

M Series Units With Pressure Balanced Gear Pump



READ ALL INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT DESCRIBED. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE!

RETAIN INSTRUCTIONS FOR FUTURE REFERENCE.

WARNING: THIS INSTRUCTION MANUAL IS INTENDED FOR USE BY QUALIFIED INDIVIDUALS WITH A WORKING KNOWLEDGE OF HYDRAULIC AND ELECTRICAL PRINCIPLES. PROFESSIONAL INSTALLATION IS RECOMMENDED.

Description

The M Series units with pressure balanced gear pumps are designed for compactness and durability. Typical applications include double acting circuits for cylinders, motors, etc.

The hydraulic power units detailed in this document are designed to operate on single phase, 60 Hz, AC electric power. Each power unit consists of a pressure balanced gear pump, powder coated vertical reservoir, #6SAE A&B ported manifold with D03 directional valve, return line filter with by-pass indicator, and a factory set, System Safety Relief valve.

The power units can be coupled via suitable hydraulic lines to a wide variety of hydraulically operated devices. **Proper circuit design must be considered when selecting directional control valves and load control valves to ensure safe and predictable movement of all hydraulic actuators and connected devices.**

Unpacking

Check package for any external signs of damage that may have occurred during transit then

unpack the unit and check for physical signs of damage. If components are missing or there is any noticeable damage, please contact the office where the item was purchased.

Specifications

All units have:

- Totally enclosed fan cooled electric motor, rated for 60 Hz, 115/230 single phase power.
- Powder coated reservoir plumbed for vertical only mounting
- Adjustable System Safety Relief valve preset at factory
- Aluminum D03 manifold with SAE #6 A&B ports
- 4-Way/3-Position D03 Tandem Center valve
- 110 VAC DIN style coils with connectors
- Suction strainer at pump inlet
- Return line spin-on type filter with visual by-pass indicator
- Threaded style filler / breather assembly with dipstick
- Liquid filled pressure gauge with isolator
- Two 1" NPT couplings through top of reservoir
- 3/4" NPT drain port on side of reservoir

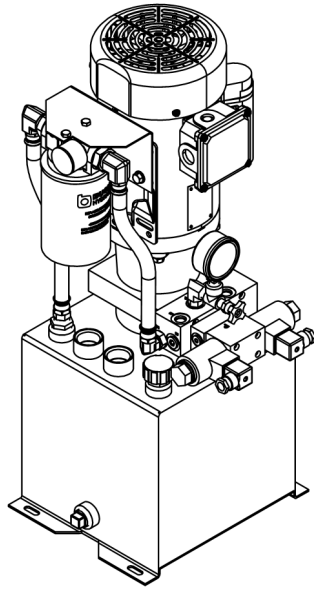


Figure 1 – M4505201-02HK01,
M4505301-02HK01

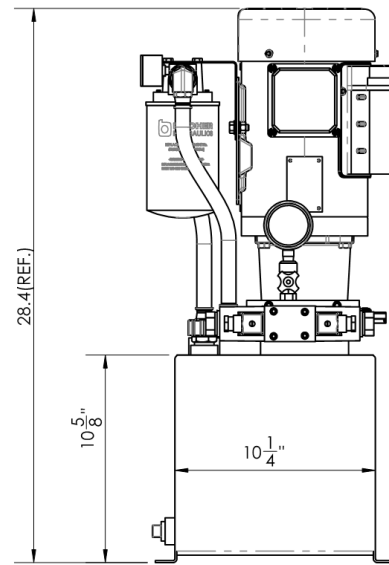
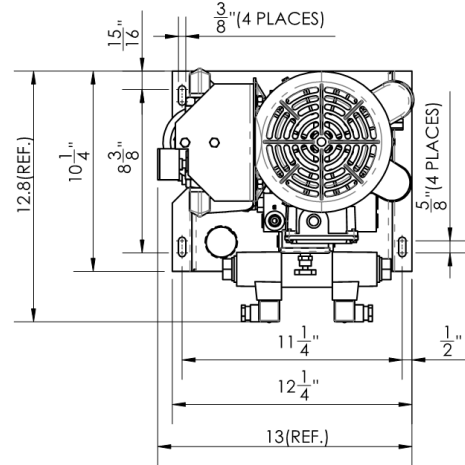


Figure 2 – M4505201-02HK01, M4505301-02HK01
Dimensions

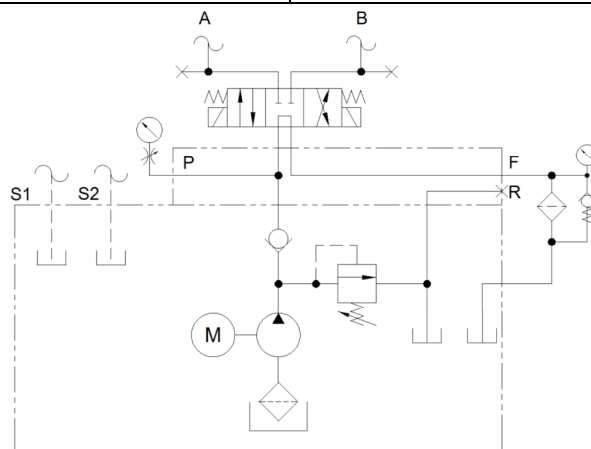


Figure 3 – M4505201-02HK01, M4505301-02HK01 Hydraulic schematic

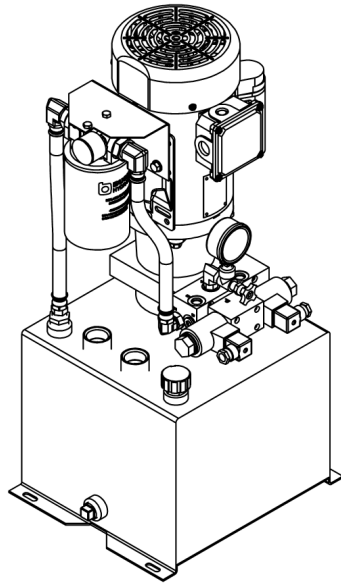
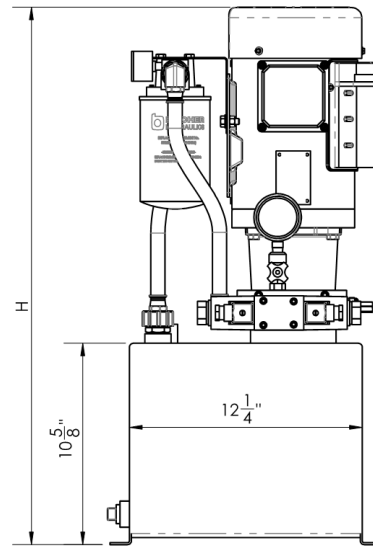
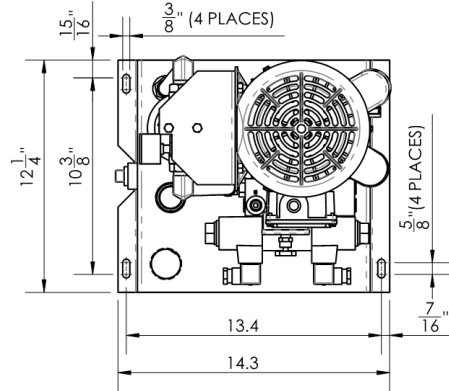


Figure 4 – M4505251-03HM01,
M4505351D03HM01



	H
M4505251-03HM01	28.4"
M4505351D03HM01	27.9"

Figure 5 – M4505251-03HM01, M4505351D03HM01
Dimensions

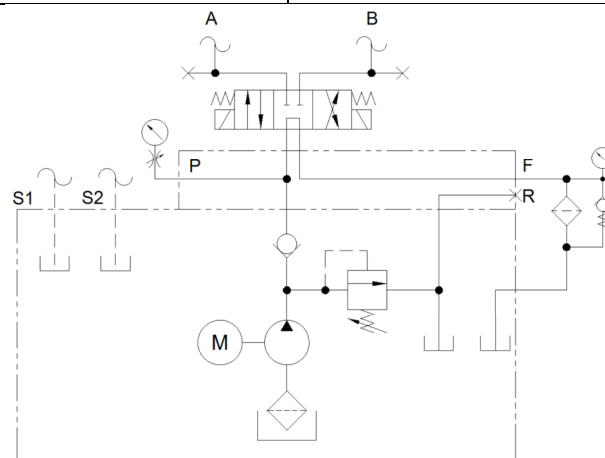


Figure 6 – M4505251-03HM01, M4505351D03HM01 Hydraulic schematic

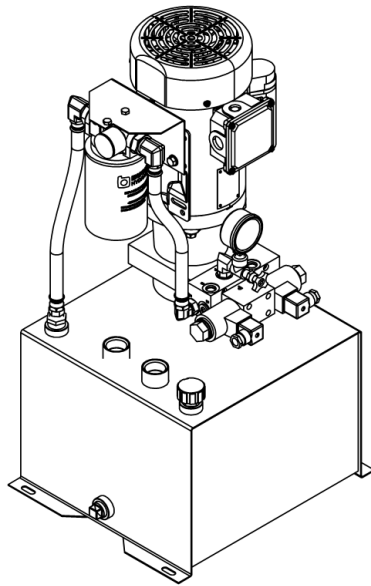
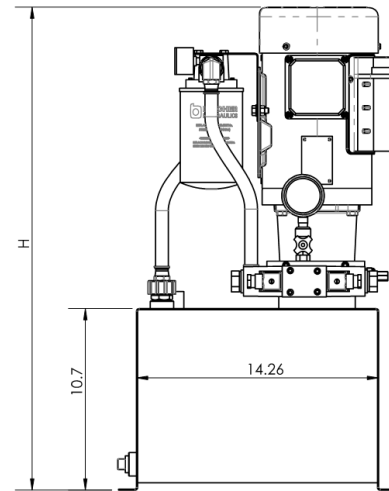
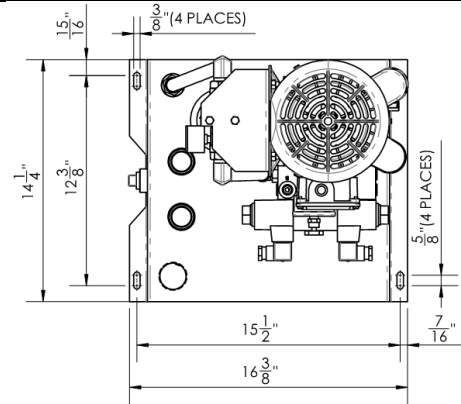


Figure 7 – M4505301-04HN01,
M4505351D04HN01



		H
M4505301-04HN01		28.5"
M4505351D04HN01		27.9"

Figure 8 – M4505301-04HN01,
M4505351D04HN01 Dimensions

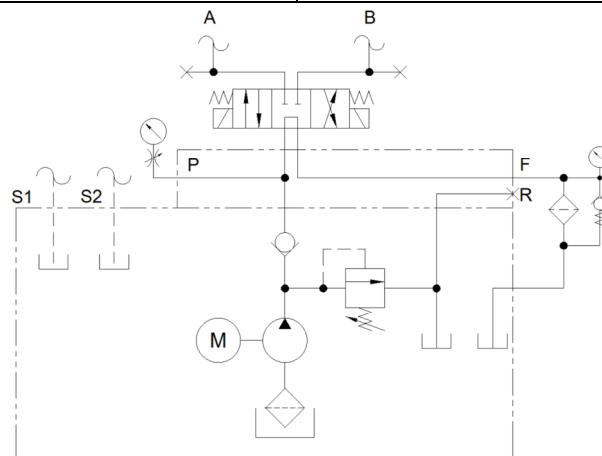


Figure 9 – M4505301-04HN01,M4505351D04HN01Hydraulic schematic

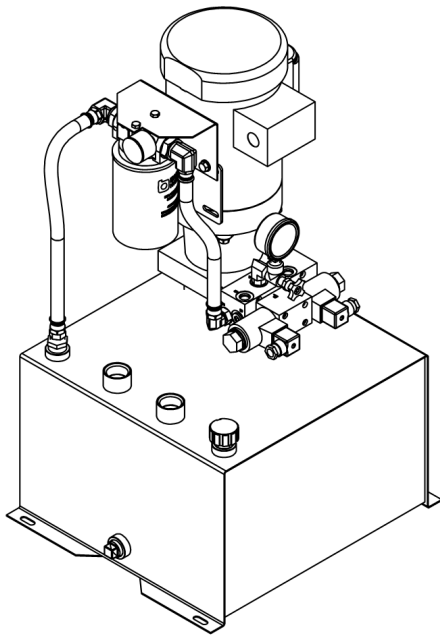


Figure 10 – M4505351D21HR01

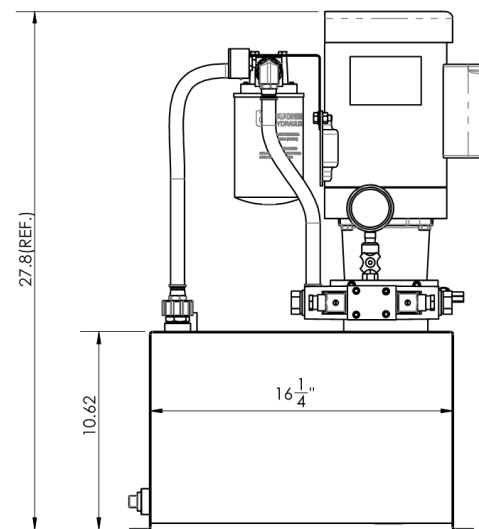
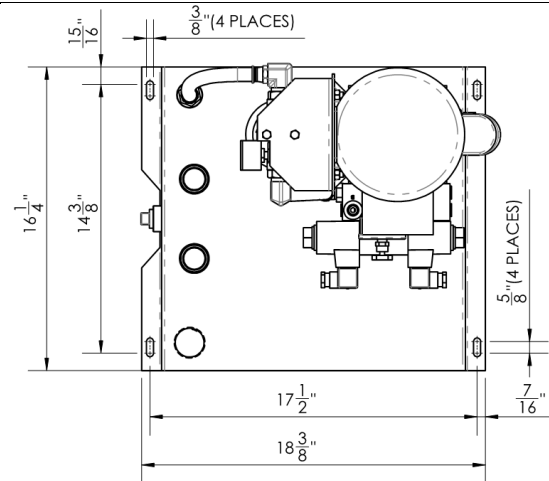


Figure 11 – M4505351D21HR01 Dimensions

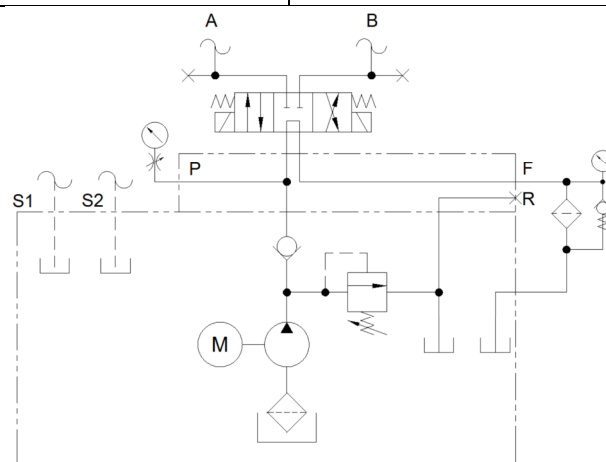


Figure 12 – M4505351D21HR01 Hydraulic schematic

All the power units are packaged fully assembled and tested. Customer is responsible to fill the reservoir with proper level of a quality hydraulic fluid suitable for use in the intended environment.

Installation of Hydraulic Power Unit

1. Select a good location to mount the hydraulic power unit. It should be in a clean, level, dry area with adequate ventilation and preferably near the electric power source.

NOTE: Although the units have totally enclosed fan cooled motors, they still need free air circulation around the motor and reservoir to displace heat. Excessively high operating temperatures will be hazardous and may cause property damage and/or personal injury.

Avoid dusty conditions that could clog the reservoir breather.

2. This hydraulic power unit is designed for vertical mounting with the reservoir feet down and the reservoir breather on the top. Choose a flat, level mounting surface to bolt the reservoir feet to. See unit dimensions for reservoir base bolt pattern.

The hydraulic unit is plumbed for vertical mounting as noted above. Mounting the unit in an inclined plane or any other position will greatly reduce available usable oil in the reservoir. This can cause the hydraulic oil to foam resulting in erratic movement of hydraulic components, and pump failure.

CAUTION

To minimize contamination problems, do not remove plastic shipping plugs from hydraulic unit until you are ready to install hoses and fittings. Do not use Teflon tape. This unit is equipped with SAE O-ring type ports.

3. Make sure that the work area and the hydraulic components are clean and free from dirt, lint, etc
4. Connect the A and B work ports of the manifold to your hydraulic actuator (hydraulic cylinder, hydraulic motor or other hydraulically powered device) along with any required load control valves.
5. Hydraulic lines between the unit and any hydraulic actuator (hydraulic cylinder, hydraulic motor, or other device) must be rated for use at pressures at or above the maximum system pressure of your application.

Do not over-tighten fittings.

6. Remove the reservoir breather and fill the hydraulic unit reservoir with a good quality hydraulic fluid. It is recommended that hydraulic fluids have a viscosity of 100 SUS to 350 SUS when operating between 10 deg. F and 140 deg. F. The reservoir should be filled to the upper (blue) line of the sight / level / temperature gauge but not above.
7. Use of a filter cart to add fluid to the reservoir is highly recommended. Do not pour hydraulic fluid directly from a pail or drum as this can result in debris entering the reservoir.
8. Re-install the breather on the reservoir.

Electrical Wiring

1. When wiring the motor, follow all local electrical and safety codes as well as the National electrical codes in your jurisdiction (i.e. NEC, ESA, etc) and all Occupational Safety and Health Act (OSHA) requirements.
2. Make certain that wire size is adequate for horsepower requirements.

NOTE: Voltage drop increases with the length of power cord. Larger wire diameter may be required.

3. Motor nameplate voltage must be available at the motor when it is operating under load. Avoid voltage drop by using adequate wire size.
4. **DOUBLE CHECK ROTATION!** Motor rotation is clockwise facing fan end of motor (which means the motor is wired to turn counter clockwise when facing the shaft of the motor).
5. **Before start-up, ensure an open flow path** for the hydraulic circuit and jog the motor to ensure correct rotation and to prime the pump to ensure adequate lubrication. After the correct motor rotation is confirmed and the fluid is moving freely, motor may be powered continuously to operate at full speed.

CAUTION!

Never run the system without adequate levels of hydraulic fluid in the reservoir. New installations will require additional fluid to fill the lines, cylinders etc. so check the reservoir fluid levels frequently during initial operation to ensure adequate fluid level in the reservoir.

6. Keep all electrical lines as short as practical.
7. Never exceed the maximum operating pressure.
8. Do not over-tighten fittings, bolts, etc., as this can damage the units.
9. Provide adequate cooling for the hydraulic oil so as not to allow oil and/or component damage due to excessive temperatures. Excessively high operating temperatures will be hazardous and may cause property damage and/or personal injury.

WARNING

REPLACE OR REPAIR DAMAGED OR WORN POWER CORDS IMMEDIATELY.

DO NOT OPERATE UNIT WITHOUT PROPER GROUNDING.

IF MOTOR IS INITIALLY TURNING IN THE WRONG ROTATION, SHUT OFF ELECTRICAL POWER BEFORE ATTEMPTING TO CORRECT MOTOR WIRING.

DO NOT OVERFILL THE RESERVOIR AS FOAMING OF THE OIL FROM CONTACT WITH THE DRIVE COUPLINGS WILL CAUSE DAMAGE TO THE PUMP AND UNPREDICTABLE HYDRAULIC PERFORMANCE.

Maintenance

1. Keep the reservoir filled to the proper level with hydraulic fluid. Use a good quality hydraulic fluid that is suitable for use in the intended environment.
2. Check the reservoir fluid level on a regular basis and use new, filtered hydraulic fluid when adding fluid. Most pump/fluid motor failures, valve malfunctions, and short unit life can be traced directly or indirectly to dirt or other foreign materials (water, chips, lint, etc.) entering or already in the hydraulic system.
3. Make a frequent inspection of hydraulic fluid and change if contaminated.
4. Regularly inspect hydraulic hoses and fittings for wear or leakage.
5. Keep the unit and surrounding area clear of dirt and foreign materials.
6. Keep electrical connections clean.

Troubleshooting Chart

<i>SYMPTOM</i>	<i>POSSIBLE CAUSE(S)</i>	<i>CORRECTIVE ACTION</i>
Motor won't start	<ol style="list-style-type: none"> 1. Loose connection 2. Circuit breaker tripped 3. Voltage drop in wiring 4. Seized pump 	<ol style="list-style-type: none"> 1. Check wiring 2. Reset circuit breaker 3. Use heavier gauge wire 4. Replace pump
Will not pump oil (Motor runs but cylinder does not move, or moves slowly)	<ol style="list-style-type: none"> 1. No oil in reservoir 2. Motor rotation incorrect 3. Oil level low 4. Relief valve is held open 5. Suction strainer is clogged 6. Hydraulic cylinder (or hydraulic motor etc) seals are damaged or worn out. 7. Reservoir breather is dirty or clogged. 	<ol style="list-style-type: none"> 1. Check oil level, refill 2. Correct motor wiring 3. Add oil as needed 4. Flush relief valve 5. Clean suction strainer 6. Replace or repair cylinder (or motor etc) 7. Clean reservoir breather and reinstall
Pump motor unit is noisy	<ol style="list-style-type: none"> 1. Low oil level 2. Air in system 3. Suction strainer or inlet filter is clogged 	<ol style="list-style-type: none"> 1. Add oil as needed 2. Bleed air from highest fitting in system by loosening fitting very slightly and operating unit until bubbling of air stops, then tighten 3. Clean suction strainer or inlet filter
Unit does not develop full pressure	<ol style="list-style-type: none"> 1. System relief valve set too low, or leaking 2. Pump worn out 3. Air in system 4. Oil temperature is too high 	<ol style="list-style-type: none"> 1. Check system relief valve for proper setting 2. Replace the pump 3. Bleed air from systems 4. Let oil cool well below 130°F

Recommended Operating Conditions for M Series Units with Gear Pump

Oil Temperature Range:10°F -170°F

Recommended Operating Temperature:50°F -130°F

Oil Viscosity: Optimum:100 - 350 SUS

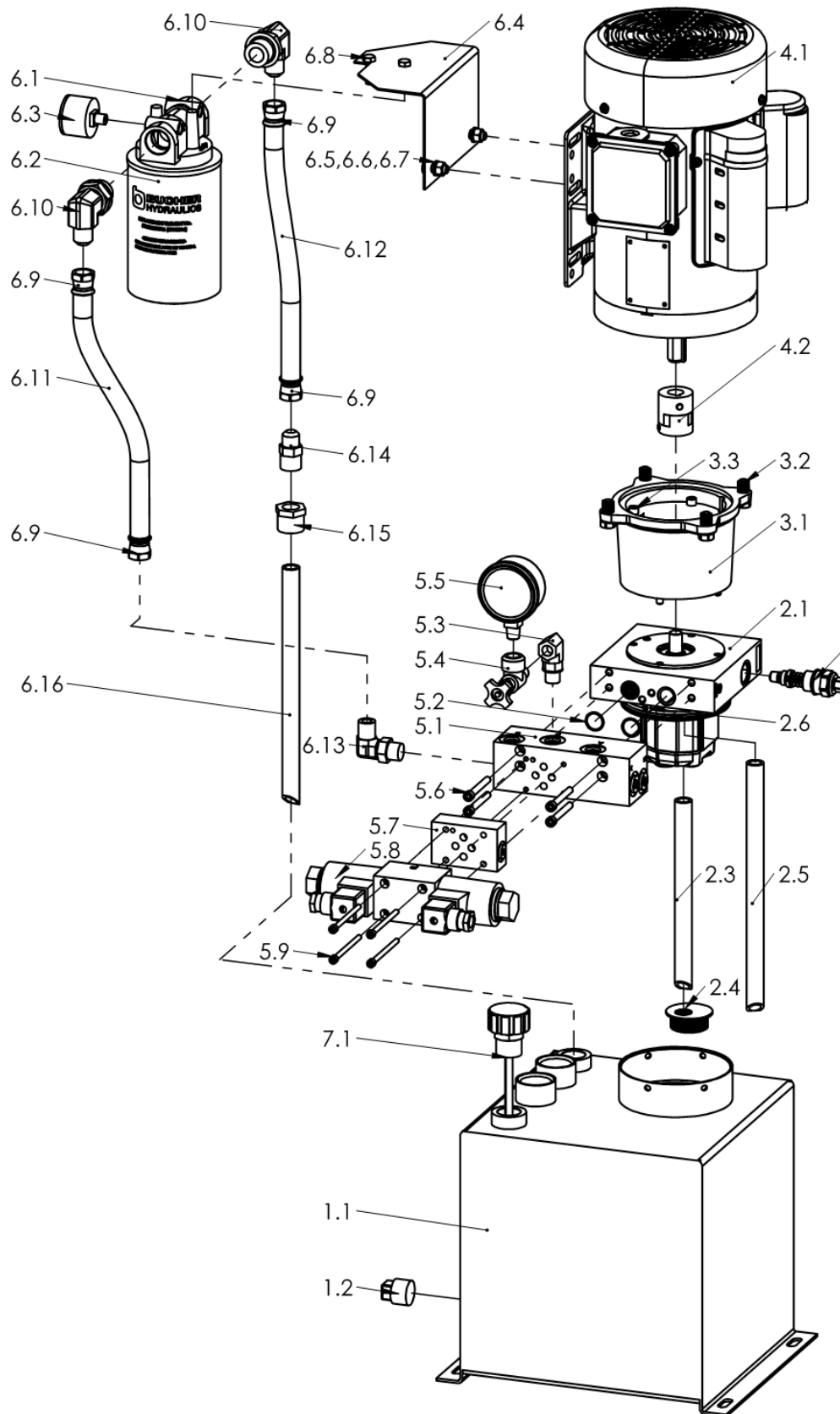
Minimum:100 SUS

Maximum Start Up:3500 SUS

Recommended Filtration:10 Micron nominal or better

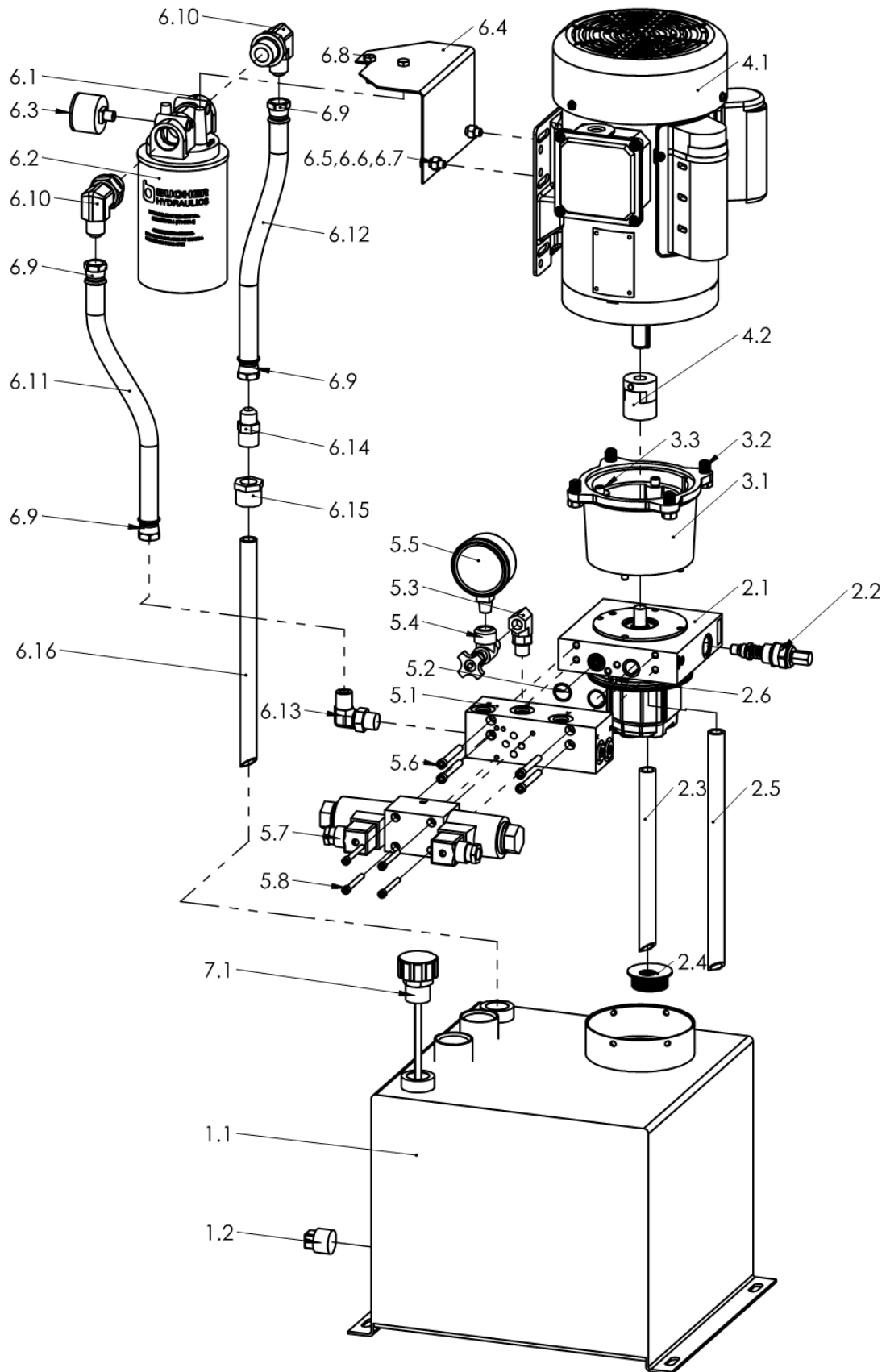
HYDRAULIC POWER UNIT PERFORMANCE

<i>MODEL</i>	<i>Reservoir Capacity</i>	<i>HP</i>	<i>Nominal Flow</i>	<i>Max. Pressure</i>	<i>Voltage VAC</i>	<i>Phase</i>	<i>Hz</i>	<i>Rated Motor Current</i>
M4505201-02HK01	3.6GAL	1	1.12GPM	1500PSI	115/230	1	60	9.6/4.8
M4505301-02HK01	3.6GAL	2	1.12GPM	3000PSI	115/230	1	60	18.2/9.1
M4505251-03HM01	5.1GAL	1.5	1.57GPM	1500PSI	115/230	1	60	13.4/6.7
M4505351D03HM01	5.1GAL	3	1.57GPM	3000PSI	208~230	1	60	13.0/11.7
M4505301-04HN01	7.0GAL	2	2.01GPM	1500PSI	115/230	1	60	18.2/9.1
M4505351D04HN01	7.0GAL	3	2.01GPM	2500PSI	208~230	1	60	13.0/11.7
M4505351D21HR01	8.5GAL	3	3.28GPM	1500PSI	208~230	1	60	13.0/11.7



MODELS M4505201-02HK01,M4505301-02HK01 REPLACEMENT LIST

NO.	DESCRIPTION	M4505201-02HK01	M4505301-02HK01	QTY
1.1	Reservoir,10"X10"X10",vert.3.6gal.	5102064688122	5102064688122	1
1.2	Plug, Steel, 3/4" NPT	500205901075	500205901075	1
2.1	P ASSY,W/BASE,M4598,AP100,1.2	500216326007012	500216326007012	1
2.2	Relief valve,1300~3000PSI	200987400740	200987400740	1
2.3	Tube, suct,str,3/8"npt x 8",nylon	500208301459080	500208301459080	1
2.4	Filter,screen M-Seris suction	500203201134	500203201134	1
2.5	Tube, suctt,str,3/8"npt x 10.5",nylon	500208301459105	500208301459105	1
2.6	Screw,self tapping,10-24 x3/8"	500206907703	500206907703	6
3.1	Housing,P/M adapter	500204501615	500204501615	1
3.2	Screw,SHC,3/8-16 X 7/8	500206907817	500206907817	4
3.3	Screw,SHC,1/4-20 X 3.0, blk ox	500206907818	500206907818	4
4.1	1HP/3450/115/230/60/1,TEFC,56C	5102050020120		1
4.1	2HP/3450/115/230/60/1,TEFC,56C		5102050030120	1
4.2	Coupling ass'y,L070S,5/8"X1/2"	500212201186	500212201186	1
5.1	Manifold D03 single M3590 w/p&t pt	500204919314	500204919314	1
5.2	O-RING,BUNA-N,5/8"X3/4"X 1/16	500205300118	500205300118	2
5.3	Elbow #6 SAE M X1/4"NPT F	51020330175	51020330175	1
5.4	VALVE, SHUTOFF, 1/4 NPTF M X F	500208500570	500208500570	1
5.5	GAUGE, 2-1/2" BOT.MTG., 0-3000PSI	51020370021	51020370021	1
5.6	SCREW, SHCS, 1/4-20 X 2"LONG	500206907745	500206907745	4
5.7	MANIFOLD, D03 P&T TAP-IN ADAPT	51020490057	51020490057	1
5.8	VALVE,4W/3P,TC,110VAC,DBL SOL	50020851098714	50020851098714	1
5.9	SCREW,SHCS,10-24 X 2 3/4"LONG	500206907881	500206907881	4
6.1	FILTER HEAD,12AT,#12SAE PORTS	51020320073	51020320073	1
6.2	SPIN ON FILTER ELE,10 MICRON	51020321016	51020321016	1
6.3	GAUGE,PRESSURE,COLOUR INDICATOR	500203701899	500203701899	1
6.4	BRT/FOR RETURN FILTER/M-SERIES	51020101015	51020101015	1
6.5	SCREW,WASHER STYLE HH,5/16-3/4	51020691074	51020691074	2
6.6	WASHER, LOCK, 5/16"	500208607781	500208607781	2
6.7	NUT,5/16-18NC,W/NYLOCK	500205207680	500205207680	2
6.8	1/4-20 x 5/8",WHIZ LOCK BOLT	51020691261	51020691261	2
6.9	HOSE END,1/2"PUSHLOCK TO #8 JIC	51020330566	51020330566	1
6.10	FITTING ADAPTER,#08JIC-#12SAEM	51020330331	51020330331	2
6.11	HOSE,1/2"PUSHLOCK	51020440013	51020440013	1.6FT
6.12	HOSE,1/2"PUSHLOCK	51020440013	51020440013	1.5FT
6.13	ELBOW,90 DEG,#8 SAE MALE X #8	51020330329	51020330329	1
6.14	ADAPTER,#08 JIC MALE-3/8" NPT	51020330259	51020330259	1
6.15	BUSHING,REDUCER,MODIFIED PER D	510201219321	510201219321	1
6.16	Tube, suct,str,3/8"npt x 10",nylon	500208301459100	500208301459100	1
7.1	VENT PLUG,3/4"NPT W/DIPSTICK	51020590703	51020590703	1



MODELS M4505251-03HM01, M4505351D03HM01 REPLACEMENT PARTS LIST

NO.	DESCRIPTION	M4505251-03HM01	M4505351D03HM01	QTY
1.1	Reservoir,10"X12"X12",vert.5.1gal.	5102064688230	5102064688230	1
1.2	Plug, Steel, 3/4" NPT	500205901075	500205901075	1
2.1	P ASSY,W/BASE,M4598,AP100,1.7	500216326007017	500216326007017	1
2.2	Relief valve,1300~3000PSI	200987400740	200987400740	1
2.3	Tube, suct,str,3/8"npt x 8",nylon	500208301459080	500208301459080	1
2.4	Filter,screen M-Seris suction	500203201134	500203201134	1
2.5	Tube, suctt,str,3/8"npt x 10.5",nylon	500208301459105	500208301459105	1
2.6	Screw,self tapping,10-24 x3/8"	500206907703	500206907703	6
3.1	Housing,P/M adapter	500204501615	500204501615	1
3.2	Screw,SHC,3/8-16 X 7/8	500206907817	500206907817	4
3.3	Screw,SHC,1/4-20 X 3.0, blk ox	500206907818	500206907818	4
4.1	1.5HP/3450/115/230/60/1,TEFC,56C	5102050025120		1
4.1	3HP/3450/208~230/60/1,TEFC,56C		5102050035120	1
4.2	Coupling ass'y,L070S,5/8"X1/2"	500212201186	500212201186	1
5.1	Manifold D03 single M3590 w/p&t pt	500204919314	500204919314	1
5.2	O-RING,BUNA-N,5/8"X3/4"X 1/16	500205300118	500205300118	2
5.3	Elbow #6 SAE M X1/4"NPT F	51020330175	51020330175	1
5.4	VALVE, SHUTOFF, 1/4 NPTF M X F	500208500570	500208500570	1
5.5	GAUGE, 2-1/2" BOT.MTG., 0-3000PSI	51020370021	51020370021	1
5.6	SCREW, SHCS, 1/4-20 X 2"LONG	500206907745	500206907745	4
5.7	VALVE,4W/3P,TC,110VAC,DBL SOL	50020851098714	50020851098714	1
5.8	SCREW,SHCS,10-24 X 1-3/4"LONG	500206907688	500206907688	4
6.1	FILTER HEAD,12AT,#12SAE PORTS	51020320073	51020320073	1
6.2	SPIN ON FILTER ELE,10 MICRON	51020321016	51020321016	1
6.3	GAUGE,PRESSURE,COLOUR INDICATOR	500203701899	500203701899	1
6.4	BRT/FOR RETURN FILTER/M-SERIES	51020101015	51020101015	1
6.5	SCREW,WASHER STYLE HH,5/16-3/4	51020691074	51020691074	2
6.6	WASHER, LOCK, 5/16"	500208607781	500208607781	2
6.7	NUT,5/16-18NC,W/NYLOCK	500205207680	500205207680	2
6.8	1/4-20 x 5/8",WHIZ LOCK BOLT	51020691261	51020691261	2
6.9	HOSE END,1/2"PUSHLOCK TO #8 JIC	51020330566	51020330566	1
6.10	FITTING ADAPTER,#08JIC-#12SAEM	51020330331	51020330331	2
6.11	HOSE,1/2"PUSHLOCK	51020440013	51020440013	1.6FT
6.12	HOSE,1/2"PUSHLOCK	51020440013	51020440013	1.5FT
6.13	ELBOW,90 DEG,#8 SAE MALE X #8	51020330329	51020330329	1
6.14	ADAPTER,#08 JIC MALE-3/8" NPT	51020330259	51020330259	1
6.15	BUSHING,REDUCER,MODIFIED PER D	510201219321	510201219321	1
6.16	Tube, suct,str,3/8"npt x 10",nylon	500208301459100	500208301459100	1
7.1	VENT PLUG,3/4~NPT W/DIPSTICK	51020590703	51020590703	1

MODELS M4505301-04HN01, M4505351D04HN01 REPLACEMENT PARTS LIST

NO.	DESCRIPTION	M4505301-04HN01	M4505351D04HN01	QTY
1.1	Reservoir,10"X14"X14",vert.7.0gal.	5102064688330	5102064688330	1
1.2	Plug, Steel, 3/4" NPT	500205901075	500205901075	1
2.1	P ASSY,W/BASE,M4598,AP100,2.2	500216326007022	500216326007022	1
2.2	Relief valve,1300~3000PSI	200987400740	200987400740	1
2.3	Tube, suct,str,3/8"npt x 8",nylon	500208301459080	500208301459080	1
2.4	Filter,screen M-Seris suction	500203201134	500203201134	1
2.5	Tube, suctt,str,3/8"npt x 10.5",nylon	500208301459105	500208301459105	1
2.6	Screw,self tapping,10-24 x3/8"	500206907703	500206907703	6
3.1	Housing,P/M adapter	500204501615	500204501615	1
3.2	Screw,SHC,3/8-16 X 7/8	500206907817	500206907817	4
3.3	Screw,SHC,1/4-20 X 3.0, blk ox	500206907818	500206907818	4
4.1	2.0HP/3450/115/230/60/1,TEFC,56C	5102050030120		1
4.1	3HP/3450/208~230/60/1,TEFC,56C		5102050035120	1
4.2	Coupling ass'y,L070S,5/8"X1/2"	500212201186	500212201186	1
5.1	Manifold D03 single M3590 w/p&t pt	500204919314	500204919314	1
5.2	O-RING,BUNA-N,5/8"X3/4"X 1/16	500205300118	500205300118	2
5.3	Elbow #6 SAE M X1/4"NPT F	51020330175	51020330175	1
5.4	VALVE, SHUTOFF, 1/4 NPTF M X F	500208500570	500208500570	1
5.5	GAUGE, 2-1/2" BOT.MTG., 0-3000PSI	51020370021	51020370021	1
5.6	SCREW, SHCS, 1/4-20 X 2"LONG	500206907745	500206907745	4
5.7	VALVE,4W/3P,TC,110VAC,DBL SOL	50020851098714	50020851098714	1
5.8	SCREW,SHCS,10-24 X 1-3/4"LONG	500206907688	500206907688	4
6.1	FILTER HEAD,12AT,#12SAE PORTS	51020320073	51020320073	1
6.2	SPIN ON FILTER ELE,10 MICRON	51020321016	51020321016	1
6.3	GAUGE,PRESSURE,COLOUR INDICATOR	500203701899	500203701899	1
6.4	BRT/FOR RETURN FILTER/M-SERIES	51020101015	51020101015	1
6.5	SCREW,WASHER STYLE HH,5/16-3/4	51020691074	51020691074	2
6.6	WASHER, LOCK, 5/16"	500208607781	500208607781	2
6.7	NUT,5/16-18NC,W/NYLOCK	500205207680	500205207680	2
6.8	1/4-20 x 5/8",WHIZ LOCK BOLT	51020691261	51020691261	2
6.9	HOSE END,1/2"PUSHLOCK TO #8 JIC	51020330566	51020330566	1
6.10	FITTING ADAPTER,#08JIC-#12SAEM	51020330331	51020330331	2
6.11	HOSE,1/2"PUSHLOCK	51020440013	51020440013	1.6FT
6.12	HOSE,1/2"PUSHLOCK	51020440013	51020440013	1.5FT
6.13	ELBOW,90 DEG,#8 SAE MALE X #8	51020330329	51020330329	1
6.14	ADAPTER,#08 JIC MALE-3/8" NPT	51020330259	51020330259	1
6.15	BUSHING,REDUCER,MODIFIED PER D	510201219321	510201219321	1
6.16	Tube, suct,str,3/8"npt x 10",nylon	500208301459100	500208301459100	1
7.1	VENT PLUG,3/4~NPT W/DIPSTICK	51020590703	51020590703	1

MODELS M4505351D21HR01 REPLACEMENT PARTS LIST

NO.	DESCRIPTION	M4505351D21HR01	QTY
1.1	Reservoir,10"X16"X16",vert.8.5gal.	51020641407	1
1.2	Plug, Steel, 3/4" NPT	500205901075	1
2.1	P ASSY,W/BASE,M4598,AP100,3.5	500216326007035	1
2.2	Relief valve,1300~3000PSI	200987400740	1
2.3	Tube, suct,str,3/8"npt x 8",nylon	500208301459080	1
2.4	Filter,screen M-Seris suction	500203201134	1
2.5	Tube, suctt,str,3/8"npt x 10.5",nylon	500208301459105	1
2.6	Screw,self tapping,10-24 x3/8"	500206907703	6
3.1	Housing,P/M adapter	500204501615	1
3.2	Screw,SHC,3/8-16 X 7/8	500206907817	4
3.3	Screw,SHC,1/4-20 X 3.0, blk ox	500206907818	4
4.1	3HP/3450/208~230/60/1,TEFC,56C	5102050035120	1
4.2	Coupling ass'y,L070S,5/8"X1/2"	500212201186	1
5.1	Manifold D03 single M3590 w/p&t pt	500204919314	1
5.2	O-RING,BUNA-N,5/8"X3/4"X 1/16	500205300118	2
5.3	Elbow #6 SAE M X1/4"NPT F	51020330175	1
5.4	VALVE, SHUTOFF, 1/4 NPTF M X F	500208500570	1
5.5	GAUGE, 2-1/2" BOT.MTG., 0-3000PSI	51020370021	1
5.6	SCREW, SHCS, 1/4-20 X 2"LONG	500206907745	4
5.7	VALVE,4W/3P,TC,110VAC,DBL SOL	50020851098714	1
5.8	SCREW,SHCS,10-24 X 1-3/4"LONG	500206907688	4
6.1	FILTER HEAD,12AT,#12SAE PORTS	51020320073	1
6.2	SPIN ON FILTER ELE,10 MICRON	51020321016	1
6.3	GAUGE,PRESSURE,COLOUR INDICATOR	500203701899	1
6.4	BRT/FOR RETURN FILTER/M-SERIES	51020101015	1
6.5	SCREW,WASHER STYLE HH,5/16-3/4	51020691074	2
6.6	WASHER, LOCK, 5/16"	500208607781	2
6.7	NUT,5/16-18NC,W/NYLOCK	500205207680	2
6.8	1/4-20 x 5/8",WHIZ LOCK BOLT	51020691261	2
6.9	HOSE END,1/2"PUSHLOCK TO #8 JIC	51020330566	1
6.10	FITTING ADAPTER,#08JIC-#12SAEM	51020330331	2
6.11	HOSE,1/2"PUSHLOCK	51020440013	2.2FT
6.12	HOSE,1/2"PUSHLOCK	51020440013	2.0FT
6.13	ELBOW,90 DEG,#8 SAE MALE X #8	51020330329	1
6.14	ADAPTER,#08 JIC MALE-3/8" NPT	51020330259	1
6.15	BUSHING,REDUCER,MODIFIED PER D	510201219321	1
6.16	Tube, suct,str,3/8"npt x 10",nylon	500208301459100	1
7.1	VENT PLUG,3/4~NPT W/DIPSTICK	51020590703	1