	22008	6	8	3	19	100	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6012	22012	6	12	3	23	110	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6016	22016	6	16	3	27	125	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6024	22024	6	24	3	35	150	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6030	22030	6	30	3	41	170	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6036	22036	6	36	3	47	190	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6048	22048	6	48	3	61	240	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6054	22054	6	54	3	68	265	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4
PMW-6060	22060	6	60	3	75	290	1/4	3/4 NPTF	1.515	1 1/4	2	6 3/4	3 1/8	4

Single Acting Telescopic Cylinders



These cylinders are available from Custom Hoists, Commercial, Hyco and SHC. Request the manufacturer you want.



Features

- Plunger diameters: 2" thru 9-3/4"
- Strokes up to 400"
- One thru six moving stages available
- Maximum pressure to 2,500 PSI
- High-quality V-packing to seal high and low pressures
- Externally threaded head nuts for extra strength, easy seal adjustment
- Special plunger stops assure full shoulder stop
- Easy-access bleeder screw, manual or automatic
- High quality glass-filled nylon or optional bronze bearing rings
- Dual lip wiper to prevent contamination
- Wide range of cylinder mountings, including trunions
- Maximum overlap for stability
- Chromed plungers available

MANUFACTURERS SERVICE MANUALS ARE AVAILABLE.
CALL FOR DETAILS.

Individual Plunger Lifting Capacities for Single-Acting Telescopic Cylinders

Plunger Dia. (In.)	Cross Section Area (Sq. In.)	Specific Operating Pressures			
		1500 PSI (LBS)	1800 PSI (LBS)	2000 PSI (LBS)	2500 PSI (LBS)
2	3.14	4,710	5,672	6,280	7,850
3	7.06	10,590	12,708	14,120	17,650
4	12.56	18,840	22,608	25,120	31,400
5	19.63	29,445	35,334	39,260	49,075
6	28.27	42,405	50,886	56,540	70,675
7	38.48	57,720	69,264	76,960	96,200
8	50.26	75,390	90,468	100,520	125,650
8-1/4	53.50	80,250	96,300	107,000	133,750
9-1/8	65.40	98,100	117,720	130,800	163,500
9-3/4	74.50	111,750	134,100	149,000	186,250

Cylinder Identification

85 - 2 - 250



Single Acting Telescopic Cylinders



These cylinders are available from Custom Hoists, Commercial, Hyco and SHC. Request the manufacturer you want.

COMMERCIAL FEATURES

- Longer sleeve overlap for improved stability and higher column loading.
- Heavy walled tubing in the first stage offers up to 27% more cross-sectional area providing up to 76% greater tube burst strength than our competition.
- Beveled mating surfaces of the overlap collar and stop ring for greater impact resistance during dumping operations.
- Snap-on, glass-filled bearings that absorb contaminants without damaging the cylinder walls.
- Threaded stop rings for easier servicing and more reliable stopping action.
- External packing nuts to give added support to the tube and make servicing easier.
- Wave springs and chevron packing for positive, self-compensating seals.
- Hytrel rod wipers resist high temperatures without extruding.
- Cast steel pin-eye and rod-end mountings give dependable strength.

MANUFACTURERS SERVICE MANUALS ARE AVAILABLE. CALL FOR DETAILS.

DOUBLE ACTING CYLINDERS:

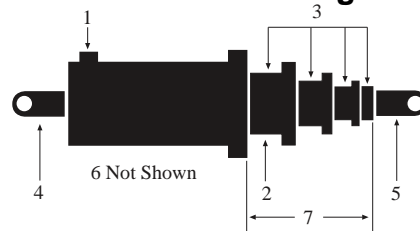
- Operating pressure up to 2000 psi.
- Main cylinder outside diameter from 3-3/4" to 10-13/16".
- Lifting capacity to 153,180 lbs.
- Chrome-plated sleeves are available on special order.
- Pin-eye and trunion mountings are standard. If other types are required, dimensions must be specified.

SINGLE ACTING CYLINDERS:

- Operating pressure up to 2000 psi.
- Main cylinder outside diameter from 3-3/4" to 11-1/8".
- All cylinders have NPT ports, unless otherwise specified.
- Lifting capacity to 138,060 lbs.
- Chrome-plated sleeves and plungers are available on special order.
- Pin-eye and trunion mountings are standard. If other types are required, dimensions must be specified.

S.A. Cylinder Information			
Sleeve O.D. in inches	Effective Area in sq. inches	Load Capacity lbs. at 2000 p.s.i.	Displacement per in. of stroke in gallons
2.75	5.94	11,880	.026
3.75	11.04	22,080	.048
4.75	17.72	35,440	.077
5.75	25.96	51,920	.112
6.75	35.78	71,560	.155
7.905	48.70	97,400	.210
9.375	69.03	138,060	.299

Model Number Coding



Model Number **S84DC-40-161**

1. S = Single-acting Type Cylinder
SD = Double-acting telescopic type
2. 8 = 7-7/8" nominal diameter of largest sleeve
3. 4 = 4 stages or sleeves
4. D = Type of mounting on base end
5. C = Type of mounting on rod end
6. -40 = Modification or design variation
7. 161 = Length of stroke (161")

D.A. Cylinder Information

Sleeve or plunger O.D. (inches)	Bore of Main or Sleeve (inches)	Effective Area extended (sq. inches)	Effective Area retracted (sq. inches)	Load Capacity at 2000 p.s.i. extended (pounds)	Load Capacity at 2000 p.s.i. retracted (pounds)	Displacement per in. of stroke extended (gallons)	Displacement per in. of stroke retracted (gallons)
2.75	3.25	8.295	2.355	16,590	4,710	.036	.010
3.75	4.25	14.186	3.142	28,372	6,284	.061	.014
4.75	5.25	21.648	3.927	43,296	7,854	.094	.017
5.75	6.25	30.680	4.713	61,360	9,426	.133	.020
6.75	7.25	41.282	5.497	82,564	10,994	.179	.024
7.905	8.437	55.680	6.973	111,360	13,946	.242	.030
9.375	9.143	76.590	7.560	153,180	15,120	.331	.038

Single Acting Telescopic Cylinders



These cylinders are available from Custom Hoists, Commercial, Hyco and SHC. Request the manufacturer you want.



Fluid Capacity: Volume To Fully Extend			
Plunger Dia. (Inches)	Effective Area (Sq. Inches)	Load Capacity (Lbs. @ 2000 PSI)	Displacement (Gal./In. of Stroke)
3	7.07	14,140	.031
4	12.56	25,120	.054
5	19.63	39,260	.085
6	28.27	56,540	.122
7	38.48	76,960	.166
8.12	51.78	103,560	.224
8.25	53.46	106,920	.231
9.38	69.10	138,200	.299

Follow example to determine displacement of the complete cylinder **Example:** Model 824-200
 8.12 in. plunger .224
 7 in. plunger .166
 6 in. plunger .122
 5 in. plunger .085
 .597
 $.597 \times 200 = 29.8$ Gallons to fully extend
 4

Features

GENERAL DATA
 Operating pressures to 2000 psi. Plunger diameters range from 2" to 9.375". Lifting capacities to 138,200 lbs. Pin-eye mountings standard—trunion type available. Chrome-plated plungers available.

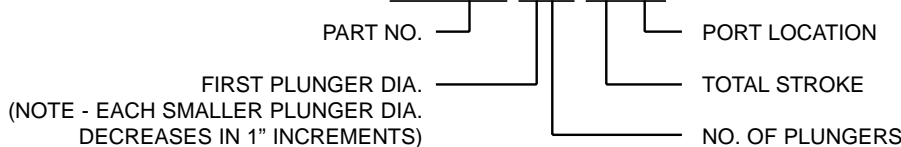
AUTOMATIC AIR BLEEDERS
 Every standard Hycotel single-acting telescopic cylinder comes equipped with an automatic air bleeder. This completely eliminates time-consuming and potentially hazardous manual air bleeding operation.

GUIDE RINGS & RETAINING RINGS
 Hycotel® features replaceable plunger guide rings, designed and balanced to be well lubricated and made of specially compounded material for long wearing performance. The retainer rings work in conjunction with the piston design to be positively locked into stop position grooves when the cylinder is fully extended.

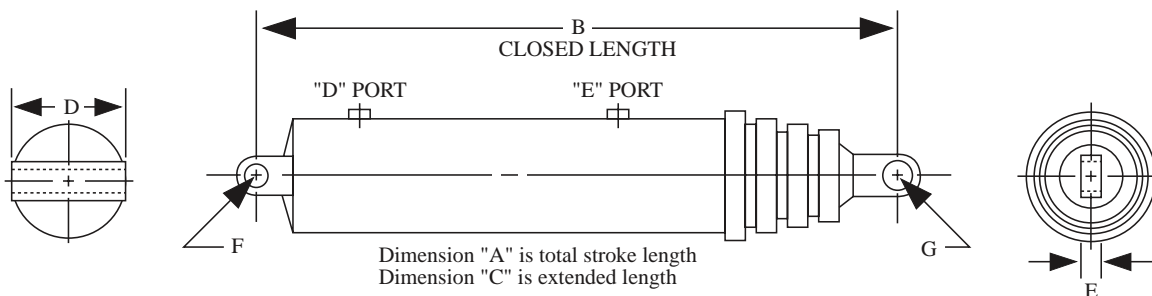
"DUAL-LIP" WIPER
 This dual lip design wiper of Hytel is a more efficient "dirt wiper." The dual lip provides an improved means of keeping dirt out.

MANUFACTURERS SERVICE MANUALS ARE AVAILABLE. CALL FOR DETAILS.

Cylinder Identification C70000-814-200D



NOTE: "D" and "E" suffix in Part No. represents a specific port location.
 For dimensional data, consult our sales staff.
 A "T" suffix in Part No. represents Trunion Mount.



Single Acting Telescopic Cylinders

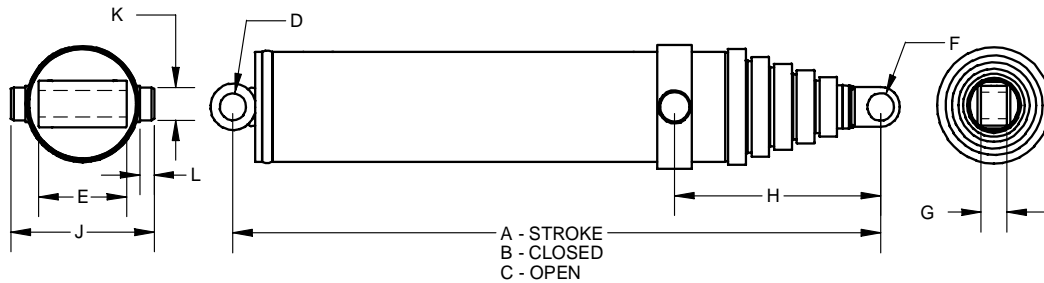


These cylinders are available from Custom Hoists, Commercial, Hyco and SHC. Request the manufacturer you want.

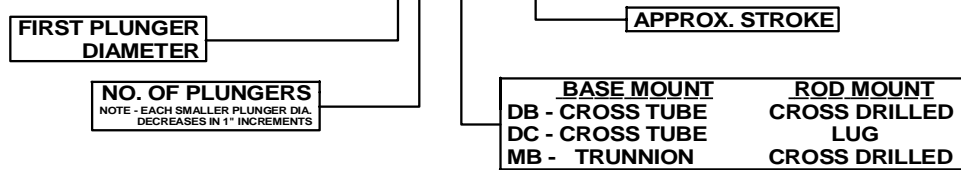
STANDARD SINGLE ACTING TELESCOPIC CYLINDER SPECIFICATIONS

Model Number	Stroke	Closed	Open	Dia. Body	Stage Dia.			(D)	(E)	(F)	(G)	(H)	(J)	(K)	(L)	Ret Vol	Ext Vol	Dry Wt.
	(A)	(B)	(C)													(Gal)	(Gal)	(Lbs)
SHC-M32DB-43	40.38	29.69	70.07	4.00	3	2	-	1.50	4.00	1.25	1.88	-	-	-	-	.58	1.46	60
SHC-M32DB-50	46.67	32.84	79.51	4.00	3	2	-	1.50	4.00	1.25	1.88	-	-	-	-	.66	1.68	66
SHC-M42DB-43	39.50	30.19	69.69	5.00	4	3	-	1.50	5.00	1.50	2.75	-	-	-	-	1.06	2.72	86
SHC-M42DB-50	47.25	33.69	80.94	5.00	4	3	-	1.50	5.00	1.50	2.75	-	-	-	-	1.23	3.23	95
SHC-M42MB-50	51.25	35.07	86.32	5.00	4	3	-	-	-	1.50	2.75	8.50	8.81	1.75	.88	1.33	3.50	97
SHC-M42DB-60	57.88	39.07	96.95	5.00	4	3	-	1.50	5.00	1.50	2.75	-	-	-	-	1.48	3.93	109
SHC-M42MB-65	65.00	42.07	107.07	5.00	4	3	-	-	-	1.50	2.75	8.50	8.81	1.75	.88	1.66	4.41	115
SHC-M43MB-74	73.88	34.63	108.51	5.00	4	3	2	-	-	1.25	1.88	8.50	8.81	1.75	.88	1.07	3.45	106
SHC-M43DB-75	67.34	33.62	100.96	5.00	4	3	2	1.50	5.00	1.25	1.88	-	-	-	-	.98	3.15	105
SHC-M43MB-75	68.25	32.75	101.00	5.00	4	3	2	-	-	1.25	1.88	8.50	8.81	1.75	.88	.99	3.19	100
SHC-M43DB-98	89.83	41.13	130.96	5.00	4	3	2	1.50	5.00	1.25	1.88	-	-	-	-	1.29	4.19	124
SHC-M43MB-98	96.42	42.19	138.61	5.00	4	3	2	-	-	1.25	2.00	8.69	8.81	1.75	.88	1.37	4.50	128
SHC-M53DB-60	57.11	29.81	86.92	6.00	5	4	3	1.50	6.25	1.50	2.75	-	-	-	-	1.39	4.56	122
SHC-M53DC-72	72.00	35.13	107.13	6.00	5	4	3	2.00	7.00	1.69	1.63	-	-	-	-	1.72	5.73	142
SHC-M53DB-74	69.14	33.82	102.96	6.00	5	4	3	1.50	6.25	1.50	2.75	-	-	-	-	1.65	5.51	137
SHC-M53MB-74	74.00	34.63	108.63	6.00	5	4	3	-	-	1.50	2.75	8.50	8.81	1.75	.88	1.75	5.89	141
SHC-M53DC-84	84.20	39.19	123.39	6.00	5	4	3	2.00	7.00	1.69	1.63	-	-	-	-	1.98	6.69	157
SHC-M53DC-84A	84.20	39.38	123.58	6.00	5	4	3	2.00	7.00	2.00	1.63	-	-	-	-	1.98	6.69	165
SHC-M53DB-90	86.55	39.63	126.18	6.00	5	4	3	1.50	6.25	1.50	2.75	-	-	-	-	2.02	6.87	159
SHC-M53MB-90	86.06	38.63	124.69	6.00	5	4	3	-	-	1.50	2.75	8.50	8.81	1.75	.88	2.01	6.83	156

ALL ITEMS LISTED ARE STOCK ITEMS. ALL LISTED ITEMS ARE MARION STYLE CYLINDERS.
 PORTS 1/2"-14 NPT ON SERIES 32, 42, 43, & 53 (SHC-M53DC-72, SHC-M53DC-84, & SHC-M53DC-84A USE 3/4"-14 NPT)
 OTHER SIZES AND OPTIONS ARE AVAILABLE.



CYLINDER IDENTIFICATION SHC - M 53 DB - 75



SINGLE ACTING EXTEND LOAD CAPACITY

LOAD CAPACITY : LBS @ PSI

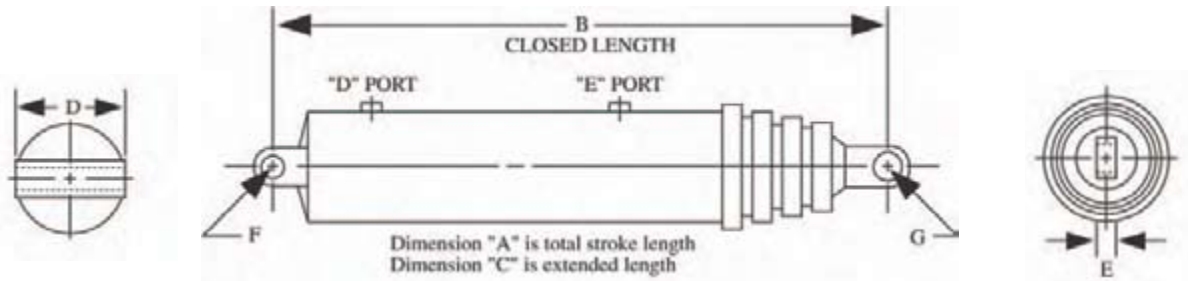
*ALL DIMENSIONS AND CALCULATIONS NOMINAL

PLUNGER DIA.	1500 PSI	2000 PSI	2500 PSI
2	4,700	6,280	7,850
3	10,600	14,130	17,670
4	18,850	25,130	31,410
5	29,450	39,270	49,080
6	42,410	56,540	70,680
7	57,720	76,960	96,210
8.25	80,180	106,910	133,640



Single Acting Telescopic Cylinder Stock

These cylinders are available from Custom Hoists, Commercial, Hyco and SHC.
Request the manufacturer you want. See page 17-20 for specifications.

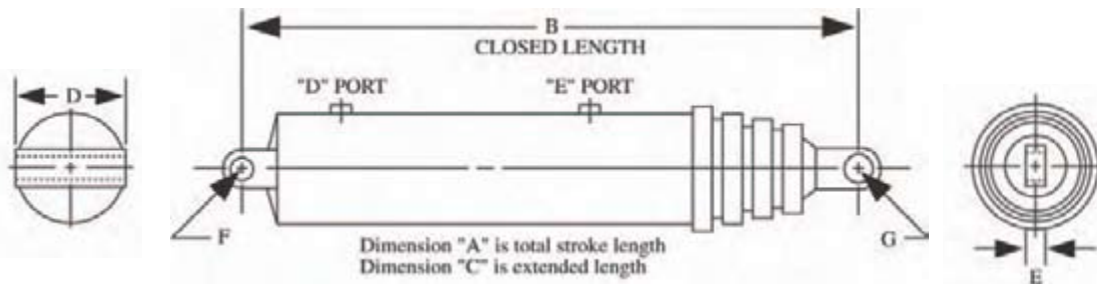


Stroke lengths for Hyco 70,000 series cylinders may be slightly different than those shown in chart.
Please call our component group at 1-800-333-5617 for exact 70,000 series stroke lengths.

CYLINDER NO.	A	B	C	D	E	F	G
5360-SA	60.10	30.25	90.37	6.62	FLATE PLATE	2.06	N/A
5372-SA	72.00	37.12	109.12	8.13	1.50	2.00	1.68
5384-SA	84.00	40.12	125.12	8.12	1.50	2.06	1.56
53104-SA	104.00	47.75	151.75	8.13	1.50	2.00	1.68
6384-SA	84.00	41.00	125.00	7.62	2.00	2.12	2.06
63104-SA	103.87	47.62	151.50	7.62	2.00	2.12	2.06
63108-SA	108.00	49.00	157.00	7.625	2.00	2.12	2.06
63111-SA	111.00	50.00	161.00	7.00	2.00	2.00	2.00
63120-SA	120.00	53.00	173.00	7.625	2.00	2.12	2.06
63120-TSA	120.00	53.375	173.375	TRIUNION MOUNT	4.00	N/A	1.56
63126-SA	126.00	55.00	181.00	7.62	2.00	2.12	2.06
D63128-SA	126.50	54.63	181.13	6.75	2.00	2.00	1.63
63140-TSA	139.87	60.00	199.97	TRIUNION MOUNT	4.00	N/A	1.56
64135-SA	134.88	47.13	182.00	8.00	2.69	1.75	1.50
64156-SA	155.87	52.37	208.12	8.00	2.68	1.87	1.56
73110-SA	110.63	50.06	160.69	8.25	2.00	2.00	2.00
73120-SA	120.00	53.12	173.12	8.625	1.50	2.12	2.06
D73126	125.25	55.12	180.37	6.75	2.00	2.00	1.63
73130-SA	130.12	56.50	186.62	8.625	1.50	2.12	2.06
73140-SA	140.00	60.00	200.00	8.25	2.00	2.00	2.00
D73142-SA	142.13	60.75	202.88	6.75	2.00	2.00	1.63
74120-SA	120.00	44.75	164.75	8.625	2.00	2.12	2.06
74135-SA	135.00	48.25	183.25	8.625	2.00	2.12	2.06
74140-SA	140.25	49.25	189.75	8.625	2.00	2.12	2.06
74156-SA	156.00	53.37	209.37	8.625	2.00	2.12	2.06
74161-SA	161.00	54.62	215.62	8.62	2.00	2.12	2.06
74167-SA	167.25	56.25	223.50	8.62	2.00	2.12	2.06
84148-SA	147.75	51.50	199.25	9.50	2.00	2.12	2.06
84156-SA	155.75	53.50	209.25	9.50	2.00	2.12	2.06
84170-SA	169.75	57.00	226.75	9.50	2.00	2.12	2.06
84180-SA	179.75	59.50	239.25	9.50	2.00	2.12	2.06
85170-SA	170.00	49.87	219.87	9.50	2.00	2.12	2.06
85190-SA	190.00	54.00	244.00	9.50	2.00	2.12	2.06
85197-SA	196.13	55.25	251.38	9.50	2.00	2.00	2.00
85220-SA	220.00	60.00	280.00	9.50	2.00	2.12	2.06
85220-TSA	218.25	60.38	278.63	TR	2.00	TR	2.00
85235-SA	235.00	65.00	300.00	9.50	2.00	2.12	2.06
85235-TSA	233.25	63.38	296.33	TR	2.00	TR	2.00
85250-SA	250.00	68.00	318.00	9.50	2.00	2.12	2.06
85250-TSA	248.25	68.38	316.63	TR	2.00	TR	2.00
85265-SA	265.00	71.00	336.00	9.50	2.00	2.12	2.06
85265-TSA	264.25	74.88	339.13	TR	2.00	TR	2.00

Single Acting Telescopic Cylinder Stock

These cylinders are available from Custom Hoists, Commercial, Hyco and SHC. Request the manufacturer you want. See page 17-20 for specifications.



Stroke lengths for Hyco 70,000 series cylinders may be slightly different than those shown in chart. Please call our component group at 1-800-333-5617 for exact 70,000 series stroke lengths.

CYLINDER NO.	A	B	C	D	E	F	G
825190-SA	190.00	54.00	244.00	10.25	2.00	2.12	2.06
825220-SA	220.00	60.00	280.00	10.25	2.00	2.12	2.06
825235-SA	235.00	65.00	300.00	10.25	2.00	2.12	2.06
825250-SA	250.00	68.00	318.00	10.25	2.00	2.12	2.06
825265-SA	264.62	74.50	339.12	10.25	2.00	2.12	2.06
825280-SA	279.62	77.62	357.25	10.25	2.00	2.12	2.06
95220-SA	219.75	60.12	279.87	10.75	2.00	2.12	2.06
95235-SA	234.75	65.00	299.75	10.75	2.00	2.12	2.06
95250-SA	249.75	72.62	322.37	10.75	2.00	2.12	2.06
95265-SA	264.75	75.62	340.37	10.75	2.00	2.12	2.06
975220-SA	219.75	60.00	280.00	12.00	2.00	2.12	2.06
975235-SA	234.75	65.25	300.00	12.00	2.00	2.12	2.06
975250-SA	249.75	72.62	322.37	12.00	2.00	2.12	2.06
HPT53100	99.12	46.25	145.37	7.75	1.50	2.06	1.78
HPT53110	105.12	47.87	153.00	7.75	1.50	2.06	1.78
HPT53120	122.37	54.00	176.37	7.75	1.50	2.06	1.78
HPT53130	127.62	54.50	182.12	7.75	1.50	2.06	1.78
HPT63120	120.75	54.00	174.75	8.00	2.00	2.50	2.25
HPT63130	125.25	55.50	180.75	8.00	2.00	2.50	2.25
HPT63140	138.75	60.00	198.75	8.00	2.00	2.50	2.25
HPT63160	160.12	69.12	229.25	8.00	2.00	2.50	2.25
475	43.12	31.68	74.81	1.50	2.50	3.37	1.81
495	64.75	31.75	96.50	1.50	2.50	3.37	1.81
498	89.50	41.87	131.37	1.50	2.50	3.37	1.81
SHC-M32DB-43	40.13	29.69	69.82	4.00	2.00	1.50	1.25
SHC-M32DB-50	47.94	33.47	81.41	4.00	2.00	1.50	1.25
SHC-M42DB-43	39.50	30.19	69.90	5.00	3.00	1.50	1.50
SHC-M42DB-50	51.25	36.13	87.38	5.00	3.00	1.50	1.50
SHC-M42MB-50	51.25	35.07	86.32	TR	3.00	TR	1.50
SHC-M42DB-60	60.00	40.63	100.63	5.00	3.00	1.50	1.50
SHC-M42MB-65	65.00	42.07	107.07	TR	3.00	TR	1.50
SHC-M43DB-75	68.62	33.69	102.31	5.00	2.00	1.50	1.25
SHC-M43MB-75	68.25	32.50	100.75	TR	2.00	TR	1.25
SHC-M53DB-60	57.75	30.00	87.75	6.00	3.00	1.50	1.50
SHC-M53DB-74	74.00	35.44	109.44	6.00	3.00	1.50	1.50
SHC-M53MB-74	74.00	34.38	108.38	TR	3.00	TR	1.50
SHC-M53MB-90	86.06	38.63	124.69	TR	3.00	TR	1.50

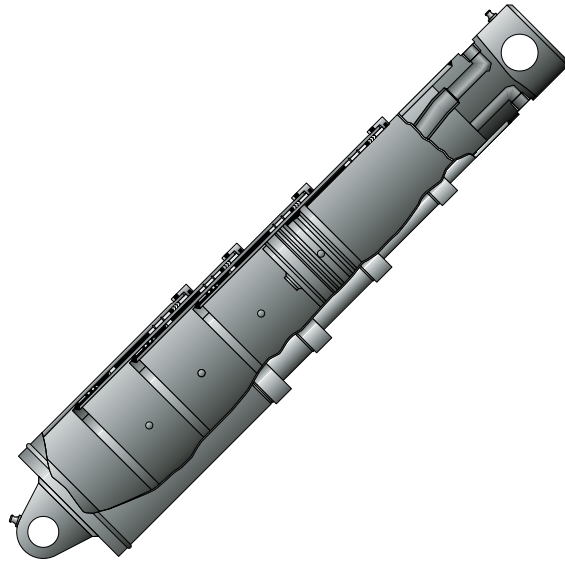
Double Acting Telescopic Cylinders



These cylinders are available from Custom Hoists, Commercial, Hyco and SHC. Request the manufacturer you want.

Features

- Piston diameters: 2-1/2" thru 10-1/2"
- Plunger diameters: 2" thru 9-3/4"
- Strokes up to 500"
- Two thru six moving stages available
- Maximum pressure to 2,500 PSI
- High-quality V-packing to seal high and low pressures
- Externally threaded head nuts for extra strength, easy seal adjustment
- Special plunger stops assure full shoulder stop
- High quality glass-filled nylon or optional bronze bearing rings
- Dual lip wiper to prevent contamination
- Wide range of cylinder mountings, including trunions
- Also available upon request
 - Positive piston seals to eliminate drift and maintain constant load
 - Chromed plungers
 - Internal relief valve assembly
 - Unequal areas for pull applications



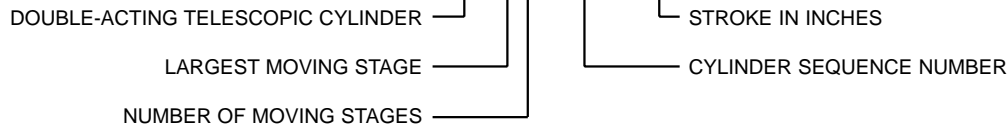
MANUFACTURERS SERVICE MANUALS ARE AVAILABLE.
CALL FOR DETAILS.

Individual Plunger Lifting Capacities for Single-Acting Telescopic Cylinders

BORE (Piston) Dia. (In.)	Plunger Dia. (In.)	Cross Section Area (Sq. In.)	Specific Operating Pressures			
			1500 PSI (LBS)	1800 PSI (LBS)	2000 PSI (LBS)	2500 PSI (LBS)
2-1/2	2	4.90	7,350	8,820	9,800	12,250
3-1/2	3	9.62	14,340	17,316	19,240	24,050
4-1/2	4	15.90	23,850	28,620	31,800	39,750
5-1/2	5	23.75	35,625	42,750	47,500	59,375
6-1/2	6	33.18	49,770	59,724	66,360	82,950
7-1/2	7	44.17	66,225	79,506	88,340	110,425
8-1/2	8	56.74	85,110	102,132	113,480	141,850
9-1/4	9-1/8	74.50	111,170	134,100	149,000	186,250
10-1/2	9-3/4	86.59	129,885	155,862	173,180	216,475

Cylinder Identification

DAT 85 - 46 - 250



Double Acting Telescopic Cylinders



These cylinders are available from Custom Hoists, Commercial, Hyco and SHC. Request the manufacturer you want.

Features

GENERAL DATA

Operating pressures to 2000 psi. Plunger diameters range from 3" to 9.12". Bore diameters from 3.50" to 9.75". Extend load capacities to 149,320 lbs. Retract load capacities to 18,520 lbs. Pin-eye mountings standard—trunion type available. Chrome-plated plungers also available.

PACKING – SEALS & BEARINGS

The adjustable seal and bearing cartridge (packing set) is proven through extensive laboratory and field testing. The outboard bearing rings are Teflon lubricated, providing reduced frictional drag resulting in reduced bearing wear.

GUIDE RINGS & RETAINING RINGS

The Hyco® telescopic cylinder features replaceable plunger guide rings designed and balanced to be well lubricated and made of specially compounded material for long-wearing performance. The retainer rings work in conjunction with the piston design to be positively locked into stop position grooves when the cylinder is fully extended.

"DUAL-LIP" WIPER

This dual lip design wiper of Hytrel is a more efficient means of keeping dirt out.



Fluid Capacity: Volume To Fully Extend

Plunger Dia. (Inches)	Effective Area (Sq. Inches)	Extend Load Capacity (Lbs. @ 2000 PSI)	Retract Load Capacity (Lbs @ 2000 PSI)	Displacement (Gal./In. of Stroke)
3	9.62	19,240	5,100	.042
4	15.90	31,800	6,660	.069
5	23.76	47,520	8,260	.103
6	33.18	66,360	9,820	.144
7	44.18	88,360	11,400	.191
8	56.74	113,480	12,960	.246
9.12	74.66	149,320	18,520	.323

Follow example to determine displacement of the complete cylinder

Example: Model 85-220

8" = .246

7" = .191

6" = .144

5" = .103

4" = .069

.753

.753 x 220 = 33.13 Gallons to fully extend

5

MANUFACTURERS SERVICE MANUALS ARE AVAILABLE.
CALL FOR DETAILS.

Cylinder Identification

C20000-85-220

PART NO.

TOTAL STROKE

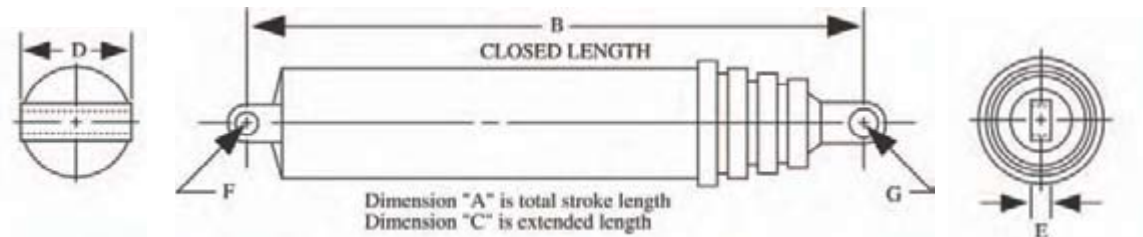
FIRST PLUNGER DIA.

NO. OF PLUNGERS

(NOTE - EACH SMALLER PLUNGER DIA.
DECREASES IN 1" INCREMENTS)

Double Acting Telescopic Cylinder Stock

These cylinders are available from Custom Hoists, Commercial, and Hyco. Request the manufacturer you want. See page 18, 23 & 24 for specifications.



CYLINDER NO.	A	B	C	D	E	F	G
52112-DA	111.75	75.50	187.25	2.00	2.00	2.01	2.01
53110-DA	109.62	56.75	166.37	2.00	2.00	3.03	1.56
53155-DA	155.75	75.50	231.25	2.00	2.00	2.00	1.50
53182-DA	182.00	81.00	263.00	3.87	6.50	2.00	2.00
6282-DA	82.00	56.50	138.50	2.25	2.25	3.03	3.03
6397-DA	97.12	52.37	149.50	1.50	1.50	1.28	1.28
63108-DA	107.62	50.75	158.37	7.12	3.87	1.78	1.78
63118-DA	118.00	58.50	176.50	3.00	4.00	2.50	2.50
63124-DA	124.50	76.87	201.48	2.00	2.00	2.031	2.06
63132-DA	131.62	62.37	194.00	7.12	3.87	1.78	1.78
63167-DA	167.00	85.25	252.25	4.00	3.69	2.00	2.00
64118-DA	118.13	49.38	167.50	2.25	2.25	1.50	1.50
64136-DA	135.62	49.37	185.00	2.00	2.25	1.56	1.56
64150-DA	150.00	56.56	206.56	2.25	2.25	1.50	1.50
72156-DA	156.12	96.00	252.12	N/A	2.00	N/A	2.06
74131-DA	131.50	53.37	184.87	1.50	1.50	1.28	1.28
74171-DA	171.12	62.37	233.50	7.00	4.00	1.78	1.78
83126-DA	126.00	72.00	198.00	3.00	3.00	2.51	2.51
84176-TD2	176.25	69.00	245.25	TRIUNION MOUNT	2.00	TRIUNION MOUNT	1.75
84176-TD3	176.25	69.00	245.25	TRIUNION MOUNT	2.00	N/A	1.76
84178-DA	178.25	69.00	247.25	2.00	2.00	1.78	1.78
85125-DA	125.00	49.75	174.75	2.50	2.50	2.00	2.00
85156-DA	155.625	55.50	211.125	2.00	2.00	2.00	2.00
85195-DA	195.00	69.37	264.87	2.00	2.00	2.03	2.03
85220-TD2	220.00	69.25	289.25	TRIUNION MOUNT	2.00	N/A	1.76
85220-TD3	220.25	69.25	289.50	TRIUNION MOUNT	2.00	N/A	1.76
85300-DA	300.25	87.37	387.62	1.75	2.00	2.00	2.18
85348-DA	347.87	100.00	447.87	2.00	2.00	2.06	2.18
85378-DA	378.00	104.75	482.75	2.00	2.00	2.12	2.06
86177-DA	176.75	53.37	230.12	1.50	1.50	1.28	1.28
915125-DA	125.00	49.75	174.75	2.50	2.50	2.00	2.00
95160-DA	159.75	61.00	220.75	2.00	2.00	2.02	2.02
96170-DA	169.75	50.625	220.37	2.50	2.50	2.00	2.00
96199-DA	199.12	57.87	257.00	2.00	2.00	2.03	2.03
96412-DA	412.25	99.62	511.87	TRIUNION MOUNT	2.00	TRIUNION MOUNT	2.06
96456-DA	456.50	107.00	563.50	TRIUNION MOUNT	2.00	TRIUNION MOUNT	2.06
974176-DA	176.12	69.12	245.25	3.00	3.00	2.52	2.52
974190-DA	189.62	71.00	260.62	2.25	2.00	2.25	2.02
976199-DA	199.12	57.87	257.00	2.00	2.00	2.03	2.03

Stock Cylinder Shipping Weights

These cylinders weights are average weights for Custom Hoists and Hyco manufactured cylinders. Cylinders manufactured by Commercial Intertech are usually 50-70 pounds heavier than weights listed.

CYLINDER #	WT. (LBS.)	CYLINDER #	WT. (LBS.)	CYLINDER #	WT. (LBS.)	CYLINDER #	WT. (LBS.)
5360-SA	134	825235-SA	725	85220-TD3	764	HL-1-4106	67
5372-SA	160	825250-SA	765	85300-DA	848	HL-1-4108	90
5384-SA	175	825265-SA	795	85348-DA	875	HL-1-4110	105
53104-SA	200	825280-SA	835	85378-DA	952	HL-1-4272	68
6384-SA	215	95220-SA	780	86177-DA	485	HL-1-4305	50
63104-SA	249	95235-SA	825	915125-DA	528	HL-1-4328	185
63108-SA	256	95250-SA	868	95160-DA	740	HL-1-4330	192
63111-SA	260	95265-SA	890	96170-DA	568	HL-1-4339	104
63120-SA	279	975220-SA	858	96199-DA	795	HL-1-4340	175
63120-TSA	279	975235-SA	967	96412-DA	1350	HL-1-4341	85
63126-SA	286	975250-SA	1076	96456-DA	1408	HL-1-4348	170
D63128-SA	278	HPT53100	190	974176-DA	978	HL-1-4884	150
63140-TSA	330	HPT53110	193	974190-DA	995	HL-1-4887	121
64135-SA	260	HPT53120	230	976199-DA	864	LCH-15527	97
64156-SA	310	HPT53130	214	475	102	LCH-2R1006A	168
73110-SA	350	HPT63120	267	495	102	LCH-PO-1166	190
73120-SA	336	HPT63130	270	498	132	LCH-PO-265	102
D73126	355	HPT63140	288	D3021GDA	55	MX-401222	260
73130-SA	358	HPT63160	328	D3526GDA	70	MX-401282	105
73140-SA	404	52112-DA	318	D4021EDA	96	MX-401826	51
D73142-SA	383	53110-DA	246	D4028EDA	105	MX-404614	176
74120-SA	311	53155-DA	307	D4030FDA	96	PG-3128C	67
74135-SA	335	53182-DA	357	D4035HDA	125	PG-6042BDA	239
74140-SA	347	6282-DA	253	D4128EDA	91	PG-7078DA	442
74156-SA	370	6397-DA	275	D4522JDA	84	PKM-1341-LM	61
74161-SA	390	63108-DA	283	D4522EDA	100	PKM-1351-LM	214
74167-SA	390	63118-DA	317	D4526BDA	104	PKM-2162-LM	24
84148-SA	451	63124-DA	383	D4548BDA	165	SHC-M32DB-43	57
84156-SA	455	63132-DA	332	D5532EDA	135	SHC-M32DB-50	63
84170-SA	494	63167-DA	320	DD-BB8133-1	188	SHC-M42DB-43	81
84180-SA	524	64118-DA	280	DD-BB8134-1	150	SHC-M42DB-50	91
85170-SA	450	64136-DA	271	DD-BB8281-1	114	SHC-M42MB-50	100
85190-SA	506	64150-DA	305	DD-BB8374-1	174	SHC-M42DB-60	115
85197-SA	525	72156-DA	630	DD-BB8379-1	110	SHC-M42MB-65	116
85220-SA	567	74131-DA	334	DD-BB8748-1	85	SHC-M43DB-75	98
85220-TSA	585	74171-DA	575	DD-AB19461	368	SHC-M43MB-75	107
85235-SA	619	83126-DA	555	DD-AB19774	110	SHC-M53DB-60	115
85235-TSA	637	84176-TD2	700	DD-AB19775	175	SHC-M53DB-74	137
85250-SA	654	84176-TD3	550	HL-1-4070	83	SHC-M53MB-74	140
85250-TSA	672	84178-DA	560	HL-1-4093	150	SHC-M53MB-90	154
85265-SA	674	85125-DA	510	HL-1-4094	125		
85265-TSA	692	85156-DA	495	HL-1-4100	73		
825190-SA	595	85195-DA	620	HL-1-4101	100		
825220-SA	667	85220-TD2	764	HL-1-4103	119		



Power Units

Power Units

Part Number: HPU12VCHEFVDO2-RC

12 VDC
2.5 GPM Pump
3 Gallon Tank
Two Button Remote Control
3 Meter Cable
Power Up, Gravity Down

Part Number: HPU12VCHCFVD02-RC

12 VDC
1.6 GPM Pump
3 Gallon Tank
Two Button Control
3 Meter Cable
Power Up, Gravity Down

Part Number: HPU12VCHCFWD02-RC

12 VDC
1.6 GPM Pump
5 Gallon Tank
Two Button Remote Control
3 Meter Cable
Power Up, Gravity Down

Part Number: HPU12VCHEFWD02-RC

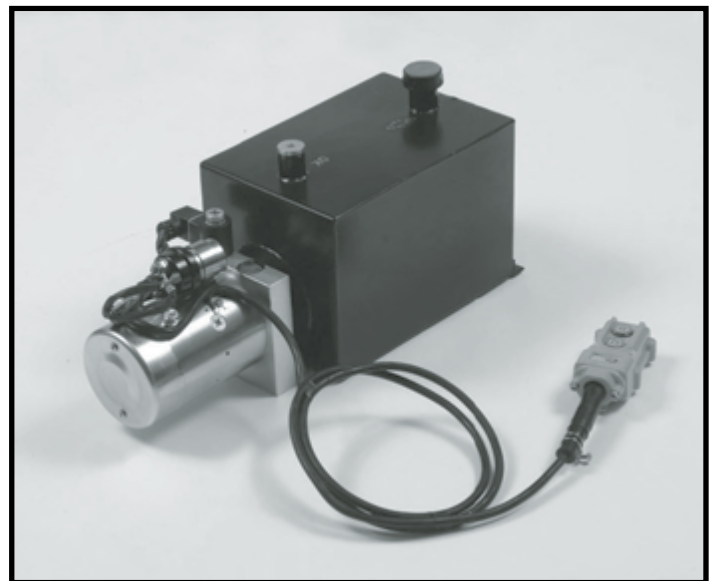
12 VDC
2.5 GPM Pump
5 Gallon Tank
Two Button Control
3 Meter Cable
Power Up, Gravity Down

Part Number: HPU12VCHFSD02-RC

Circuit 3 way power up gravity down
12 vdc power source required
Steel tank 2.6 gallon capacity
Two button remote control
Flow rate is 1.45 gpm @ 3450 rpm
Adjustable relief valve pre set at 2900 psi

Part Number: HPU12VCHFSD12-RC

Circuit 4way three position valve power out & power in
12vdc power source required
Steel tank 2.6 gallon capacity
Two button remote control
Flow rate is 1.45 gpm @3450 rpm
Adjustable relief valve pre set at 2900 psi



Power Units

HOW TO CREATE A POWER UNIT PART #



29

DC MOTOR
12 V
24V

MOTOR POWER SIZE
A = 1.1HP
B = 1.6 HP
C = 2 HP (STD 12V)
D = 2.6 HP (STD 24V)

TANK STYLE
V = VERTICALLY
H = HORIZONTALY

PUM DISPLACEMENT		
CDE	M/REV	CUI / REV GPM @ 3450RPM
A	0.75	0.0457 0.68 GPM
B	1	0.061 0.91 GPM
C	1.6	0.0976 1.45 GPM
D	2	0.122 1.45 GPM
E	2.5	0.153 1.82 GPM
F	3.3	0.201 3.00 GPM
G	4.2	0.256 3.82 GPM

System Pressure
D = 1450 PSI
E = 2320 PSI
F = 2900 PSI
G = 3265 PSI

CIRCUIT OPTION SEE PAGE TWO











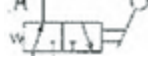


PORT SIZE
A = M14X1.5
B = M16X1.5
C = M18X1.5
D = 3/8 NPT

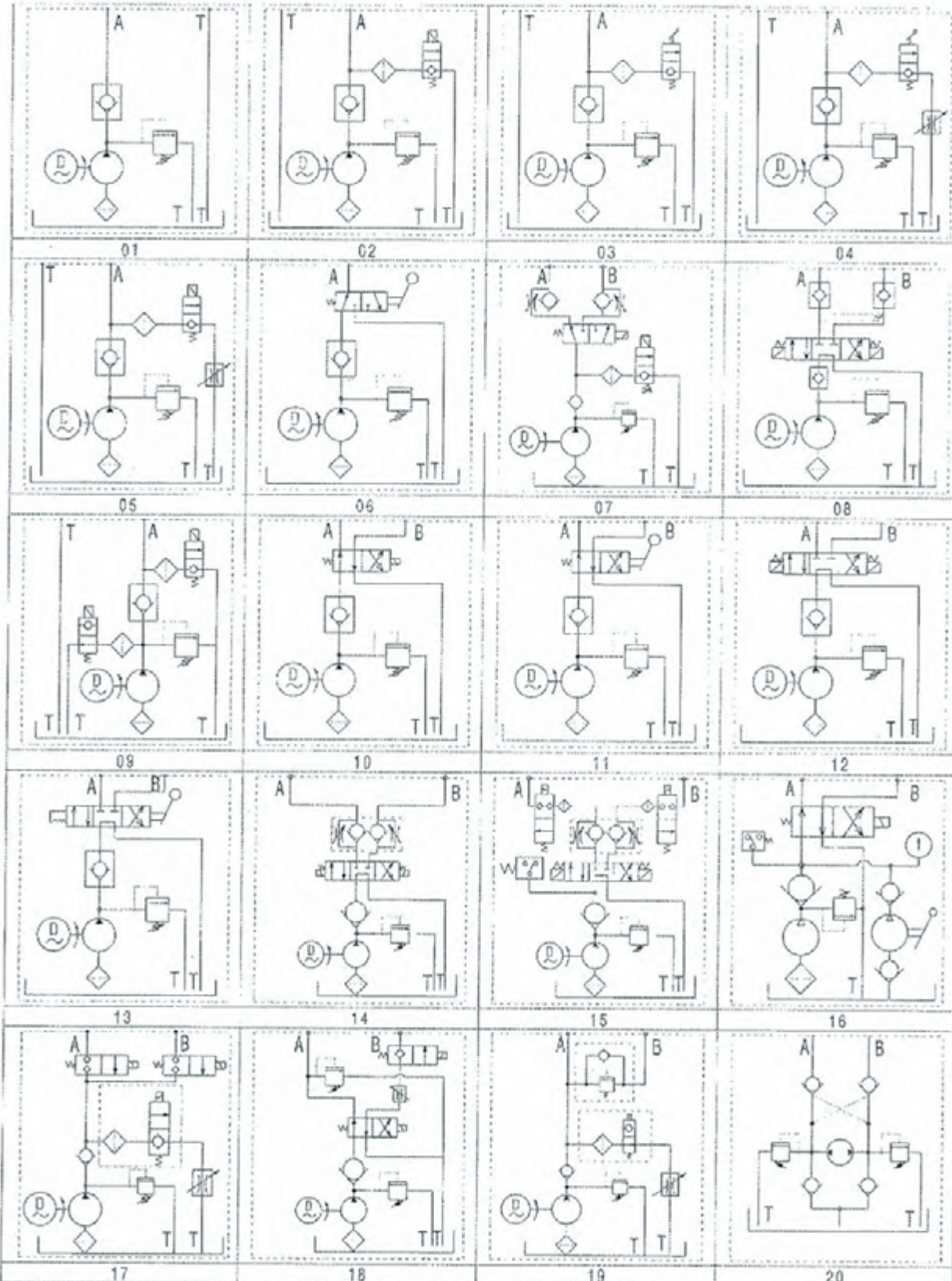
TANK MODEL / SIZES	
CODE	LITER GALLONS
M	1.7 2 QT
N	2.8 3 QT
O	3.9 1 GAL
P	5 1.3 GAL
Q	6 1.5 GAL
R	8 2.11 GAL
S	10 2.6 GAL
T	12 3.17 GAL
U	14 3.6 GAL
V	HORIZONTAL 3 GAL
W	HORIZONTAL 5 GAL

Power Units

Drawing of Circuits - Power Unit Hydraulic Schematic Diagram

Key

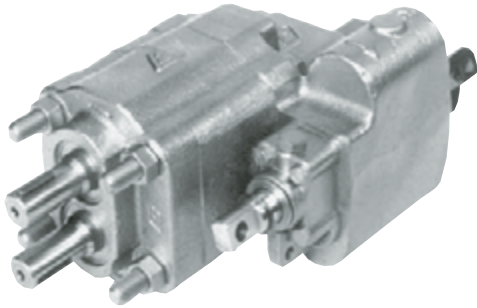
-  Two Position Manual Valve Spring Centered
-  Check Valve
-  Flow Control Adjustable
-  Two Position Solenoid Valve
-  Pilot Operated Check Valve
-  4 Way 3 Position Solenoid Spring Centered Valve
-  Relief Valve
-  Hydraulic Pump
-  Filter
-  12 VDC Electric Motor
-  Two Position 3 Way Spring Centered Manual Valve
-  Two Position 4 Way Spring Centered Solenoid Valve
-  Pressure Switch



Pumps And Motors

 Commercial Intertech

Series C101/C102



Heavy-Duty Hydraulic Power for Dump Trucks and Trailers

- 39 and 48 gpm @ 1800 rpm
- Pressures to 2500 psi
- Speeds to 2400 rpm
- 2- and 3-line installations
- Choice of mountings
- Air shift kits available
- Relief valve protects pump and cylinder



Reliable Pumps

Commercial has been the dump body industries pump/valve combination of choice for over 30 years. They're built on our heavy-duty P30 and P50 pump frames.

Commercial's pumps feature one-piece drive shafts and gears made of hardened, alloy steel and supported on heavy-duty roller bearings. Pressure balanced thrust plates provide an effective seal for continuous high efficiency and add to the outstanding service life of the pump.

Relief Valve Protection

A patented internal relief valve protects both the pump and the cylinder circuit. With the 3-position valve in the raise position, the relief valve acts as a system relief to protect against overloading. In the hold position, it acts as a port relief protecting the cylinder from shock loads commonly encountered during roading.

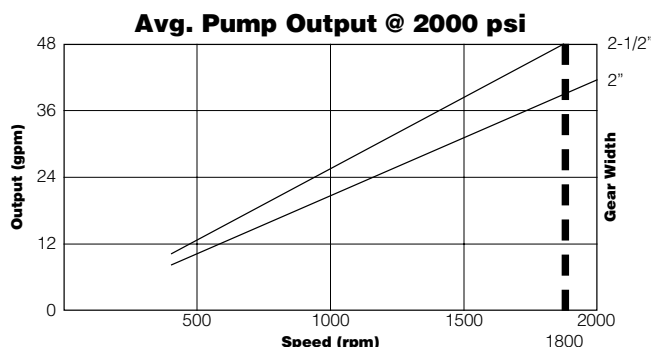
In three-line hookup, oil passing over the relief valve is vented to tank. This allows for continuous or intermittent operation. A 2-line hookup is used for intermittent operation only.

Commercial's pump/valves are rated for pressures to 2500 psi and are available in 9.5 gpm to 62 gpm (at 1800 rpm) models. Twin drive shafts permit them to be driven in either direction. The valve spools can be operated with a lever/cable or an air shift. Relief valves are factory set at 2000 psi.

Performance Data

Maximum speed is 2400 rpm. Operating pressures above 2000 psi are subject to the approval of our product support group. Performance data are the results of a series of tests of production units and are not necessarily representative of any one unit. Oil reservoir temperature was 120° F, viscosity of 150SUS at 100° F. Requests for more specific information should be directed to our component sales representatives.

See page 16 for ordering information.

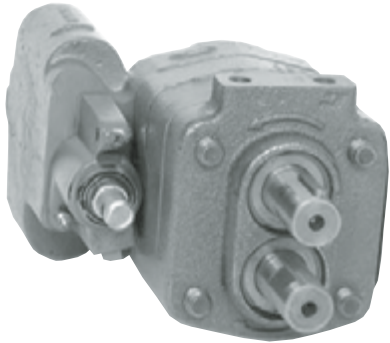


Pumps And Motors

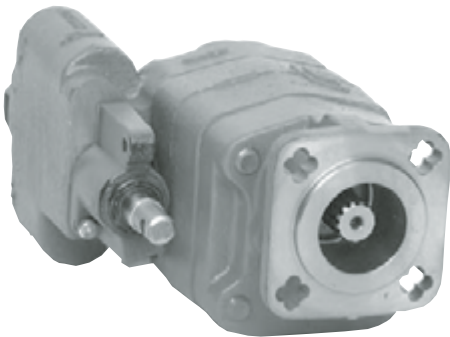
Series G101/G102



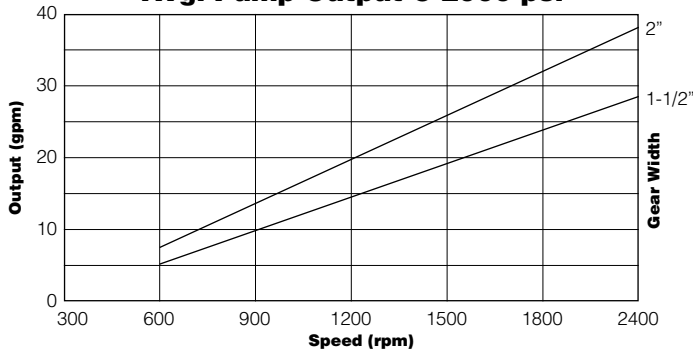
Pump/Valve Combinations



- 9.5 to 29 gpm @ 1800 rpm
- Pressures to 2500 psi
- Speeds to 2400 rpm
- 2- and 3-line installations
- Choice of mountings
- Air shift kits available
- Relief valve protects pump and cylinder



Avg. Pump Output @ 2000 psi



Reliable Pumps

Commercial's G101 pump/valves are a compact hydraulic power source for small dump trucks. They're based on Commercial's well proven P30 design. These heavy-duty units are rated for 2500 psi service at speeds up to 2400 rpm.

Pump output is controlled by a 3-way, 3-position valve built into the port end cover. The valve can be actuated from the truck's cab with a cable linkage or a remote air operator.

G101 Features:

- Lightweight
 - 31 lbs with 3/4" gears
 - 35 lbs with 1-1/2" gears
 - 38 lbs with 2" gears
- Twin drive shafts make installation easy regardless of rotation direction
- 2- or 3-line plumbing hookup
- Output @ 1800 rpm
 - 9.5 gpm (3/4" gears)
 - 21 gpm (1-1/2" gears)
 - 29 gpm (2" gears)

Mounting

The G101 is mounted with a 2-bolt pad cast into the shaft end cover. The G102 direct PTO mount version is available with SAE-B 2- or 4-bolt flange mountings or a cloverleaf mount with 2.75" pilot diameter.

Drive Shafts

G101's have twin 1" SAE-BB keyed shafts that permit CW or CCW hookup without modifying the unit. G102's have a single SAE-B splined shaft. Please specify direction of rotation when ordering G102 models.

Relief Valve Protection

The G101's internal relief valve protects both the cylinder and the pump. With the valve in the raise position, it protects the system against overloading. In hold, it acts as a port relief to protect the cylinder from shock loads. The relief valve is factory set at 2000 psi.

Performance Data

Performance data shown are average results based on a series of laboratory tests of production units and are not representative of any one unit. Tests were run with the oil reservoir temperature was 120° F, viscosity of 150SUS at 100°F. Requests for more specific information should be directed to our component sales representatives.

See page 16 for ordering information.

Pumps Parts

 Commercial Intertech

Series P20

P20 Parts Breakdown Typical Parts List

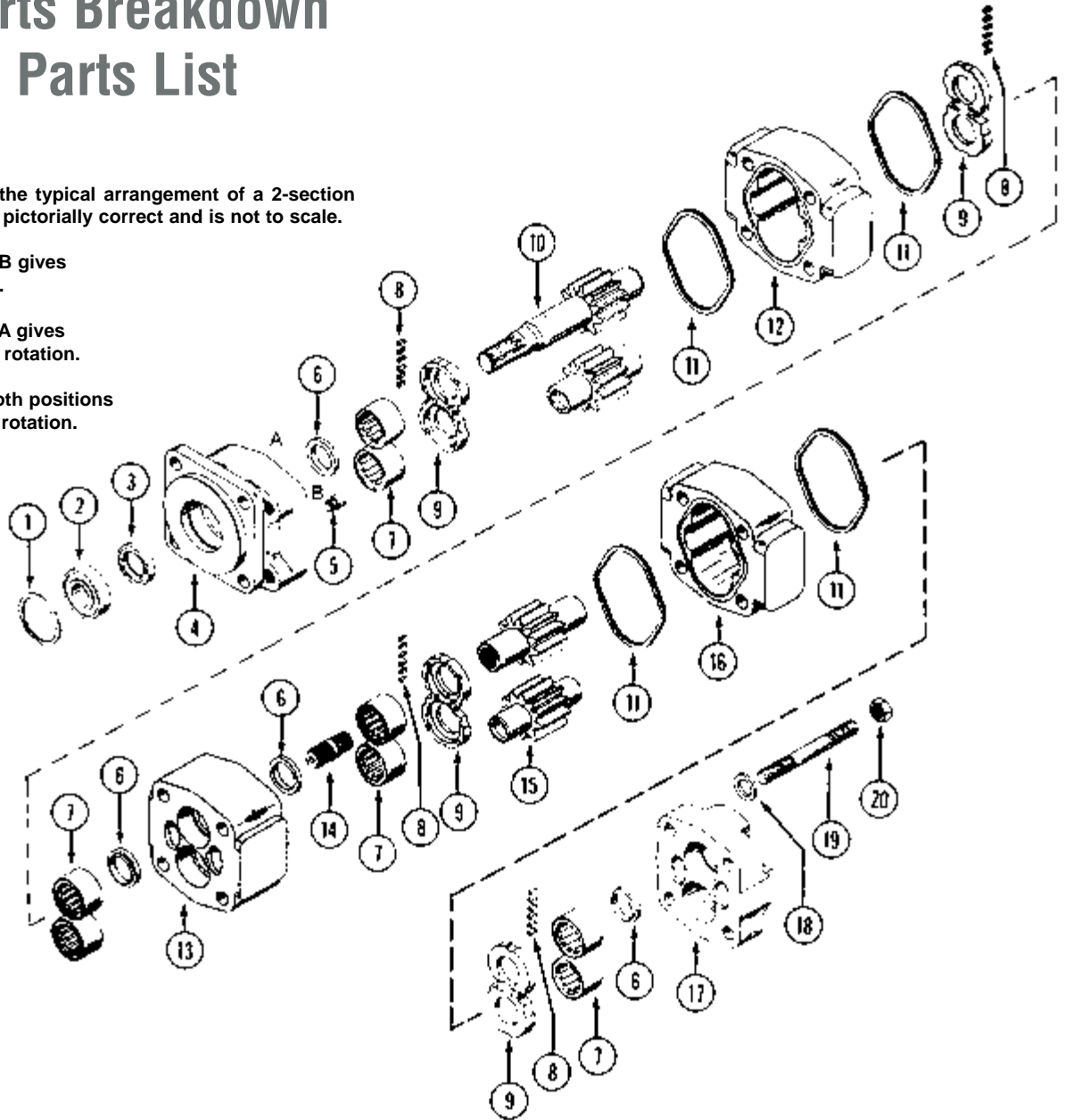
Note:

This page shows the typical arrangement of a 2-section unit. It may not be pictorially correct and is not to scale.

Plug 5 in position B gives clockwise rotation.

Plug 5 in position A gives counter-clockwise rotation.

Check valves in both positions give bi-directional rotation.



Item	Description	Part Number	Item	Description	Part Number
1	Snap Ring	CM-391-2686-063	11	Gasket Seals	580-239
2	Outboard Bearing	CM-391-0381-040	12	Gear Housing	See Option List
3	Seal	CM-391-2883-058	13	Bearing Carrier	See Option List
4	Shaft End Cover	See Option List	14	Connecting Shaft	See Option List
5	Check Assemblies or Plug	CM-391-3681-001	15	Matched Gear Set	See Option List
6	Ring Seals	CM-391-2585-006	16	Gear Housing	See Option List
7	Roller Bearings	CM-391-0381-906	17	Port End Cover	See Option List
8	Pocket Seals		18	Washers	
9	Thrust Plates	CM-391-2185-913	19	Studs or Cap Screws	
10	Integral Drive Shaft and Gear Set	See Option List	20	Nuts	

Pumps Parts

Series P30/P31



P30/P31 Parts Breakdown Typical Parts List

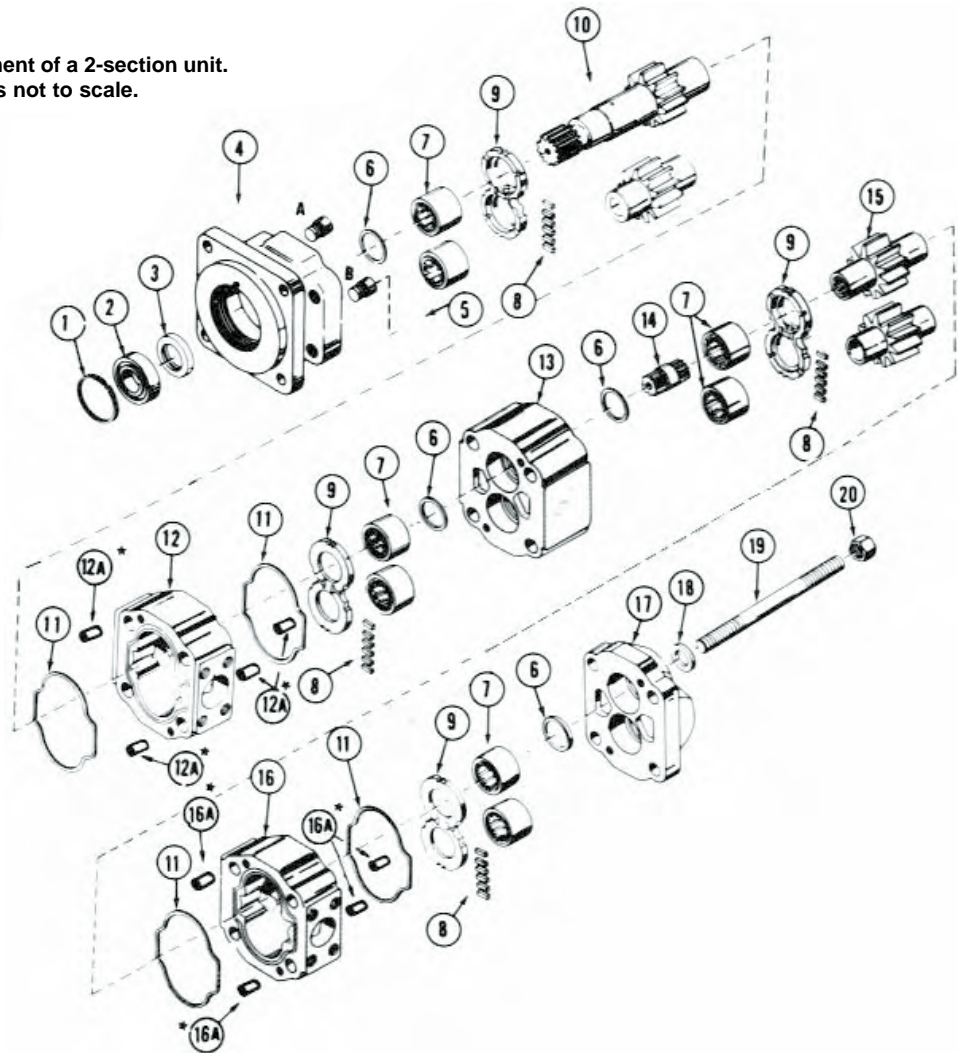
Note:

This page shows the typical arrangement of a 2-section unit.
It may not be pictorially correct and is not to scale.

Plug 5 in position B gives
clockwise rotation.

Plug 5 in position A gives
counter-clockwise rotation.

Check valves in both positions
give bi-directional rotation.



Item	Description	Part Number	Item	Description	Part Number
1	Snap Ring	CM-391-2686-063	11	Gasket Seals	CM-391-2884-050
2	Outboard Bearing	CM-391-0381-040	12	Gear Housing	
3	Seal (Pump)	CM-391-2883-058	12A	Dowel Pins (31 Series Only)	CM-391-2082-032
	Hi Pressure Seal (Motor)	CM-391-2883-119	13	Bearing Carrier	
4	Shaft End Cover		14	Connecting Shaft	CM-312-1133-001
5	Check Assemblies	CM-391-3681-001	15	Matched Gear Set	
	Plug	CM-391-2286-004	16	Gear Housing	
6	Ring Seals	CM-391-2585-006	16A	Dowel Pins	CM-391-2082-032
7	Roller Bearings	CM-391-0381-906	17	Port End Cover	
8	Pocket Seals		18	Washers	
9	Thrust Plates	CM-391-2185-913	19	Studs or Cap Screws	
10	Integral Drive Shaft and Gear Set		20	Nuts	

Pumps Parts

 Commercial Intertech

Series P50/P51

P50/P51 Parts Breakdown Typical Parts List

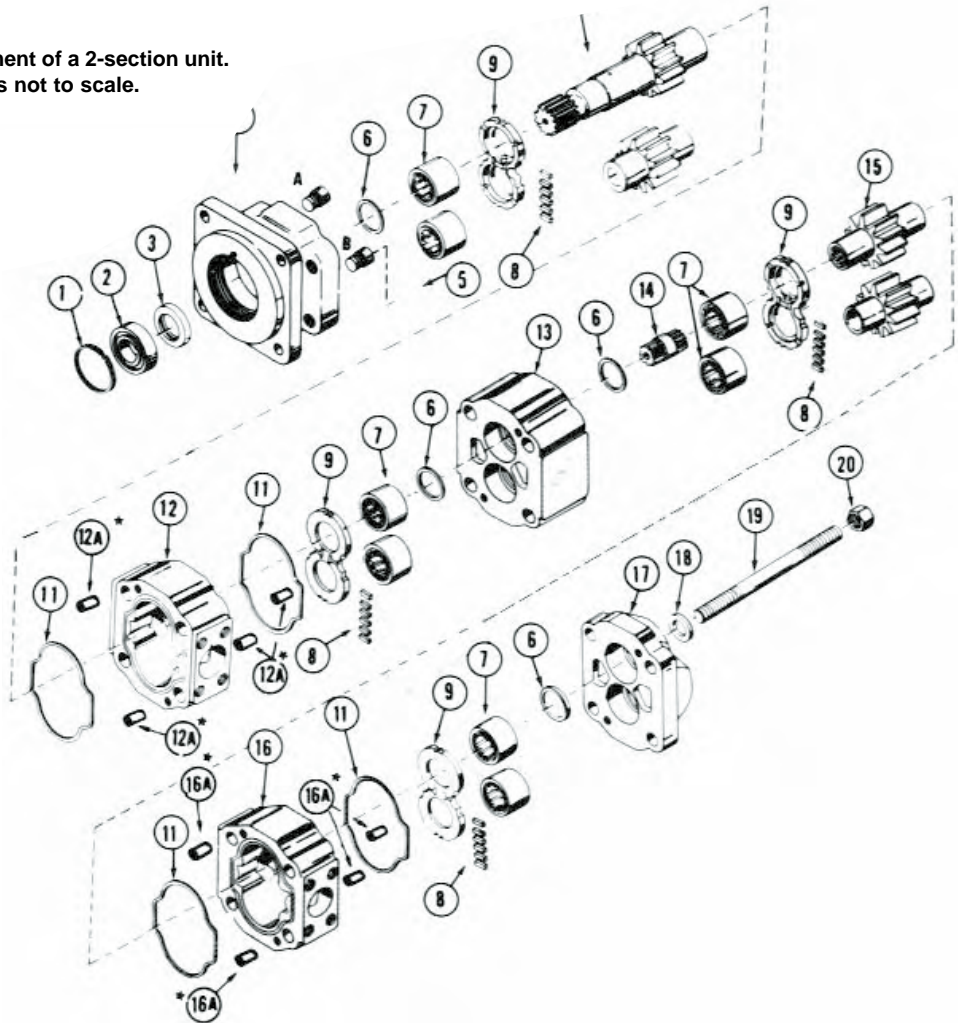
Note:

This page shows the typical arrangement of a 2-section unit. It may not be pictorially correct and is not to scale.

Plug 5 in position B gives clockwise rotation.

Plug 5 in position A gives counter-clockwise rotation.

Check valves in both positions give bi-directional rotation.



Item	Description	Part Number	Item	Description	Part Number
1	Snap Ring	CM-391-2686-065	11	Gasket Seals	CM-391-2884-021
2	Outboard Bearing	CM-391-0381-077	12	Gear Housing	
3	Seal	CM-391-2883-103	12A	Dowel Pins (51 Series Only)	CM-391-2082-032
4	Hi Pressure Seal (Motor)	CM-391-2883-115	13	Bearing Carrier	
5	Shaft End Cover		14	Connecting Shaft	CM-313-1133-001
6	Check Assemblies	CM-391-3681-001	15	Matched Gear Set	
7	Plug	CM-391-2286-004	16	Gear Housing	
8	Ring Seals	CM-391-2585-009	16A	Dowel Pins (51 Series Only)	CM-391-2082-032
9	Roller Bearings	CM-391-0381-905	17	Port End Cover	
10	Pocket Seals		18	Washers	
11	Thrust Plates	CM-391-2185-912	19	Studs or Cap Screws	
12	Integral Drive Shaft and Gear Set		20	Nuts	

Pumps Parts

Series P75/P76



P75/P76 Parts Breakdown Typical Parts List

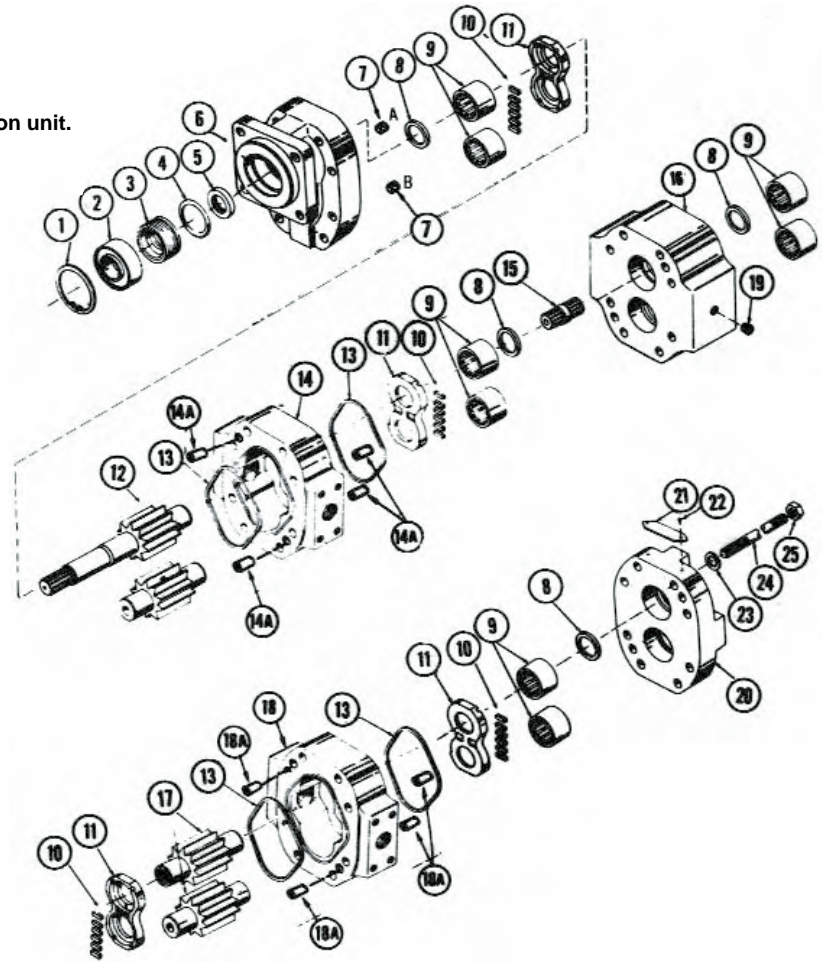
Note:

This page shows the typical arrangement of a 2-section unit. It may not be pictorially correct and is not to scale.

Plug 7 in position B gives clockwise rotation.

Plug 7 in position A gives counter-clockwise rotation.

Check valves in both positions give bi-directional rotation.



Item	Description	Part Number	Item	Description	Part Number
1	Snap Ring	CM-391-2686-025	13	Gasket Seals	580-252
2	Outboard Bearing	CM-391-0381-078	14	Gear Housing	
	Spacer	CM-391-3383-018	14A	Dowel Pins (P76 Only)	
3	Seal Retainer	CM-391-2584-051	15	Connecting Shaft	CM-391-2082-033
4	"O" Ring	CM-391-2881-457	16	Bearing Carrier	CM-316-1133-001
5	Seal (Pump)	CM-391-2883-052	17	Matched Gear Set	
	Seal (Motor)	CM-391-2883-094	18	Gear Housing	
6	Shaft End Cover		18A	Dowel Pins (P76 Only)	CM-391-2082-033
7	Check Assemblies	CM-391-3681-001	19	Plug	
	Plug	CM-391-2286-004	20	Port End Cover	
8	Ring Seals	CM-391-2585-011	21	Name Plate	
9	Roller Bearings	CM-391-0381-904	22	Drive Screws	
10	Pocket Seals	CM-391-2282-084	23	Washers	
11	Thrust Plates	CM-391-2185-920	24	Studs or Cap Screws	
12	Integral Drive Shaft and Gear Set		25	Nuts	

Pumps Parts

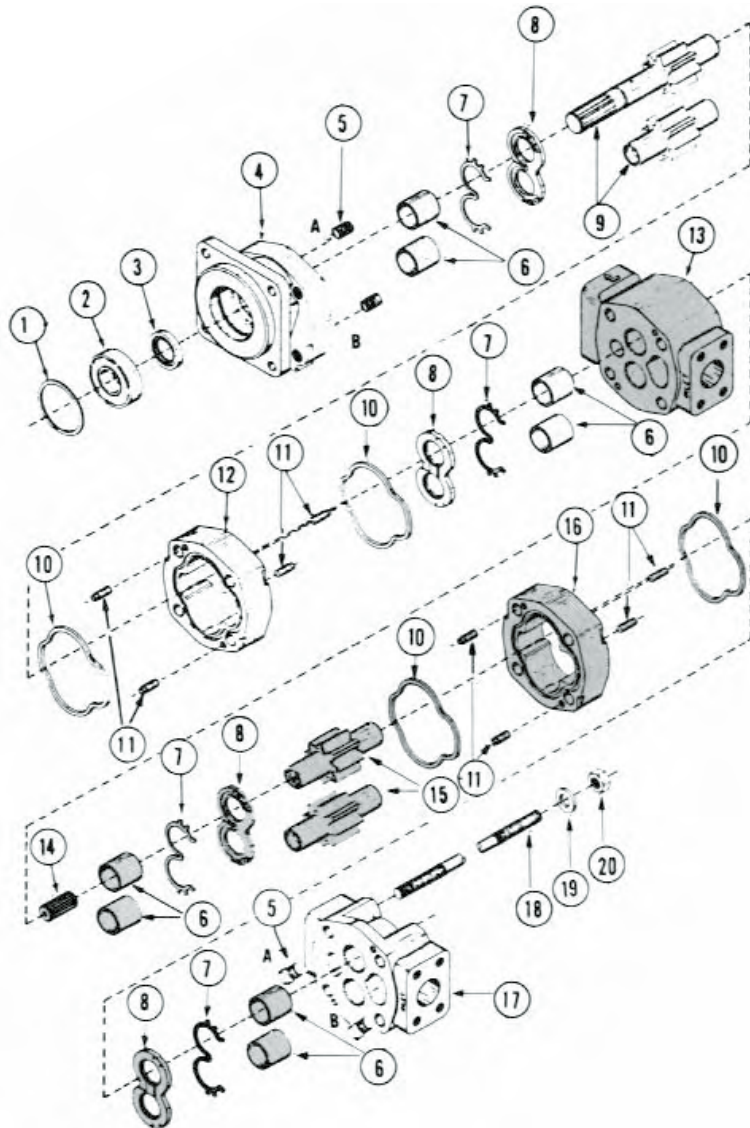
 Commercial Intertech

Series 330 350 365

P330 Parts Breakdown Typical Parts List

Note:

Plug 5 required in position A and B.



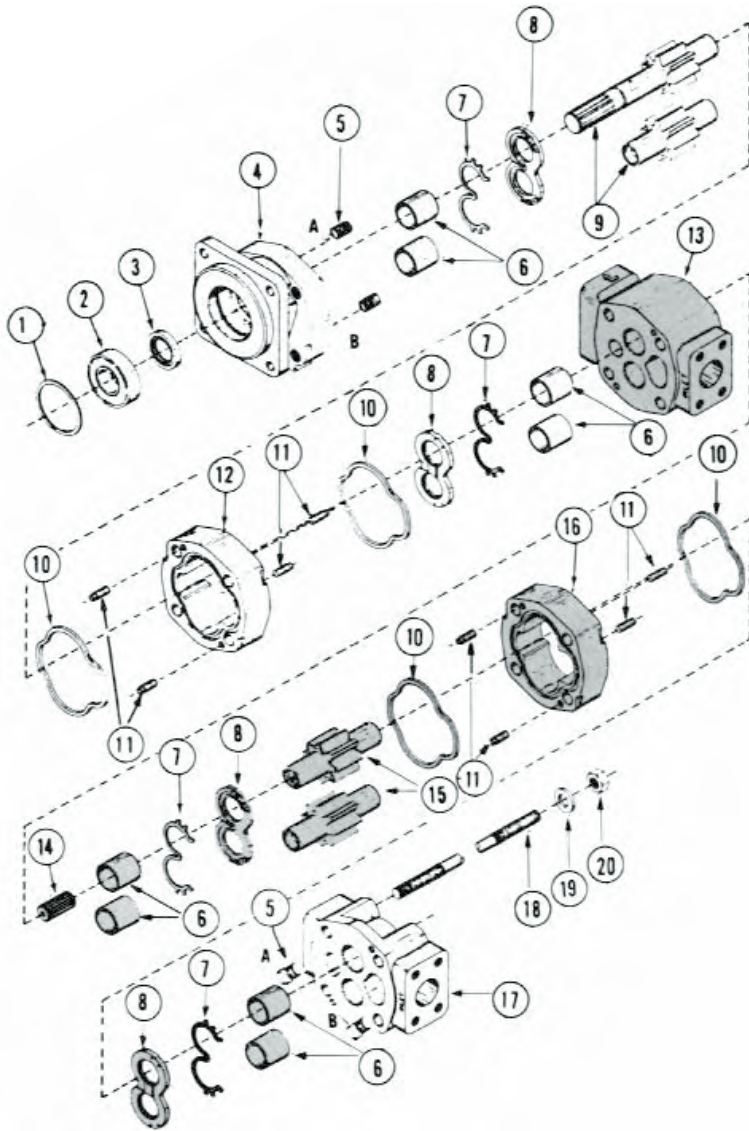
Item	Description	Part Number	Item	Description	Part Number
1	Snap Ring	300-206	10	Gasket Seal	580-242
2	Outboard Bearing	CM-391-0381-040	11	Dowel Pins (Solid)	CM-391-2082-032
3	Seal	CM-391-2883-058	12	Gear Housing	
4	Shaft End Cover		13	Bearing Carrier	
5	Check Valve (Motors Only)	CM-391-3681-001	14	Connection Shaft	CM-324-1133-001
6	Bushings	CM-391-0482-306	15	Matched Gear Set	
7	Channel Seal	CM-391-2885-065	16	Gear Housing	
8	Thrust Plates	CM-391-2185-956	17	Port End Cover	
9	Integral Drive Shaft and Gear Set		18	Studs or Cap Screws	
			19	Washers	
			20	Nuts	

Pumps Parts

Series 330 350 365

 **Commercial Intertech**

P350 Parts Breakdown Typical Parts List



Note:

Plug 5 in position B gives clockwise rotation.

Plug 5 in position A gives counter-clockwise rotation.

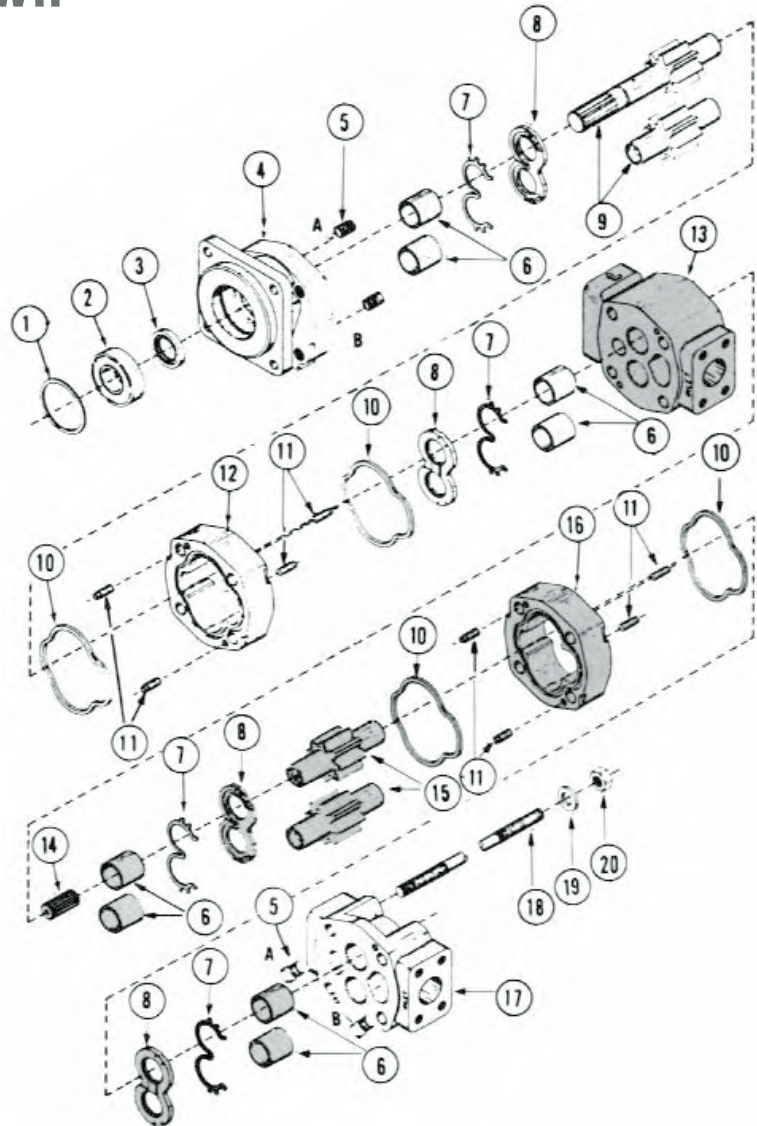
Item	Description	Part Number	Item	Description	Part Number
1	Snap Ring	WHM-283	10	Gasket Seal	580-246
2	Outboard Bearing	CM-391-0381-077	11	Dowel Pins (Solid)	CM-391-2082-032
3	Seal	CM-391-2883-103	12	Gear Housing	
4	Shaft End Cover		13	Bearing Carrier	
5	Check Valve Motor	CM-391-3681-001	14	Connection Shaft	CM-323-1133-001
6	Bushings	CM-391-0482-308	15	Matched Gear Set	
7	Channel Seal	CM-391-2885-066	16	Gear Housing	
8	Thrust Plates	CM-391-2185-957	17	Port End Cover	
9	Integral Drive Shaft and Gear Set		18	Studs or Cap Screws	
			19	Washers	
			20	Nuts	

Pumps Parts

 Commercial Intertech

Series 330 350 365

P365 Parts Breakdown Typical Parts List



Item	Description	Part Number	Item	Description	Part Number
1	Snap Ring	300-315	10	Gasket Seal	580-250
2	Outboard Bearing	CM-391-0381-078	11	Dowel Pins (Hollow)	CM-391-2082-062
3	Seal	CM-391-2883-052	12	Gear Housing	
4	Shaft End Cover		13	Bearing Carrier	
5	Check Valve (Motor Only)	CM-391-3681-001	14	Connection Shaft	CM-322-1133-001
6	Bushings	CM-391-0482-307	15	Matched Gear Set	
7	Channel Seal	CM-391-2885-064	16	Gear Housing	
8	Thrust Plates	CM-391-2185-955	17	Port End Cover	
9	Integral Drive Shaft and Gear Set		18	Studs or Cap Screws	
			19	Washers	
			20	Nuts	

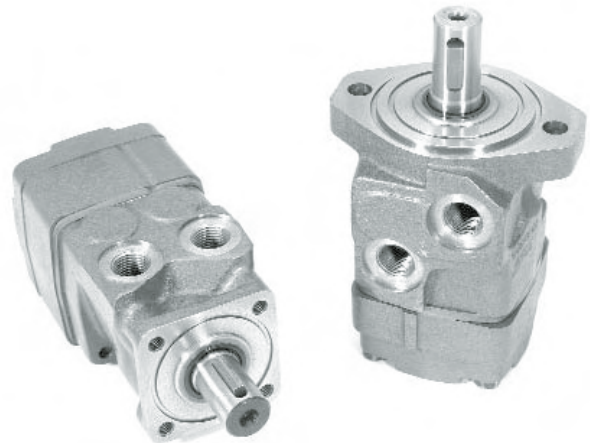
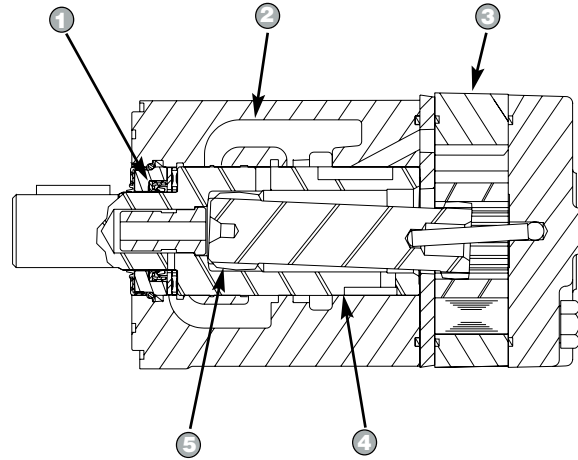
Motors

RS Series

FEATURES:

1. High Pressure Viton® Shaft Seal offers superior seal life and performance and eliminates the need for case drain.
2. Pressure Fed Bearing provides bearing surface with positive flow of clean, cool oil.
3. Roller Stator® Motor Design increases efficiency and life by using roller contact versus solid, sliding contact of competitive designs.
4. Match Ground Shaft is perfectly sized to housing bore to maintain highest volumetric efficiencies.
5. Heavy-Duty Drive Link receives full flow lubrication to provide long life.

RS



LOW COST, NOT LOW TECH

Being the most economical motors in the White product line in no way means the RS Series motors are low-tech. Unlike some competitive products which use power robbing, two-piece rotor set designs with sliding contact points, the RS Series motors utilize the patented Roller Stator motor design. This design uses seven precision roller for the contact points to reduce friction, providing more power and longer life for your application. Each output shaft is also custom ground to maintain exact tolerances between the housing and shaft, producing high volumetric efficiencies. Industry standard mounting flanges and output shafts allow the RS Series motors to interchange with most competitive designs.

SPECIFICATIONS

Code	Displacement in ³ /rev (cm ³ /rev)	Max Speed RPM		Max Flow GPM (LPM)		Max Torque lb-in (Nm)			Pressure Δ PSI(Δ Bar)		
		Cont.	Inter.	Cont.	Inter.	Cont.	Inter.	*Stall	Cont.	Inter.	Peak
03	3.2 (52)	400	490	6 (23)	10 (38)	730 (82)	840 (95)	580 (650)	1750 (121)	2000 (138)	2250 (155)
04	4.6 (76)	460	540	10 (38)	12 (45)	1070 (121)	1230 (138)	875 (100)	1750 (121)	2000 (138)	2250 (155)
05	5.4 (89)	420	580	10 (38)	14 (53)	1300 (150)	1480 (167)	1045 (118)	1750 (121)	2000 (138)	2250 (155)
99	6.3 (103)	510	570	14 (53)	16 (61)	1500 (169)	1725 (194)	1170 (132)	1750 (121)	2000 (138)	2250 (155)
06	6.8 (111)	460	600	14 (53)	18 (68)	1630 (184)	1900 (214)	1320 (149)	1750 (121)	2000 (138)	2250 (155)
08	7.7 (127)	410	530	14 (53)	18 (68)	1600 (180)	1850 (208)	1330 (151)	1500 (103)	1750 (121)	2250 (155)
10	10.0 (164)	370	460	16 (61)	20 (76)	1970 (222)	2350 (265)	1770 (200)	1500 (103)	1750 (121)	2250 (155)
12	12.5 (205)	300	370	16 (61)	20 (76)	2640 (297)	3050 (343)	2295 (259)	1500 (103)	1750 (121)	2250 (155)
14	15.5 (254)	300	360	20 (76)	24 (91)	2540 (268)	3040 (342)	2280 (258)	1250 (86)	1500 (103)	1750 (121)
18	17.9 (293)	300	310	20 (76)	24 (91)	2460 (277)	3100 (349)	2110 (238)	1000 (69)	1250 (86)	1500 (103)
24	24.9 (409)	190	220	20 (76)	24 (91)	3350 (377)	4100 (462)	3200 (362)	1000 (69)	1250 (86)	1500 (103)

* Stall torque measured at 1 RPM at continuous pressure per SAE J746b.

RE Series

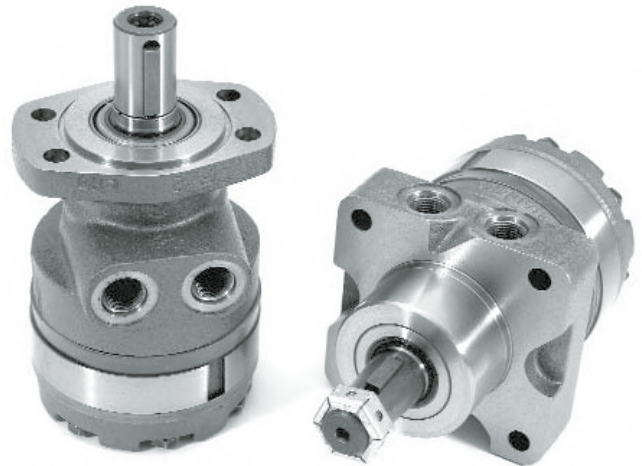
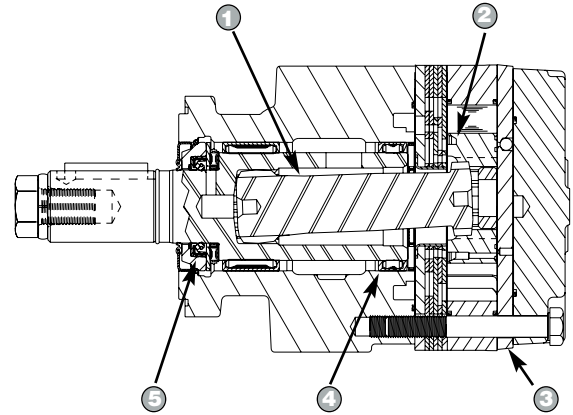


FEATURES:

1. Heavy-Duty Drive Link is most durable in its class and receives full flow lubrication to provide long life.
2. Valve-In-Rotor Design provides cost effective, efficient distribution of oil and reduces overall motor length.
3. Pressure-Compensated Balance Plate improves volumetric efficiency at low flows and high pressure.
4. Three Bearing Options allow load carrying capability of motor to be matched to application.
5. High Pressure Viton® Shaft Seal offer superior seal life and performance and eliminates need for case drain.

The RE Series motors offer the perfect compromise between price and performance by producing work-horse power at a reasonable cost. Although these motors perform well in a wide range of applications, they are especially suited for low flow, high pressure applications. During startup, pressure causes the balance plate to actually flex toward the rotor, vastly improving volumetric efficiency. As the motor reaches operating pressure, the balance plate relaxes, allowing the rotor to turn freely which translates into higher mechanical efficiencies. Transmitting this power to the output shaft is the most durable drive link in its class. Three bearing options, combined with standard mounting flanges and output shafts, allow the motor to be configured to suit nearly any application.

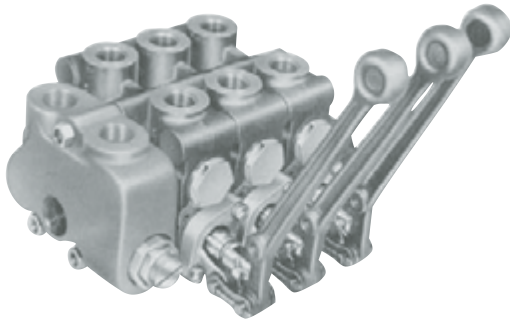
RE



SPECIFICATIONS

Code	Displacement in ³ /rev (cm ³ /rev)	Max Speed RPM		Max Flow GPM (LPM)		Max Torque lb-in (Nm)			Pressure ΔPSI(ΔBar)		
		Cont.	Inter.	Cont.	Inter.	Cont.	Inter.	*Stall	Cont.	Inter.	Peak
07	7.4 (121)	360	490	12 (45)	16 (61)	2900 (327)	3400 (383)	2240 (253)	3000 (207)	3500 (241)	4000 (276)
10	9.9 (162)	370	470	16 (61)	20 (76)	4200 (473)	4800 (540)	3100 (350)	3000 (207)	3500 (241)	4000 (276)
12	12.4 (204)	300	370	18 (68)	22 (83)	4800 (540)	5600 (631)	4200 (475)	3000 (207)	3500 (241)	4000 (276)
14	14.2 (232)	260	320	18 (68)	22 (83)	5700 (642)	6300 (709)	4905 (554)	3000 (207)	3500 (241)	4000 (276)
16	15.9 (261)	260	350	20 (76)	24 (91)	6300 (709)	7000 (788)	5345 (604)	3000 (207)	3500 (241)	4000 (276)
18	18.3 (300)	250	320	22 (83)	25 (95)	7300 (822)	8300 (935)	6095 (689)	3000 (207)	3500 (241)	4000 (276)
20	21.2 (348)	220	270	22 (83)	25 (95)	8150 (918)	9250 (1042)	6290 (711)	3000 (207)	3500 (241)	4000 (276)
24	22.8 (375)	200	250	20 (76)	24 (91)	8900 (1002)	10250 (1154)	7600 (859)	3000 (207)	3500 (241)	4000 (276)
26	28.3 (465)	160	200	20 (76)	24 (91)	9650 (1076)	10475 (1179)	8040 (909)	2500 (172)	2750 (189)	3000 (207)
32	32.7 (536)	140	170	20 (76)	24 (91)	8700 (980)	11000 (1239)	7260 (820)	2000 (138)	2500 (172)	3000 (207)
45	45.6 (748)	100	130	20 (76)	24 (91)	9400 (1028)	10950 (1233)	7905 (893)	1500 (103)	1750 (121)	2000 (138)

* Stall torque measured at 1 RPM at continuous pressure per SAE J746b.



V20

Directional Control Valves

Gresen's Model V20 Directional Control Valves are available for open center or closed center systems. Open center models are available for parallel, tandem, combined parallel/tandem or series circuits. Closed center models are available for constant pressure or load sensing parallel circuits.

Optional Reduced Pressure Drop work sections are available for parallel or tandem open center circuits.

The wide variety of circuit options and excellent performance provided by Model V20 make it ideally suited for back hoe, front end loader and personnel lift applications.

Specifications

Pressure Rating:

Continuous Operating, Max.3500 PSI (242 bar)

Capacity:

Nominal Flow20 GPM (76 litres/min)

Maximum Flow30 GPM (114 litres/min)

Operating Temperature:-40°F (-40°C) to 176°F (80°C)

Filtration Required (Min.)33 micrometre

Weight:

Inlet CoverApprox. 6 lbs. (2,7 kg)

Outlet CoverApprox. 3½ lbs. (1,6 kg)

Work Sections, EachApprox. 9 lbs. (4,10 kg)

Maximum Exhaust Core Pressure:

With Handle Bracket or Heavy Duty

Spool Seal Retainer Installed

Continuous Operating500 PSI (34,5 bar)

Intermittent Peak1000 PSI (69,0 bar)

With Standard Spool Seal Retainer

Installed200 PSI (13,8 bar)

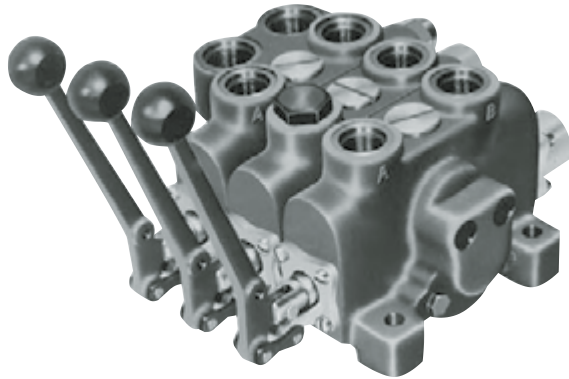


8398 Left Cover

V20 LEFT COVER (Housing No. 8398)

Order Code	Bill of Material #	End Inlet	Top Inlet	End Outlet	Top Outlet	Port Size SAE 12 [12]	Port Size 3/4" NPT [75]
20-LC-12	8650-029	•	•	•	•	•	
20-LC-75	8650-030	•	•	•	•		•

Note: All the above inlet covers are machined to accept the main relief cartridges listed below.
Two port plugs are furnished loose with each cover, one is machined for 1/4" NPTF gauge port.



25P

Directional Control Valves (FOR PARALLEL APPLICATION)

Gresen's Model 25P Directional Control Valve is a stack type valve which allows versatility in porting, assembly of various combinations of the different type working sections, and the addition of working sections in the field as required. 3-way, 4-way, Free Flow, and 4-way 4-position float sections can be combined in assemblies of 1 to 9 spools.

Excellent metering characteristics in raising and lowering positions make this valve an excellent choice for precise control of any implement.

Specifications

Pressure Rating:

Continuous Operating, Max. 2500 PSI (172,9 bar)

Capacity:

Nominal Flow 35 GPM (133 litres/min)

Operating Temperature: -40°F (-40°C) to 176°F (80°C)

Filtration Required (Min.)33 micrometre

Maximum Exhaust Core Pressure:

With Handle Bracket or Heavy Duty

Spool Seal Retainer Installed

Continuous Operating 1000 PSI (69,0 bar)

With Standard Spool Seal Retainer

Installed 500 PSI (34,5 bar)

25P LEFT COVER (Housing No. 8089)

Two Port Plugs are furnished with each Cover. One Plug is machined for 1/4" NPT gauge port. Gauge port will be plugged. All Left Covers machined to accept Main Relief Cartridges.



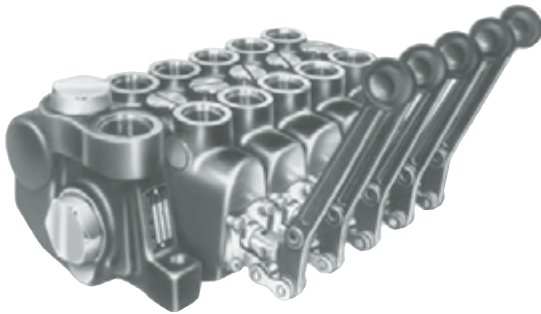
8089 Left Cover

Order Code	Bill of Material #	Top Inlet and Outlet	End Inlet and Outlet	1" NPT Ports (100)	SAE 16 Ports (16)
25-LC-100	8650-058	•	•	•	
40-LC-16	8650-057	•	•		•

8089 Left Cover with trepan grooves for use with 25P and V40 Valves

GRESEN®

Series V42



V42

Directional Control Valves

Gresen's Model V42 Directional Control Valve is designed for parallel hydraulic circuit applications, up to 3500 PSI (242 bar) continuous operating pressure. Pressure is limited to 2000 PSI (136 bar) if NPT pipe ports are required. For pressures beyond 2000 PSI, SAE straight thread O-ring ports or BSP ports are required.

Service or conversion is simple since individual sections can be added, removed or replaced in the field. Individual service or field conversion sections, rather than complete valve assemblies, can be stocked thus reducing inventories.

The Model V42 is a parallel circuit valve. Two or more spools may be actuated at the same time and the oil will follow the path of least resistance. If a 2-spool valve is used to control two hydraulic cylinders, each with a different load, the cylinder with the lightest load will operate first if both spools are fully actuated at the same time. If the spool controlling the cylinder with the light load is metered (not fully actuated), then both cylinders may be operated at the same time. When a spool is fully actuated, the open center core is blocked and oil is directed into the power core. Oil is then available to the work ports of all sections in the valve assembly.

Specifications

Pressure Rating:

Continuous Operating. *3500 PSI (242 bar)

*Limited to 2000 PSI (136 bar) when NPT pipe ports are used

Capacity: Flow rate is determined by the maximum pressure drop acceptable for the application

Operating Temperature: -40°F (-40°C) to 176°F (80°C)

Filtration Required (Min.)33 micrometre

Weight:

Inlet Cover Approx. 12 lbs. (5,4 kg)

Outlet Cover Approx. 6 lbs. (2,7 kg)

Work Section, Each Approx. 15 lbs. (6,8 kg)



8089 Left Cover

V42 LEFT COVERS (Housing No.'s 8089 & 8288)

Order Code	Bill of Material #	Top Inlet & Outlet	End Inlet & Outlet	SAE 20 [20]
42-LC-20	8650-032	.	.	.

NOTE: Two Port Plugs are furnished with each cover.
 One Plug is machined for 1/4" NPT gauge port.
 Gauge port will be plugged.
 All inlet Covers machined to accept Relief Cartridges.

Valves

GRESEN®

Series SP, SPK & SSK

Specifications

Capacity:Up to 20 GPM (75,7 litres/min)
 Maximum Pressure:2000 PSI (138,0 bar)
 Maximum Exhaust Core Pressure:500 PSI (34,5 bar)
 Operating Temperature:-40°F (-40°C) to 176°F (80°C)
 Filtration Required (Min.)33 micrometre

Monoblock Directional Control Valves

SP



The Gresen Model SP Directional Control Valve is manufactured to give outstanding, long-lasting performance. Spools are hone-fitted for above average "load-hold" characteristics.

Model SP Valves are available either 3-way (single-acting), 4-way (double-acting) or with combinations of both.

Monoblock valve housings are available in 1-, 2-, and 3-spool configurations. Optional spools, bonnet assemblies and ports are available on special order.

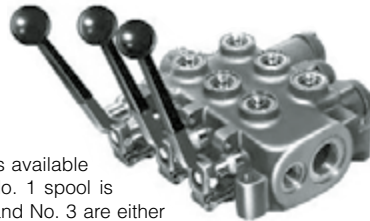
Features

- Adjustable or Non-Adjustable Ball/Spring Type Relief Valve.
- Optional Model WS Differential Poppet Main Relief Valve available.
- Built-In Load Checks - One Check for "A" Port Circuit and one for "B" Port Circuit.
- Control Handles may be mounted in "UP" or "DOWN" position. (Handles included as standard equipment, except with "A" or "W" options).
- Power Beyond Outlet Available.

Shipping Weights

1-Spool15½ lbs (7,03 kg)
2-Spool24 lbs (10,89 kg)
3-Spool32½ lbs (14,74 kg)

SPK



The Model SPK Directional Control Valve is available in 1-, 2-, or 3-spool configurations. The No. 1 spool is always a 4-way float spool. Spools No. 2 and No. 3 are either 3-way or 4-way, the same as in the SP valve.

The float spool is the same as the 4-way, 3-position spool, with the addition of a fourth "Float" position. When in "Float" position, the pump flow is directed to the tank through the open center core. Both work ports are open to the tank.

Applications for valves with "Float" positions are bulldozers, snow plows and other types of equipment that require a combination of both "Float" and "Hold" when in neutral.

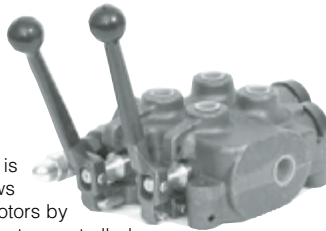
Features

- Detent in Float Position (Spool No. 1 only).
- Adjustable or Non-Adjustable Ball/Spring Type Relief Valve.
- Model WK Differential Poppet Relief available.
- Built-In Load Checks - One Check for "A" Port Circuit and one for "B" Port Circuit.
- Control Handles may be mounted in "UP" or "DOWN" position.
- Power Beyond Outlet Available.

Shipping Weights

1-Spool17½ lbs (7,94 kg)
2-Spool23½ lbs (10,66 kg)
3-Spool29½ lbs (13,38 kg)

SSK



The Model SSK 2-Spool Directional Control Valve is designed for Series Circuit Operation, which allows the simultaneous operation of two cylinders or motors by directing the discharge oil from the cylinder or motor controlled by the No. 1 spool to the cylinder or motor controlled by the No. 2 spool.

The No. 1 spool is a 4-way, 4-position float spool. This spool is spring-centered to neutral in 3 positions with a detent provided for the "Float" position. The No. 2 spool is a 4-way, 3-position spool with spring return to neutral from both work ports.

For use in any Open Center circuit where it is necessary to actuate two different functions simultaneously.

Features

- Available in 2-spool model only.
- Detent in Float Position (Spool No. 1 only).
- Adjustable or Non-Adjustable Ball/Spring Type Relief Valve.
- Model WK Differential Poppet Relief available.
- Built-In Load Checks - One Check for each spool.
- Control Handles may be mounted in "UP" or "DOWN" position.
- Power Beyond Outlet Available.

Shipping Weights

2-Spool24 lbs (10,89 kg)
---------	------------------------

Series 300 & 400

GRESEN®

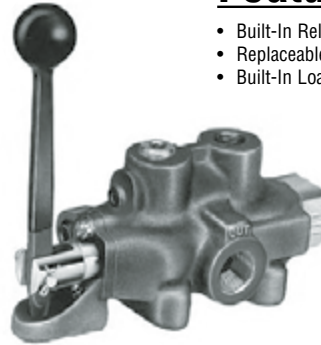
Directional Control Valves

300

The Model 300 Valve was designed to control a single-acting cylinder or a uni-directional hydraulic motor. The spool in this valve is a 3-way, 3-position spool - the 3 positions are Power, Neutral, and Exhaust. "B" Port is always the power port and "A" port is always plugged.

The Standard Model 300 Valve is spring-centered to neutral position with work port blocked in neutral. Optional spool and spool positioner assemblies are available.

This valve, available in single-spool housing only, is ideal for general mobile and industrial hydraulic applications.



Features

- Built-In Relief Valve, Shim adjustable (optional).
- Replaceable, Hardened Relief Valve Seats.
- Built-In Load Check.

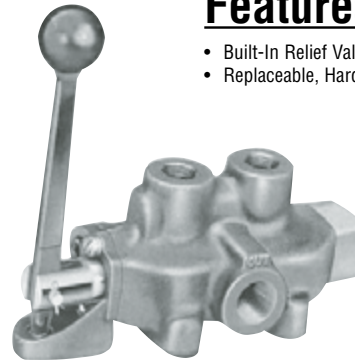
400

The Model 400 Valve was designed to control a double-acting cylinder or a reversible hydraulic motor. The standard spool in this valve is a 4-way, 3-position spool. The Model 400 Valve cannot be converted to a 3-way valve..

The Model 400 Valve does not have a load check assembly to prevent reverse flow.

The spool is spring-centered to Neutral position with cylinder ports blocked in neutral. Optional spool and spool positioner assemblies are available

This valve, available in single-spool housing only, is ideal for general mobile and industrial hydraulic applications.



Features

- Built-In Relief Valve, Shim adjustable (optional).
- Replaceable, Hardened Relief Valve Seats.

Specifications (Both Series)

With Standard Non-Adjustable Relief Valve

Capacity, nominal:16 GPM (60,56 litres/min)

Maximum Pressure:400 to 2500 PSI (27,6 to 172,5 bar)

With No Relief Valve (Relief Cavity not Machined)

Capacity, nominal:16 GPM (60,56 litres/min)

Maximum Pressure:2500 PSI (172,5 bar)

Maximum Exhaust Core Pressure:*1000 PSI (34,5 bar)

* Valves with exhaust core pressures above 500 PSI may require a heavy spool centering spring.

Operating Temperature:-40°F (-40°C) to 176°F (80°C)

Filtration Required (Min.)33 micrometre

Port Sizes:

Inlet and Outlet Ports 3/4 NPT

Work Ports 1/2 NPT

Shipping Weight:8 1/4 lbs. (3,74 kg)

Valves

Float Position Valves

GRESEN®

TWO-POSITION THREE-WAY (FLOAT POSITION) VALVES

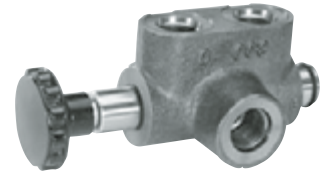
Features

- Pressure Balanced Spool
- Chrome Plated Spool
- High-Tensile Cast Iron Body
- Easy to Mount

MODEL H



MODEL HM



Specifications

	H	HM
Capacity (nominal):	.25 GPM (94 litres/min)	10 GPM (37 litres/min)
Maximum Operating Pressure:	.3000 PSI (207 bar)	2000 PSI (138 bar)
Shipping Weight:	.5½ lbs (2.5 kg)	2¾ lbs (1.3 kg)

MODEL HM 3-WAY (FLOAT) VALVES

(Two Position)

Order Code	Bill of Material #	Port Size	Knob/Clevis Option
HM-8	07254039	SAE 8	Knob

Selector Control Valves

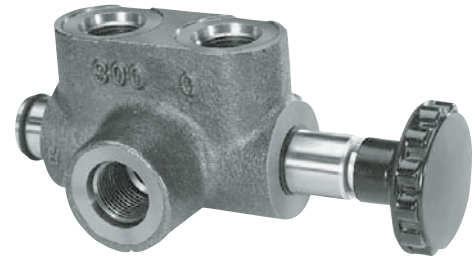
GRESEN®

TWO-POSITION THREE-WAY (SELECTOR) VALVE

Features

- Pressure Balanced Spool
- Chrome Plated Spool
- High-Tensile Cast Iron Body

MODEL SM



Specifications

	SM
Capacity (nominal):	.20 GPM (75 litres/min)
Maximum Operating Pressure:	.2000 PSI (138 bar)
Shipping Weight:	.2 ³ / ₄ lbs (1,3 kg)

MODEL SM SELECTOR VALVES

Order Code	Bill of Material #	Port Size	Reversed Spool [R]	Knob/Clevis Option
SM-38	07254009	3/8" NPT	-	Knob
SM-8	07254013	SAE 8	-	Knob

Flow Dividers

GRESEN®

PROPORTIONAL TYPE — PRESSURE COMPENSATED FLOW DIVIDER WITH OPTIONAL COMBINER FEATURE

MODEL PD **MODEL PDC**



Features

- Pressure Compensated.
- Optional Model PDC Synchronizes in Both Directions.
- Cross-Drilled, Shifting-Type Spool – provides extremely accurate metering.
- Six Ratios Available in Model PD.
- High-Tensile, Cast Iron Body.
- Hardened Metering Spool.

Specifications

Capacity (nominal)
 Low Flow Models: 5-20 GPM (18-94 litres/min)
 High Flow Models: 20-35 GPM (56-132 litres/min)
 Maximum Operating Pressure: 2500 PSI (172 bar)
 Shipping Weight: Approx. 7 lbs (3,2 kg)

MODELS PD FLOW DIVIDERS and PDC FLOW DIVIDER/COMBINER

(Proportional Type)

Order Code	Bill of Material #	Flow Rating	Pressure Rating	Port Size	Flow Dividing Ratio
PDC-50-50	08435001	5-20 GPM	2000 PSI	1/2" NPT	50/50
PDC-75-50	08435002	20-35 GPM	2000 PSI	3/4" NPT	50/50
PDC-12-50	08435017	20-35 GPM	2500 PSI	SAE 12	50/50

UP TO 20 GPM CAPACITY RELIEF VALVES

Features

- Two Housings Available For Tee-Mounting or In-Line Mounting.
- Adjustable and Non-Adjustable Models Available.
- Compacted Graphite Bodies.
- Replaceable, Hardened Seat.

Specifications

Capacity (nominal) Adjustable:Up to 20 GPM (75 litres/min)
Maximum Operating Pressure:2500 PSI (172 bar)
Shipping Weight:Approx. 2½ lbs. (1,1 kg)

MODEL JT



MODEL JL



MODEL JT RELIEF VALVES

(Ball/Spring, Tee Mounted Type)

Order Code	Bill of Material #	Port Size	Adjustment Option	Pressure Range, PSI*		
				290-1200	1201-2500	1801-2500
JT-10-2500-HP	8650-475	SAE 10	Screw		•	
JT-50-A-HP	11905009	½" NPT	Handle		•	
JT-50-1200	8650-471	½" NPT	Screw	•		
JT-50-2000-HP	8650-473	½" NPT	Screw		•	

*Relief valves set at the high setting within the range selected.

MODEL JL RELIEF VALVES

(Ball/Spring, Tee Mounted Type)

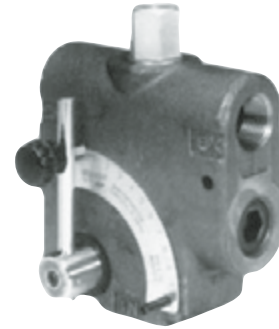
Order Code	Bill of Material #	Port Size	Adjustment Option	Pressure Range, PSI*			
				50-300	145-400	290-1200	1201-2500
JL-10-2500-HP	8650-476	SAE 10	Screw				•
JL-50-HP-2000	08650474	½" NPT	Screw				•
JL-50-LP 145-400 PSI	11893001	½" NPT	Screw		•		
JL-50-1200	08650472	½" NPT	Screw			•	
JL-75-N-LP 145-400 PSI	12058003	¾" NPT	Shim	•			
JL-75-1200	08650477	¾" NPT	Screw			•	
JL-75-2000-HP	08650478	¾" NPT	Screw				•

*Relief valves set at the high setting within the range selected. (Exception: order code JT-50-2000-HP is set at 2000 PSI)

Priority-Type FLOW CONTROL

Features

- Wildest array of cataloged port options
- Eliminates need for stand-off washers
- Readily convertible for three controlled-flow ranges
- Easily serviced with one rebuild kit



**MODEL
CFQ**

Specifications

Flow Rating:35 GPM (132,4 lpm) Max Inlet Flow
Maximum Operating Pressure:3000 PSI (207 bar)
Temperature fluid temp should not exceed 180°F
Shipping Weight: appx. 7.8 lbs. (3,5 kg)
Control Accuracy of Controlled-Flow: ±10%

MODEL CFQ FLOW CONTROL

Order Code	Bill of Material #	Port Sizes	Constant Flow	Relief Setting
CFQ-A-50	00984646	1/2" NPT	16 GPM	
CFQ-A-75	00984319	3/4" NPT	30 GPM	
CFQ-A-8	00984654	SAE 8	8 GPM	
CFQ-A-38-R	00984651	3/8" NPT	8 GPM	2500 PSI
CFQ-A-50-R	00984645	1/2" NPT	16 GPM	2500 PSI
CFQ-A-75R	00984318	3/4" NPT	30 GPM	2500 PSI
CFQ-A-8-R	00984653	SAE 8	8 GPM	2500 PSI

Accessories



SPECIFICATIONS:

- Black epox coated metal shroud with Polyamid sight tube
- Suitable for use with Mineral and Petroleum based hydraulic fluids, lubricants and gasoline
- Maximum operating temperature 194°F (90°C)
- Thermometer Calibration from -20°F to 180°F (-10°C to 80°C)
- SNA 076 has M10 bolts as standard
- SNA 127, SNA 254 has M12 bolts as standard
- Tightening Torque 70"/lb (7.9Nm)

Fluid Level Gauges



PART NUMBER	DESCRIPTION
STF-SNA076BS0-10	FLUID LEVEL GAUGE 3" long without thermometer
STF-SNA076BST-10	FLUID LEVEL GAUGE 3" long with thermometer
STF-SNA127BST-12	FLUID LEVEL GAUGE 5" long with thermometer
STF-SNA127BN012	FLUID LEVEL GAUGE 5" long without thermometer

SPECIFICATIONS:

- Chrome-Plated Metal Cap
- 30 Mesh Metal Basket
- Cork Gaskets
- Air Flow to 25cfm

Filler Breather



PART NUMBER	DESCRIPTION	
STF-SES6-P-40-N06	FILLER BREATHER	WEATHER PROOFED MINI 40 MICRON 3/8" NPT
STF-SES3-P-40-S80	FILLER BREATHER	WEATHER PROOFED 40 MICRON 80MM LONG BASKET
STF-SES5-P-40-N12*	FILLER BREATHER	WEATHER PROOFED 40 MICRON 3/4" NPT
STF-SES3-40-S80	FILLER BREATHER	40 MICRON 80MM LONG BASKET
STF-SES3L-40-S80	FILLER BREATHER	LOCKING TAB 40 MICRON 80MM LONG BASKET
STF-SES3-40-S150	FILLER BREATHER	40 MICRON 150MM LONG BASKET
STF-SES6-40-N04	FILLER BREATHER	MINI 40 MICRON 1/4" NPT
STF-SES6-40-N06	FILLER BREATHER	MINI 40 MICRON 3/8" NPT
STF-SES5-40-N12	FILLER BREATHER	40 MICRON 3/4" NPT

NOTE*(ABOVE FILLER BREATHERS ARE CHROME PLATED THAT ARE NOT WEATHER PROOFED)

Accessories



Pressure Gauges

SPECIFICATIONS:

- Copper alloy bourden tube
- Dual scales
- Built in relief valve
- Operating temperatures
Ambient - 4°F to 140°F (-20°C to 60°C)
Media 150°F (+60°C)
- Acrylic lens
- Accuracy = 1.5% of full scale
- Built in snubber

PART NUMBER	DESCRIPTION	
STF-SPG-63-3030S	PRESSURE GAUGE 2.5"	30" HG - 30 PSI BOTTOM MOUNT
STF-SPG-63-100S	PRESSURE GAUGE 2.5"	100 PSI BOTTOM MOUNT
STF-SPG-63-160S	PRESSURE GAUGE 2.5"	160 PSI BOTTOM MOUNT
STF-SPG-63-500S	PRESSURE GAUGE 2.5"	500 PSI BOTTOM MOUNT
STF-SPG-63-600S	PRESSURE GAUGE 2.5"	600 PSI BOTTOM MOUNT
STF-SPG-63-1000S	PRESSURE GAUGE 2.5"	1,000 PSI BOTTOM MOUNT
STF-SPG-63-1500S	PRESSURE GAUGE 2.5"	1,500 PSI BOTTOM MOUNT
STF-SPG-63-2000S	PRESSURE GAUGE 2.5"	2,000 PSI BOTTOM MOUNT
STF-SPG-63-3000S	PRESSURE GAUGE 2.5"	3,000 PSI BOTTOM MOUNT
STF-SPG-63-5000S	PRESSURE GAUGE 2.5"	5,000 PSI BOTTOM MOUNT
STF-SPG-63-6000S	PRESSURE GAUGE 2.5"	6,000 PSI BOTTOM MOUNT
STF-SPG-63-10000S	PRESSURE GAUGE 2.5"	10,000 PSI BOTTOM MOUNT
STF-SPG-63-3000P-U	PRESSURE GAUGE 2.5"	3,000 PSI PANEL MOUNT
STF-SPG-63-300S	PRESSURE GAUGE 2.5"	300 PSI BOTTOM MOUNT
STF-SPG-63-5000P-U	PRESSURE GAUGE 2.5"	5,000 PSI PANEL MOUNT
STF-SPG-100-300P-U	PRESSURE GAUGE 4"	300 PSI PANEL MOUNT
STF-SPG-100-10000S	PRESSURE GAUGE 4"	10,000 PSI BOTTOM MOUNT

* 1/4" NPT



Valves

SPECIFICATIONS:

- Check Valves
- Flow Control
- Metering Valve
- Needle Valve

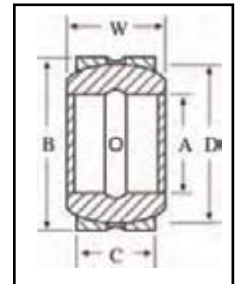
PART NUMBER	DESCRIPTION	
CF-C400S	CHECK VALVE	1/4" NPT 5PSI SPRING
CF-C600S	FLOW CONTROL	3/8" NPT 5PSI SPRING
CF-C800S	CHECK VALVE	1/2" NPT 5PSI SPRING
CF-1200S	CHECK VALVE	3/4" NPT 5PSI SPRING
CF-F400S	FLOW CONTROL	1/4" NPT STEEL 5GPM 5000PSI
CF-F600S	FLOW CONTROL	3/8" NPT STEEL 8GPM 5000 PSI
CF-F800S	FLOW CONTROL	1/2" NPT STEEL 15GPM 5000PSI
CF-F1200S	FLOW CONTROL	3/4" NPT STEEL 25GPM 5000PSI
CF-F1600-S	FLOW CONTROL	1" NPT STEEL 40GPM 5000PSI
CF-F400B	FLOW CONTROL	1/4" NPT BRASS 5GPM 2000PSI
CF-F600B	FLOW CONTROL	3/8" NPT BRASS 8GPM 2000PSI
CF-MV400S	METERING VALVE	1/4" NPT STEEL 5 GPM 5000PSI
CF-MV600S	METERING VALVE	3/8" NPT STEEL 8 GPM 5000PSI
CF-N400B	NEEDLE VALVE	1/4" NPT BRASS 5GPM 2000PSI
CF-N400S	NEEDLE VALVE	1/4" NPT STEEL 5GPM 5000PSI
CF-N600S	NEEDLE VALVE	3/8" NPT STEEL 8GPM 5000PSI

Accessories

Self Aligning Bearings

Inch

PART NUMBER	A	B	W	C	D
HH008ES	1/2	.875	.437	.375	.709
HH010ES	5/8	1.062	.547	.469	.899
HH012ES	3/4	1.250	.656	.562	1.803
HH014ES	7/8	1.438	.765	.656	1.260
HH100ES	1	1.625	.875	.750	1.417
HH104ES	1-1/4	2.000	1.093	.937	1.772
HH106ES	1-3/8	2.187	1.187	1.031	1.929
HH108ES	1-1/2	2.438	1.312	1.125	2.165
HH108ES2RS	1-1/2	2.438	1.312	1.125	2.165
HH112ES	1-3/4	2.812	1.531	1.312	2.520
HH112ES2RS	1-3/4	2.812	1.531	1.312	2.520
HH200ES	2	3.187	1.750	1.500	2.874
HH200ES2RS	2	3.187	1.750	1.500	2.874
HH204ES	2-1/4	3.562	1.969	1.687	3.228
HH204ES2RS	2-1/4	3.562	1.969	1.687	3.228
HH208ES	2-1/2	3.937	2.187	1.875	3.583
HH208ES2RS	2-1/2	3.937	2.187	1.875	3.583
HH212ES	2-3/4	4.375	2.406	2.062	3.937
HH212ES2RS	2-3/4	4.375	2.406	2.062	3.937
HH300ES	3	4.750	2.625	2.250	4.331
HH300ES2RS	3	4.750	2.625	2.250	4.331
HH304ES	3-1/4	5.125	2.844	2.437	4.685
HH308ES	3-1/2	5.500	3.062	2.625	5.039
HH308ES2RS	3-1/2	5.500	3.062	2.625	5.039
HH312ES	3-3/4	5.875	3.281	2.812	5.394
HH400ES	4	6.250	3.500	3.000	5.748
HH400ES2RS	4	6.250	3.500	3.000	5.748
HH408ES	4-1/2	7.000	3.937	3.375	6.457
HH500ES	5	7.750	4.375	3.750	7.205
HH600ES	6	8.750	4.750	4.125	8.150



Metric

Part Number	A	B	W	C	D
MHH20ES	20	35	16	12	29
MHH20ES2RS	20	35	16	12	29
MHH25ES	25	42	20	16	35.5
MHH25ES2RS	25	42	20	16	35.5
MHH30ES	30	47	22	18	40.7
MHH30ES2RS	30	47	22	18	40.7
MHH35ES	35	55	25	20	47
MHH35ES2RS	35	55	25	20	47
MHH40ES	40	62	28	22	53
MHH40ES2RS	40	62	28	22	53
MHH45ES2RS	45	68	32	25	60
MHH50ES	50	75	35	28	66
MHH50ES2RS	50	75	35	28	66
MHH60ES	60	90	44	36	80
MHH70ES	70	105	49	40	92
MHH70ES2RS	70	105	49	30	92
MHH80ES	80	120	55	45	105

O-Ring Kits



This kit contains a total of 382 O-Rings in 30 different sizes, providing an extremely low cost per size value.

O-Ring Kit

Part Number: **568 Kit - A**

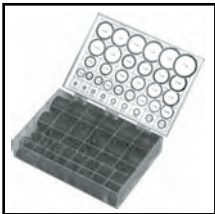
PART NUMBER	QTY	PART NUMBER	QTY
006-012	20	210-222	10
110-116	13	325-327	7

O-Ring Metric Kit

Part Number: **Metric O Kit - J-A**

I.D X C.S. (mm)	QTY	I.D X C.S. (mm)	QTY
3 X 2.0	16	20 X 3.0	12
4 X 2.0	16	22 X 3.0	12
5 X 2.0	16	24 X 3.0	12
6 X 2.0	16	25 X 3.0	12
7 X 2.0	16	27 X 3.0	12
8 X 2.0	16	28 X 3.0	12
10 X 2.0	16	30 X 3.0	12
10 X 2.5	16	32 X 3.0	12
11 X 2.5	13	33 X 3.0	12
12 X 2.5	13	35 X 3.0	12
14 X 2.5	13	36 X 3.0	12
16 X 2.5	13	38 X 3.0	12
17 X 2.5	13	38 X 4.0	9
19 X 2.5	13	41 X 4.0	9
19 X 3.0	12	44 X 4.0	9

The Metric O-Kit J-A contains a total of 389 O-Rings in 30 different sizes, another extremely low cost per size value.



This kit contains a total of 436 70 Durometer O-Rings in 36 different sizes, providing an extremely low cost per size value.

O-Ring Metric Kit

Part Number: **568 Kit**

PART NUMBER	QTY	PART NUMBER	QTY
005-011	25	111-116	10
012	15	117-121	7
013-018	10	210-211	10
110	15	212-219	7

O-Ring Kits



Quad Warehouse Kit

Part Number: Quad-Ring WH Kit

PART NUMBER	QTY	PART NUMBER	QTY
QR-4004-012	10	QR-4125-135	3
QR-4013-030	5	QR-4136-154	2
QR-4031-038	3	QR-4204-216	5
QR-4039-048	2	QR-4217-229	3
QR-4108-116	10	QR-4230-338	2
QR-4117-124	5		

Similar to the O-Ring Warehouse kit, the Quad Seal Warehouse kit contains a total of 583 four-lobed seals in 145 different sizes. This kit is ideal for the small distributor who wishes to have a comprehensive on-hand inventory of Quad seals for counter sales.

O-Ring Warehouse Kit

Part Number: 568 WH Kit

PART NUMBER	QTY	PART NUMBER	QTY
001-016	20	217-229	5
017-024	10	230-232	3
025-031	7	233-237	2
032-043	5	325-328	5
044-046	2	329-330	4
110-116	15	331-338	2
117-124	10	901-914	5
125-142	5	916, 918	5
143-146	3	920, 924	5
147-151	2	928, 932	5
210-216	10		

Our O-ring Warehouse kit is ideally suited for the repair shop that needs a large on-hand selection of O-rings to insure quick repair of all machine types. 1,110 O-Rings in 150 different sizes are included in this kit. Each size is individually packaged in heavy duty ziploc bags to protect against environmental exposure and contamination. All packages are then stored in a sturdy styrene cabinet with pull-out drawers for easy access to parts. Included card shows size, dimensions, and drawer location for each ring.

O-Ring Kits

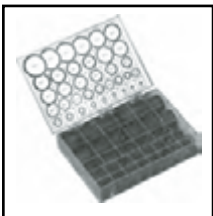
90 Durometer O-Ring Warehouse Kit

Part Number: 568 WH Kit-90D



Our 90 Durometer O-ring Warehouse kit is ideally suited for the repair shop that needs a large on-hand selection of O-Rings to insure quick repair of all machine types. 1,110 O-Rings in 150 different sizes are included in this kit.

PART NUMBER	QTY	PART NUMBER	QTY
001-016-90D	20	217-229-90D	5
017-024-90D	10	230-232-90D	3
025-031-90D	7	233-237-90D	2
032-043-90D	5	325-328-90D	5
044-046-90D	2	329-330-90D	4
110-116-90D	15	331-338-90D	2
117-124-90D	10	901-914-90D	5
125-142-90D	5	916, 918-90D	5
143-146-90D	3	920, 924-90D	5
147-151-90D	2	928, 932-90D	5
210-216-90D	10		



90 Durometer O-Ring Kit

Part Number: 568 90D Kit

PART NUMBER	QTY	PART NUMBER	QTY
005-011-90D	25	111-116-90D	10
012-90D	15	117-121-90D	7
013-018-90D	10	210-211-90D	10
110-90D	15	212-219-90D	7



This kit contains a total of 436 90 Durometer O-Rings in 36 different sizes, providing an extremely low cost per size value.

900 Boss O-Ring Kit

Part Number: 900 Boss Kit

PART NUMBER	QTY
901-904	10
905-910	12
911-914	10
916, 918, 920	10
924, 928, 932	10

O-Ring Kits

Max O-Ring Kit

Part Number:
MAX1381 Kit

Part Number:
MAX1381 Kit - 90D

These sturdy kits, packaged in a heavy duty box, contains 1415 O-Rings in the most popular sizes. Every service truck should have one of these. Five internal boxes contain 1/16" C/S, 3/32" C/S, 1/8" C/S, Boss and Flange fitting o-rings. Contents and quantities are listed below.



Flange Seals

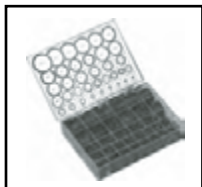
FLANGE NUMBER	QTY	FLANGE NUMBER	QTY
8	10	20	5
12	10	24	5
16	10	32	5

Boss O-Rings

BOSS NUMBER	QTY	BOSS NUMBER	QTY
903	15	907	25
904	25	910	25
906	15	912	15
906	25	916	10

1/16" C/S O-Rings

O-RING NUMBER	QTY	O-RING NUMBER	QTY
006 - 118	25	028	15
019 - 021	20	029	10
022 - 026	15	030	10



This kit contains a total of 436 75 Durometer Fluorocarbon O-Rings in 36 different sizes, providing an extremely low cost per size value.

3/32" C/S O-Rings

O-RING NUMBER	QTY	O-RING NUMBER	QTY
109 - 118	25	129	10
119 - 120	20	131	10
121 - 127	15	133	10
128	10	135	5

1/8" C/S O-Rings

O-RING NUMBER	QTY	O-RING NUMBER	QTY
210 - 214	20	228	10
215 - 222	15	232	10
223 - 224	10	236	10
226	10		

Fluorocarbon O-Ring Kit

Part Number: 568 FC Kit

PART NUMBER	QTY	PART NUMBER	QTY
005-011V	25	111-116V	10
012V	15	117-121V	7
013-018V	10	210-211V	10
110V	15	212-219V	7

O-Ring Kits



900 Boss Fluorocarbon O-Ring Kit

Part Number: 900 Boss FC

This 250 piece assortment contains the most popular size 90 Durometer Boss O-rings, individually boxed, which will supply your shop, service truck, or parts counter with the sizes you need!

PART NUMBER	QTY
904V	35
905-906V	30
907-910V	20
911-914V	15
916V	15

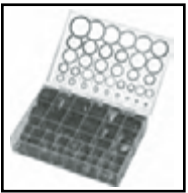


PTFE O-Ring Kit

Part Number: 568 PTFE Kit

This kit contains a total of 325 PTFE O-Rings (55 - 58 Shore D) in 36 different sizes. PTFE O-Rings can withstand temperatures up to 500° F and are impervious to a wide range of chemicals.

PART NUMBER	QTY
005-012T	15
013-018T	10
110-116T	10
117-121T	5
210-219T	5



Quad Ring Kit

Part Number: Quad Ring Kit

This kit contains a total of 226 Quad Seals in 36 different sizes, providing an extremely low cost per size value.

PART NUMBER	QTY	PART NUMBER	QTY
4005-4012	10	4110-4116	6
4013-4016	6	4117-4121	4
4017-4018	5	4210-4219	5

O-Ring Kits

O-Ring Face Kit

Part Number: 568 Face Kit

PART NUMBER	QTY	PART NUMBER	QTY
011-90D	25	018-90D	20
012-90D	25	021-90D	15
014-90D	25	025-90D	10
016-90D	25	029-90D	10

This kit contains a total of 155 90 Durometer O-Rings in 8 different sizes, providing an extremely low cost per size value.



O-Ring Flange Kit

Part Number: 568 Flange Kit

PART NUMBER	QTY	PART NUMBER	QTY
210-90D	10	225-90D	10
214-90D	10	228-90D	10
219-90D	10	232-90D	10
222-90D	10		

This kit contains a total of 70, 90 Durometer O-Rings, in 7 different sizes, providing an extremely low cost per size value.



Split Flange Seal Kit

Part Number: SFS Kit

PART NUMBER	QTY	PART NUMBER	QTY
SFS-8	5	SFS-24	5
SFS-12	5	SFS-32	5
SFS-16	5	SFS-40	5
SFS-20	5		

This kit contains 35 Split Flange Seals in 7 popular sizes.

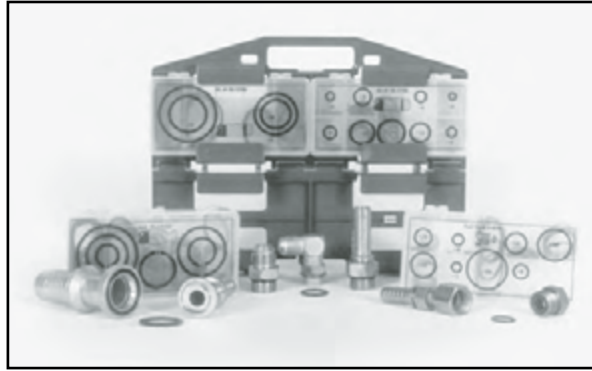


O-Ring Kits

Hose End & Adapter Kit

Part Number: O-R Fitting Kit

This handy kit contains 27 sizes and 216 pieces of 90A Durometer O-rings for boss, split flange and flat face hose end fittings and adapters. Each box has a graphic label identifying the type of application and dash number for the seal. A chart on the back of the box lists popular OEM part number matches for each O-ring. Due to popular demand, these kits are now available individually.



SAE Flange Seals

Part Number: SAE Flange Seals

Flat Face Seals

Part Number: Flat Face O-Rings

BOX PART NUMBER	PART NUMBER	QTY
-8	568-210-90D	8
-12	568-214-90D	8
-16	568-219-90D	8
-20	568-222-90D	8
-24	568-225-90D	8
-32	568-228-90D	8

BOX PART NUMBER	PART NUMBER	QTY
-6	568-012-90D	8
-8	568-014-90D	8
-10	568-016-90D	8
-12	568-018-90D	8
-16	568-021-90D	8
-20	568-025-90D	8
-24	568-029-90D	8

Boss & Tube Seals

Part Number: Boss & Tube Fittings-1

Part Number: Boss & Tube Fittings-2

BOX PART NUMBER	PART NUMBER	QTY	BOX PART NUMBER	PART NUMBER	QTY
-2	568-902	8	-12	568-912	8
-3	568-903	8	-14	568-914	8
-4	568-904	8	-16	568-916	8
-5	568-905	8	-20	568-920	8
-6	568-906	8	-24	568-924	8
-8	568-908	8	-32	568-932	8
-10	568-910	8			

O-Ring Kits

Common Japanese Sizes O-Rings in 70 Durometer

Part Number: **Metric O Kit-J**

I.D.	C.S	QTY	I.D.	C.S	QTY
2.8	1.9	25	20.8	2.4	8
3.8	1.9	20	21.8	2.4	8
4.8	1.9	20	24.4	3.1	6
5.8	1.9	20	29.4	3.1	7
6.8	1.9	15	21.7	3.5	5
7.8	1.9	15	22.1	3.5	5
8.8	1.9	15	23.7	3.5	7
9.8	1.9	15	24.7	3.5	7
9.8	2.4	15	25.2	3.5	7
10.8	2.4	15	25.7	3.5	7
11.0	2.4	15	27.7	3.5	7
11.8	2.4	12	28.7	3.5	6
12.8	2.4	12	29.2	3.5	6
13.8	2.4	12	29.7	3.5	6
14.8	2.4	12	30.7	3.5	6
15.8	2.4	12	31.2	3.5	6
17.8	2.4	8	14.5	4.0	4
19.8	2.4	8	23.5	4.0	6

This 380 piece kit contains the most popular Japanese Industrial metric O-ring sizes.

Common Japanese Sizes O-Rings in 90 Durometer

Part Number: **Metric O Kit-J-90D**



I.D.	C.S	QTY	I.D.	C.S	QTY
2.8	1.9	25	20.8	2.4	8
3.8	1.9	20	21.8	2.4	8
4.8	1.9	20	24.4	3.1	6
5.8	1.9	20	29.4	3.1	7
6.8	1.9	15	21.7	3.5	5
7.8	1.9	15	22.1	3.5	5
8.8	1.9	15	23.7	3.5	7
9.8	1.9	15	24.7	3.5	7
9.8	2.4	15	25.2	3.5	7
10.8	2.4	15	25.7	3.5	7
11.0	2.4	15	27.7	3.5	7
11.8	2.4	12	28.7	3.5	6
12.8	2.4	12	29.2	3.5	6
13.8	2.4	12	29.7	3.5	6
14.8	2.4	12	30.7	3.5	6
15.8	2.4	12	31.2	3.5	6
17.8	2.4	8	14.5	4.0	4
19.8	2.4	8	23.5	4.0	6

This 380 piece kit contains the most popular Japanese Industrial metric O-ring sizes in 90 durometer NBR.

O-Ring Kits



Common European Sizes O-Rings in 70 Durometer

Part Number: Metric O Kit-E

I.D.	C.S.	QTY	I.D.	C.S.	QTY
5.0	1.5	20	19.0	2.0	10
13.0	1.5	15	20.0	2.0	10
16.0	1.5	10	4.3	2.4	15
2.2	1.6	20	5.3	2.4	15
3.1	1.6	20	5.6	2.4	15
4.1	1.6	20	7.6	2.4	15
7.1	1.6	20	8.3	2.4	15
9.1	1.6	15	8.6	2.4	15
10.1	1.6	15	10.0	2.5	10
13.1	1.6	15	13.0	2.5	10
4.0	2.0	20	14.0	2.5	10
6.0	2.0	20	15.0	2.5	10
8.0	2.0	15	17.0	2.5	10
9.0	2.0	15	18.0	2.5	10
10.0	2.0	15	19.0	2.5	10
12.0	2.0	15	9.0	3.0	10
14.0	2.0	10	10.0	3.0	10
16.0	2.0	10	11.0	3.0	10

This 500 piece kit contains the most popular European metric O-ring sizes.

Common European Sizes O-Rings in 90 Durometer

Part Number: Metric O Kit-E-90D

I.D.	C.S.	QTY	I.D.	C.S.	QTY
5.0	1.5	20	19.0	2.0	10
13.0	1.5	15	20.0	2.0	10
16.0	1.5	10	4.3	2.4	15
2.2	1.6	20	5.3	2.4	15
3.1	1.6	20	5.6	2.4	15
4.1	1.6	20	7.6	2.4	15
7.1	1.6	20	8.3	2.4	15
9.1	1.6	15	8.6	2.4	15
10.1	1.6	15	10.0	2.5	10
13.1	1.6	15	13.0	2.5	10
4.0	2.0	20	14.0	2.5	10
6.0	2.0	20	15.0	2.5	10
8.0	2.0	15	17.0	2.5	10
9.0	2.0	15	18.0	2.5	10
10.0	2.0	15	19.0	2.5	10
12.0	2.0	15	9.0	3.0	10
14.0	2.0	10	10.0	3.0	10
16.0	2.0	10	11.0	3.0	10

This 500 piece kit contains the most popular European metric O-ring sizes.

O-Ring Splice Kits



O-Ring Splice Kit Inch Size

Part Number: 568 Splice Kit

Kit Contains:

1. Stock of 70 Durometer Buna O-ring Cord
2. Razor Blade
3. Splicing tool
4. Tube of Adhesive

Replacement Parts

Parts:

#568 Splice Tool
#568 Adhesive
70 Duro. Cord



O-Ring Splice Kit Inch & Metric Sizes

Part Number: Met/Inch Splice Kit

This kit can produce O-Rings of any standard inch size cross-section plus a wide variety of metric sizes. Each kit contains quick drying adhesive, cutting and splicing jig, razor blade and 14 lengths of 70 Durometer Buna-N cord stock as follows:

Inch cross-sections: (inch)

1/16" (.070), 3/32" (.103), 1/8" (.139),
3/16" (.210), 1/4" (.275)

Metric cross-sections: (mm)

1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 5.7, 8.4



Fluorocarbon O-Ring Splice Kit - Inch Size

Part Number: 568 FC Splice Kit

Kit Contains:

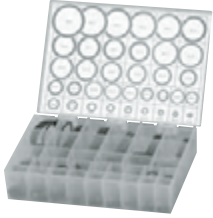
1. Stock of 75 Durometer Fluorocarbon Cord
2. Razor Blade
3. Splicing tool
4. Tube of Adhesive

Replacement Parts

Parts:

#568 Splice Tool
#568 Adhesive
75 Duro. Fluorocarbon Cord

Back-Up Ring Kits



574 Back-Up Ring Kit

Part Number: 574 Kit



575 Back-Up Ring Kit

Part Number: 575 Kit

PART NUMBER	QTY	PART NUMBER	QTY
574-005	10	574-114	10
574-006	10	574-115	10
574-007	10	574-116	10
574-008	10	574-117	5
574-009	10	574-118	5
574-010	10	574-119	5
574-011	10	574-120	5
574-012	10	574-121	5
574-013	10	574-210	7
574-014	10	574-211	7
574-015	10	574-212	7
574-016	10	574-213	7
574-017	10	574-214	5
574-018	10	574-215	5
574-110	10	574-216	5
574-111	10	574-217	5
574-112	10	574-218	5
574-113	10	574-219	5

This 293 piece kit contains 36 of the most popular size "Parback®" Style Dished Cross Section back-up rings. Molded of 90A Durometer Buna-N Rubber, they stretch for installation and return quickly to their original size. SIZES CORRESPOND TO O-RING NUMBERS. Your shop and service truck should not be without this handy kit.

PART NUMBER	QTY	PART NUMBER	QTY
575-111	25	575-216	25
575-112	25	575-217	15
575-113	25	575-218	15
575-114	25	575-219	15
575-115	25	575-220	15
575-116	25	575-221	15
575-210	25	575-222	15
575-211	25	575-223	15
575-212	25	575-224	15
575-213	25	575-325	10
575-214	25	575-326	10
575-215	25	575-327	10

This 475 piece kit contains 24 of the most popular size Urethane Back-up Rings. This assortment is essential for parts counters, shop use, and service trucks.

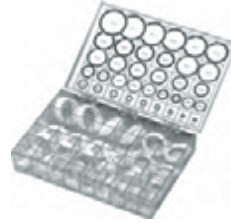
Assortment Kits



Style 870 Kit

Part Number: 870 TRI-Kit

Hercules Bulldog 870 Tri-Kit is packaged in three sturdy cases that contain 180 U-Cups. The U-Cups conform to AN-6226 size standards in 36 popular sizes ranging from 1/8" to 1-1/8" inside diameter. All of the seals are molded from 70A Durometer Buna-N rubber.



PTFE Back-Up Ring Kit

Part Number: 575 PTFE Kit S

PART NUMBER	QTY	PART NUMBER	QTY
575-005ST	15	575-114ST	10
575-006ST	15	575-115ST	10
575-007ST	15	575-116ST	10
575-008ST	15	575-117ST	5
575-009ST	15	575-118ST	5
575-010ST	15	575-119ST	5
575-011ST	15	575-120ST	5
575-012ST	15	575-121ST	5
575-013ST	10	575-210ST	5
575-014ST	10	575-211ST	5
575-015ST	10	575-212ST	5
575-016ST	10	575-213ST	5
575-017ST	10	575-214ST	5
575-018ST	10	575-215ST	5
575-110ST	10	575-216ST	5
575-111ST	10	575-217ST	5
575-112ST	10	575-218ST	5
575-113ST	10	575-219ST	5

This 325 piece kit contains 36 of the most popular size PTFE Back-up Rings. These rings are compatible with all hydraulic fluids, since they are virtually chemically inert, and can be used in applications involving elevated operating temperatures. These rings are scarf cut to facilitate installation.

Retainer Ring Kits



Tru-Arc

Part Number: 300-310 Kit

PART NUMBER	QTY.	PART NUMBER	QTY.
300-050	12	310-050	12
300-062	12	310-062	12
300-075	12	310-075	12
300-087	12	310-087	12
300-100	12	310-100	12
300-112	12	310-112	12
300-125	12	310-125	12
300-137	12	310-137	12
300-150	12	310-150	12



Spiral Wound

Part Number: SRR Kit

PART NUMBER	QTY.	PART NUMBER	QTY.
WHM-050	12	WSM-050	12
WHM-062	12	WSM-062	12
WHM-075	12	WSM-075	12
WHM-087	12	WSM-087	12
WHM-100	12	WSM-100	12
WHM-112	12	WSM-112	12
WHM-125	12	WSM-125	12
WHM-137	12	WSM-137	12
WHM-150	12	WSM-150	12



Eaton

Part Number: ERR Kit

PART NUMBER	QTY.	PART NUMBER	QTY.
NAN-050	12	XAN-050	12
NAN-062	12	XAN-062	12
NAN-075	12	XAN-075	12
NAN-087	12	XAN-087	12
NAN-100	12	XAN-100	12
NAN-112	12	XAN-112	12
NAN-125	12	XAN-125	12
NAN-137	12	XAN-137	12
NAN-150	12	XAN-150	12

Retainer Ring Kits



Packaged in four plastic cases with a handy carrying case, our rotor pack kit contains approximately 50 each of 20 common internal/external retaining ring sizes. The internal rings fit housings or bores from 3/8" internal diameter to 1-1/8". External rings accommodate shaft sizes from 1/4" internal diameter to 1-1/8". Two retainer ring installation pliers are also included.

Rotor Pack Kit

Part Number: **RPK 4 Kit**



PART NUMBER	SHAFT SIZE	QTY.	PART NUMBER	SHAFT SIZE	QTY.
310-100	1.000	5	310-200	2.000	5
310-125	1.250	5	310-225	2.250	5
310-137	1.375	5	310-250	2.500	5
310-150	1.500	5	310-275	2.750	3
310-175	1.750	5	310-300	3.000	3

External Retainer Rings

Part Number: **310 Kit**



PART NUMBER	BORE SIZE	QTY.	PART NUMBER	BORE SIZE	QTY.
300-075	0.750	10	300-200	2.000	10
300-087	0.875	10	300-225	2.250	5
300-100	1.000	10	300-250	2.500	5
300-112	1.125	10	300-275	2.750	5
300-125	1.250	10	300-300	3.000	5
300-137	1.375	10	300-350	3.500	5
300-150	1.500	10	300-400	4.000	5
300-162	1.625	10	300-450	4.500	2
300-175	1.750	10	300-500	5.000	2

Internal Retainer Rings

Part Number: **300 Kit**

These assortments contain the most popular size retainer rings, boxed in a handy storage and display case, which will supply your shop, service truck, or parts counter with the sizes you need!

Ultimate Assortment Kits

The Ultimate Nitrile O-Ring Assortment

Part Number: 568 KIT-ULTIMATE



Includes: 12 drawers and 3 slide racks, plus base. Total weight 232 lbs.

214 Items, 1324 Pieces.

Sizes Include:

-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -012, -013, -014, -015, -016, -017, -018, -019, -020, -021, -022, -023, -024, -025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038, -039, -040, -041, -042, -043, -044, -045, -046, -047, -048, -049, -050

-106, -107, -108, -109, -110, -111, -112, -113, -114, -115, -116, -117, -118, -119, -120, -121, -122, -123, -124, -125, -126, -127, -128, -129, -130, -131, -132, -133, -134, -135, -136, -137, -138, -139, -140, -141, -142, -143, -144, -145, -146, -147, -148, -149, -150, -151, -152, -153, -154, -155, -156, -157, -158, -159, -160, -161, -162, -163

-204, -205, -206, -207, -208, -209, -210, -211, -212, -213, -214, -215, -216, -217, -218, -219, -220, -221, -222, -223, -224, -225, -226, -227, -228, -229, -230, -231, -232, -233, -234, -235, -236, -237, -238, -239, -240, -241, -242, -243, -244, -245, -246, -247, -248, -249, -250, -251, -252, -253, -254, -255, -256, -257, -258, -259, -260, -261, -262

-314, -315, -316, -317, -318, -319, -320, -321, -322, -323, -324, -325, -326, -327, -328, -329, -330, -331, -332, -333, -334, -335, -336, -337, -338, -339, -340, -341, -342, -343, -344, -345, -346, -347, -348, -349, -350, -351, -352, -353, -354, -355

-425, -426, -427, -428, -429

3 racks - each one is: 20" wide x 15-3/4" deep x 15" high
1 base - 20-3/8" wide x 16" deep x 15-1/8" high
Approximately 61" from top to bottom

Ultimate Assortment Kits

The Ultimate Fluorocarbon O-Ring Assortment

Part Number: 568 FC KIT-ULTIMATE



Includes: 12 drawers and 3 slide racks, plus base. Total weight 232 lbs.

214 Items, 1324 Pieces.

Sizes Include:

-001, -002, -003, -004, -005, -006, -007, -008, -009,
-010, -012, -013, -014, -015, -016, -017, -018, -019,
-020, -021, -022, -023, -024, -025, -026, -027, -028,
-029, -030, -031, -032, -033, -034, -035, -036, -037,
-038, -039, -040, -041, -042, -043, -044, -045, -046,
-047, -048, -049, -050

-106, -107, -108, -109, -110, -111, -112, -113, -114,
-115, -116, -117, -118, -119, -120, -121, -122, -123,
-124, -125, -126, -127, -128, -129, -130, -131, -132,
-133, -134, -135, -136, -137, -138, -139, -140, -141,
-142, -143, -144, -145, -146, -147, -148, -149, -150,
-151, -152, -153, -154, -155, -156, -157, -158, -159,
-160, -161, -162, -163

-204, -205, -206, -207, -208, -209, -210, -211, -212,
-213, -214, -215, -216, -217, -218, -219, -220, -221,
-222, -223, -224, -225, -226, -227, -228, -229, -230,
-231, -232, -233, -234, -235, -236, -237, -238, -239,
-240, -241, -242, -243, -244, -245, -246, -247, -248,
-249, -250, -251, -252, -253, -254, -255, -256, -257,
-258, -259, -260, -261, -262

-314, -315, -316, -317, -318, -319, -320, -321, -322,
-323, -324, -325, -326, -327, -328, -329, -330, -331,
-332, -333, -334, -335, -336, -337, -338, -339, -340,
-341, -342, -343, -344, -345, -346, -347, -348, -349,
-350, -351, -352, -353, -354, -355

-425, -426, -427, -428, -429

3 racks - each one is: 20" wide x 15-3/4" deep x 15" high

1 base - 20-3/8" wide x 16" deep x 15-1/8" high

Approximately 61" from top to bottom

Assortment Kits



Cap Plug Kit

Part Number: Cap Plug Kit

This sturdy kit, packaged in an unbreakable box, contains 553 cap plugs in the most popular sizes.



Cat® Silicone O-Ring Kit

Part Number: CTC-4C8253

This handy kit, in an unbreakable box, contains 149 silicone o-rings in the 32 most popular sizes used on Caterpillar® equipment.

Cap Plug Number	QTY	Cap Plug Number	QTY	Cap Plug Number	QTY
CAP-2-X	50	CAP-PD-100	15	CAP-G-22	10
CAP-4	50	CAP-PD-120	10	CAP-G-25	12
CAP-6-X	50	CAP-PD-140	5	CAP-G-27	16
CAP-9	40	CAP-PD-160	10	CAP-P-28	25
CAP-12-X	25	CAP-G-2	20	CAP-P-38	25
CAP-14	20	CAP-G-8	20	CAP-P-48	25
CAP-PD-60	25	CAP-G-14	20	CAP-P-68-H	25
CAP-PD-80	25	CAP-G-18	20	CAP-P-88-H	10



Cat® D-Ring Kit

Part Number: CTC-4C4784

This handy kit, in an unbreakable box, contains the 9 most popular sized D-Rings used on Caterpillar® equipment.



Cat® Nitrile O-Ring Kit


Part Number: CTC-4C4782

This handy kit, in an unbreakable box, contains 570 nitrile o-rings in the 32 most popular sizes used on Caterpillar® equipment.

NOTE: Caterpillar® part numbers are used as a reference only. We do not imply that these parts are original equipment parts.

Assortment Kits & Installation Tools




	1/16" X 1" 150 pcs.	3/32" X 1" 150 pcs.
	1/8" X 1 1/4" 75 pcs.	3/32" X 1 1/2" 100 pcs.
	1/8" X 2" 50 pcs.	5/32" X 2 1/2" 30 pcs.

555 Pieces

Cotter Pin Kit

Part Number: Cotter Pin Kit




	1/8" X 1/2" No. 3 16 pcs.	1/8" X 5/8" No. 5 15 pcs.
	3/32" X 5/8" No. 6 15 pcs.	3/16" X 3/4" No. 9 10 pcs.
	1/4" X 7/8" No. A 5 pcs.	1/4" X 1" No. 15 4 pcs.

65 Pieces

Woodruff Key Kit

Part Number: Woodruff Keys Kit



	1/8" NPT Straight 6 pcs.	1/4" - 28 Straight 6 pcs.
	3/16" Drive Straight 4 pcs.	1/8" NPT 45 1/8" NPT 90 3 pcs. ea.
	1/4a" - 28 45 1/4" - 28 90 3 pc. ea.	5/16" Drive Straight 4 pcs.

32 Pieces

Grease Fitting Kit

Part Number: Grease Fitting Kit



These tools aid U-seal installation, eliminating the risk of damaging the seal lip.

PART NUMBER	SEAL ID RANGE
IT 100	3/4 " to 1 1/4"
IT 150	1 3/8" to 1 7/8"
IT 200	2" to 3"
IT 100-NN	3/4 " to 1 1/4"
IT 150-NN	1 3/8" to 1 7/8"
IT 200-NN	2" to 3"

Rod U-Seal Installation Tool

Part Number: IT100, IT150, IT200

Assortment Kits and Tools

We have the packing removal tools to fit your needs. Try out these high quality tools in your shop.

Proper tools make the job of servicing cylinders easier and faster and reduce the possibility of damaging the finely machined surfaces. The handy tools listed on this page aid in the repair of telescopic cylinders and make it easier to do a quality job.



These Bronze O-ring Picks, w/ black vinyl case, aid in the installation and extraction of O-rings.



Available in brass (ORP-B) or stainless steel (ORP-SS), these tools have been specifically engineered to enhance o-ring removal and replacement. Coated handles increase the tools performance in less than perfect environments.

O-Ring Pick Set 1

Part Number: O-Ring Pick

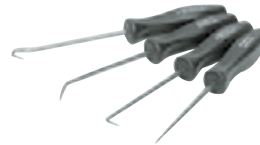
O-Ring Pick Set 2

Part Number: ORP-B

Part Number: ORP-SS



Packaged in a clear vinyl pouch, kit contains a knurled handle and four screw-in picks with different hook configurations. Set includes straight tip, o-ring 90° tip, hook tip, and angle tip.



Packaged in a plastic pouch, these highly visible picks feature screwdriver-type colored handles. Set includes awl, hook tip, 45° bent tip tool, and 90° bent tip tool.

O-Ring Pick Set 3

Part Number: O Pick Set

O-Ring Pick Set 4

Part Number: Maxi Pick Set



5 Piece Tool Kit Set

Part Number: CH-TK-1



Chevron Assembly Tool

Part Number: CM-376-9067-001

Assortment Kits and Tools

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Proper tools make the job of servicing cylinders easier and faster and reduce the possibility of damaging the finely machined surfaces. The handy tools listed on this page aid in the repair of telescopic cylinders and make it easier to do a quality job.



With a tempered tool steel corkscrew tip and a woven strand steel flexible shaft, this tool makes hard to reach packing easy to pull out. Works best by using two hooks at diametrically opposed points (180°).



Flexiable Packing Hooks

Part Number	Packing Space	Length
FPH-187	3/16"-up	6-1/2"
FPH-312R	5/16"-up	7-1/2"
FPH-437R	7/16"-up	10-1/2"
FPH-500R	1/2"-up	14-1/2"

Replaceable Woodscrew Tips

Part Number	Packing Space
FPH-RTW312	5/16"-up
FPH-RTW437	7/16"-up



Formed from hardened steel, this tool's length and sharp angled point gets at hard to reach o-rings, back-up rings & braided packing. You'll be amazed at all the uses you find for this tool.

Replaceable Corkscrew Tips

Part Number	Packing Space
FPH-RTC312	5/16"-up
FPH-RTC437	7/16"-up
FPH-RTC500	1/2"-up

Solid Shaft Picks

Part No.	Packing Space	Length
SSP-125		9-1/2"
SSP-312	5/16"-up	10"



With a tempered tool steel corkscrew tip and a woven strand steel flexible shaft, this tool makes hard to reach packing easy to pull out. Works best by using two hooks at diametrically opposed points (180°).



11 Piece Packing Tool Kit

Part Number: Pack Tool Set-11

PART NUMBER	QTY	PART NUMBER	QTY
FPH-312R	2	FPH-RTC312	1
FPH-437R	2	FPH-RTC437	1
SSP-125	1	WRENCH	1
SSP-187	1	BOX	1
SSP-312	1		

17 Piece Packing Tool Kit

Part Number: Pack Tool Set-17

PART NUMBER	QTY	PART NUMBER	QTY
FPH-312R	2	FPH-RTC437	1
FPH-437R	2	FPH-RTC500	1
FPH-500R	2	FPH-RTW312	1
SSP-125	1	FPH-RTW437	1
SSP-187	1	FPH-RTW500	1
SSP-312	1	WRENCH	1
FPH-RTC312	1	BOX	1

Measuring Tools

We have the packing removal tools to fit your needs. Try out these high quality tools in your shop.

Proper tools make the job of servicing cylinders easier and faster and reduce the possibility of damaging the finely machined surfaces. The handy tools listed on this page aid in the repair of telescopic cylinders and make it easier to do a quality job.



Handy cone provides o-ring dash numbers instantly. Measures 184 of the most widely used sizes in 5 standard widths, 1/4" ID to 5-5/8" ID. Made of high density polyurethane, the cone stands 17-1/2" high.

O-Ring Measuring Cone

Part Number: O Ring Cone-Inch



A high quality instrument, able to measure up to 150mm or 6". A push of a button changes from inches to metric. A clear LCD display shows a reading with a resolution of 0.0005" (0.01mm) that is accurate to ±0.03mm). These calipers come in a sturdy, padded plastic case with instructions and a spare battery.

Digital Calipers

Part Number

HH-Caliper-6
HH-Caliper-6-P
HH-Caliper-12
HH-Caliper-12-P



This extremely high quality punch set includes 13 punches, power punch, centering pin, punch pad and carrying case. Durable cutting heads cut washers and bolt holes effortlessly. Guaranteed 100% satisfaction.

Power Punch Maxi Set

Part Number: Maxi Punch Set

<u>PART NUMBER</u>	<u>PUNCH RANGE</u>
Punch Set	1/4, 5/16, 3/8, 7/16, 1/2, 16,5/8, 1/16, 3/4, 3/16, 7/8, 5/16, 1



This handy tool allows for quick accurate measuring of the outside diameters (OD) of vee packing, large U-Seals, Piston Rings, and metal parts such as cylinder stages, rams and rods. This tape comes with certificate of calibration. Accurate to .001".

PI Tapes

Part

<u>Number</u>	<u>Size</u>
PI-212	2" - 12"

Measuring Tools

We have the packing removal tools to fit your needs. Try out these high quality tools in your shop.

Proper tools make the job of servicing cylinders easier and faster and reduce the possibility of damaging the finely machined surfaces. The handy tools listed on this page aid in the repair of telescopic cylinders and make it easier to do a quality job.



Durable, Accurate, and Fast, these charts allow for easy Standard O-ring size identification. No shop should be without one!

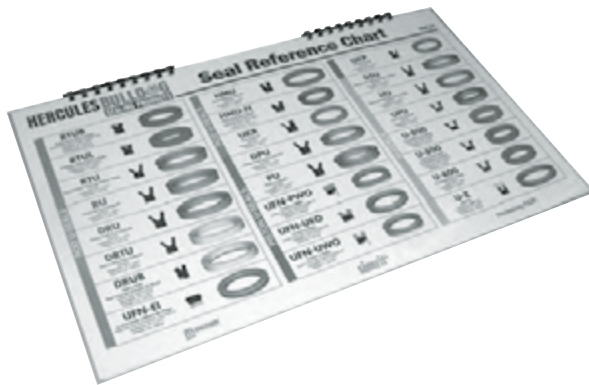
NN = Without Hercules logo.

O-Ring Chart

Part Number: O-Ring Chart

Part Number: O-Ring Chart NN

NN: Without HB logo.



The seal identification chart will assist you when visually identifying seals at the sales counter or back in the shop. Many seal profile pictures with detailed descriptions and technical data are listed on the multi-color laminated flip-chart.

Seal Reference Chart

Part Number: Seal Reference Chart

Refuse Equipment Applications

STOCK REPLACEMENT ITEMS FOR REFUSE APPLICATIONS

HEIL

Half Pak and Half Pak II

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Pumps		219-1467, 219-146, 219-1605	219-1469
		219-1473	219-1473
		219-1474	219-1474
		219-1609, 219-1610	219-1610
		219-1615, 219-1685	219-1685
Packer Blade Cylinder		1-3690, 1-3705, 1-4328	1-4328
Body Raise / Dump Cylinder		1-3691, 1-3706, 1-4330	1-4330
Arm Lift Cylinder		1-3693, 1-4340	1-4340
Fork Tilt Cylinder		1-4341	1-4341
Top Door Cylinder		1-3695, 1-4339	1-3695, 1-4339
Tailgate Cylinder		1-4305	1-4305

Half Pak III

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Pumps	S/N -30000 and after	219-1615, 219-1685	219-1685
		219-1473	219-1473
		219-1474	219-1474
		219-1469, 219-1605	219-1469
Packer Blade Cylinder		1-4882	1-4882
Body Raise Cylinder		1-4869	1-4869
Arm Lift Cylinder		1-4871	1-4871
Fork Tilt Cylinder		1-4868	1-4868
Top Door Cylinder		1-3692	1-3692
Tailgate Cylinder		1-4870	1-4870
Tailgate Raise Cylinder	S/N 3000-3942	1-4870	1-4870
Lift Arm Cylinder	S/N 3000-3515	1-4871	1-4871
	S/N 3516 and after	1-5150	1-5150
Fork Cylinder	Standard	1-4868	1-4868
Parker Cylinder	S/N 3000 - 394	1-4882	1-4882
	S/N 3695 and after	1-5146	1-5146

Half Pak III Full Eject

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Pumps	S/N -5000 and after	219-1615, 219-1685	219-1685
		219-1473	219-1473
		219-1474	219-1474
		219-146, 219-1467, 219-1605	219-1469
Tailgate Raise Cylinder	S/N - 3105000 - 3105237	1-4870	1-4870
	Shur-lock S/N 3105441 & after	1-6153	1-6153
Ejector Cylinder		1-4881, 1-4921, 1-4911	1-4911
		1-6076	1-6076
Fork Cylinder	Standard	1-4868	1-4868
Lift Arm Cylinder	S/N 3105000 - 3105105	1-4871	1-4871
	S/N 3105106 & after	1-5150	1-5150
Packer/Ejector	23 yd. S/N 3105000 - 3105162	1-5070	1-5070
	28 yd. S/N 3105300 and after	1-6076, 1-6247	1-6076
	Mfg. Sept 1998 thru S/N 3105162	1-4911, 1-626,1-6099	1-4911
Tailgate Raise Cyl	S/N 3105000 - 3105237	1-4870	1-4870
	Shur-lock S/N 3105441 and after	1-6153	1-6153

Refuse Equipment Applications

STOCK REPLACEMENT ITEMS FOR REFUSE APPLICATIONS

HEIL

Rapid Rail Automated Side Loader

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Pumps	CW Rotation	219-1931	219-1931
	CCW Rotation	219-1930	219-1930
Dump Circuit Cylinder		001-6160	1-6160
		001-6161	1-6161
Grip Circuit Cylinder	S/N 20329 & before	001-6330	1-6330
	S/N 20330 & after	001-6331	1-6331
Body Raise Cylinder	S/N 1837 & before	001-4807	1-4807
	S/N 1838 & after	001-6157, 001-6191	1-6191
Tailgate Raise Cylinder		001-6405	1-6405
		001-6163	1-6163
		001-6162, 001-6403	1-6403
In-out Cylinder		001-6407	1-6407
Dump & Grab Cylinder		001-6406	1-6406
Packer Cylinder		001-6404	1-6404
Arm Cylinder			

Formula 3000 MK III - Rear Loader

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Blade Cylinder		A1D-1275, A1D-3503, A1D-3874, A1D-3923, A1D-4103	1-4103
Hopper Cylinder		A1D-1276, A1D-3523, A1D-3873, A1D-3873, A1D-4106	1-4106

(For Tailgate Raise and Ejector Cylinders see MKIV, FM4000 section)

Formula 4000 MK IV - Rear Loader

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Pumps	S/N -9540 and after	219-1738	C150BR-15
		219-0399, 219-1748	C150BR-20
		219-1458	219-1458
		219-0915	219-0915
		219-1138	HU1500-20
		219-1148	HU1500-25
Winch Motor	8000 Lb.	219-0917	219-0917
	12000 Lb.	219-0924	219-0924
Blade Cylinder	Non-cushioned	AID-4017, AID-4100, AID-3672, AID-3856, AID-3902	1-4100
	Internal Cushion	AID-4108, 1-4108	1-4108
	"	1-3902, 1-4017, 1-4100	1-4100
Slide Cylinder	Non-cushioned	AID-2928, AID-3921, AID-4101	HL-1-4101
	"	1-3921, 1-4101	1-4101
	Internal Cushion	AID-4110	HL-1-4110
Tailgate Raise Cylinder	"	1-4110	1-4110
		AID-3100, AID-3605, AID-3623, AID-4070	HL-1-4070
Container Arm Cylinder		1-4070	1-4070
Grab Bar Cylinder		1-4283	1-4283
Grab Bar Mechanism Cylinder		1-5069	1-5069
Reeving Cylinder		1-4105	1-4105
		1-6189	1-6189

Refuse Equipment Applications

STOCK REPLACEMENT CYLINDERS FOR GARBAGE TRUCK BODIES

HEIL

Formula 4000 MK IV - Rear Loader

Ejector Cylinder	11 yd. & 13 yd.	1-6222	1-6222
- Narrow Units	11 yd. & 13 yd.	1-6223	1-6223
	16 yd. & 18 yd.	1-6224, 1-4053	1-4053
	18 yd. & 20 yd.	1-6225, 1-4050	1-4050
	25 yd. Units	1-4843, 1-6226, 1-4054	1-4054
Ejector Cylinder	18 Yd.	AID-4053	64118-DA
	20 Yd.	AID-1344, AID3830, AID-4050	64136-DA
	25 Yd.	AID-2123, AID-3843, AID-4054	64150-DA

Formula 5000 MK V - Rear Loader

PART	APPLICATION	OEM P/N	HERCULES P/N
Pumps	S/N -2470 and after	219-1458 219-0915 219-1138, 219-1738 219-1148, 219-1748	HL-219-1458 HL-219-0915 CM-HU1500-20 CM-HU1500-25
Winch Motor	12000 lb	219-0924	HL-219-0924
Packer Blade Cylinder	Old Series	AID-4094	HL-1-4094
- Inside	New Series	AID-4347, AID-4887	HL-1-4887
Packer Blade Cylinder	Old Series	AID-4093	HL-1-4093
- Outside	New Series	AID-4824, AID-4884	HL-1-4884
Tailgate Raise Cylinder	Old Series	AID-4272	HL-1-4272
	New Series	AID-4348	HL-1-4348
	S/N 2740 - 4236	1-4348	1-4348
	S/N 4237 and after	1-4880	1-4880
Ejector Cylinder	18 Yd.	1-4267	1-4267
	20 Yd.	AID-4266, 1-4266	63108-DA, 1-4266
	25 Yd.	AID-4261, 1-4261	63132-DA, 1-4261
	32 Yd. S/N 3722 and after	AID-4821, AID-4343	1-4343
Outside Upper Panel	S/N 2740 - 6845	1-4824, 1-4884	1-4884
Inside Lower Panel	S/N 2740 - 6845	1-4347, 1-4887	1-4887
Reaving Cylinder	S/N 5008725 and after	1-6160	1-6160

7000 Series - Side Loader

PART	APPLICATION	OEM P/N	HERCULES P/N
Pumps		219-145, 219-1458 219-1138, 219-1738 219-1148, 219-1748	HL-219-1458 CM-HU1500-20 CM-HU1500-25
Control Valve	Body & Tailgate Lift	31-2626	HL-31-2626
Dry Valve (Pump)		31-2633	HL-31-2633
Grabber Cylinder		1-4327	HL-1-4327
Lift Cylinder		1-4338	HL-1-4338
Reach Cylinder		1-4276	HL-1-4276
Tailgate Cylinder		1-4305	HL-1-4305
Packer Cylinder	S/N 448 and after	1-4878	HL-1-4878
Body Hoist		1-4807, 1-6248	HL-1-4807, 1-6191

Refuse Equipment Applications

STOCK REPLACEMENT ITEMS FOR REFUSE APPLICATIONS

LEACH

2R Rear Loader

PART	APPLICATION	OEM P/N	HERCULES P/N
Ejector Cylinder	31 Yd.	39726-397269	96170-DA
Operating/Packer Cylinder		2R1006A, 300679, 300900A	LCH-2R1006A
Pushout Cylinder		400383, 41354	LCH-400383
Clamp Cylinder		15527, 400494	LCH-15527
Tail Gate Raise Cylinder		PO-265, 400753, 401056, 40232, 400753	LCH-PO-265

PEABODY GALION

Hercules Front Loader

PART	APPLICATION	OEM P/N	HERCULES P/N
Fork Cylinder		D3516CDA	PG-D3516CDATail
Gate Cylinder		D2534BDA	PG-D2534BDA
Arm Cylinder		D4549ADA	PG-D4549ADA
Packer Cylinder		D6067ADA	PG-D6067ADA

Front Loader

PART	APPLICATION	OEM P/N	HERCULES P/N
Arm/Lift Cylinder		D4548BDA	PG-D4548BDA
Fork/Tilt Non-Cushioned Cylinder		4522DA	PG-D4522DA
Fork/Tilt Cushioned Cylinder		4522EDA, D4522JDA	PG-D4522EDA
Fork/Tilt Cushioned Cylinder		D4526BDA	PG-D4526BDA
Tail Gate Raise Cylinder		D3526GDA, D3526HDA	PG-D3526GDA
Packer Cylinder	HC 4 Stage	94176-DA, 20-35489, 104176 ADA, 70-1420B, 20-39032, 70-01503	PG-D104176-DA
Packer Cylinder	5 Stage	85195-EDA, 70-1502	85195-DA

Goliath Rear Loader

PART	APPLICATION	OEM P/N	HERCULES P/N
Packing Cylinder		6042ADA, 20-44095, 6042BDA, 20-46077, D6042CDA	PG-D6042BDA
Sweep Cylinder		4028BDA, 20-43727, 4028CDA, 20-46076, 4028DDA	PG-D4028CDA
Tailgate Raise Cylinder		4035EDA, 4035HDA, 20-46249	PG-D4035HDA
Ejector Cylinder	25 Yd.	63124BDA, 63124DDA, 63124FDA, 70-01478	63124-DA

URTF50 Roll Off

PART	APPLICATION	OEM P/N	HERCULES P/N
Tilt/Lift Cylinder		6282DA, 70-1032	6282-DA
Reeving/Cable Cylinder		7078DA	PG-D7078DA

Refuse Equipment Applications

STOCK REPLACEMENT ITEMS FOR REFUSE APPLICATIONS

PEABODY GALION

Transfer Trailer

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Ejector Cylinder		85378DA, 70-1251, 70-1510	85378-DA

Sideloader

<u>PART</u>	<u>APPLICATION</u>	<u>OEM P/N</u>	<u>HERCULES P/N</u>
Packer/Ejector		P1027	84178-DA



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