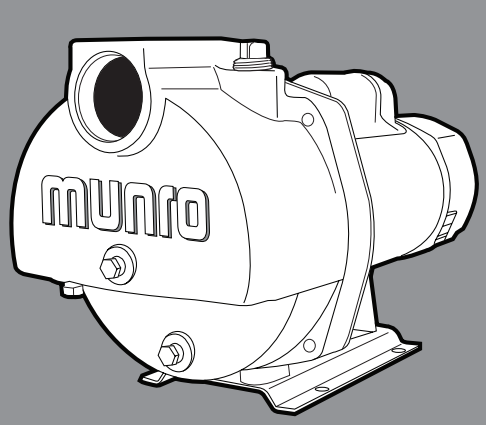
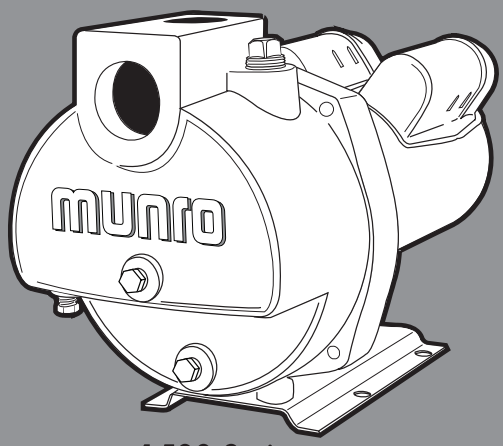
OWNER'S MANUAL

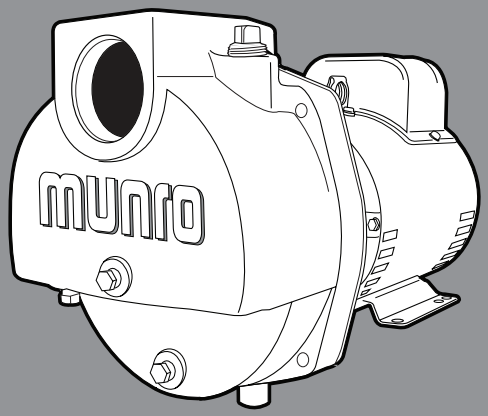
LP SERIES CENTRIFUGAL PUMPS



3/4 - 3 HP Series



1500 Series



3000 Series

Installation - Operation - Parts

1.800.942.4270
mpi@munropump.com
www.munropump.com

munro

READ AND FOLLOW SAFETY INSTRUCTIONS!

⚠ **This is the safety alert symbol**. When you see this symbol on your pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

⚠ DANGER warns about hazards that **WILL** cause serious personal injury, death or major property damage if ignored.

⚠WARNING warns about hazards that **CAN** cause serious personal injury, death or major property damage if ignored.

⚠ CAUTION warns about hazards that **WILL** or **CAN** cause minor personal injury or property damage if ignored.

The label **NOTICE** indicates special instructions which are important but not related to hazards.

MOTOR AND ELECTRICAL:

Carefully read and follow all safety instructions in this manual and on the pump.

⚠ WARNING

Hazardous voltage.
Can shock, burn, or
cause death.

Electric pump motors can be hazardous if not properly installed. Call a licensed electrician if unsure of any electrical connection.

GENERAL SAFETY – ELECTRICAL

1. **⚠WARNING** Every time work is to be performed on a pump, the power supply should be terminated at the breaker box.
2. **⚠WARNING** Follow all local electrical and safety codes, including the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
3. **⚠WARNING** Replace damaged or worn cords immediately.
4. **⚠WARNING** Ground motor before connecting to power supply.
5. **⚠WARNING** Use extreme caution around an operating pump and motor – it may be hot enough to cause serious burns.

GENERAL OPERATION – ELECTRICAL

1. Refer to motor nameplate to verify that supply voltage and motor wiring is the same.
2. Verify motor phase against supply power phase.

GENERAL SAFETY – MOTOR

1. **⚠WARNING** Disconnect the main power before handling the unit for ANY REASON.
2. **⚠WARNING** An operating motor can run between 250°F and 311°F depending on insulation rating. Never touch a motor without first determining the housing temperature.
3. Keep pump motor ventilated to reduce damage due to heat.
4. **⚠ DANGER** Motor is not waterproof and should never be submersed into any liquid.
5. Motor is designed to work with up to a 15 degree angle of water impact. Do not allow water to spray directly onto motor. External motor protection should be used to eliminate environmental concerns.
6. To reduce the risk of electric shock, the motor must be securely and adequately grounded. Refer to National Electric Code (NEC Article 250 – Grounding) for additional information.
7. When in doubt, call a licensed electrician. High voltage can shock, burn or cause death.

WIRING CONNECTION:

Refer to the connection diagram located on the nameplate of the motor.

GROUNDING

1. Grounding the motor can be achieved by securing the motor to a metal raceway system. Alternately a separate grounding wire connected to bare metal on the motor frame, or to the green grounding screw located inside the motor terminal box, or other suitable means is acceptable. (Refer to NEC Article 250 – Grounding for specifics.)
2. Verify motor grounding provision on the nameplate before connecting any wires to the motor.

ROTATION

1. When facing the suction tapping, all Munro pumps run in a Counter-Clockwise (CCW) rotation only. Rotation from the motor end perspective is Clockwise (CW) and is marked as such on the motor nameplate. Tampering with, or reversing, the rotation will damage your pump and void the warranty.

CHECK MOTOR ROTATION – 3 PHASE

1. A fractional second application of power should be applied to all 3-phase motors to verify rotation of shaft as described above. This is sometimes referred to as “bumping the motor”.
2. Improper rotation can cause catastrophic pump failure and voids the warranty.
3. Reversing two of the three power wires makes the motor run in the opposite direction.

MOTOR PROTECTION

1. Fuses and circuit breakers are used as a safety device for the wire circuit. They do NOT offer motor protection.
2. Consult local or national electric codes for proper fuse protection based on the motor data located on the motor nameplate.

THERMAL OVERLOAD

1. Refer to motor nameplate to verify the presence of overload protection.
2. Overload protects the motor from high and low voltage irregularities.
3. All motors must be thermally protected – either within the motor or externally.
4. **⚠WARNING** The internal overload is usually automatic and resets itself once the temperature has dropped to a safe point.
5. Frequent tripping of the overload indicates motor or power problems. Immediate professional attention is recommended.
6. **⚠WARNING** NEVER examine, make wiring changes or touch the motor before disconnecting the electrical supply. Thermal overload protectors automatically reset and can close the electrical circuit without warning.
7. **⚠WARNING** The overload should never be tampered with or removed.

PUMP:

GENERAL SAFETY – PUMP

1. ⚠WARNING An operating pump, with a blocked discharge, will heat the water and pump housing. Allow pumps to cool before handling.
2. High temperature sensors can help protect plastic plumbing from disfiguring and/or expanding.
3. Running a pump without water may cause damage to the seal.

GENERAL OPERATION – PUMP

1. Locate the pump as close to the water source as is practical.
2. Total suction lift (vertical lift plus any friction loss in suction line) should not exceed 10' for optimal performance. Suction lift of 15' is attainable depending on elevation, water temperature, and atmospheric condition. Pump performance is affected when suction lift exceeds 15'.
3. Fill the pump case and suction pipe with water to expel as much air as possible prior to start-up. Running a pump dry may cause damage to the seal and void warranty.
4. Pump and pipe must be drained if there is any danger of freezing.

PIPE CONNECTION

1. Plastic or galvanized steel pipe are most commonly used. Support pipe as needed.
2. Keep suction and discharge lines as large as possible. Pipe should not be smaller than the corresponding suction and discharge holes.
3. Avoid excess fittings when possible. Use straight runs when possible.
4. All joints and connections should have pipe-specific sealing compound applied and be completely tightened.
5. Isolation valves or unions on suction and discharge allow for easy pump removal with multi-pump or positive inlet pressure applications.
6. Suction pipe should never have a higher elevation than the pump.

OPERATION:

INITIAL PRIMING

1. Unit must be full of liquid before operating. Never run dry. Running a pump dry may cause damage to the seal and void the warranty.
2. Remove one priming plug from pump housing and fill the pump body and suction line completely with water. Unit must be full of liquid before operating. Never run dry. Running a pump dry may cause damage to the seal and void the warranty.
3. Normal system start-up will take a few minutes for air to expel from system and water to begin to cycle – depending on suction lift. If no water is flowing after a few minutes, turn the pump off and refer to troubleshooting guide (p.8). Do NOT run pump dry for any period of time.
4. Do not run against a closed discharge for more than a few minutes.

ROTATION

1. Single phase motors are pre-wired for CCW, as viewed from suction tapping, and should never be reversed.
2. Three phase motor rotation must be verified at job site.

MAINTENANCE – LUBRICATION

1. No lubrication is required. The ball bearings are permanently lubricated and sealed at the factory.

MAINTENANCE – FREEZING

1. Drain the entire system if there is a danger of freezing.
2. Drain plugs are provided in both upper and lower pump case chambers.
3. Filling the pump with non-toxic Munro Freeze Defeat and replacing the plugs, will reduce the oxidation in the case over the winter. Before spring start-up, drain the Munro Freeze Defeat from the case.

RECOMMENDED OPTIONAL EQUIPMENT:

1. Strainer – Use of strainers prevent large debris from entering pump system through suction line.
2. Pressure Gauge – Use of a pressure gauge helps to troubleshoot and identify a pump or system issue.
3. Discharge Valve – Use of a gate or ball valve on the discharge side of a pump allows pump isolation for removal.
4. Foot Valve – Use of a foot valve (or check valve) can aide the priming of a centrifugal pump. If suction lines are kept full, the pump does not have to evacuate the air before pumping water.

ROTARY SEAL ASSEMBLY REPLACEMENT:

⚠ CAUTION Make certain the power supply is disconnected before attempting to service the unit!

SEAL REMOVAL

1. Remove the case bolts and separate pump case from motor assembly.
2. Remove diffuser bolts and diffuser from motor assembly.
3. Insert an open-end thin profile 9/16" wrench into the side of the mounting ring, slowly turning the impeller until the wrench seats itself onto the flats of the shaft. Once properly seated, the wrench will prevent the shaft from turning. For 3ph and LP3005 models removal of the shaft, bolt and washer(s) (if present) is necessary prior to removal of the impeller.
4. With the wrench in place (#3) spin the impeller counter-clockwise to expose seal assembly area. LP3005 models: Gently rap outward on the shaft key to remove the key and impeller.
5. The seal spring will release as the impeller is removed. LP3005 models have a retaining clip in place. Carefully remove the clip to release the spring and impeller.
6. Being careful not to damage the motor shaft, remove the seal head, seat and rubber from the seal pocket. The use of a flat head screwdriver or similar tool may be necessary.
7. If necessary, remove the mount ring bolts and mount ring to gain better access to the seal.
8. Once the seal is removed, clean the pocket removing all debris.

⚠ CAUTION The rotary seal assembly must be handled carefully to avoid damaging the precision lapped faces of the sealing components.

SEAL INSTALLATION

NOTICE: It is recommended to only install new seals. Do not install used or dirty seals.

NOTICE: Application of a light coat of multi-purpose water-based lubricant to the outer diameter of the rubber seat may make installation easier. Be certain both seal face surfaces are kept clean.

1. Insert the stationary seal face and elastomer seat into the recessed area of the mount ring.
2. Slip the rotating seal face assembly onto the motor shaft.
3. Using uniform pressure, be sure the seal's seat has completely bottomed-out in recessed area.
4. After placing the spring, install the impeller and bolt the diffuser onto the motor assembly. Manually turn impeller to verify smooth operation.
5. Replace and bolt the pump body to the motor assembly.

PUMP PERFORMANCE

LP Series 3/4 HP - 3 HP

HP	Capacity - U.S. Gallons per Minute Discharge Pressure (PSI) at 5′ Suction Lift											Shut Off Pressure PSI	Suction	Discharge	Max ▲ Suction Lift
	20	25	30	35	40	45	50	55	60	65	70				
3/4	63	53	43	33	25							45	2″	1-1/2″	15 Ft.
1	73	65	57	47	35	18						47	2″	1-1/2″	15 Ft.
1-1/2	75	70	68	60	48	35						49	2″	1-1/2″	15 Ft.
2	102	98	92	82	74	61	52	40				60	2″	1-1/2″	15 Ft.
3	115	114	112	105	100	88	72	56	30			61	2″	1-1/2″	15 Ft.

▲ Suction lift varies, depending upon elevation (altitude) and water temperatures.
MAXIMUM CASE PRESSURE --- 150 PSI

LP1502

HP	Capacity - U.S. Gallons per Minute Discharge Pressure (PSI) at 5′ Suction Lift								Shut Off Pressure PSI	Suction	Discharge	Max ▲ Suction Lift
	20	30	40	50	60	70	80	90				
2.5	--	--	75	67	56	38	0	0	80	2″	1-1/2″	15 Ft.

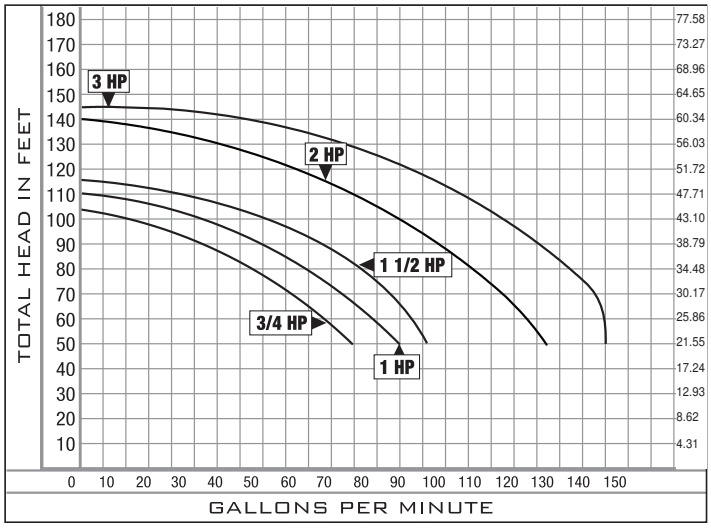
▲ Suction lift varies, depending upon elevation (altitude) and water temperatures.
MAXIMUM CASE PRESSURE --- 100 PSI

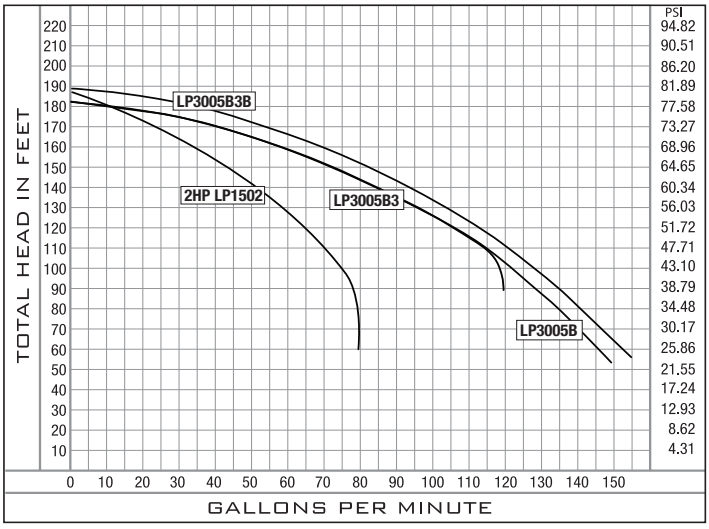
LP3005

HP	Capacity - U.S. Gallons per Minute Discharge Pressure (PSI) at 5′ Suction Lift											Shut Off Pressure PSI	Suction	Discharge	Max ▲ Suction Lift	Model Number
	20	25	30	35	40	45	50	55	60	65	70					
5	--	--	145	137	132	123	110	98	85	67	47	75	3″	3″	15 Ft.	LP3005B
5	--	--	--	--	--	120	110	98	85	67	47	75	3″	3″	15 Ft.	LP3005B3
5	--	160	154	145	135	130	116	107	95	84	63	78	3″	3″	15 Ft.	LP3005B3B

▲ Suction lift varies, depending upon elevation (altitude) and water temperatures.
MAXIMUM CASE PRESSURE --- 100 PSI

PUMP CURVES





PUMP SPECIFICATIONS

LP Series 3/4 HP - 3 HP

HP	Type	Voltage	Hz	RPM	Motor Voltage (Factory) Connected	Service Factor Motor Amps						Max Liquid Temperature
						Single Phase			Three Phase			
						115V	208V	230V	208V	230V	460V	
3/4	Single Phase	115/208-230	60	3450	230V	11.6	5.8	5.8				180˚F
1						16.6	8.5	8.3				
1-1/2						23	12.5	11.5				
2		208-230				--	13	12				
3						--	18	17				
3/4	Three Phase	208-230/460	60	3450	230V	--	--	--	2.6	2.8	1.4	180˚F
1									--	3.6	1.8	
1-1/2									5.4	5.2	2.6	
2									6.8	6.6	3.3	
3									--	9.2	4.6	
Motor info subject to change without notice, please consult motor nameplate.												

LP1502

HP	Type	Voltage	Hz	RPM	Motor Voltage (Factory) Connected	Service Factor Motor Amps						Max Liquid Temperature
						Single Phase			Three Phase			
						115V	208V	230V	208V	230V	460V	
2.5	Single Phase	208-230	60	3450	208-230V	--	15.7	16	--	--	--	180˚F
2.5	Three Phase	230/460	60	3450	230/460				--	8.75	4.35	180˚F
Motor info subject to change without notice, please consult motor nameplate.												

LP3005

HP	Type	Voltage	Hz	RPM	Motor Voltage (Factory) Connected	Service Factor Motor Amps						Max Liquid Temperature
						Single Phase			Three Phase			
						115V	208V	230V	208V	230V	460V	
5	Single Phase	230	60	3450	230V	--	27	24.5	--	--	--	180˚F
5	Three Phase	208-230/460	60	3450	230V	--	--	--	--	14	7	180˚F
*5	Three Phase	230/460	60	3450	230/460V	--	--	--	--	17.2	8.6	180˚F
Motor info subject to change without notice, please consult motor nameplate. * Phase Conversion Compatible												

WIRING SIZE CHART

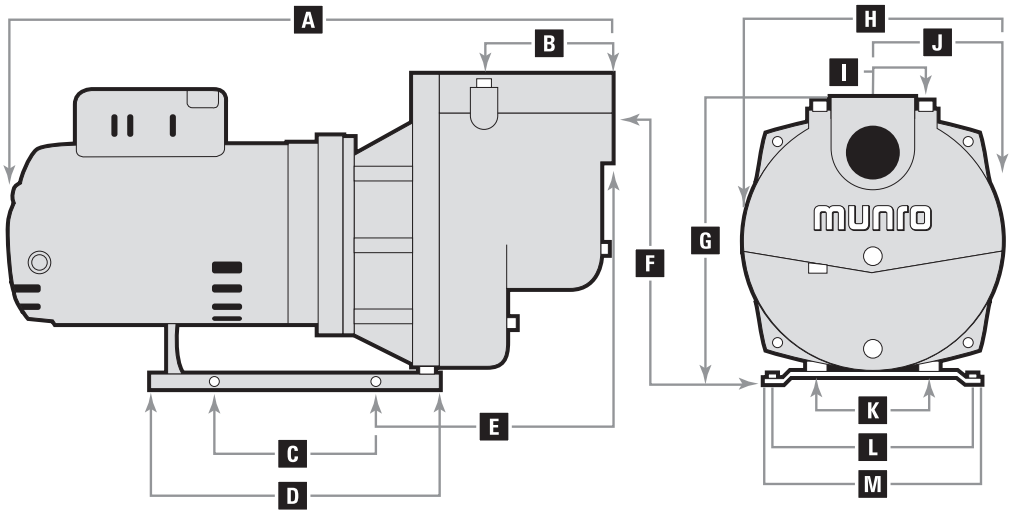
Motor Rating			Circuit Size	Fuse Size	Full Load Amps	Copper Wire Size						
Volts	HP	Phase				KW	12	10	8	6	4	2
120 (1ø)	1/4	1	20	10	5.8	0.186	291	464	692	1171	1863	2350
	1/3	1	20	10	7.2	0.246	230	365	546	924	1471	2338
	1/2	1	20	15	9.8	0.373	171	272	407	689	1096	1742
	3/4	1	20	15	13.8	0.559	130	207	310	524	834	1326
	1	1	20	20	16	0.746	99	157	236	399	635	1009
	1-1/2	1	30	25	20	1.12		128	192	325	515	822
240 (1ø)	1/4	1	20	5	2.9	0.186	1166	1853	2769	4685	7453	11850
	1/3	1	20	5	3.6	0.246	920	1462	2186	3699	5884	9355
	1/2	1	20	8	4.9	0.373	685	1090	1629	2756	4384	6970
	3/4	1	20	8	6.9	0.559	522	829	1240	2098	3337	5305
	1	1	20	10	8	0.746	397	631	944	1597	2540	4039
	1-1/2	1	20	15	10	1.12	269	427	639	1081	1720	2734
	2	1	20	20	12	1.49	259	411	615	1041	1656	2633
	2-1/2	1	30	20	11.6	1.9	220	344	522	885	1407	2238
	3	1	30	25	17	2.24	184	292	437	739	1176	1871
	5	1	40	30	28	3.73		198	296	502	798	1269

Motor Rating			Circuit Size	Fuse Size	Full Load Amps	Copper Wire Size						
Volts	HP	Phase				KW	12	10	8	6	4	2
208 (3ø)	1-1/2	3	20	10	6.6	1.12	530	843	1340	2131	3389	5385
	2	3	20	15	7.5	1.49	407	648	1031	1639	2607	4145
	2-1/2	3	20	15	9.0	1.9	346	551	876	1393	2216	3523
	3	3	20	15	10.6	2.24	289	459	731	1162	1849	2939
	5	3	30	25	16.7	3.73	181	289	459	730	1162	1847
240 (3ø)	1-1/2	3	20	10	6	1.12	641	1019	1522	2576	4098	6516
	2	3	20	10	6.8	1.49	492	783	1170	1979	3148	5006
	2-1/2	3	20	15	8.2	1.9	418	666	995	1682	2676	4255
	3	3	20	15	9.6	2.24	354	563	841	1423	2264	3600
	5	3	30	20	15.2	3.73	243	386	577	977	1555	2472
480 (3ø)	1-1/2	3	20	5	3	1.12	2693	4280	6396			
	2	3	20	5	3.4	1.49	2019	3210	4797	8116		
	2-1/2	3	20	10	4.0	1.9	1716	2729	4077	6899		
	3	3	20	10	4.8	2.24	1615	2568	3837	6492	10328	
	5	3	20	10	7.6	3.73	973	1547	2311	3911	6221	9891

Values are for estimating purposes only and may not meet NEC code. Design should be verified.

PUMP DIMENSIONS *(Measurements are approximate and will vary depending on motor/phase used.)*

LP Series 3/4 HP - 3 HP

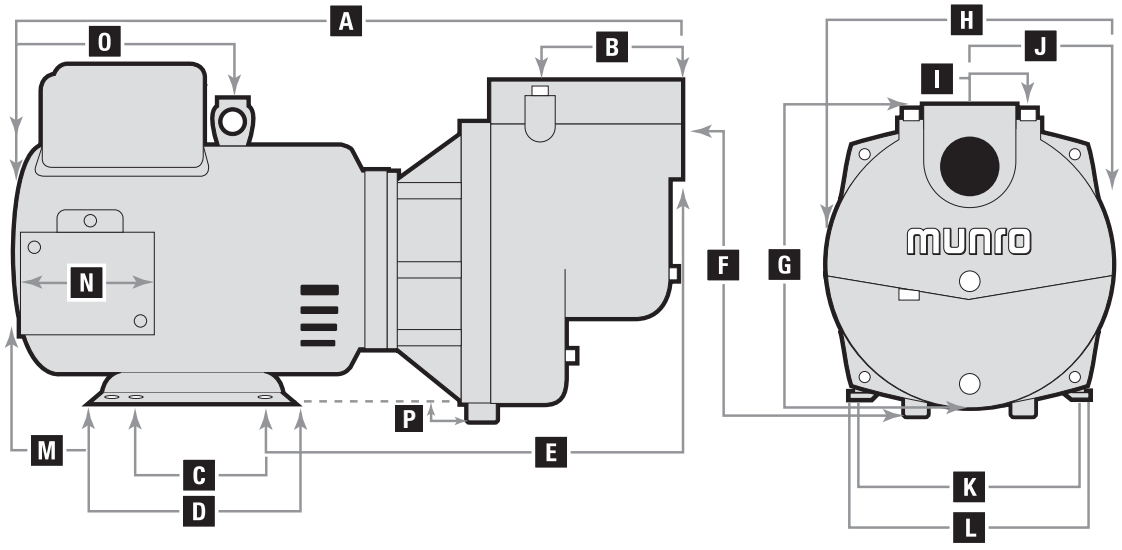


HP	Discharge	Suction	A	B	C	D	E	F	G	H	I	J	K	L	M
3/4	1 1/2"	2"	19 3/8"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
1	1 1/2"	2"	19 3/8"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
1 1/2	1 1/2"	2"	19 3/8"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
2	1 1/2"	2"	20 5/8"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
3	1 1/2"	2"	20 3/8"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"

1502

HP	Discharge	Suction	A	B	C	D	E	F	G	H	I	J	K	L	M
2.5	1 1/2"	2"	20 3/4"	4 1/4"	8"	14"	9 1/4"	11 1/2"	13 7/8"	11 3/8"	3"	5 3/4"	4"	7"	8"

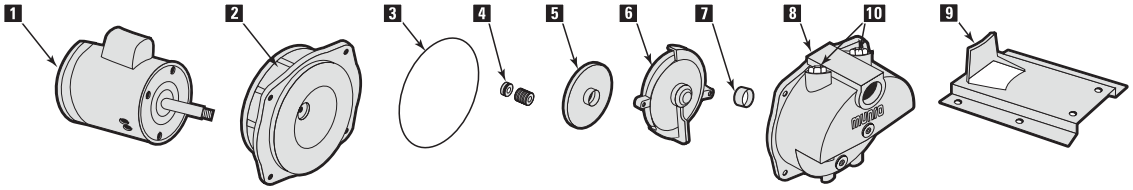
LP3005



HP	Discharge	Suction	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
5	3"	3"	22"	4"	4 1/2"	6 1/2"	13 1/2"	10 7/8"	13 1/8"	11 3/8"	3"	5 5/8"	7 1/2"	8 1/2"	2 1/2"	4 1/4"	7 1/2"	1 1/2"

PARTS BREAKDOWN

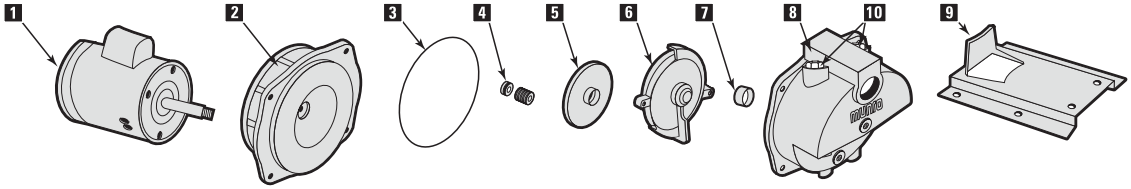
LP Series 3/4 HP - 3 HP



ITEM		HORSEPOWER	3/4	1	1 1/2	2	3
		MODEL NO.	LP075B	LP100B	LP150B	LP200B	LP300B
	DESCRIPTION	PART NO.					
1	Motor, Nema J - 1 Phase Motor, Nema J - 3 Phase		MLP119370 MLP103333	MLP119399 MPP103334	MLP119219 MLP117378	MLP26452 MLP117379	MLP26453 MLP117380
2	Mount Ring	MLP1300	1	1	1	1	1
	Hex Hd SS cap screws 3/8-16						
▲	UNC x 3/4"	MLPB909	4	4	4	4	4
3	Sq Cut Gasket	MLPG001	1	1	1	1	1
4	Seal, Rotary w/ Spring	SCC800	1	1	1	1	1
5	Impeller, Brass "B" Models		MLP1407	MLP1410	MLP1415	MLP1420	MLP1430
6	Diffuser	MLP1201	1	1	1	1	1
	Hex HD SS Cap Screws 1/4-20						
▲	UNC x 1 1/4"	MLPB903	2	2	2	2	2
7	Rubber Diffuser Gasket	MLPG002	1	1	1	1	1
8	Pump Case	MLP1100	1	1	1	1	
	Hex Hd SS Cap Screws 7/16-						
▲	14 UNC x 1"	MLPB912	4	4	4	4	4
▲	Drain Valve 1/4: NPT	MLP913			Part Retired, 2020		
10	3/4" Priming Plug	•	2	2	2	2	2
▲	1/4" Drain Plug	•	2	2	2	2	2
▲	1/4" Sensor Plug	•	1	1	1	1	1
9	Base - 48 Y-Frame Motor	MLP1548	1	1	1 ph - 1	1ph - 1	--
	Base - 56 J-Frame Motor	MLP1556	--	--	3 ph - 1	3 ph - 1	1
	Hex Hd SS Cap Screws 3/8-16						
▲	UNC x 1/2"	MLPB907	2	2	2	2	2

(•) Standard hardware Item ---- (▲) Not Shown

LP1502

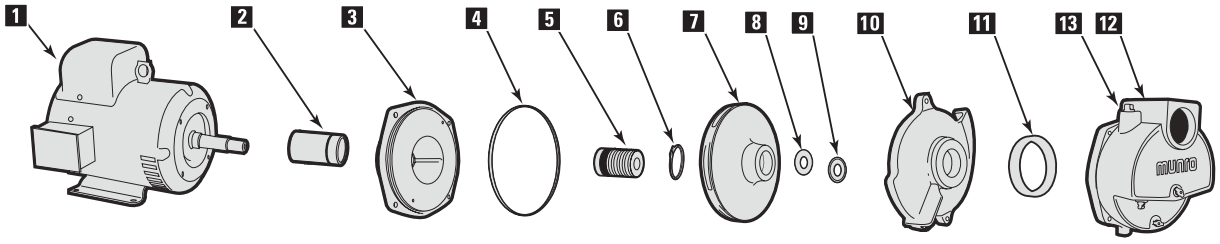


Items		HORSEPOWER	2.5	2.5
		MODEL NO.	LP1502B	LP1502B3
	DESCRIPTION	PART NO.		
1	Motor, Nema J - 1 Phase Motor, Nema J - 3 Phase	MLP33344 MLP119596	1 -	-- 1
2	Mount Ring	MLP2300	1	1
	Hex HD SS Cap Screws 3/8-16			
▲	UNC x 3/4"	MLPB909	4	4
3	Sq. Cut Gasket	MLPG003	1	1
4	Seal, Rotary w/ Spring	PACSC309	1	1
5	Impeller, Brass	MLP2402	1	1
6	Diffuser	MLP2200	1	1
	Hex Hd Cap Screw 5/16-18			
▲	UNC x 1 1/4"	MLPB911	2	2
7	Rubber Diffuser Gasket	MLPG004	1	1
8	Pump Case	MLP2100	1	1
	Hex Hd SS Cap Screws 7/16-14			
▲	UNC x 1"	MLPB912	4	4
▲	Drain Valve 1/4" NPT	MLP913	Part Retired, 2020	
10	3/4" Priming Plugs	•	2	2
▲	1/4" Drain Plug	•	2	2
▲	1/4" Sensor Plug	•	1	1
9	Base - J Frame Motor	MLP2500	1	1
	Hex Hd SS Cap Screws 3/8-16			
▲	UNC x 3/4"	MLPB909	2	2

(•) Standard hardware Item ---- (▲) Not Shown

PARTS BREAKDOWN

LP3005



Items		HORSEPOWER	5	5	5
		MODEL NO.	LP3005	LP3005B	LP3005B3B
	DESCRIPTION	PART NO.			
1	Motor - Nema J - 1 Phase	MLP131641	1	-	-
	Motor - Nema J - 3 Phase	MLP131574	-	1	-
	Motor - Nema J Frame - 3 Phase VFD		-	-	1
▲	Slinger, Washer	MLPG005	1	1	1
2	Shaft Sleeve	MLP60010	1	1	1
3	Mount Ring	MLP3300	1	1	1
▲	Hex HD SS Cap Screws 3/8-16 UNC x 3/4"	MLPB909	4	4	4
4	Sq. Cut Gasket	MLPG003	1	1	1
5	Seal, Rotary w/ Spring	PACSC185	1	1	1
6	Retaining Clip	MLP30001	1	1	1
7	Impeller, Brass	MLP3405	1	1	1
8	Flat Impeller Washer	MLP3WASH		Part Retired, 2020	
9	Beveled Impeller Washer	MLP3CONE	1	1	1
▲	Hex HD SS Cap Screws 3/8-16 UNC x 1 1/4"	MLPB906	1	1	1
10	Diffuser	MLP3200	1	1	1
▲	Hex Hd SS Cap Screws 15/16-18 UNC x 1- 1 1/2"	MLPB910	2	2	2
11	Rubber Diffuser Gasket	MLPG004	1	1	1
12	Pump Case	MLP3100	1	1	1
▲	Drain Valve 1/4" NPT	MLP913		Part Retired, 2020	
13	3/4" Priming Plugs	•	2	2	2
▲	1/4" Drain Plug	•	2	2	2
▲	1/4" Sensor Plug	•	2	2	2

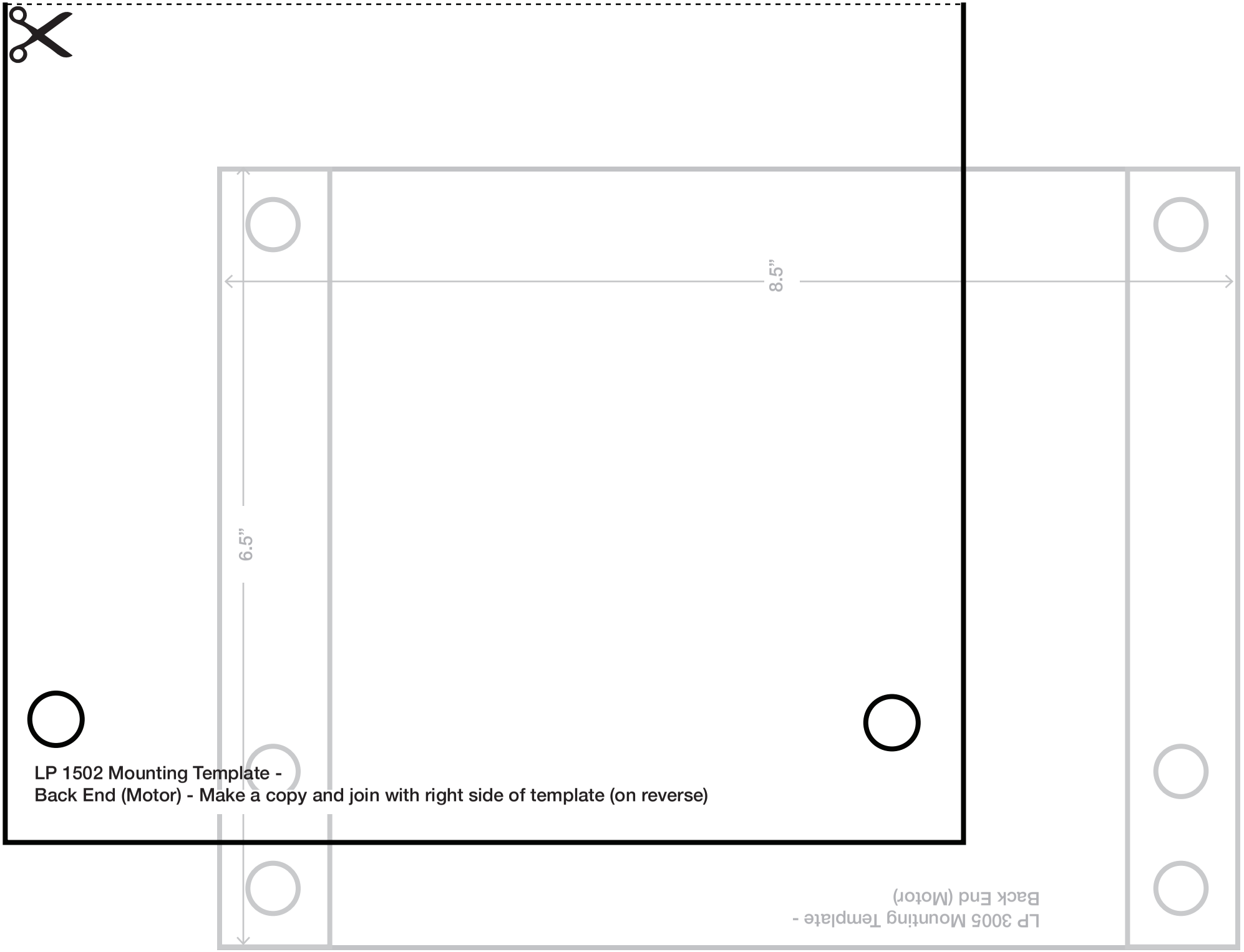
(•) Standard hardware Item ---- (▲) Not Shown

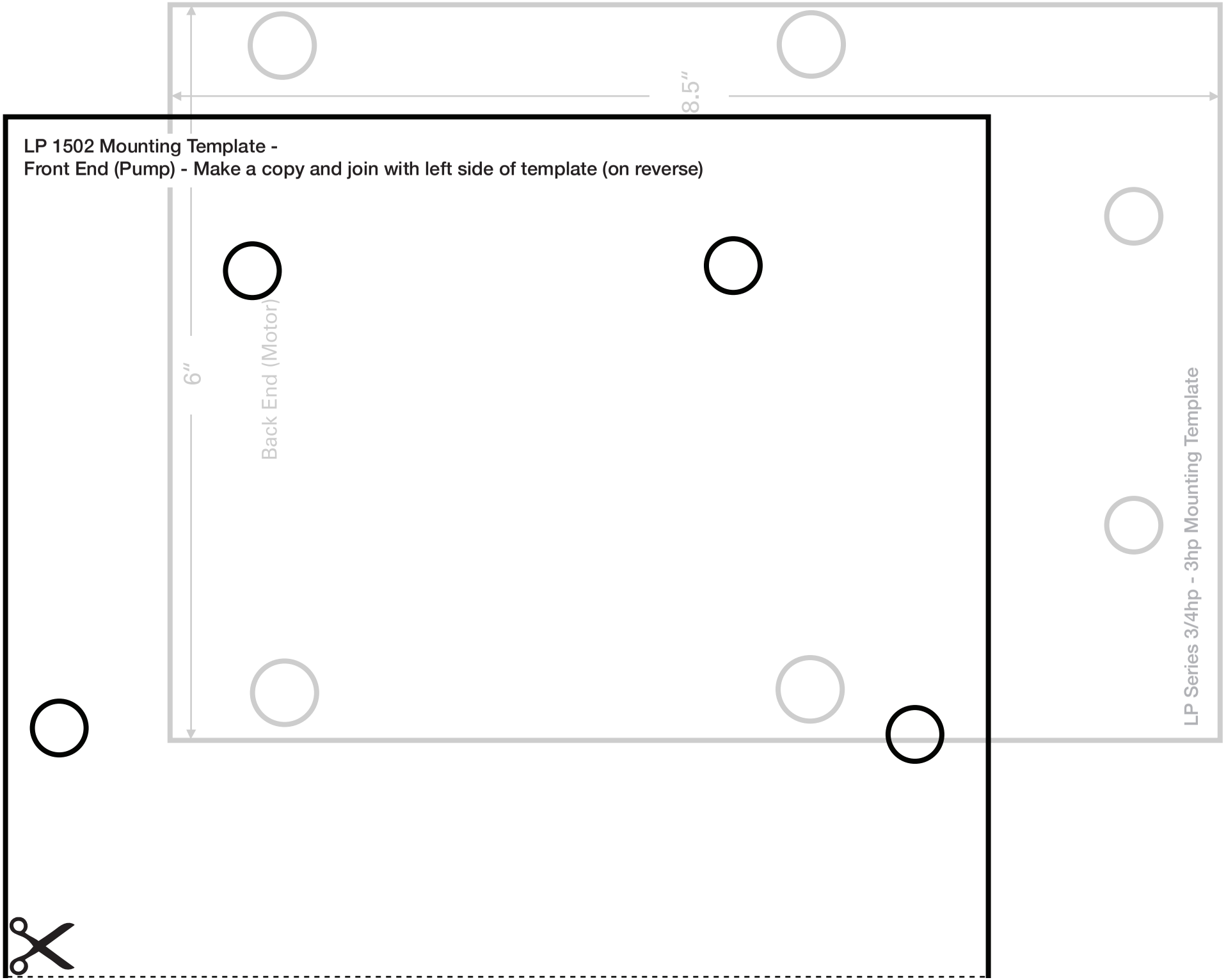
TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Little or no discharge	1. Casing not initially filled with water to prime pump 2. Total head too high 3. Suction lift too high, or too long 4. Impeller plugged 5. Hole or air leak in suction line 6. Foot valve too small 7. Impeller damaged 8. Foot valve or suction line not submerged deep enough in water 9. Insufficient inlet pressure or suction head 10. Suction piping too small 11. Motor wired incorrectly 12. Casing gasket leaking 13. Suction or discharge line valves closed	1. Fill pump casing 2. Shorten suction lift and/or change head 3. Lower suction lift, install foot valve and prime or shorten length of suction line 4. Clean impeller 5. Repair or replace suction line, use pipe sealing compound. 6. Match foot valve to piping or install one size larger foot valve 7. Replace impeller 8. Submerge lower in water 9. Increase inlet pressure by adding more water to tank or increasing back pressure 10. Increase to pump inlet size or one size larger 11. Check wiring diagram for correct wiring 12. Replace Gasket 13. Open suction and/or discharge lines
Pump will not deliver water or develop pressure	1. No priming water in casing 2. Mechanical seal is leaking 3. Leak in suction line 4. Discharge line is closed and priming air has no where to go 5. Suction line (or valve) is closed 6. Poor pump performance 7. Foot valve is leaking 8. Suction screen is clogged	1. Fill pump casing 2. Replace seal (See Rotary Seal Assembly Replacement on p.2) 3. Repair or replace 4. Open discharge line 5. Open suction line or valve 6. Replace worn parts 7. Replace foot valve 8. Clean or replace screen
Loss of suction	1. Air leak in suction line 2. Suction lift is too high 3. Insufficient inlet pressure or suction head in booster system 4. Clogged foot valve or strainer	1. Repair or replace suction line 2. Lower suction lift, install foot valve and prime 3. Increase inlet pressure by adding more water to tank or increasing back pressure 4. Unclog
Pump vibrates and/or makes excessive noise	1. Mounting plate or foundation not rigid enough 2. Foreign material in pump 3. Impeller damaged 4. Worn motor bearings 5. Suction lift too high	1. Reinforce 2. Disassemble pump and clean 3. Replace impeller 4. Replace bearings 5. Lower suction lift, install foot valve and prime
Pump will not start or run	1. Improper wiring 2. Blown fuse or open circuit breaker 3. Loose or broken wiring 4. Stone or foreign object lodged in impeller 5. Motor shorted out 6. Thermal overload has opened circuit	1. Check wiring diagram on motor 2. Replace fuse or close circuit breaker 3. Tighten connections, replace broken wiring 4. Disassemble pump and remove foreign object 5. Replace motor 6. Allow unit to cool, restart after reason for over load has been determined
Pump leaks at shaft	1. Worn mechanical shaft seal	1. Replace rotary seal (See Rotary Seal Assembly Replacement on p.2)

Download troubleshooting guide at
www.munropump.com/resources

Call Munro technical support for any questions relating to start-up or operation of this pump. **Toll Free: 1.800.942.4270**


8.5”
6.5”
LP 1502 Mounting Template -
Back End (Motor) - Make a copy and join with right side of template (on reverse)
LP 3005 Mounting Template -
Back End (Motor)


LP 1502 Mounting Template -
Front End (Pump) - Make a copy and join with left side of template (on reverse)
8.5″
6″
Back End (Motor)
LP Series 3/4hp - 3hp Mounting Template

munro

GOVERNING LAW & LIMITED WARRANTY FOR PUMPS, PUMP CONTROLS, VALVES, FITTINGS AND ACCESSORIES MANUFACTURED BY MUNRO

GOVERNING LAW: It is understood and agreed that these Terms and Conditions of Sale (this "Agreement") shall be interpreted under and pursuant to the laws of the State of Colorado; you agree that any action at law or suit which is related to any contact of sale brought against us shall be filed in a federal or state court located in the State of Colorado.

LIMITED WARRANTY: Munro, Inc. (the "Company") hereby warrants, in accordance with and subject to the provisions herein contained, your unit against defects in materials and workmanship under normal use and service when properly installed, following provided installation instructions for a period of 12 months or 1000 hours of operation (which ever occurs first), from the date of purchase (Continuous-duty rated products are exempt from the 1000 hours of operation stipulation). In the event of a breakdown or failure of your unit or part thereof, within the period of 12 months or 1000 hours of operation, which prevents normal function, and is found to be the result of a defect in materials or workmanship, the Company will repair the breakdown or failure and/or replace any defective part or the whole unit at the Company's discretion. Freight charges will be the customer or ultimate consumer's responsibility.

Further, we warrant to our immediate customer and to the ultimate consumer (the "Customer") that products of our manufacture will be free of defects in material and workmanship under normal use and service, when installed and maintained in accordance with our instructions, for a period of twelve (12) months from date of sale to the ultimate customer or eighteen (18) months from date of shipment to the Munro distributor, whichever occurs first. As used herein, the "Ultimate Consumer" is defined as the purchaser who first uses the product after its initial installation or, in the case of product designed for non-permanent installation, the first owner who used the product. It is our immediate customer's obligation to make known to the Ultimate Consumer the terms and conditions of this warranty. This warranty provides limited specific legal rights, and there may also be other rights, which vary from state to state. As, and to the extent, covered by the federal consumer product warranties Law (the Magnuson-Moss Act, 15 U.S. Code §2301, et seq., (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, to the fullest extent allowed, (2) this warranty is for all purposes a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against the Company, unless and until the Ultimate Consumer notifies the Company in writing of the defect, and delivers the product and/or defective part(s) Customer paid freight (see Return Policy section, below) to our factory or nearest authorized service facility. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may be limited by such law, to the extent applicable. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, F.O.B. POINT OF MANUFACTURER OR AUTHORIZED REPAIR FACILITY, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.** Unless expressly stated otherwise, statements as to the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on product manufactured by the Company, if any, are subject to laboratory tests corrected for field performance. Any additional statements in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing, if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. Components or accessories supplied by us but manufactured by others are warranted only to the extent of, and are subject to, the terms and conditions of the original manufacturer's warranty.

RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYZES AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.

This warranty shall not apply when damage is caused by (a) improper installation, mechanical or electrical, (b) improper power (i.e., voltage, etc.) (c) lightning (d) freezing (e) sand or other abrasive material (f) scale or corrosion build-up due to excessive chemical content. This warranty does not extend to or cover the unit or any part of it which, in the opinion of the Company, has worn by wear and tear, abraded or corroded by fluid pumped or environmental conditions, run in a dry condition, operated at high temperatures or outside the technical specifications of the unit. Mechanical seal failure is not warranted outside of initial start up. Any modification of the original equipment will also void this warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts, nor charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the intended application and use of the product.

UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, REGARDLESS OF WHETHER SUCH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/ OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No rights extended under this warranty may be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.
If any litigation is commenced between the parties hereto for the enforcement of any rights hereunder, the successful party in subject litigation shall be entitled to receive from the unsuccessful party all costs incurred in connection therewith, including a reasonable amount for attorney's fees.

PRICING
All prices provided are guaranteed for only 30 days from the date of written quote, unless otherwise noted. Unless noted, prices do not include applicable taxes or freight costs. Prices are otherwise subject to change without notice. Customer is responsible for payment of all applicable state and local taxes, or for providing a valid sales tax exemption certificate. The Company reserves the right to reject any order.

PAYMENT TERMS
The Company accepts cash, checks, money orders, direct deposit, Visa, MasterCard, Discover and American Express. Credit card payments made on the date of invoice or within 10 business days of invoice date will not incur a fee. Credit card payments made 11 or more business days after the date of invoice will incur a 3% service charge. For Customers with established credit, terms are net, due 30 days following the date of invoice. A finance charge is computed on a periodic rate of 2% per month, which is an annual rate of 24%, on any previous balance not paid within 30 days (minimum service charge of 50¢). Customer agrees to pay all costs of collection and all attorney's fees if the account becomes delinquent and is referred for collection.

FREIGHT & SHIPPING
Freight terms are FOB Munro, Inc. dock, unless otherwise noted. Unless other arrangements are made, The Company will ship to an address provided by Customer, by the most efficient means we find. Shipping and handling charges will be added to invoices. The Company is not liable for any delays in shipping or issues related to arrival times and do not guarantee delivery dates.

RETURN POLICY
1. 30-days, new condition – Upon the Company's verification that the product is in new condition, the Company will provide a refund for the price paid less a 15% restocking fee, for all stock items returned in new condition within 30 days of purchase and sent freight prepaid to our factory or nearest authorized service facility. Any returned product that is damaged through misuse, is missing parts, or is in unsellable condition due to Customer tampering will result in the Customer being charged a higher restocking fee based on the condition of the product.
2. Custom orders – All custom items are non-refundable. All custom order cancellations must be approved and may be denied or subject to restocking fees and other charges.
3. Damaged in shipping – Great care is taken in filling, checking and packing your order. Should your order be damaged or lost in transit, write so on the delivery receipt before signing. If a truck shipment is damaged, please obtain an inspection report from the truck line immediately. The Company will help to resolve the situation to the best of our ability.
4. Warranty claim – Please note that products must not be returned to our factory or nearest authorized service facility for warranty consideration without the Munro distributor first contacting Munro to initiate a Return Merchandise Authorization (RMA).
5. Freight - Freight charges to inspect a Munro product will be the user's responsibility until warranty eligibility is determined. If product is warranteed, Munro will cover all freight costs. Munro's Packaging Guidelines must be adhered to. Lowest cost shipping option must be used. Pre-authorization from Munro is required for expedited shipping.
6. For complete warranty procedures and packaging guidelines, please visit: www.munropump.com/Company-Information/Warranty-statements

ENTIRE AGREEMENT
No employee or agent of Munro, Inc. has been authorized to make any promises, representations or warranties binding Munro Inc., or its parent company, Munro Companies, Inc., or its owners or management, other than those contained here or those which have been reduced to writing and signed by an officer of Munro Companies, Inc. Any verbal or written statements made by an employee or agent which are contrary to the provisions of this Agreement shall be deemed mere expressions of opinion and not binding. This Agreement constitutes the entire agreement between Munro, Inc. and the Customer with respect to the purchase of equipment, superseding all other agreements, whether oral or written.

YOUR ACCEPTANCE OF ANY GOODS SUPPLIED BY US, OR ON OUR BEHALF, SHALL, WITHOUT LIMITATION CONSTITUTE ACCEPTANCE OF ALL TERMS, AND CONDITIONS STATED ABOVE.

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