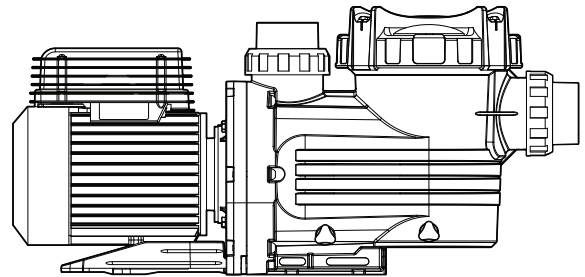
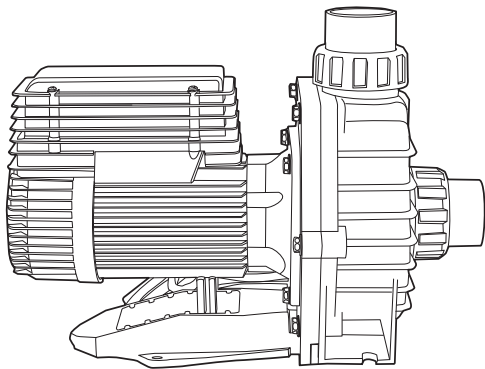
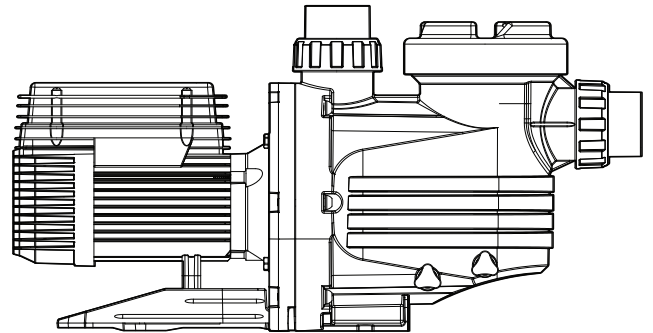
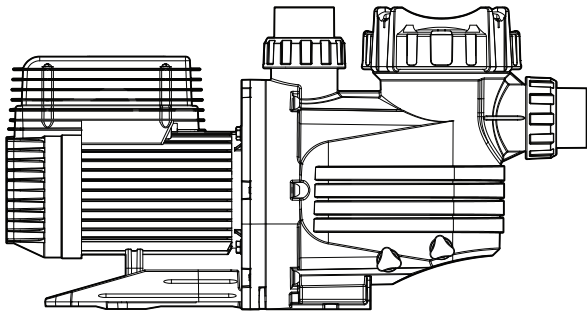




INSTALLATION MANUAL



(all models)

PUMPS

WARNING

FOR YOUR SAFETY - This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment in accordance with the latest applicable version of AS/NZS 3000, along with any other applicable local and national installation codes/standards, and any other local applicable regulations. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation will void the warranty.

Improper installation and/or operation can create unwanted electrical hazard which can cause serious injury, property damage, or death.



For full warranty terms and conditions and to register your warranty, simply visit **www.astralpool.com.au/warranty** and complete your details. Or scan the QR code and be taken directly to the registration page.

Record your equipment details here for quick reference:

Model No.: _____

Serial No.: _____

EQUIPMENT INFORMATION RECORD

DATE OF INSTALLATION _____

INSTALLER INFORMATION _____

INITIAL PRESSURE GAUGE READING
(WITH CLEAN FILTER) _____

PUMP MODEL _____

HORSEPOWER _____

FILTER MODEL _____

CONTROL PANEL MODEL _____

SERIAL NUMBER _____

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Section 1. Important Safety Instructions

READ AND FOLLOW ALL INSTRUCTIONS

All electrical work must be performed by a licensed electrician and conform to all national, state, and local codes. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

WARNING

RISK OF SUCTION ENTRAPMENT HAZARD, WHICH, IF NOT AVOIDED, CAN RESULT IN SERIOUS INJURY OR DEATH. Do not block pump suction, as this can cause severe injury or death. Do not use this pump for wading pools, shallow pools, or spas containing bottom drains, unless the pump is connected to at least two (2) functioning suction outlets. Drain covers must be certified to the latest published edition of ANSI/ASME A112.19.8 or it's successor standard ANSI/APSP-16. In Australia AS1926.3 is also an acceptable standard.

WARNING

To reduce the risk of injury, do not permit children to use this product.

WARNING

A check valve can interfere with the proper operation of certain Suction Vacuum Release System (SVRS) products. To avoid possible entrapment hazard, serious injury, or death, make sure to review the operation/owners manual of your particular SVRS product before installing the check valve.

WARNING

To reduce the risk of property damage or injury, do not attempt to change the backwash (multiport, slide, or full flow) valve position with the pump running.

WARNING

AstralPool Pumps are powered by a high-voltage electric motor and must be installed by a licensed or certified electrician or a qualified swimming pool service technician.

WARNING

The pump is for fixed installations only and to be used in conjunction with swimming pool equipment (e.g. filters). The pump is to be installed in accordance with the relevant requirements of the Australian wiring rules AS/NZS 3000. Also refer to the installation instructions relating to the swimming pool equipment for which the pump will be an integral part. The pump is to be supplied through a residual current device (RCD) with a rated residual operating current of 30mA. If the supply cord is damaged it must be replaced by the manufacturer or its service agent or similarly qualified person in order to avoid hazard.

WARNING

Incorrectly installed equipment may fail, causing severe injury or property damage.

WARNING

- Do not connect system to an unregulated city water system or other external source of pressurized water producing pressures greater than 250 KPA (35 PSI).
- Trapped air in the system can cause the filter lid to be blown off, which can result in death, serious personal injury, or property damage. Be sure all air is out of the system before operating.

⚠ WARNING

To minimize risk of severe injury or death, the filter and/or pump should not be subjected to the piping system pressurization test.

Local codes may require the pool piping system to be subjected to a pressure test. These requirements are generally not intended to apply to the pool equipment, such as filters or pumps.

AstralPool pool equipment is pressure tested at the factory.

If, however, the WARNING cannot be followed and pressure testing of the piping system must include the filter and/or pump, BE SURE TO COMPLY WITH THE FOLLOWING SAFETY INSTRUCTIONS:

- Check all clamps, bolts, lids, lock rings, and system accessories to ensure they are properly installed and secured before testing.
- **RELEASE ALL AIR** in the system before testing.
- Water pressure for test must NOT EXCEED 250 KPA (35 PSI).
- Water temperature for test must NOT EXCEED 38°C (100°F).
- Limit test to 24 hours. After test, visually check system to be sure it is ready for operation.

Notice: These parameters apply to AstralPool equipment only. For non-AstralPool equipment, consult the equipment manufacturer.

⚠ WARNING

Chemical spills and fumes can weaken pool/spa equipment. Corrosion can cause filters and other equipment to fail, resulting in severe injury or property damage. Do not store pool chemicals near your equipment.

CAUTION

Do not start pump dry! Running the pump dry for any length of time will cause severe damage and will void the warranty.

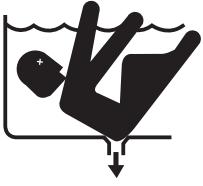
CAUTION

This pump is for use with permanently installed pools and may also be used with hot tubs and spas, if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building, such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity.

CAUTION

Do not install beneath the skirt of a hot tub. The pump requires adequate ventilation to maintain air temperature at less than the maximum ambient temperature rating listed on the motor rating plate.

SAVE THESE INSTRUCTIONS



⚠ WARNING

SUCTION HAZARD. Can cause serious injury or death. Do not use this pump for wading pools, shallow pools, or spas containing bottom drains, unless pump is connected to at least two (2) functioning suction outlets.

⚠ WARNING

Pump suction is hazardous and can trap and drown or disembowel bathers. Do not use or operate swimming pools, spas, or hot tubs if a suction outlet cover is missing, broken, or loose. The following guidelines provide information for pump installation that minimizes risk of injury to users of pools, spas, and hot tubs:

Entrapment Protection - The pump suction system must provide protection against the hazards of suction entrapment.

Suction Outlet Covers - All suction outlets must have correctly installed, screw-fastened covers in place. All suction outlet (drain) covers must be properly maintained. They must be replaced if cracked, broken, or missing. Drain covers must be listed/certified to the latest published edition of ANSI®/ASME® A112.19.8 or its successor standard, ANSI/APSP-16. In Australia, AS1926.3 is also an acceptable standard. The pool must be shut down and bathers must be restricted from entering the pool until any cracked, broken, or missing drain covers are replaced.

Number of Suction Outlets Per Pump - Provide at least two (2) hydraulically-balanced suction outlets, with covers, as suction outlets for each circulating pump suction line. The centers of the suction outlets (suction outlets) on any one (1) suction line must be at least three (3) feet apart, centre to centre. See Figure 1.

The system **must** be built to include at least two (2) suction outlets (drains) connected to the pump whenever the pump is running. However, if two (2) suction outlets run into a single suction line, the single suction line may be equipped with a valve that will shut off both suction outlets from the pump. The system shall be constructed such that it shall not allow for separate or independent shutoff or isolation of each drain. See Figure 1.

Additional pumps can be connected to a single suction line as long as the requirements above are met.

Water Velocity - The maximum water velocity through the suction outlet assembly and its cover for any suction outlet must not exceed the suction outlet assembly and its cover's maximum design flow rate. The suction outlet (drain) assembly and its cover must comply with the latest version of ANSI®/ASME® A112.19.8, the standard for Suction Fittings For Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs, or its successor standard, ANSI/ASME APSP-16. In Australia, AS1926.3 is also an acceptable standard.

Testing and Certification - Suction outlet covers must have been tested by a nationally recognized testing laboratory and found to comply with the latest published edition of ANSI/ASME A112.19.8 or its successor standard, ANSI/APSP-16, the standard for *Suction Fittings For Use in Swimming pools, Wading Pools, Spas, and Hot Tubs*. In Australia, AS1926.3 is also an acceptable standard.

Fittings - Fittings restrict flow; for best efficiency use fewest possible fittings (but at least two (2) suction outlets).

Avoid fittings that could cause an air trap.

Pool cleaner suction fittings must conform to applicable International Association of Plumbing and Mechanical Officials (IAPMO) standards.

Section 2. General Information

This manual provides installation and operation instructions for the AstralPool Viron CTX, E, FX and XP-Series pumps.

Read the installation and operation instructions completely before proceeding with the installation.

2.1 Technical Assistance

Web: www.astralpool.com.au **Phone:** 1300 186 875

2.2 General Operation Description

The XP-Series pump has a much higher head pressure, while running cooler with reduced noise level and less power usage. It also is designed with a large hair and lint pot for less frequent cleaning.

The CTX-Series pump provides a higher head pressure to move water through the pool filter, salt chlorinator, in-floor cleaning systems, or multi-jet spas. Like the XP Series pump, it also requires less power as well as less frequent cleaning.

The E-Series pump provides low cost performance and reliability for all pools and spas up to 100,000 litres.

The FX-Series pump is designed for flooded suction without the need for a hair and lint pot. When large flow rates are not required, the FX Series pump works as a booster pump, solar pump, above-ground pool pump, or a circulating pump for heating systems. Larger horsepower FX models are available to provide larger flow rates for swim-jet or multi-jet spa pumps.

- Continuous duty rated motor
- Precision reinforced moulded high head impeller, giving extra performance
- Single piece moulded body for added strength and longer life
- Rapid priming diffuser quickly corrects loss of water flow
- Quick and easy disassembly for servicing
- Large capacity basket with easily removed ramp on lid

2.3 Specifications

2.3.1 Flow Rate

Model	Min Pipe Size (mm)	Max Flow Rate (8 m/h)
CTX180	40	180 lpm
CTX280	50	280 lpm
CTX360	50	360 lpm
CTX400	50	400 lpm

Model	Min Pipe Size (mm)	Max Flow Rate (8 m/h)
CTX500	50	500 lpm
CTX600	50	600 lpm
E 140	40	140 lpm
E 170	40	170 lpm
E 230	40	230 lpm
E 290	50	290 lpm
FX 140	40/50	140 lpm
FX 190	40/50	190 lpm
FX 250	40/50	250 lpm
FX 340	40/50	340 lpm
FX 520	40/50	520 lpm
XP 1.0	50	325 lpm
XP 1.5	50	440 lpm
XP 2.0	50	540 lpm
XP 3.0	50	635 lpm

2.3.2 Electrical

Model	Voltage	Phase	Watts	Amps
CTX180	240V	1	750	3.8
	415V	3	840	1.9
CTX280	240V	1	1260	5.3
	415V	3	1070	2.1
CTX360	240V	1	1360	7.1
	415V	3	1140	2.3
CTX400	240V	1	1500	7.9
	415V	3	1650	2.6
CTX500	240V	1	1900	8.3
	415V	3	1900	3.1
CTX610	240V	1	2300	12.5
	415V	3	2400	4
E-140	240V	1	500	2.9
E-170	240V	1	710	3.1
E-230	240V	1	1010	3.5
E-290	240V	1	1140	4.8
FX140	240V	1	500	2.9
FX190	240V	1	750	3.2
FX250	240V	1	1050	4.3
CTX290	240V	1	1200	4.9
FX340	240V	1	1490	6
FX520	240V	1	1980	8.3
XP 1 HP	240V	1	1300	5.5
	415V	3	1300	1.9
XP 1.5 HP	240V	1	1640	6.6
	415V	3	1640	2.1
XP 2 HP	240V	1	2020	8.5
	415V	3	2440	3.4
XP 3 HP	240V	1	2300	12.5
	415V	3	2944	4.1
XP 4 HP	415V	3	3375	4.7

2.4 Dimensions

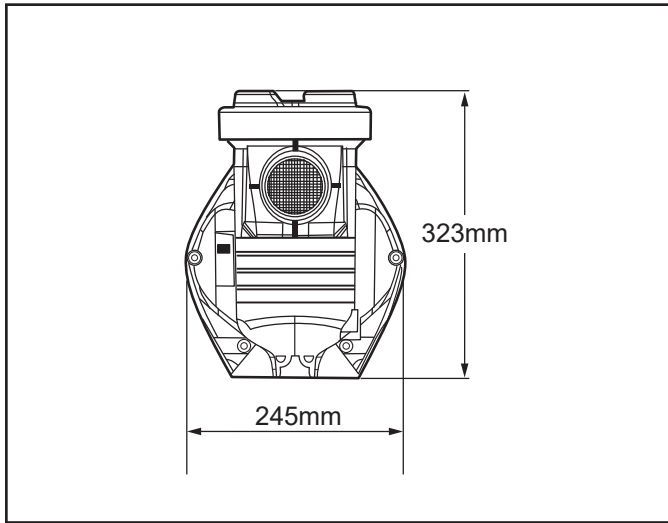


Figure 1. E-Series Pump Front Dimensions

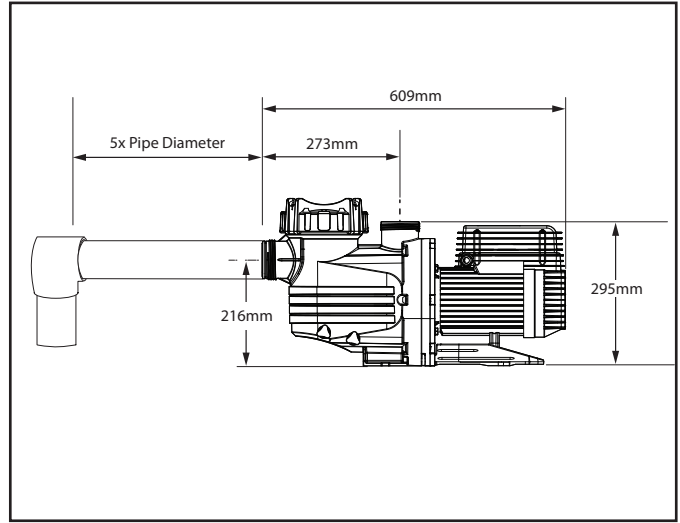


Figure 4. CTX-Series Pump Side Dimensions

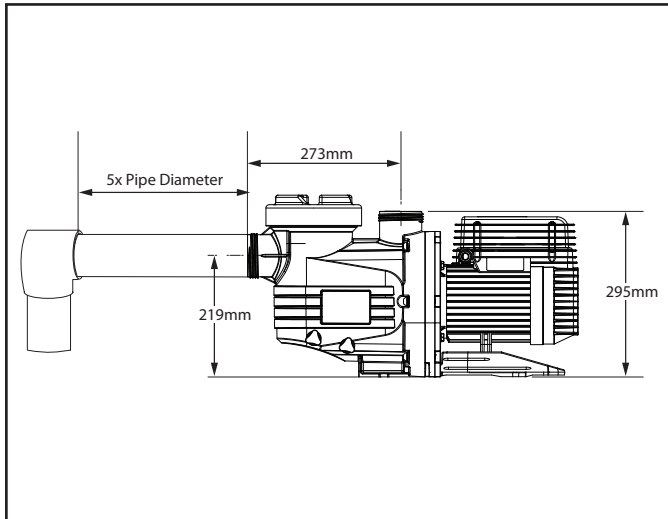


Figure 2. E-Series Pump Side Dimensions

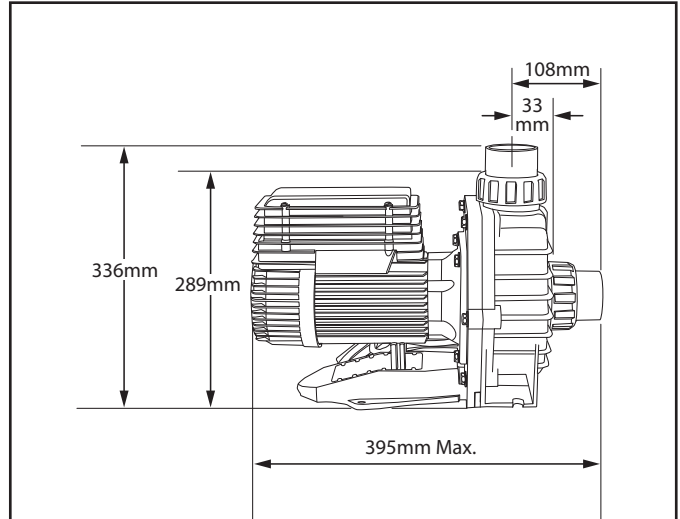


Figure 5. FX-Series Pump Side Dimensions

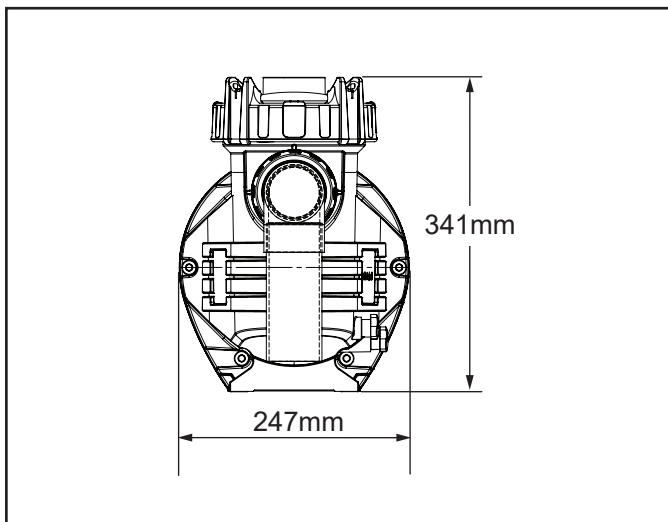


Figure 3. CTX-Series Pump Front Dimensions

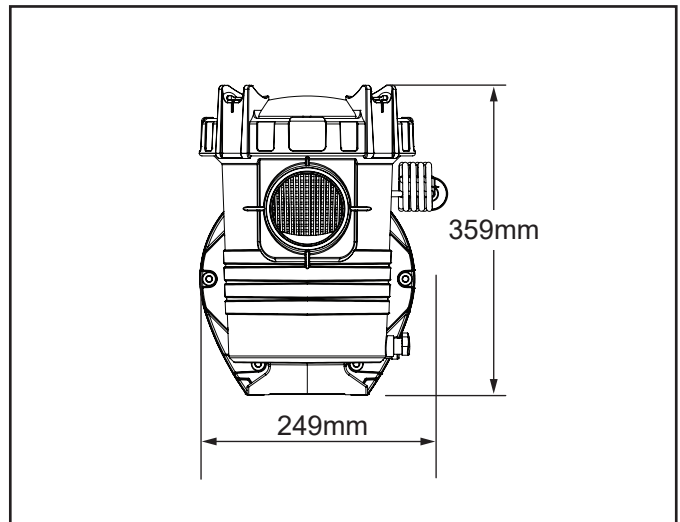


Figure 6. XP-Series Front Dimensions

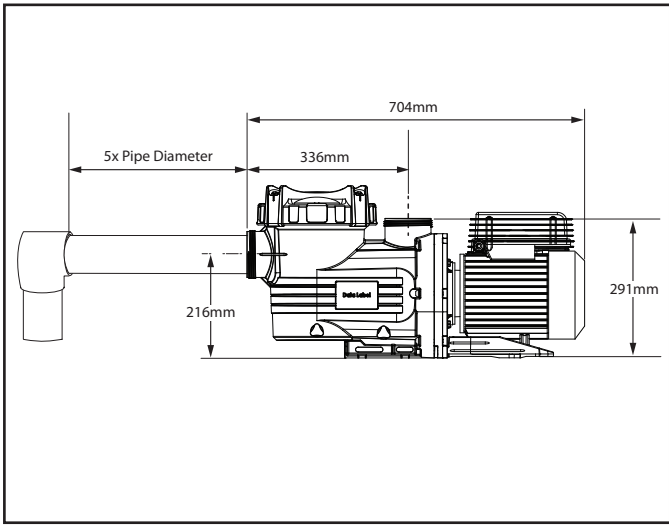


Figure 7. XP-Series Side Dimensions

Section 3. Getting Started

Install the CTX, E, FX or XP-Series Pump in accordance with the procedures in this manual, local codes and ordinances, and in accordance with the latest edition of the appropriate national code. See Section 4.2.

This manual provides the information needed to meet these requirements. Review all applications and installation procedures before continuing the installation.

3.1 Contents

Before starting, check that you have the correct parts as indicated in Table 1. If any parts are missing or incorrect, please call your local distributor or technical support at 1300 186 875 for assistance.

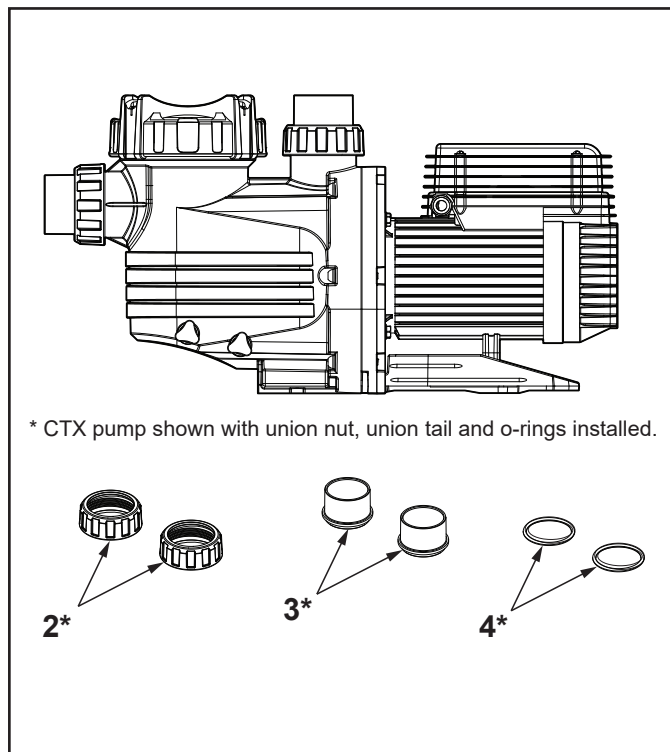


Figure 8. CTX Series Pump Components

Item	Description	Quantity
1	CTX Pump	1
2	50 mm Union Nut	2
3	50mm Universal Union Tail	2
4	50mm Universal Union O-ring	2

Table 1. CTX Series Pump Parts

3.2 Technical Specifications

- Power: CTX, E, FX, XP - See Sections 2.3.2 and 10
- Operation at 2850 rpm
- Flow rate at 8 metres hydraulic head: See Sections 2.3.1 and 10
- Operating temperatures: from 2 to 50°C air, and 2 to 35°C water
- Protection index: IPX4

3.3 Required Equipment

Please ensure that the following equipment is available to the installer at the time of installation.

3.3.1 Required Tools

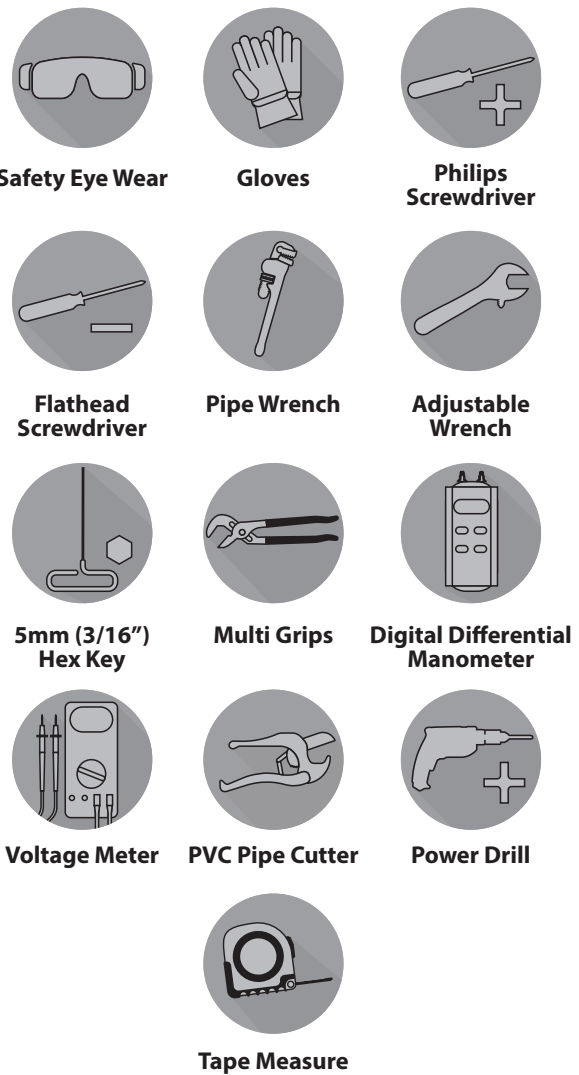


Figure 9. Required Tools

Section 4. Installation

4.1 Pump Location

⚠ WARNING

To Reduce the Risk of Fire, install pool equipment in an area where leaves or other debris will not collect on or around the equipment. Keep surrounding area clear of all debris such as paper, leaves, pine-needles and other combustible materials.

AstralPool recommends installing the pump within 30 cm (1 ft) above water level. The pump should not be elevated more than 152 cm (5 ft). If the pump is located below water level, isolation valves (check valves) must be installed on both the suction and return lines to prevent back flow of pool water during any routine or required servicing.

⚠ WARNING

A check valve can interfere with the proper operation of certain Suction Vacuum Release System (SVRS) products. To avoid possible entrapment hazard, serious injury, or death, make sure to review the operation/owners manual of your particular SVRS product before installing the check valve.

NOTE: When the pool equipment is located below the pool surface, a leak can result in large scale water loss or flooding. AstralPool cannot be responsible for such water loss or flooding or damage caused by either occurrence.

1. These pumps are to be installed in accordance with the relevant requirements of the Australian wiring rules AS/NZS 3000-2018 Install the pump within reach of the GPO or time clock in an easily accessible location in the event of an equipment failure or a loose plumbing fitting so the pump can be easily turned off.
2. Place the pump on a solid foundation that will not vibrate. To further reduce the possibility of vibration noise, bolt the pump to the foundation.
3. Ensure that the foundation has adequate drainage to prevent the pump motor from getting wet.
4. Make sure the pump has the proper ventilation to prevent the motor from overheating. Overheating due to lack of cooling voids warranty.
5. Allow plenty of space for any maintenances by leaving a clear area around the pump.
6. Provide adequate lighting if the equipment is in a potentially dark area.

4.1.1 Installation Recommendations

1. To help prevent difficulty in priming, install the suction pipe without high points (above inlet of pump - inverted "U"s, commonly referred to in plumbing as an airlock) that can trap air. For installations of equipment up to 30 m (100 ft) from the water, refer to Table 2, the pipe sizing chart. For installations of equipment more than 30 m (100 ft) from the water, the recommended pipe size must be increased to the next size.

Model	Min. 40mm Pipe Size	Min. 50mm Pipe Size	Larger Min. Pipe Size
XP 1.0		X	
XP 1.5		X	
XP 2.0		X	65 min
XP 3.0		X	65 mm
XP 4.0			80 mm
CTX180	X		
CTX280		X	
CTX360		X	
CTX400		X	
CTX610		X	
E 140	X		
E 190	X		
E 230	X		
FX 140	X		
FX 190	X		
FX 250	X		
FX 340		X	
FX 520		X	

Table 2. Minimum Pipe Sizes

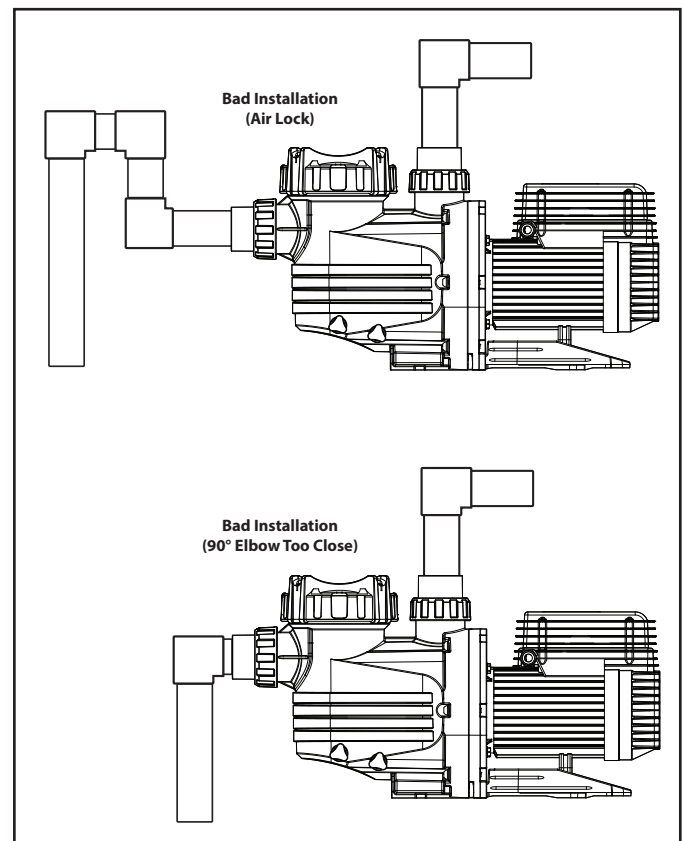


Figure 10. CTX Series Pump Incorrect Piping Installations

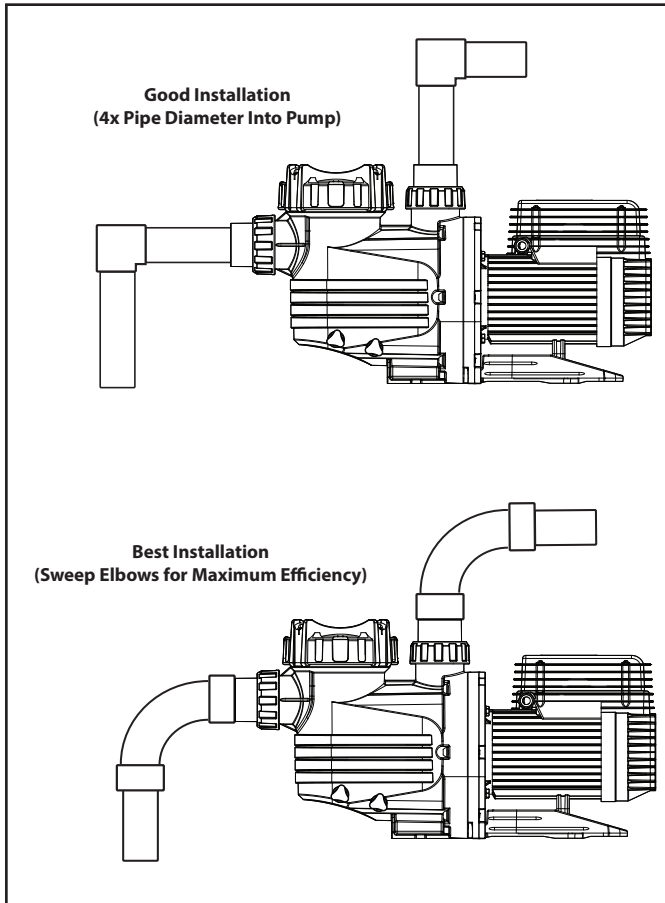


Figure 11. CTX Series Pump Good Piping Installations

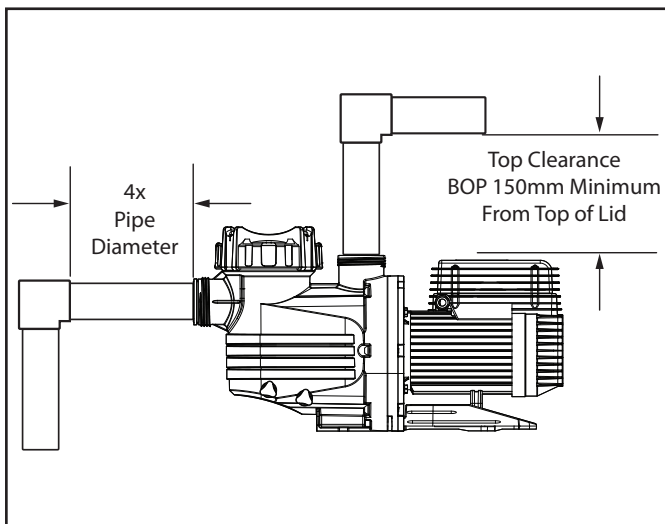


Figure 12. CTX Series Pump Piping Clearance

2. The unions on both the suction and discharge ports simplify installation and service while eliminating the possibility of leaks at threaded adapters.

3. The pump must be connected to at least two hydraulically-balanced main drains for each pool pump suction line. Each drain (suction outlet) assembly must be provided with covers and must be listed or certified to the latest published edition of ANSI®/ASME® A112.19.8, its successor standard, ANSI/APSP-16 or the AU/NZS 1926.3-2010. The suction fittings of the main drains must be at least 1 m (3 ft) apart, center to center, or on different planes. The suction fittings can be a drain and skimmer, two drains, two skimmers, or a skimmer with an equalizer line installed. Check the local codes for proper installation.

NOTE To prevent entrapment, the system must be built so it cannot operate with the pump drawing water from only one main drain. At least two main drains must be connected to the pump when it is in operation. However, if two main drains run into a single suction line, the single suction line may be equipped with a valve that will shut off both main drains from the pump.

4. The piping must be well supported and not forced together where it will experience constant stress.
5. Always use properly sized valves. Jandy Diverter Valves and Ball Valves typically have the best flow capabilities.
6. Use the fewest possible fittings and limit the use of 90 degree elbows. Each additional fitting or length of pipe increases resistance to flow which makes the pump work harder.

NOTE If more than ten suction fittings are needed, the pipe size must be increased.

7. Every new installation must be pressure tested according to local codes.

4.2 Pump Installation

⚠ WARNING

AstralPool pumps are powered by a high voltage electric motor and must be installed by a licensed or certified electrician or a qualified swimming pool service technician.

When installing the appliance, ensure all parts are installed in the correct zone in accordance with the wiring rules. In particular refer to AS/NZS 3000 (Australia) and EN 60364 (EU).

- Install on a stable, solid (concrete slab for example) and level surface.
- Screw the pump (and the base(s) if applicable) to the ground using suitable lag-screws.

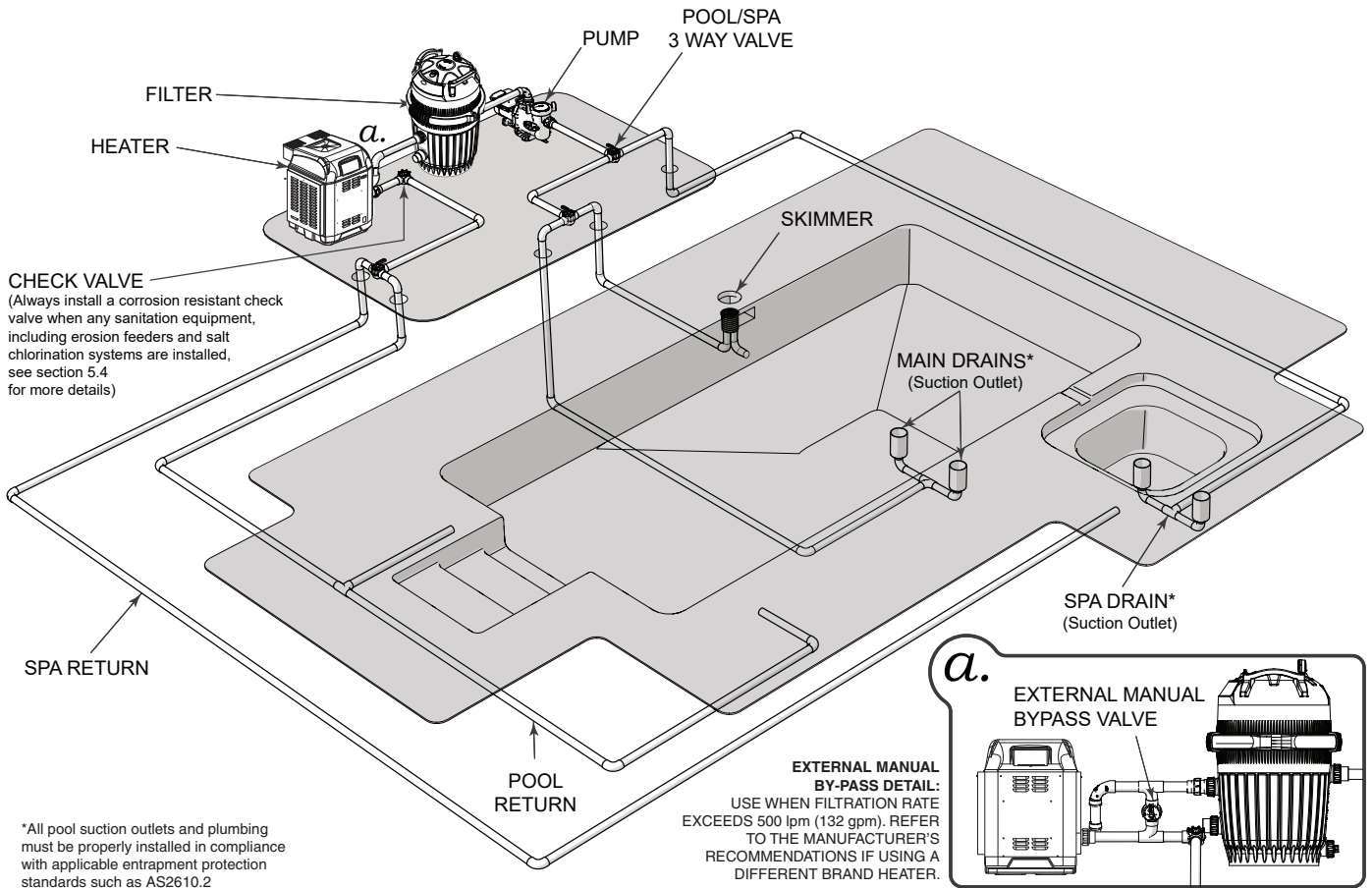


Figure 13. Typical Water Piping Configuration

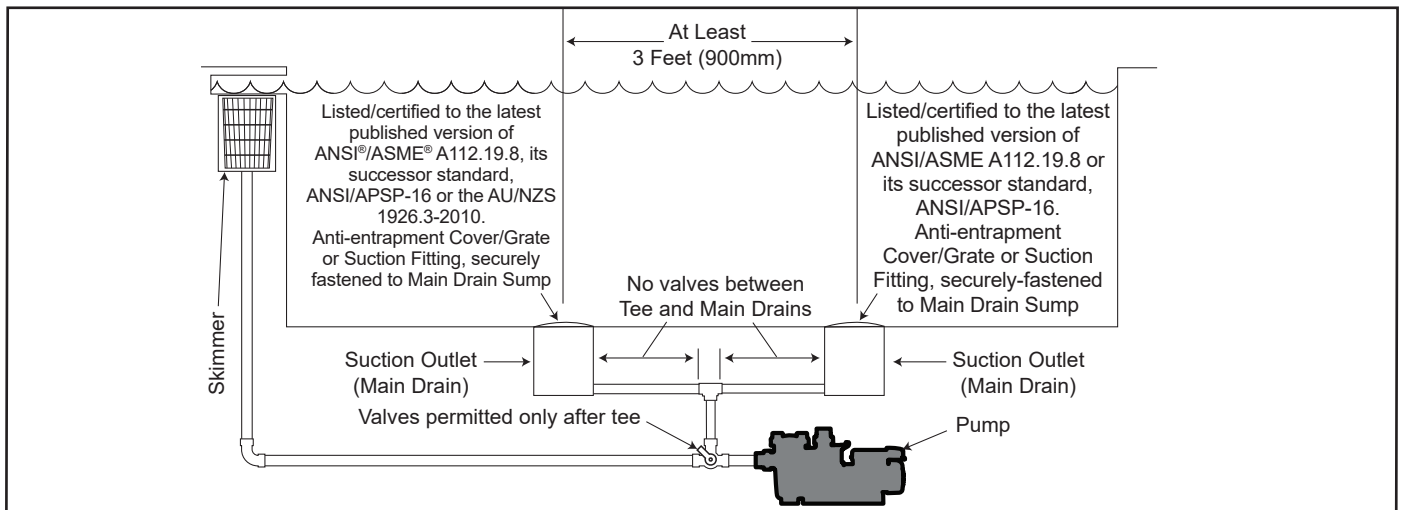


Figure 14. Number of Suction Outlets Per Pump

4.3 Water Connections

The heater should always be installed after the pump and filter. The water connections are located on the right hand side of the heater. The inlet and outlet are clearly marked. Water connections must be completed in 50 mm PVC glue in plumbing.

All automatic sanitising devices must be installed after the heater and in such a way that the sanitiser cannot enter the heater without first mixing with the water in the pool or spa. Sanitisers that are connected prior to the heater will void heater warranty.

A non-return valve is not required to be fitted between the filter and the heater.

1. For best pump performance keep suction pipe length as short as possible with minimum number of bends and use 50mm high pressure PVC suction and return pipe. All equipment such as filters, heaters, chlorinators must have a minimum of 50mm connections.
2. Secure the barrel unions supplied into the attaching pipe work, using approved priming fluid and solvent cement as normal practice, coating both surfaces.
NOTE: Always wear protective gloves when handling and using glue and priming fluid. Ensure no excess adhesive runs into the union proper affecting the sealing or removal abilities. Allow 24 hours to dry before starting pump. Do not use "green" glue on barrel unions. This can cause damage to the ABS material used to manufacture the unions.
3. Install isolation valves before the pump section and after equipment, if the pump is below the water level of the pool.
4. For pump installations 500mm above water level, it generally requires a foot valve at the pool or check valve in the suction line. Suction lines must be installed below water level until just in front of pump location and vertical riser used to reach pump inlet. AstralPool pumps are rated to a maximum head of 25 meters however refer to your pumps data plate for actual achievable pressure
5. All pumps will operate quieter and perform more efficiently if a straight length of 450mm pipe is plumbed horizontally into the front of the pump.
6. Water temperature not to exceed 45 degrees
7. Pumps must be either:
 - supplied by an isolating transformer, or
 - supplied through a residual current device (RCD) with a rated residual operating current not exceeding 30mA.

4.4 Electrical Connections

WARNING

AstralPool pumps are powered by a high voltage electric motor and must be installed by a licensed or certified electrician or a qualified swimming pool service technician.

When installing the appliance, ensure all parts are installed in the correct zone in accordance with the wiring rules. In particular refer to AS/NZS 3000 (Australia) and EN 60364 (EU).

The 3-Phase XP Pump must be connected with fixed wiring (to AS/NZS 3000-2018) to maintain the IP rating. The electrician must check the direction of rotation at the time of installation. Refer to the arrow on the Seal Plate to confirm the correct rotational direction.

4.4.1 Voltage Checks

The correct voltage, as specified on the pump data plate, is necessary for proper performance and long motor life. Incorrect voltage will decrease the pump's ability to perform and could cause overheating, reduce the motor life, and result in higher electric bills.

It is the responsibility of the electrical installer to provide data plate operating voltage to the pump by ensuring proper circuit sizes and wire sizes for this specific application.

Most applicable wiring/installation codes require pool pump circuits to be protected with a Ground Fault Circuit Interrupter (GFCI), also commonly referred to as a Residual Current Device (RCD). Therefore, it is also the responsibility of the electrical installer to ensure that the pump circuit is in compliance with this and all other applicable requirements of the installation and wiring code(s)/standard(s) applicable and enforced in the area of installation.

CAUTION

Failure to provide data plate voltage (+/- 10%) during operation will cause the motor to overheat and void the warranty.

4.4.2 Electrical Wiring

The 3-Phase XP Pump requires a minimum 3 x 1.5 sq mm 600/1000v cable with min. 1.5mm D conductors and a min. outer 9.0mm D to max. 10.5 D.

The XP 3-Phase Pump is not suitable for flex and plug connection.

1. Connect the power to the motor.
2. Ensure the pump is empty of all water.
3. Apply power to check the motor rotation matches the arrow located in the rear of the Seal Plate.
4. Turn off power when rotation check is complete.
5. If the motor is rotating in the opposite direction, correct the phase wiring.
6. Once the correct rotation is confirmed, fill the pump with water, prime the pump and test operation.

Section 5. Operation

5.1 Starting Up the Pump

⚠ CAUTION

Never run the pump without water. Running the pump “dry” for any length of time can cause severe damage to both the pump and motor and will void the warranty.

If this is a new pool installation, make sure all piping is clear of construction debris and has been properly pressure tested. The filter should be checked for proper installation, verifying that all connections and clamps are secure according to the manufacturer’s recommendations.

⚠ WARNING

To avoid risk of property damage, severe personal injury or death, verify that all power is turned off before starting this procedure.

5.1.1 CTX, E and XP-Series Pumps

1. Depending on the location of the pump, do one of the following:
 - If the pump is located below the water level of the pool, open the filter pressure release valve to prime the pump with water.
 - If the pump is located above the water level of the pool, remove the lid and fill the basket with water before starting the pump.
2. Prior to replacing the lid, check for debris around the lid o-ring seat. Debris around the lid o-ring seat will cause air to leak into the system and will make it difficult to prime the pump.
3. Hand-tighten the lid to make an air tight seal. Do not use any tools to tighten the lid: hand-tighten only. Make sure all valves are open and the unions are tight. Restore power to the pump.
4. Once all the air has left the filter, close the pressure release valve.
5. Turn on power to the pump.
6. If the water flow is not available within 1 to 2 minutes, turn off the power and prime the pump again. After three (3) attempts at priming, turn off the pump and check for leaks.

NOTE If no leaks are evident, a check valve or foot valve is required to hold water for priming.

7. If water flow is not adequate after cleaning the lint basket, turn off the power and check for other issues such as the check valve, air leaks, faulty seal, cracked lint pot lid, etc.
8. Install a non-return valve (provided in basket with CTX and E-Series pumps) between the outlet barrel union tail and the pump discharge.

The non-return valve should be installed on spas equipped with cartridge filters, systems with multiple pumps operating from one suction or return line, or any installation with backflow potential when the pump is turned off.

The non-return valve will slightly reduce the pump’s performance.

5.1.2 FX Series Pump

1. Open all valves to allow water into the pump.
2. If an air lock occurs with no water filling the pump housing, release the outlet barrel union slowly until a small amount of water escapes from the pump. Retighten the outlet barrel union.
3. Turn on power to the pump.
4. If the water flow is not available within 1 to 2 minutes, turn off the power and prime the pump again. After three (3) attempts at priming, turn off the pump and verify the valves and jets are open.

For technical assistance, call AstralPool Technical Support at 1300 186 875.

5.2 Pump Lid Removal

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Turn off all switches and the main breaker in the variable-speed pump electrical circuit before starting the procedure. Failure to comply may cause a shock hazard resulting in severe personal injury or death.

1. Make sure that the pump is turned OFF.
2. Make sure that the switch to the circuit breaker to the motor is turned OFF.
3. Make sure all necessary isolation valves are closed to prevent water from reaching the pump.
4. Following the markings on the locking ring, turn the ring counter-clockwise until the ‘START’ markings align with the ports. See Figures 15.
5. Carefully remove the lid with locking ring.

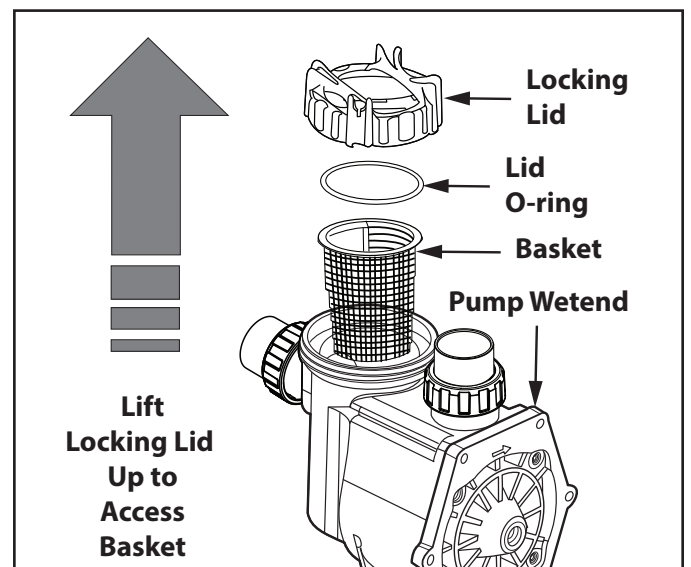


Figure 15. Remove Pump Lid

5.3 Conduct Pressure Test

 **WARNING**

When pressure testing a system with water, air is often trapped in the system during the filling process. This air will compress when the system is pressurized. Should the system fail, this trapped air can propel debris at a high speed and cause injury. Every effort to remove trapped air must be taken, including opening the bleed valve on the filter and loosening the pump basket lid while filling the pump.

 **WARNING**

Trapped air in the system can cause the filter lid to be blown off, which can result in death, serious injury, or property damage. Be sure all air is properly purged out of the system before operating. **DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR CHECK FOR LEAKS.**

 **WARNING**

ELECTRICAL SHOCK HAZARD

Do not pressure test above 35 PSI. Pressure testing must be done by a trained pool professional. Circulation equipment that is not tested properly might fail, which could result in severe injury or property damage.

 **WARNING**

When pressure testing the system with water, it is very important to make sure that the pump basket lid is completely secure.

1. Fill the system with water to eliminate trapped air.
2. Pressurize the system with water to no more than **35 PSI**.
3. Close the valve to seal the water in the system.
4. Observe the system for any leaks or pressure decay.
5. If there are lid leaks, repeat this procedure. For AstralPool Technical Support, call 1 300 186 875.

Section 6. Maintenance

6.1 Routine Maintenance

Inspect the pump filter basket for debris by looking through the clear pump lid. Remove any debris, because as debris accumulates, it will begin to block the flow of water through the pump. For CTX, E and XP-Series pumps, keep the basket clean to improve the performance of the pump.

1. Turn off the power to the pump. If the pump is located below the water level, close the isolation valves on the suction and discharge sides of the pump to prevent backflow of water.
2. Turn the locking ring counter-clockwise until 'START' aligns with the ports. Carefully remove the lid.
3. Lift the basket out of the pump.
4. Dispose of the debris and thoroughly clean the basket, making sure all the holes are open. Using a garden hose, spray the basket from the outside to help clear the holes. Remove any remaining debris by hand.
5. Replace the basket in the pump by aligning the opening with the suction pipe. If aligned properly, the basket will drop easily into place. Do not force it into place.

⚠ CAUTION

A misaligned basket will cause the lid to be improperly seated, allowing an air leak, which could result in pump damage.

6. Remove the lid seal and remove debris around the lid seal seat, as this can allow air to leak into the system. Clean the lid seal and place it on the lid.
7. Replace the lid with locking ring. Hand-tighten the lid to make an air-tight seal. Do not use any tools to tighten the lid: hand-tighten only.
8. Verify that all valves have been returned to the proper position for normal operation.
9. Open the pressure release valve on the filter, and make sure it is clean and ready for operation.
10. Turn on the power to the pump. Once all the air has been evacuated from the filter, close the pressure release valve.

6.2 Winterizing the Pump

⚠ CAUTION

The pump *must* be protected when freezing temperatures are expected. Allowing the pump to freeze will cause severe damage and void the warranty.

⚠ CAUTION

Do not use antifreeze solutions in the pool, spa, or hot tub systems! Antifreeze is highly toxic and may damage the circulation system. The only exception to this is Propylene Glycol. For more information, see your local pool/spa supply store or contact a qualified swimming pool service company.

1. Drain all water from the pump, system equipment, and piping.
2. Remove the two (2) drain plugs. Store the drain plugs in a safe location and reinstall them when the cold weather season is over. **Ensure the drain plugs and o-rings are not misplaced.**
3. Keep the motor covered and dry. Do not cover the pump with plastic, because this will create condensation that will damage the pump.

NOTE AstralPool recommends having a qualified service technician or electrician properly disconnect the electrical wiring at the switch or junction box. Once the power is removed, loosen the two (2) unions and store the pump indoors. For safety, and to prevent entry of contaminants, reinstall all conduit and terminal box covers.

4. When the system is reopened for operation, have a qualified technician or electrician make sure all piping, valves, wiring and equipment are in accordance with the manufacturer's recommendations. Pay close attention to the filter and electrical connections.
5. The pump must be primed prior to starting. Refer to Section 5.2, Starting Up the Pump.

6.3 Maintenance Recommendations

1. Keep the lint basket clean – empty it regularly. Blocked lint basket or suction pipe and no water flow can cause overheating with consequent pipe and pump components failure and meltdown.
2. Apply suitable waterproof grease to the lint pot "O" ring to ensure positive seal.
3. Ensure electrical passage for cooling airflow to prevent fusing or shock hazards.
4. Maintain clear passage for cooling airflow to prevent overheating of motor.
5. Maintain water in good chemical balance.
6. Do not allow quantities of sand or grit to continuously pass through pump to prevent "sand blasting" erosions (use filter sock in lint basket if sand, etc. is being picked up by vacuum.)
7. Do not over tighten strainer lid. Never use a tool or handle to tighten lid, the lid is designed to prevent this from happening.
8. Do not add pool salt, chlorine, acid or other chemicals directly to your skimmer. This may result in damage to your pump and could void your warranty.

6.4 Maintenance Schedule

The CTX, E, F and XP-Series Pumps incorporate moving parts and withstands high velocity water with chemicals in it. Some of these parts will wear in the normal course of use and require regular checks and maintenance. Performing these checks and maintenance will identify parts that have worn and require repair/replacement before further serious damage is sustained. A small amount of regular care and attention to your pool equipment will help ensure long life and trouble free performance.

To protect against extremes of temperature, your unit is vented to allow expensive electronics to cool. Ants and some insects are often attracted to the warmer, dry environment inside the enclosure. We recommend that, with power turned off, you spray a surface insecticide on the surfaces surrounding the control to prevent ant and insect ingress. Repeat every three months or as necessary.

Note: Regular maintenance is important to ensure long life and trouble free performance of your pool equipment. If unable to perform the maintenance yourself, contact your local pool professional to request assistance with the maintenance.

Timing	Maintenance Check	Service Action If Required
Weekly or sooner	Check and empty hair and lint basket	Empty leaves and debris
Three Monthly	Check Lid O-ring and Inlet/Outlet O-rings for leaks	Isolate Pump, turn power off, clean and grease O rings or replace if necessary
	Check surroundings for leaves, debris and flooding	Remove debris and rectify if flooding
Three Monthly	Check for insects/ants	Spray a surface insecticide on the surfaces around the unit to prevent ant and insect ingress
Three Monthly	Check for leaks under the pump	Call Service technician, repair or replace mechanical seal and motor bearing if necessary

Table 3. CTX, E, FX and XP-Series Pumps Maintenance Schedule

Section 7. Troubleshooting

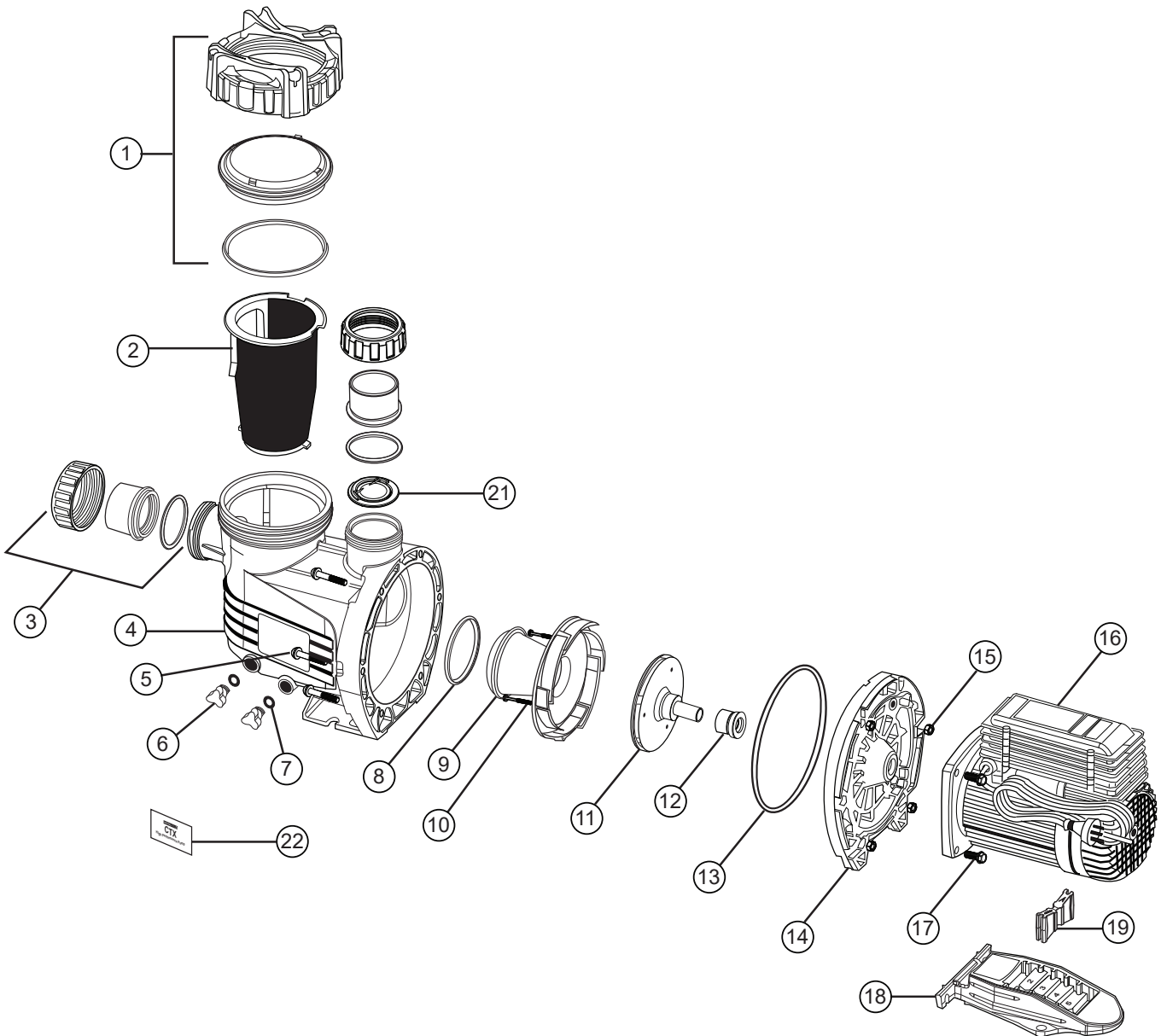
When there is an error condition, a message is displayed on the screen. When the error situation is corrected, the error message ends automatically. If the pump continues to perform incorrectly, please contact AstralPool at 1 300 186 875.

Issue	Possible Cause	Solution
Pump is noisy or humming	<ul style="list-style-type: none"> It could either be the impeller, bearings, mechanical seal, capacitor or a burnt out motor. 	<ul style="list-style-type: none"> Call for service.
Pump Not Running	<ul style="list-style-type: none"> There could be something stuck in the impeller. 	<ul style="list-style-type: none"> You can try a flat head screwdriver and pop it in underneath the cowl to see if you can get some free movement of the impeller. If it doesn't move, there could be something stuck inside that needs to be removed. This is part of general maintenance and will not be covered under warranty. If it does move, book a technician or service agent to attend as the motor may have failed.
	<ul style="list-style-type: none"> Check the hair and lint basket 	<ul style="list-style-type: none"> Damage to the basket could mean a piece of debris has passed through to the impeller which can cause a jam in the pump, which is not covered under warranty.
Pump is leaking under lid or under pump	<ul style="list-style-type: none"> Leaking from the lid 	<ul style="list-style-type: none"> The O ring in the lid being cracked from not having Hydroslip applied or the lid itself is not secure. This is general maintenance and will not be covered under warranty. If the lid has a crack in it, we can send a new lid and O ring at no charge if under warranty.
	<ul style="list-style-type: none"> Leaking from underneath 	<ul style="list-style-type: none"> General wear and tear or poor water chemistry can cause the mechanical seal to leak (poor water chemistry is not covered under warranty). Book a technician or agent to attend.
Pump is not priming (not filling up)	<ul style="list-style-type: none"> Maintenance behind schedule due to winter season or other scheduling conflicts. 	<ul style="list-style-type: none"> Check for debris build up in the skimmer basket. This can cause reduced flow to the pump. Also ensure that any suction cleaners are disconnected as this can be restrictive. Check for debris build up in the hair and lint basket of the pump. Remove and check the basket for any signs of damage or splitting. Ensure that the hair and lint basket is sitting correctly in the pump as the lid may not close and cause air to enter the system. Clean the O Ring of the lid and ensure it is greased with HydroSlip. If the O Ring looks damaged, make sure it is replaced. Also remove fittings from front and top of pump, clean and check O Rings. If damaged, make sure it is replaced. Wash thread on both sides of fitting with fresh water and refit.

Table 4. Troubleshooting

Section 8. Spare Parts

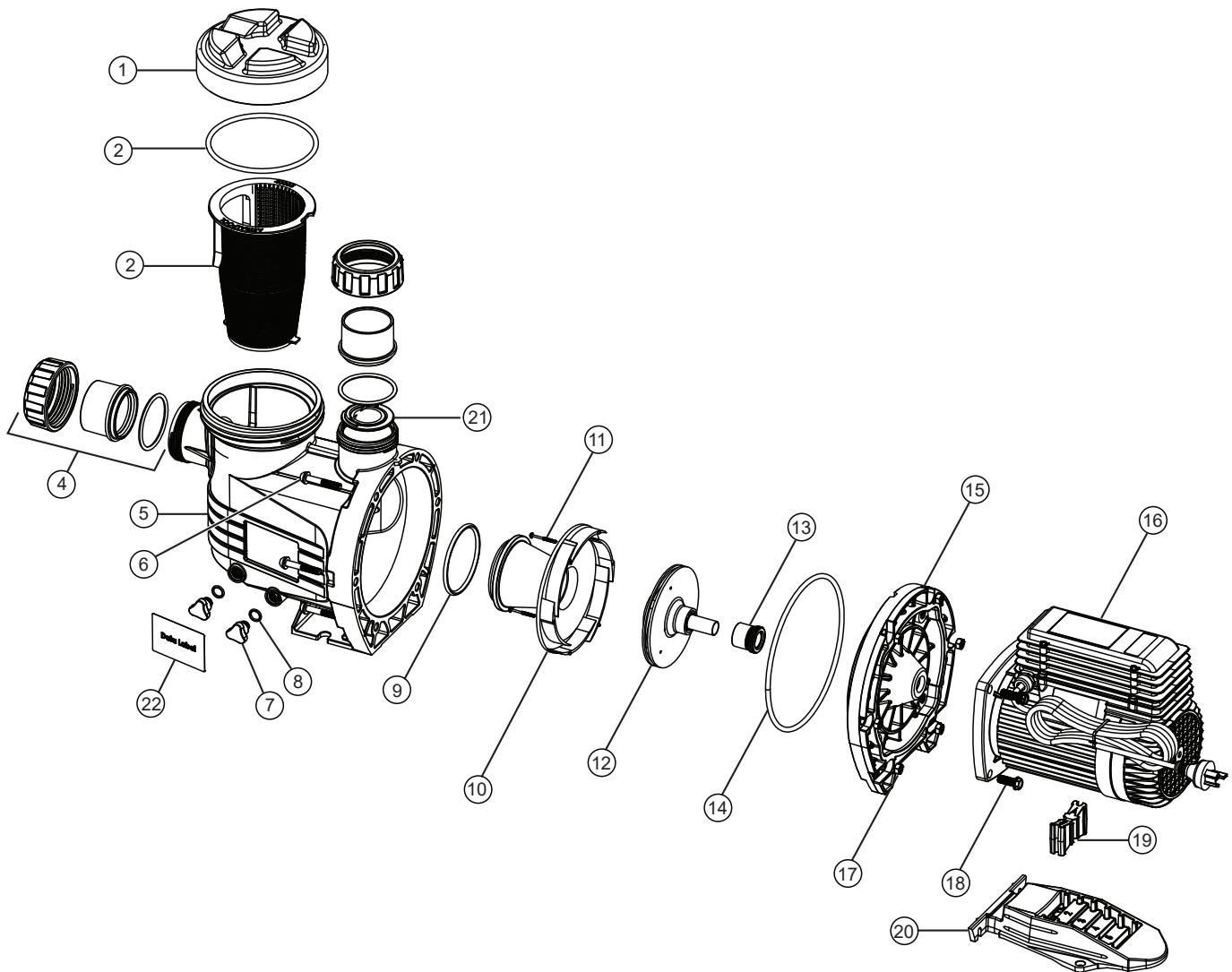
8.1 CTX-Series Pump Exploded Diagram



8.2 CTX-Series Pump Spare Parts List

Item #	Description	Part #	Quantity
1	LID COMPLETE WITH O-RING	SP40089	1
1	LID O-RING ONLY	70006	1
2	BASKET	40065	1
3	78303 COMPONENT BAG	70006	1
3	UNION FITTING 50MM	950920	2
3	LOCK NUT	950919	2
3	50MM O-RING	70003	2
4	WETEND - SERIES3 COMES WITH LINT BASKET AND 2 DRAIN PLUGS	SP40031	1
5	BOLT	78772	6
6	DRAIN PLUG	7820702	2
5	DRAIN PLUG AND O-RING	7820710	2
7	O-RING, DRAIN PLUG	78103	2
8	O-RING, DIFFUSER	78104	1
9	DIFFUSER, CTX 180C, 280C, 360C, 400C	40071A	1
9	DIFFUSER, CTX 500C	40071B	1
10	DIFFUSER RETAINING SCREW	40165	2
11	IMPELLER, CTX180C	40060R	1
11	IMPELLER, CTX280C	40060S	1
11	IMPELLER, CTX360C	40060F	1
11	IMPELLER, CTX400C	40060G	1
11	IMPELLER, CTX500C	40060V	1
11	IMPELLER, CTX610	40060W	1
12	MECHANICAL SEAL	75509	1
13	O RING (SEAL PLATE)	SP70030	1
14	SEAL PLATE	SP40030	1
15	NUT, BRASS, WET END	40272	6
16	MOTOR, CTX180C	71310	1
16	MOTOR, 280C, 360C	71313	1
16	MOTOR, CTX400C	71314	1
16	MOTOR, CTX500C	71319	1
17	BOLT, MOTOR MOUNT	40156	4
18	MOTOR FOOT	4005002	1
19	MOTOR FOOT RUBBER INSERT	40056	1
21	CHECK VALVE ASSEMBLY	598770	1
22	CTX LABEL	LABEL264	1
NOT SHOWN	INSTRUCTION MANUAL	INST243	1

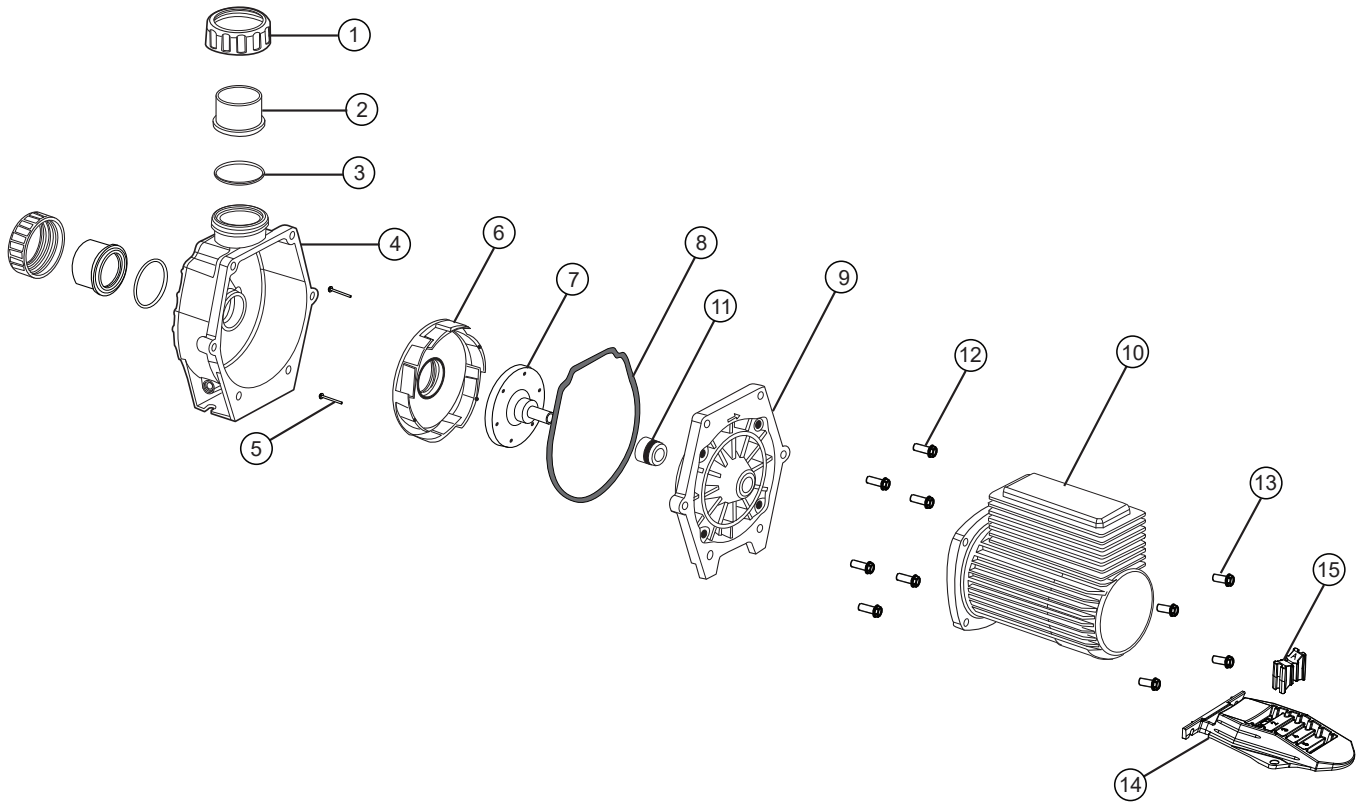
8.3 E-Series Pump Exploded Diagram



8.4 E-Series Pump Spare Parts List

Item #	Description	Part #	Quantity
1	LID COMPLETE WITH O-RING	SP40085	1
2	LID O-RING	70006	1
3	BASKET	40065	1
4	PIPE FITTING COMPONENT BAG	78303	1
5	WET END WITH BASKET AND DRAIN PLUGS (2)	SP40031	1
6	BOLT	78772	6
7	DRAIN PLUG	7820702	2
8	O-RING	78103	2
9	O-RING FOR DIFFUSER	78104	1
10	DIFFUSER	40071A	1
11	DIFFUSER SCREW	40165	2
12	IMPELLER, E140C	40060L	1
12	IMPELLER, E170C	40060M	1
12	IMPELLER, E230C	40060K	1
NOT SHOWN	IMPELLER RETAINING BOLT	78187	1
NOT SHOWN	O-RING	78711	1
13	MECHANICAL SEAL	PS3868	1
14	O RING (SEAL PLATE)	SP70030	1
15	SEAL PLATE	SP40030	1
16	MOTOR, ALL MODELS	71310	1
17	NUT	40272	6
18	MOTOR RETAINING BOLT	40156	4
19	MOTOR FOOT WITH RUBBER INSERT	40056	1
20	MOTOR FOOT WITH RUBBER INSERT	4005002	1
21	CHECK VALVE ASSEMBLY	598770	1
22	E-SERIES LABEL	LABEL608	1
NOT SHOWN	50MM GLUE-IN PIPE UNION	950920	2
NOT SHOWN	LOCK NUT	950919	2
NOT SHOWN	50MM O-RING	70003	2
NOT SHOWN	DRAIN PLUG & O-RING	7820710	2
NOT SHOWN	INSTRUCTION MANUAL	INST243	1

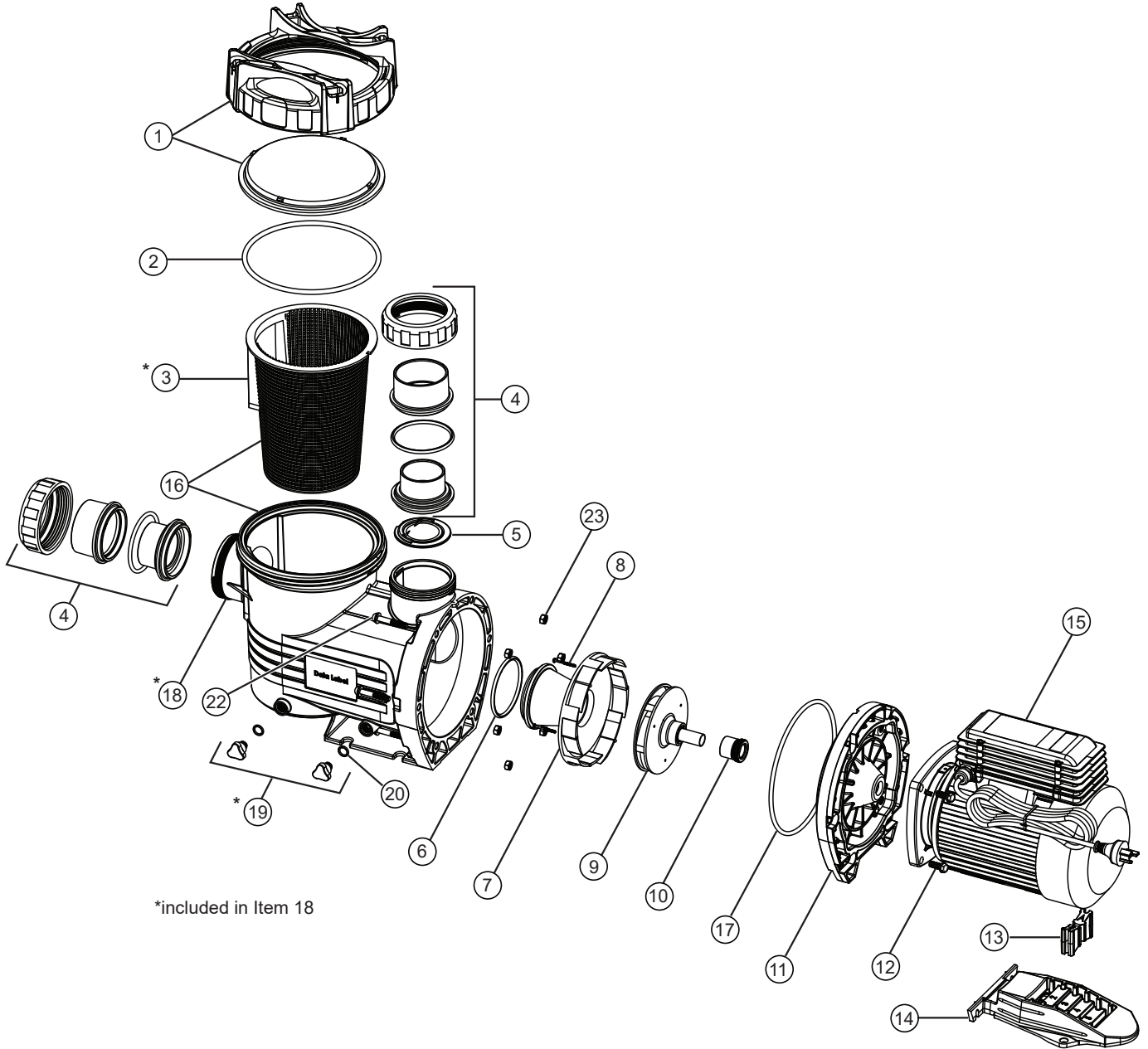
8.5 FX-Series Pump Exploded Diagram



8.6 FX-Series Pump Spare Parts List

Item #	Description	Part #	Quantity
1	LOCK NUT, 50MM	950919	1
2	2" PIPE UNION, 50MM	950920	1
3	O-RING	70003	1
4	FX PUMP BODY	4009602	1
5	DIFFUSER SCREW	40165	2
6	DIFFUSER	40072A	1
7	IMPELLER, FX190	40060R	1
7	IMPELLER, FX250	40060B	1
7	IMPELLER, FX290	40060F	1
7	IMPELLER, FX340	40060G	1
7	IMPELLER, FX520	40060J	1
8	SEAL PLATE SEAL, SERIES 1	70004	1
9	SEAL PLATE, SERIES 1	4009002	1
10	MOTOR, FX190	71310	1
10	MOTOR, FX250/FX290	71313	1
10	MOTOR, FX340	71314	1
10	MOTOR, FX520	71319	1
11	MECHANICAL SEAL	75509	1
12	SEAL PLATE TO BODY BOLTS	40169	6
13	MOTOR BOLTS	40150	4
14	MOTOR FOOT	4005002	1
15	MOTOR FOOT RUBBER INSERT	40056	1
NOT SHOWN	NUT, SEAL PLATE TO BODY	40272	6
NOT SHOWN	INSTRUCTION MANUAL	INST243	1
NOT SHOWN	PIPE FITTING COMPONENT BAG	78303	1

8.7 XP-Series Pump Exploded Diagram

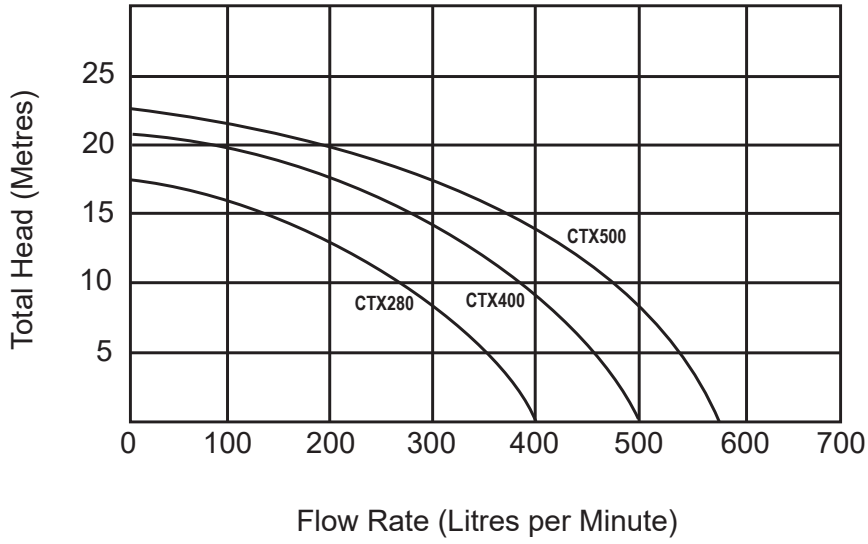


8.8 XP-Series Pump Spare Parts List

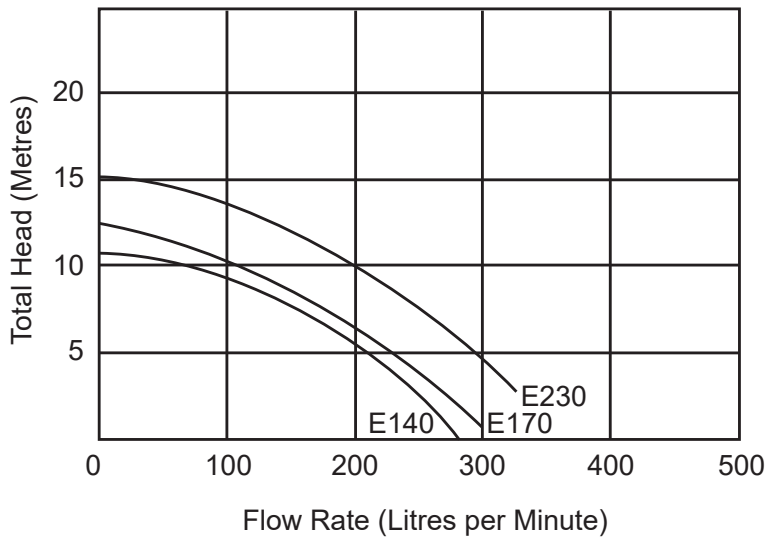
Item #	Description	Part #	Quantity
1	LID ASSEMBLY	SP41070	1
2	LID O-RING	75076	1
3	BASKET	40066	1
	LID COMPLETE WITH O-RING	SP40069	1
4	UNION FITTING, 65 TO 50MM	950924	2
4	UNION FITTING, 65MM	950925	2
4	LOCK NUT	950926	2
4	O-RING	SP78104	2
4	COMPONENT BAG	78304	1
5	NON-RETURN VALVE	N/A	
6	DIFFUSER O-RING	SP78104	1
7	DIFFUSER, 1HP/1.5HP	40071A	1
7	DIFFUSER, 2HP/3HP/4 HP	40071B	1
8	DIFFUSER RETAINING SCREW	40165	2
9	IMPELLER, 1HP	40060F	1
9	IMPELLER, 1.5HP	40060G	1
9	IMPELLER, 1.5HP, 3-PHASE	40060GE	1
9	IMPELLER, 2HP	40060H	1
9	IMPELLER, 2HP, 3-PHASE	40060HE	1
9	IMPELLER, 3HP	40060N	1
9	IMPELLER, 3HP, 3-PHASE	40060NE	1
9	IMPELLER, 4HP	40060PE	1
10	MECHANICAL SEAL	75509	1
11	SEAL PLATE	SP40030	1
12	MOTOR RETAINING BOLT	40173	4
13	MOTOR FOOT RUBBER INSERT	40056	1
14	MOTOR FOOT	4005002	1
15	MOTOR, 1HP	71313	1
15	MOTOR, 1HP, 3-PHASE	71320	1
15	MOTOR, 1.5HP	71314	1
15	MOTOR, 1.5HP, 3-PHASE	71320	1
15	MOTOR, 2HP	71319	1
15	MOTOR, 2HP, 3-PHASE	71335	1
15	MOTOR, 3HP	71331	1
15	MOTOR, 3HP, 3-PHASE	71335	1
15	MOTOR, 4HP, 3-PHASE	71338	1
16	XP WETEND WITH BASKET	4007702	1
17	SEAL PLATE O RING	SP70030	1
18	WET END BASKET & DRAIN PLUGS	SP41077	1
19	DRAIN PLUG	7820702	1
19	DRAIN PLUG WITH O-RING	7820710	
20	O-RING	SP78103	1
22	SEAL PLATE TO WET END BOLTS	41075	6
23	SEAL PLATE NUT - BRASS	40272	6
NOT SHOWN	IMPELLER BOLT - 3-PHASE	78187	1
NOT SHOWN	IMPELLER BOLT WITH O-RING - 3-PHASE	78711	1
NOT SHOWN	INSTRUCTION MANUAL	INST480	1
NOT SHOWN	WETEND LABELS	LABEL605	1

Section 9. Performance Curves

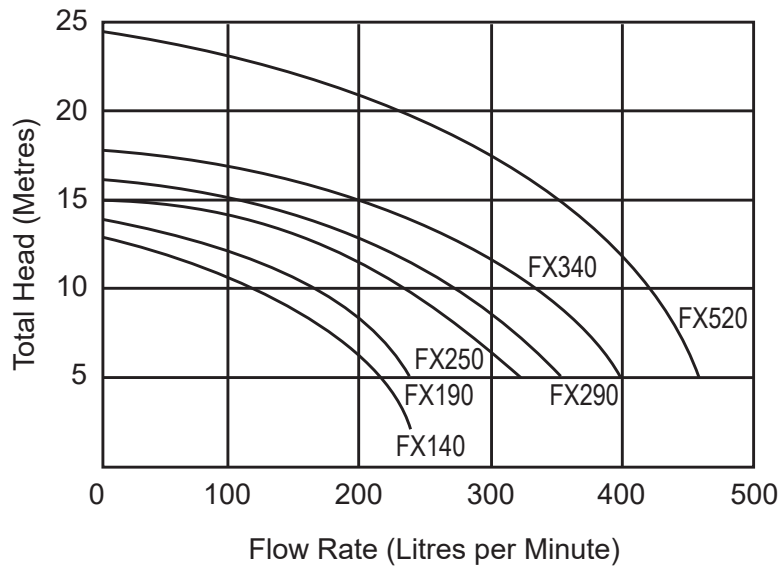
9.1 CTX-Series Pump



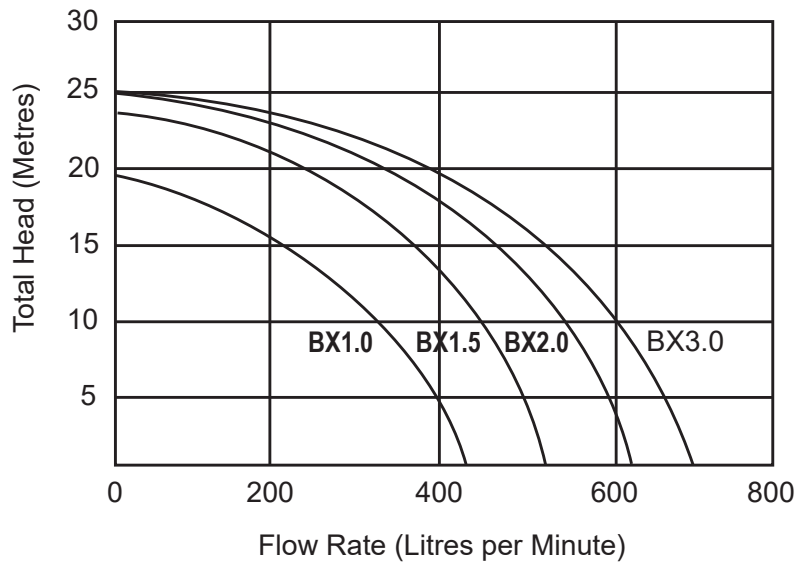
9.2 E-Series Pump



9.3 FX-Series Pump



9.4 XP-Series Pump



Section 10. Technical Information

Model	Volts	Phase	Input (watts)	Horse Power	Maximum Flow Suction (8 feet per second)	Full Load (amps)
CTX280	240	Single	1070	1.00	280 LPM	4.5
CTX400	240	Single	1650	1.50	400 LPM	7.2
CTX500	240	Single	1900	2.00	500 LPM	8.3
E 140	240	Single	650	0.50	140 LPM	2.9
E 170	240	Single	850	0.75	170 LPM	3.5
E 230	240	Single	925	1.00	230 LPM	3.9
FX 140	240	Single	650	0.50	140 LPM	2.75
FX 190	240	Single	822	0.75	190 LPM	3.47
FX 250	240	Single	1015	1.00	250 LPM	4.38
FX 340	240	Single	1617	1.50	340 LPM	7.10
FX 520	240	Single	1900	2.00	520 LPM	8.85
XP 1.0	240	Single	1160	1.005	325 LPM)	5.0
XP 1.5	240	Single	1645	1.50	440 LPM	7.2
XP 2.0	240	Single	2030	2.00	540 LPM	8.8
XP 2.0	415	Three	2195	2.0	540 LPM	3.4
XP 3.0	240	Single	2300	3.00	635 LPM	12.5
XP 3.0	415	Three	2650	3.0	640 LPM	4.1
XP 4.0	415	Three	2985	4.0	750 LPM	4.7

NOTES



INST480

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