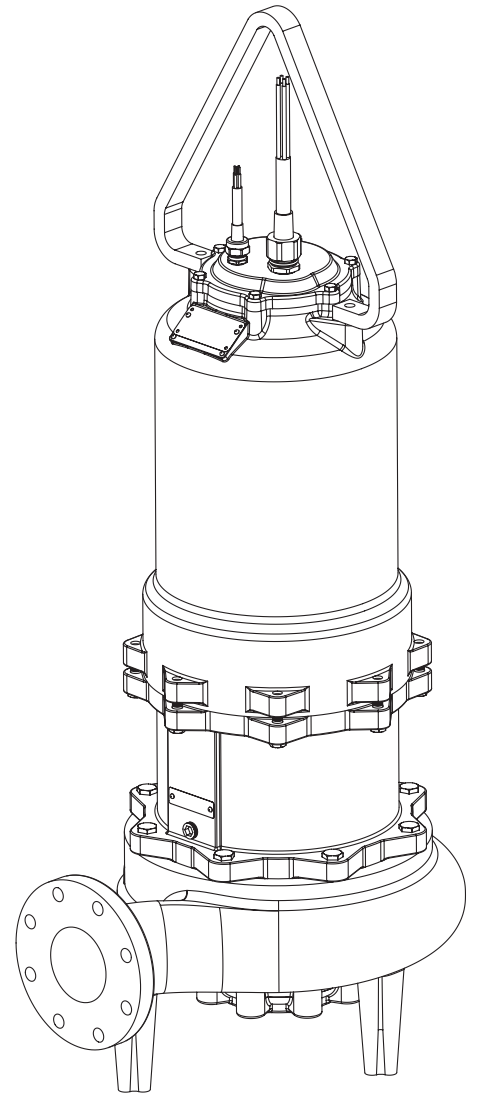




HYDROMATIC®



MODELS S4T(X)P, S8L(X)P,
S8LA(X)P and S12L(X)P

(Class I, Division 1, Groups C & D): FM

SUBMERSIBLE SOLIDS HANDLING PUMP

INSTALLATION AND SERVICE MANUAL

For use with product built with Premium Efficient motor.

Make sure this manual is provided to the owner of the equipment or to the responsible party who maintains the system.

(Hazardous Location
Motor End)



General Information

Attention:

This manual contains important information for the safe use of this product. Read completely and do not throw away.

Reasonable care and safe methods should be practiced. Check local codes and requirements before installation.

Unpacking Pump:

When unpacking unit, check for damage. Claims for damage must be made at the receiving end through the delivery carrier. Damage cannot be processed from the factory.

WARNING: Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.

CALIFORNIA PROPOSITION 65 WARNING:

⚠ WARNING This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Pumps in Storage or Not Operating:

Pumps with silicon/carbide seals must have impellers manually rotated (6 revolutions) after setting non-operational for 3 months or longer and prior to electrical start-up.

Pumps with tungsten carbide seals must have impellers manually rotated (6 revolutions) after setting non-operational for 3 weeks or longer and prior to electrical start-up.

Seal Failure Probes:

All hazardous location submersible pumps have two factory installed moisture detectors (seal failure probes). They are in a normally open series circuit in the seal chamber. Under normal operating conditions, the circuit remains open. If the lower seal leaks and moisture enters this chamber, the moisture would settle

to the bottom of the chamber and will complete the circuit between the moisture detectors.

This circuit must be connected to a sensing unit and signaling device. This is supplied in a Hydromatic® built control panel.

NOTE: Failure to install such a device negates all warranties by Hydromatic.

Heat Sensors:

All motors in this family have heat sensors on or embedded in the motor winding to detect excessive heat. This prevents damage to the motor. If sensor trips due to excessive winding temperature, the starter in the panel breaks power to the pump. Once the sensor resets, the starter is automatically reset for FM for continued operation of the pump. This circuitry is supplied in a Hydromatic control panel.

The sensors are set to trip at 150°C.

NOTE: Failure to install such circuitry would negate FM approvals and all warranties by Hydromatic.

Power Cords:

The power cord and heat sensor seal failure cord are potted into the cord cap. The cords must not be spliced.

NOTE: Each cable has a green lead. This is the ground wire and must be grounded properly per NEC and/or local codes. Cords should be inspected for abnormal wear and replaced accordingly.

Overload Heaters:

If the Hydromatic electrical panel is not used, starters with 3 leg overload relay must be supplied on 3 phase pumps. Each leg is to have an identical heater sized in accordance with the nameplate amps on the motor housing. The amp draw on these submersible motors is slightly higher than a corresponding horsepower surface motor, so heaters must be sized by the nameplate rating.

Pump Installation

Installing Sump Level Controls Float Controls:

In either simplex, duplex or triplex systems the lower or turn-off control is to be set to maintain a minimum level in the sump. This level shall be no more than 3-1/4" from the top of the motor housing down to the surface of the sewage.

The second or turn-on control is set above the lower turn-off control. The exact distance between the two floats must be a compromise between a frequent pumping cycle (10 starts per hour max.) to control septicity, solids and a slower cycle for energy economy. This distance should be determined by the engineer or consulting engineer, depending on the conditions of the application.

Installing Pump in Sump:

Before installing the pump in the sump, lay it on its side and rotate impeller. Impeller may be slightly stuck due to factory test water. The impeller should turn freely. Do not connect the power until after this test.

Clean all debris from sump and connect pump to piping. A check valve must be installed on each pump. A gate or plug valve in each pump discharge is highly recommended. This valve should be installed on the discharge side of the check valve so if necessary to service the check valve, the line pressure can be cut off. Single pump systems are sometimes installed without a check valve where it is desirable to self-drain the discharge line to prevent freezing. This can be done only with short discharge lines; otherwise water will return to the sump and cause short cycling of the pump.

Making Electrical Connections:

All electrical wiring must be in accordance with local code, and only qualified electricians should make the installations. All wires should be checked for shorts to ground with an ohmmeter or Megger

after the connections are made. This is important, as one grounded wire can cause considerable trouble.

IMPORTANT: If equipment is not properly wired and protected as recommended, Hydromatic® warranty is void.

Heat Sensor and Seal Failure Connections:

If a Hydromatic control panel is used, terminal blocks are provided for heat sensor and seal failure connections. If a control panel is supplied by others, it must allow heat sensor and seal failure terminations.

Pump Operations

Starting System:

1. Double check all wire connections.
2. Turn pumps to Off position on H-O-A switches.
3. Turn on breakers.
4. When using three phase pumps, turn the H-O-A switch to Hand position on one pump and notice operation. If pump is noisy and vibrates, rotation is wrong. To change rotation, interchange any two line leads to pump. Do not interchange main incoming lines. Check rotation of all pumps in this same manner.
5. Now set both H-O-A switches to Auto position and allow water to rise in sump until one pump starts. Allow pump to operate until the level drops to turn-off point.
6. Allow sump level to rise to start other pump(s). Notice run lights in panel. Pumps should alternate on each successive cycle of operation.
7. Turn both H-O-A switches to Off position and allow sump to fill to the override control level(s).
8. Turn switches to Auto position, and pumps should start and operate together until level drops to turn-off point.

9. Repeat this operation and cycle several times before leaving the job.
10. Check voltage when pumps are operating and check the amp draw of each pump. Check amps on each wire as sometimes a high leg will exist. For excessive voltage on one leg, the electric utility company should be consulted.

Pump Maintenance

As the motors are oil filled, no lubrication or other maintenance is required.

If the heat sensor and seal failure are hooked up properly, no attention is necessary as long as the seal failure indicator light does not come on. To ensure continuity of the seal sensor leads, a test light is provided on intrinsically safe Hydromatic panels as standard equipment.

Pump should be checked every quarter for corrosion and wear.

Field Service on Hydromatic Hazardous Location Pumps:

If a Hydromatic hazardous location pump is used in a hazardous location, the pump must be returned to the factory for electrical and motor service. This will ensure the integrity of the hazardous location rating of the pump and comply with our warranty requirements.

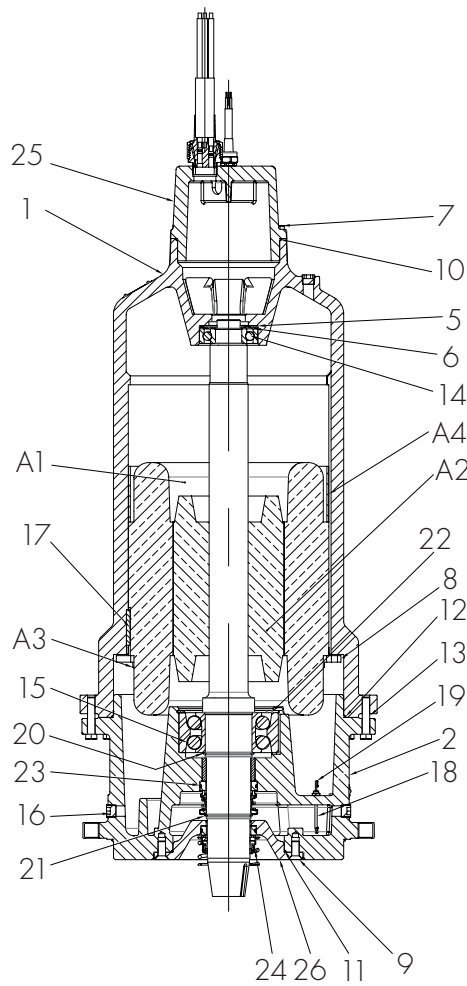
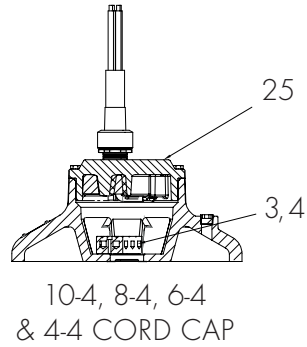
The quick disconnect cords, upper and lower seal, volute and impeller components may be repaired or replaced by an authorized Hydromatic service facility without compromising the hazardous location rating to the pump.

Any time the seal is disturbed, it must be replaced.

Check the pump for proper rotation before returning to service.

S4T(X)P, S8LA(X)P S8L(X)P and S12L(X)P Parts List

For use with product built with
Premium Efficient motor.

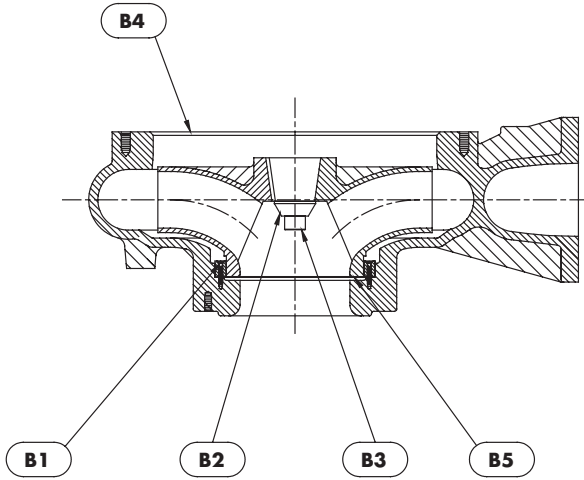


320 Frame Pumps				360 Frame Pumps	
Item	Eng. No.	Description	Qty	Eng. No.	Description
1	28013D000	Housing – Motor 30 hp–75 hp	1	28014D000	Housing – Motor 150 hp
	28013D001	Housing – Motor 20 hp–25 hp	1	28014D001	Housing – Motor 40 hp–125 hp
2	27977D010	Housing – Bearing	1	27990D010	Housing – Bearing
3	27882A009	Terminal Block 8 Awg and Smaller	1	27882A009	Terminal Block*
4	06106A069	Screw – Cap SKT HD Terminal Block	2	06106A069	Screw – Cap SKT HD Terminal Block
5	110650043	Screen	1	110650053	Screen
6	19331A009	Washer – Spring	1	000640111	Washer – Spring
7	19101A017	Screw – Cap	6	19101A017	Screw – Cap
8	083540003	Stator Ring	1	083543603	Stator Ring
9	029210011	Screw – Cap Flat HD Seal Plate	4	029210011	Screw – Cap Flat HD Seal Plate
10	001500191	O-Ring, Cord Cap	1	001500191	O-Ring, Cord Cap
11	001500361	O-Ring, Seal Plate	1	001500361	O-Ring, Seal Plate
12	001500381	O-Ring, Motor Housing	1	001500351	O-Ring, Motor Housing
13	19101A048	Screw – Cap	12	19105A044	Screw – Cap
14	08565A026	Ball Bearing Upper	1	000650351	Ball Bearing Upper
15	071670191	Ball Bearing Lower Double Row	1	071670201	Ball Bearing Lower Double Row
16	009240101	Plug – Pipe 1/2" Skt Hd. Brass	3	009240101	Plug-Pipe 1/2" Skt Hd. Brass
17	065790011	Stator Key	1	065790011	Stator Key
18	109010011	Probe – Seal Failure	2	109010011	Probe – Seal Failure
19	109000025	Seal – Sensor Ass'y (Not Shown)	1	109000025	Seal – Sensor Ass'y (Not Shown)
20	009750141	Ring – Retaining External	1	009750141	Ring – Retaining External
21	009750101	Ring – Retaining External seal	1	009750101	Ring – Retaining External seal
22	009740151	Ring – Retaining Internal	1	009740151	Ring – Retaining Internal
23	037183001	Shaft Seal Sil Car/ Carbon – Nitrile Upper	1	27995A000	Shaft Seal Sil Car/Carbon – Nitrile Upper
24	27996A000	Shaft Seal Sil Car/ Carbon – Nitrile Lower	1	27997A000	Shaft Seal Sil Car/Carbon – Nitrile Lower
25	152880315	Cord Cap assembly – 10-4 SOOW	1	152880325	Cord Cap assembly 8-4 SOOW
	152880325	Cord Cap assembly – 8-4 SOOW	1	152880335	Cord Cap assembly 6-4 SOOW
	152880335	Cord Cap assembly – 6-4 SOOW	1	152880345	Cord Cap assembly 4-4 SOOW
	152880345	Cord Cap assembly – 4-4 SOOW	1	152885355	Cord Cap assembly 2-4 SOOW
	152885355	Cord Cap assembly – 2-4 SOOW	1	152885365	Cord Cap assembly 0-4 SOOW
	152885365	Cord Cap assembly – 0-4 SOOW	1	152885375	Cord Cap assembly 4/0-3 SOOW
26	073980312	Seal Plate	1	073980412	Seal Plate

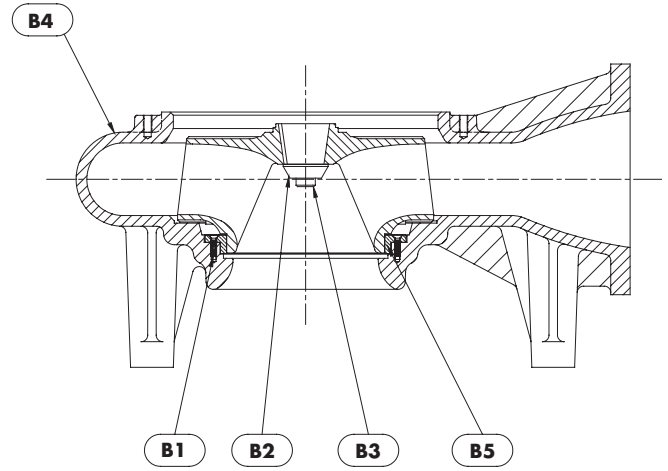
* Terminal block requires 460/575V and 8 AWG or smaller wire.

Wet End Components

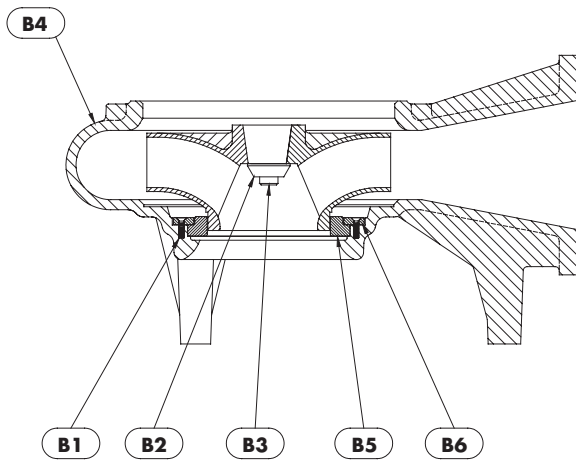
S4T(X)P



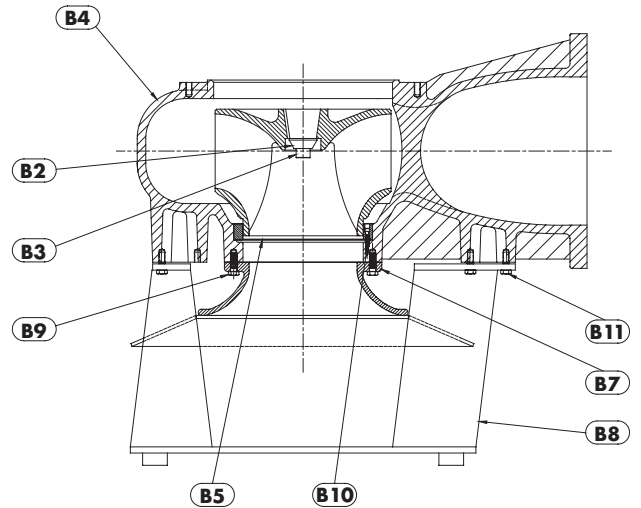
S8L(X)P



S8LA(X)P



S12L(X)P



ITEM	DESCRIPTION	S4T(X)P	S8L(X)P	S8LA(X)P	S12L(X)P
B1	SCREW – MACH. FL. HD.	008290091 (4)	07597A021 (4)	07597A021 (4)	–
B2	WASHER – IMPELLER	019450013	019450013	019450013	019450013
B3	SCREW – CAP (HEX SOC.) 3/4	038790021	038790021	038790021	038790021
B4	VOLUTE	136880002	073942002	073940002	25457F200
B5	RING – WEAR	136950003	083450002	135350003	24548D000
B6	CLAMP – WEAR RING	–	–	135360003	–
B7	BELL – SUCTION	–	–	–	105871002
B8	STAND – PUMP	–	–	–	106270005
B9	SCREW – CAP HEX SST 1/2-13	–	–	–	19106A017
B10	SCREW – CAP HEX SST 1/2-13	–	–	–	06106A019 (3)
B11	SCREW – CAP SKT HD 1/4-20	–	–	–	19103A052 (8)

320 Frame Pump Motors Parts Group

ITEM	4-POLE 1750 RPM	75 HP	75 HP
		460/3/60	575/3/60
A1	STATOR	27969D003	27969D603
A2	ROTOR/SHAFT ASSEMBLY	27969D011	27969D011
A3	BOLT-STATOR	005560181 (6)	005560181 (6)

ITEM	6-POLE 1150 RPM	40-50 HP	40-50 HP
		460/3/60	575/3/60
A1	STATOR	27972D003	27972D603
A2	ROTOR/SHAFT ASSEMBLY	27972D011	27972D011
A3	BOLT-STATOR	005560181 (6)	005560181 (6)

ITEM	8-POLE 870 RPM	20-25 HP	20-25 HP	30-40 HP	30-40 HP
		208-230-460/3/60	575/3/60	230-460/3/60	575/3/60
A1	STATOR	27975D003	27975D603	27973D003	27973D603
A2	ROTOR/SHAFT ASSEMBLY	27975D011	27975D011	27973D011	27973D011
A3	BOLT-STATOR	06106A027 (6)	06106A027 (6)	06106A027 (6)	06106A027 (6)
A4	SPACER	086620131	086620131	086620111	086620111

360 Frame Pump Motors Parts Group

Item	4-POLE 1750 RPM	100 HP	100 HP	125 HP	125 HP	150 HP	150 HP
		460/3/60	575/3/60	460/3/60	575/3/60	460/3/60	575/3/60
A1	STATOR	27980D003	27980D603	27981D003	27981D603	27982D003	27982D603
A2	ROTOR/SHAFT ASSEMBLY	27981D011	27981D011	27981D011	27981D011	27982D011	27982D011
A3	BOLT-STATOR 1/2-13	06106A068 (6)	06106A068 (6)	06106A068 (6)	06106A068 (6)	06106A068 (6)	06106A068 (6)

ITEM	6-POLE 1150 RPM	60-75 HP	60-75 HP
		460/3/60	575/3/60
A1	STATOR	27984D003	27984D603
A2	ROTOR/SHAFT ASSEMBLY	27984D011	27984D011
A3	BOLT-STATOR	06106A068 (6)	06106A068 (6)
A4	SPACER	086625011	086625011

320 Frame Pump Impellers Parts List

S4T(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S4TXP7500FC	528150007	75	460/3	2-4	13	135321092
S4TXP7500GC	528150017	75	575/3	2-4	13	135321092

S8L(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S8LXP7500FC	528170007	75	460/3	2-4	12.13 X 11.13	25252D559
S8LXP7500GC	528170017	75	575/3	2-4	12.13 X 11.13	25252D559
1150 RPM						
S8LXP4000FB	528170047	40	460/3	6-4	14.25 X 13.25	25252D553
S8LXP4000GB	528170057	40	575/3	8-4	14.25 X 13.25	25252D553
S8LXP5000FB	528170067	50	460/3	4-4	15 X 14	25252D551
S8LXP5000GB	528170077	50	575/3	6-4	15 X 14	25252D551
870 RPM						
S8LXP2000DA	528170087	20	208/3	6-4	14.88 X 13.88	25252D552
S8LXP2000EA	528170097	20	230/3	6-4	14.88 X 13.88	25252D552
S8LXP2000FA	528170107	20	460/3	8-4	14.88 X 13.88	25252D552
S8LXP2000GA	528170117	20	575/3	8-4	14.88 X 13.88	25252D552
S8LXP2500DA	528170127	25	208/3	4-4	15	25252D550
S8LXP2500EA	528170137	25	230/3	4-4	15	25252D550
S8LXP2500FA	528170147	25	460/3	8-4	15	25252D550
S8LXP2500GA	528170157	25	575/3	8-4	15	25252D550

S8LA(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S8LAXP7500FC	528160007	75	460/3	2-4	13	135320052
S8LAXP7500GC	528160017	75	575/3	2-4	13	135320052

S12L(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S12LXP7500FC	528180007	75	460/3	2-4	11 X 10	25456E562
S12LXP7500GC	528180017	75	575/3	2-4	11 X 10	25456E562
1150 RPM						
S12LXP4000FB	528180047	40	460/3	6-4	12.38	25456E559
S12LXP4000GB	528180057	40	575/3	8-4	12.38	25456E559
S12LXP5000FB	528180067	50	460/3	4-4	13	25456E556
S12LXP5000GB	528180077	50	575/3	6-4	13	25456E556
870 RPM						
S12LXP2000DA	528180087	20	208/3	6-4	13	25456E556
S12LXP2000EA	528180097	20	230/3	6-4	13	25456E556
S12LXP2000FA	528180107	20	460/3	8-4	13	25456E556
S12LXP2000GA	528180117	20	575/3	8-4	13	25456E556
S12LXP2500DA	528180127	25	208/3	4-4	13.5	25456E554
S12LXP2500EA	528180137	25	230/3	4-4	13.5	25456E554
S12LXP2500FA	528180147	25	460/3	8-4	13.5	25456E554
S12LXP2500GA	528180157	25	575/3	8-4	13.5	25456E554
S12LXP3000EA	528180167	30	230/3	4-4	14	25456E552
S12LXP3000FA	528180177	30	460/3	8-4	14	25456E552
S12LXP3000GA	528180187	30	575/3	8-4	14	25456E552
S12LXP4000FA	528180197	40	460/3	8-4	14.25	25456E568
S12LXP4000GA	528180207	40	575/3	8-4	14.25	25456E568

360 Frame Pump Impellers Parts List

S4T(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S4TXP10000FC	528155067	100	460/3	0-4	14	135321052
S4TXP10000GC	528155077	100	575/3	2-4	14	135321052
S4TXP12500FC	528155007	125	460/3	4/0-3	14.5	135321032
S4TXP12500GC	528155017	125	575/3	0-4	14.5	135321032
S4TXP15000FC	528155027	150	460/3	4/0-3	15.13	135321262
S4TXP15000GC	528155037	150	575/3	0-4	15.13	135321262

S8L(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S8LXP10000FC	528175087	100	460/3	0-4	13 X 12	25252D558
S8LXP10000GC	528175097	100	575/3	2-4	13 X 12	25252D558
S8LXP12500FC	528175007	125	460/3	4/0-3	13.75 x 12.75	25252D556
S8LXP12500GC	528175017	125	575/3	0-4	13.75 x 12.75	25252D556
S8LXP15000FC	528175027	150	460/3	4/0-3	15 x 14	25252D551
S8LXP15000GC	528175037	150	575/3	0-4	15 x 14	25252D551
1150 RPM						
S8LXP6000FB	528175067	60	460/3	4-4	15	25252D550
S8LXP6000GB	528175077	60	575/3	6-4	15	25252D550

S8LA(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S8LAXP10000FC	528165067	100	460/3	0-4	14	135320012
S8LAXP10000GC	528165077	100	575/3	2-4	14	135320012
S8LAXP12500FC	528165007	125	460/3	4/0-3	14.75	135320132
S8LAXP12500GC	528165017	125	575/3	0-4	14.75	135320132
S8LAXP15000FC	528165027	150	460/3	4/0-3	15.13	135320162
S8LAXP15000GC	528165037	150	575/3	0-4	15.13	135320162

S12L(X)P

CAT. NO.	ENG. NO.	HP	VOLT/PH	CORD	TRIM	IMPELLER
1750 RPM						
S12LXP10000FC	528185127	100	460/3	0-4	11.5 X 11	25456E563
S12LXP10000GC	528185137	100	575/3	2-4	11.5 X 11	25456E563
S12LXP12500FC	528185007	125	460/3	4/0-3	12.5 x 11	25456E564
S12LXP12500GC	528185017	125	575/3	0-4	12.5 x 11	25456E564
S12LXP15000FC	528185027	150	460/3	4/0-3	13 x 11	25456E565
S12LXP15000GC	528185037	150	575/3	0-4	13 x 11	25456E565
1150 RPM						
S12LXP6000FB	528185067	60	460/3	4-4	13.63	25456E553
S12LXP6000GB	528185077	60	575/3	6-4	13.63	25456E553
S12LXP7500FB	528185087	75	460/3	2-4	14	25456E552
S12LXP7500GB	528185097	75	575/3	2-4	14	25456E552

STANDARD LIMITED WARRANTY

Pentair Hydromatic® warrants its products against defects in material and workmanship for a period of 12 months from the date of shipment from Pentair Hydromatic or 18 months from the manufacturing date, whichever occurs first – provided that such products are used in compliance with the requirements of the Pentair Hydromatic catalog and technical manuals for use in pumping raw sewage, municipal wastewater or similar, abrasive-free, noncorrosive liquids.

During the warranty period and subject to the conditions set forth, Pentair Hydromatic, at its discretion, will repair or replace to the original user, the parts that prove defective in materials and workmanship. Pentair Hydromatic reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for prior sold and/or shipped units.

Start-up reports and electrical schematics may be required to support warranty claims. Submit at the time of start up through the Pentair Hydromatic website: <http://forms.pentairliterature.com/startupform/startupform.asp?type=h>. Warranty is effective only if Pentair Hydromatic authorized control panels are used. All seal fail and heat sensing devices must be hooked up, functional and monitored or this warranty will be void. Pentair Hydromatic will cover only the lower seal and labor thereof for all dual seal pumps. Under no circumstance will Pentair Hydromatic be responsible for the cost of field labor, travel expenses, rented equipment, removal/reinstallation costs or freight expenses to and from the factory or an authorized Pentair Hydromatic service facility.

This limited warranty will not apply: (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with the printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and parts used in connection with such service; (d) to units that are not installed in accordance with applicable local codes, ordinances and good trade practices; (e) if the unit is moved from its original installation location; (f) if unit is used for purposes other than for what it is designed and manufactured; (g) to any unit that has been repaired or altered by anyone other than Pentair Hydromatic or an authorized Pentair Hydromatic service provider; (h) to any unit that has been repaired using non factory specified/OEM parts.

Warranty Exclusions: PENTAIR HYDROMATIC MAKES NO EXPRESS OR IMPLIED WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. PENTAIR HYDROMATIC SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE.

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Some states do not permit some or all of the above warranty limitations or the exclusion or limitation of incidental or consequential damages and therefore such limitations may not apply to you. No warranties or representations at any time made by any representatives of Pentair Hydromatic shall vary or expand the provision hereof.



HYDROMATIC®

740 EAST 9TH STREET
ASHLAND, OHIO, USA 44805
419-289-1144

490 PINEBUSH ROAD, UNIT #4
CAMBRIDGE, ONTARIO, CANADA N1T 0A5
800-363-PUMP

WWW.HYDROMATIC.COM