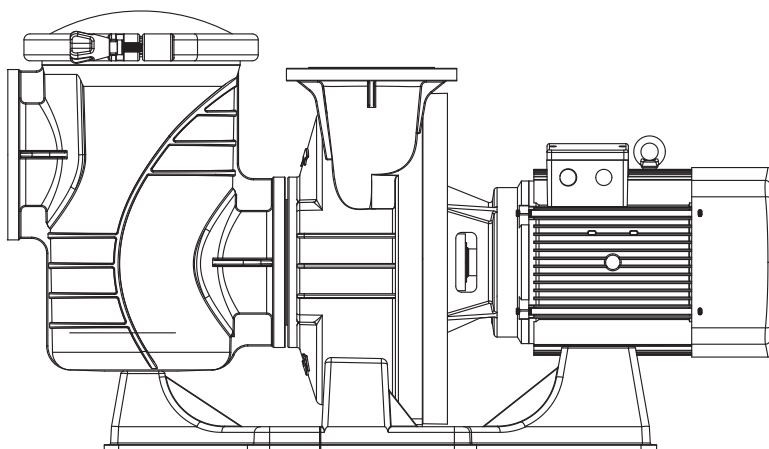


Hydro-Power Plastic Commercial Pump APS Series Owner's Manual Installation and Operation

Model: APS550P/APS750P/APS1000P/APS1500P



This installation and operation include important guide to installer and users. It is a high power plastic commercial pump and it must be installed and serviced by qualified Pool and SPA technician in accordance with corresponding electrical and piping code. It is recommend to have owner and operator to keep this manual for further reference.

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Pool and Spa PUMP WARNINGS AND SAFETY INSTRUCTIONS

GENERAL PUMP WARNING

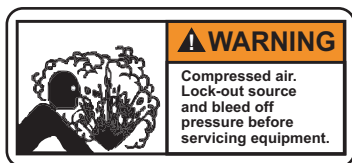
This instruction contain general caution information for use in Pool and SPA pump installation application. Specified Pump model function should be refer to particular manual.



RISK OF ELECTRICAL SHOCK

This appliance should be installed by qualified electrical personnel in accordance with National Electrical Code and all applicable local codes and ordinances.

- Never open the inside of the drive motor enclosure. There is a capacitor bank that holds a High AC charge even when there is no power to the unit.
- The pump is not submersible.
- The pump is capable of high flow rates; use caution when installing and programming to limit pumps performance only.
- The pump should be permanently connected to a circuit breaker.
- Switch OFF pump power before servicing and disconnecting the main circuit to the pump.



COMPRESS AIR HAZARDOUS

This system enclosed strainer and become pressurized. Pressurized air can cause the lid to separate which can result in serious injury or death.

STAND CLEAR OF PUMP DURING START-UP

Pool and spa circulation systems operate under high pressure. When any part of the circulating system (i.e. lock ring, pump, filter, valves, etc.) is serviced, air can enter the system and become pressurized. Filter tank lid and strainer cover must be properly secured to prevent violent separation. Place strainer air relief valve in the open position and wait for all pressure in the system to be relieved before remove the lib to access the basket for cleaning.



HYPERTHERMIA

SPA water temperature excess 38°C (104°F) may be injurious to health. Measure water temperature before entering SPA.

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6 °F (37 °C). The symptoms of hyperthermia include drowsiness, lethargy, and an increase in the internal temperature of the body.



SUCTION ENTRAPMENT HAZARD

This pump produces high levels of suction and creates a strong vacuum at the main drain at the bottom of your pool and spa. This suction is so strong that it can trap adults or children under water if they come in close proximity to a pool or spa drain or a loose or broken drain cover or grate.

NOTE: ALL SUCTION PLUMBING MUST BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL AND LOCAL CODES FOR SWIMMING POOLS, SPAS AND HOT TUBS, INCLUDING NSPI STANDARDS AND CPSC GUIDELINES.

There are five types of suction entrapment according to The Virginia Graeme Baker (VGB) Pool and Spa Safety Act.

- **Body Entrapment** a section of the torso becomes entrapped
- **Limb Entrapment** an arm or leg is caught by or pulled into an open drainpipe
- **Hair Entrapment** or entanglement hair is pulled into and/or wrapped around the grate of the drain cover
- **Mechanical Entrapment** the bather's jewelry or clothing gets caught in the drain or the grate
- **Evisceration** the victim's buttocks come into contact with the pool suction outlet and he or she is disemboweled



Avoid
Hair Entanglement



Avoid
Drain Covers



Avoid
Body Entrapment



Avoid
Evisceration



Avoid
Finger Entrapment

APS series commercial pump overview

Hydro-Power APS series pump delivery Emaux latest technology in pump design.

It is constructed in reinforced plastic pump body in lightweight and corrosion-resistant that suitable for marine applications.

Motor design in IE3 class premium efficiency standard provide incredibly efficient and low noise level.

High water flow impeller design by computational fluid dynamics (CFD) analysis optimize the pump performance than comparable pumps.

Large volume Detachable pre-filter with basket design provide high flow rate application and flexible installation.

ANSI Class 150 and DIN PN10 compatible flange standard design to fit into different piping system environments.

It is three phase electrical high power driving motor good for swimming pool and commercial applications.

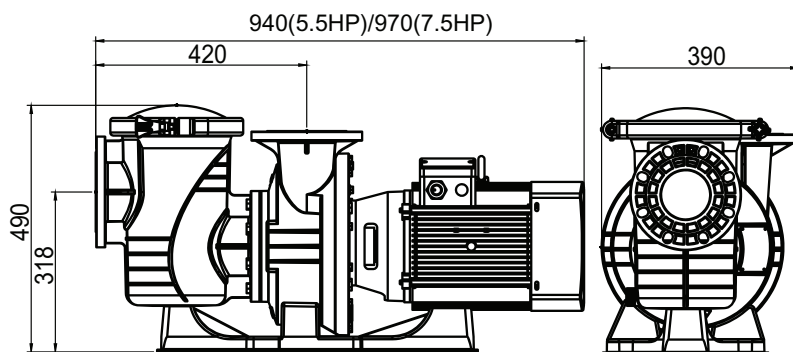


Product Information

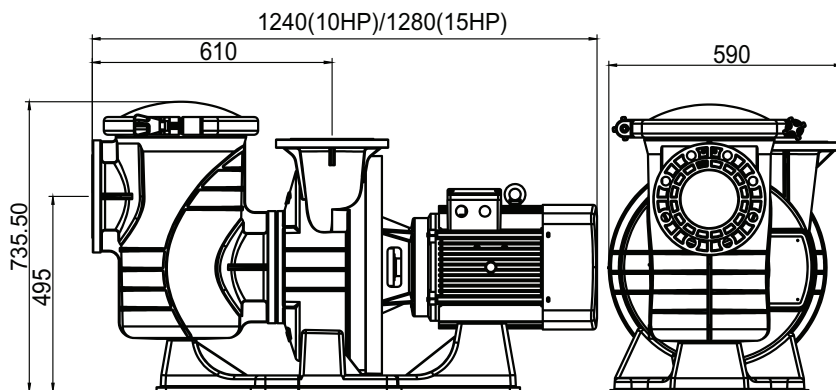
Code 380V/50Hz	Model No	Connection Size ANSI / DIN	Horsepower (hp)	Strainer (l)	RPM
9023901	APS550P	4" / DN 100	5.5	13	2850
9023902	APS750P	4" / DN 100	7.5	13	2850
9023903	APS1000P	6" / DN 150	10	30	1450
9023904	APS1500P	6" / DN150	15	30	1450

Dimension (mm)

APS550P / APS750P

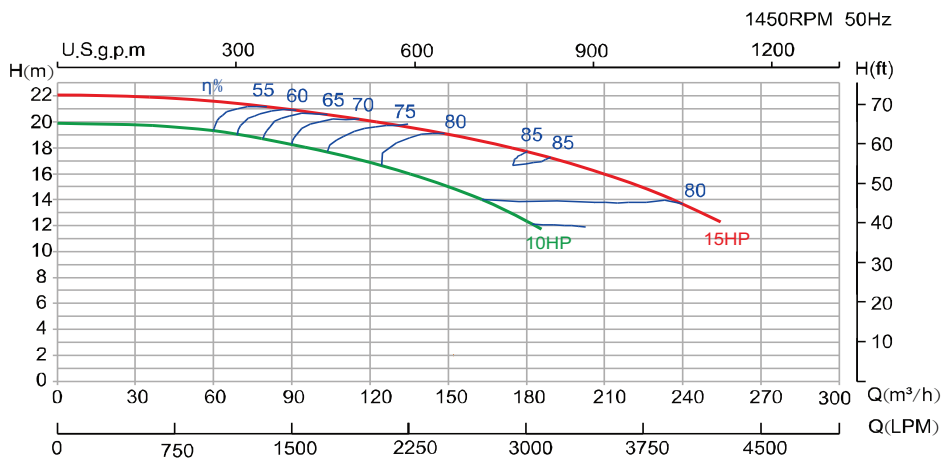
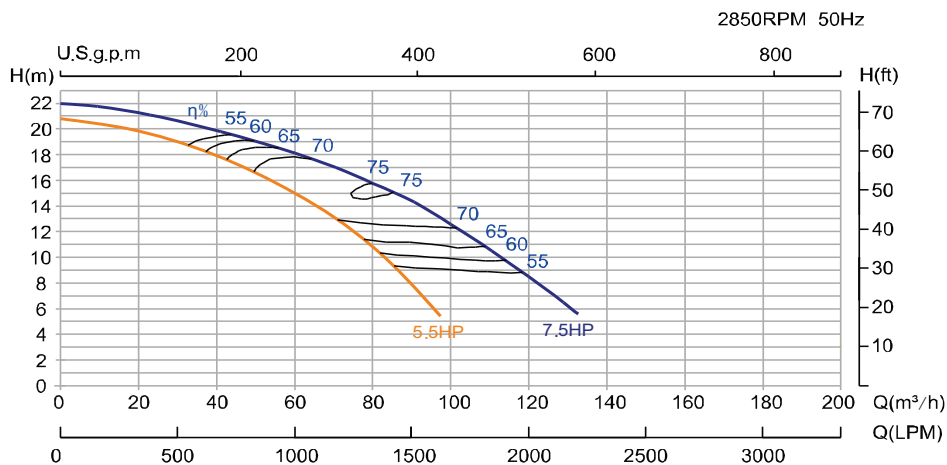


APS1000P/APS1500P



Pump Curve

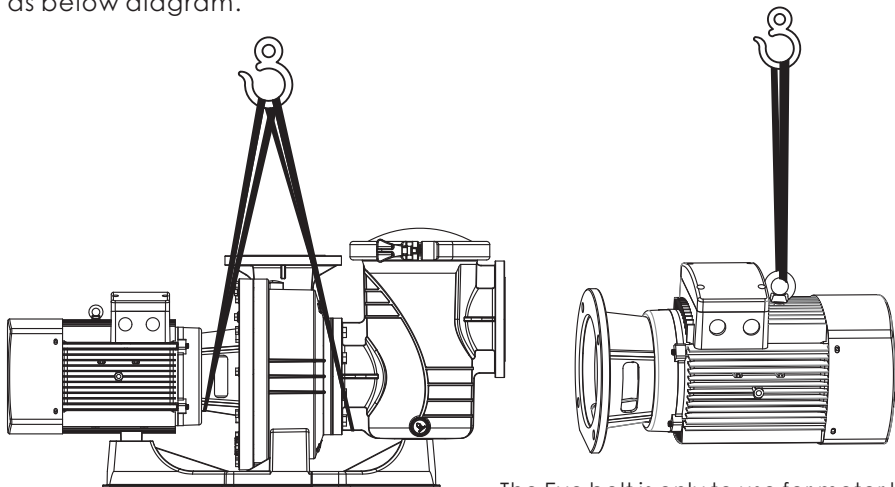
Model	Power (KW)	Noise (dB)	Head (m)					
			6	8	10	12	14	16
			Flow Rate (m ³ /h)					
APS550P	4	72	95	90	82	75	65	50
APS750P	5.5	72	130	120	110	105	90	80
APS1000P	7.5	68		210	185	180	160	135
APS1500P	11	68		270	260	250	240	210



Installations:

Lifting the Pump

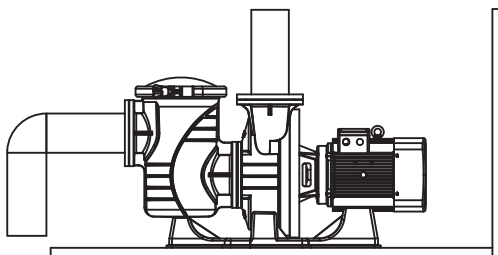
The center of the pump locate at the middle of the pump. It is recommended to place the lifting strap under between Motor to Body and Body to pre-filter body as below diagram.



The Eye bolt is only to use for motor lifting.

Location

The pump should be located nearby as close as possible the pool or spa to reduce friction loss and improve efficiency. It is recommended at least 1.5 meter from pool water and 3 meters according to Canadian code.



- It is suggested that the pump should be installed on ground level for APS550P and APS 750P. For **APS1000P and APS1500P are for below ground.**
- The pump should be placed on a solid foundation that will not vibrate. It must be bolted down to reduce noise from vibration. The area should be well drained to prevent flooding damage the motor.
- Install the pump in a well thermal ventilated environment and to protect from excessive moisture.
- Ensure there is enough clearance for pre-filter basket & Lid open and motor ventilation.

Piping

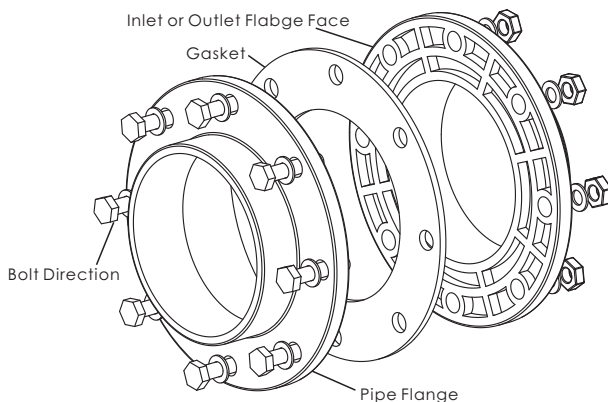
Incorrect suction design is one of the main causes for problems appearing during the pump installations. The suction tube is one of the installation's main components, and it should meet the following conditions in order to avoid future problems.

- It should be as short and straight as possible.
- The Diameter of the tube should not be smaller than the diameter of the pumps inlet.
- The suction tube should be fully airtight, if not the entry of air can cause de-priming of the pump.
- The suction tube should have its own means of support and should not cause tensions or strains to the pump's flange.
- Minimize the use of elbows, valves, narrowing or choking sections etc. which dangerously increase head losses and can cause air pockets as well as entry of air into the piping.
- Each pump should have its own dedicated suction tube. If for unavoidable reasons it is necessary to connect two or more pumps to a single collector, the collector should have the same diameter from the first to the last outlet and should be sufficiently sized to supply the same flow rate to all pumps.

Flange Installation

The Pre-Filter inlet and pump body outlet are in flange type, both ANSI (Class 150) and DIN (PN10) standards are supported to share the same face and hole.

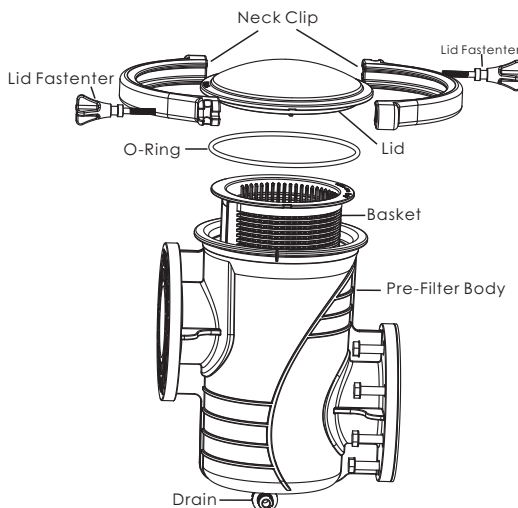
- Place the 8 large bolts from the pipe flange side to the pump.
- Put a 3.2mm thickness gasket in between.
Push the bolts to the pre-filter flange hole.
- Keep the bolt straight and lightly snug each bolt with a wrench one by one until a squealing sound is heard to indicate that the bolts are being excessively tightened.



Pre-Filter Basket cleaning

The basket in the pump should be visually inspected at least once a week. Remove the clear lid and the basket and clean debris from basket. Inspect the lid O-ring; if damaged replace. The pump seal requires no lubrication.

- Turn off the pump at the breaker.
- Close the inlet and discharge valves.
- Discharge the water by drain on the pre-filter bottom.
- Release the two Lid fastener of the neck clip slowly to release the pressurized air inside the pre-filter.
- Remove the clips and Lid to take out the basket and remove the debris and rinse out the basket.
- Reinstall the lid by placing the lid back onto the Pre-Filter body with lid O-ring is properly placed around the entire sealing surface of the Pre-filter body.
- Open the inlet and discharge valves.
- Turn the power "ON" at the circuit breaker.
- Open the manual air relief valve on top of the filter.
- Stand clear of the filter. Start the pump.
- Bleed air from the filter until a steady stream of water comes out. Close the manual air relief valve.



Winterizing

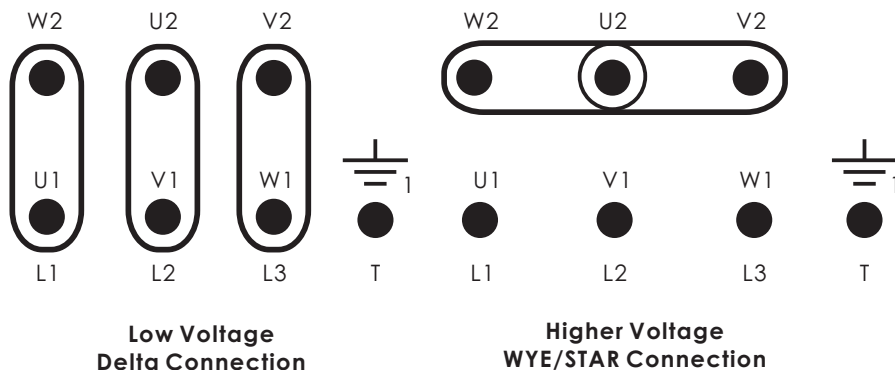
If the air temperature drops below 0°C (35°F), the water in the system can freeze and cause damage. Freezing damage is not warrantable. To prevent freezing damage follow the procedures listed below:

- Shut off electrical power for the pump at the house circuit breaker.
- Drain the water out of the pump case by removing the two drain plugs from the case.
- Store the plugs in the pump basket.
- Cover the motor to protect it from severe rain, snow and ice.
- If it is possible, store the pump in a dry location during this time.
- Do not wrap the motor in plastic. It will cause condensation and rust on the inside of the motor.
- Where possible, have a qualified service technician or electrician disconnect the electrical wiring at the switch or junction box and store the pump indoors.
- When the pump is reactivated, ensure all seals and O-rings are in operational condition. If they are not, re-greasing or replacing may be necessary.

Electrical Wiring

Open the terminal box on the top of the motor, there are six terminals and Ground. It can be connected in Delta or WYE/STAR connection.

380VAC 50 Hz +10% and -6% electric power is three phase power source voltage range.



- Every power lines have to be protected by circuit breaker for over load to isolated the motor from the mains power and provide protection to motor.
- Three Phase starter switch or magnetic switch has to been applied to switch the pump on or off.
- The motor run in counter clockwise when it is viewed from the front side of the motor. There is a rotation arrow on the pump body to show the right direction. Turn on the pump in one second and check the motor rotation direction is correct or not. The motor will rotate in Clock wise direction if any two cables are interchange. Fixed the cable location when rotation direction is wrong.
- For insulation countries regulated by International Electrotechnical Commission (IEC) standards, the power lines must supply through a residual current device (RCD) having a rated tripping current not exceeding 30mA has to been installed.

Note: This high power pump demand licensed or certified electrician or qualified pool installer to ensure there is adequate protection between the pump motor and mains power supply according to individual countries safety code.

Operation

- Never run pump dry! Running pump dry may cause damage to the mechanical seal causing leakage and flooding. Fill the pre-filter with water before starting motor.
- Before removing the pre-filter lid, STOP PUMP, CLOSE GATE VALVES in suction and discharge pipes.
- Never tighten or loosen screw while the pump is in operation.
- The suction pipe and the suction inlet in the pool must be free from obstruction.

Start Up

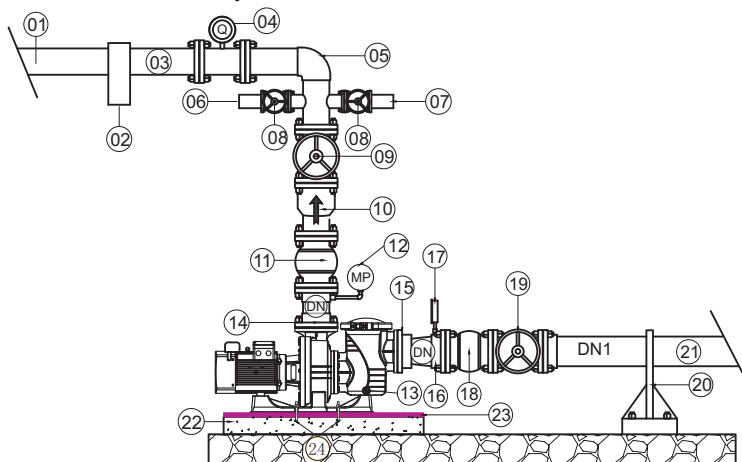
Before start-up, the alignment of the pump should be checked. The tubing should be inspected to ensure that they are properly fitted and tightened and that they do not exert pressure or tension on the pump's suction or discharge flange. The pump should never be operated.

- I. Clear all piping of construction debris and verify that the piping has passed a proper pressure test.
- II. Check the filter and other equipment for proper installation, verifying all clamps and connections are properly installed as per the manufacturer's instructions.
- III. Open any shut off valves on the suction and discharge lines.
- IV. Open the filter pressure relief valve and release all pressure from the system.
- V. If the pump is located below the water level of the pool, opening the pressure relief valve will fill the pump with water.
- VI. If the pump is located above the pool water level, remove the lid from the pre-filter and fill with water before starting the pump.
- VII. Check to see that the lid O-ring and seat areas are clean and lubricated. Debris in the sealing area can cause air to leak into the system and make it difficult to prime the pump.
- VIII. Close/tighten the lid to make an airtight seal.
- IX. Turn on the pump.
- X. If the pump does not prime and all instructions to this point have been followed, check for suction leaks and repeat steps (I) through (VIII).

Trouble Shooting

Problem	Corrective Action
Pump Will Not Prime	● No water in Pre-filter Lid is not tight Damaged lid O-Ring. ● Water level below Skimmer. ● Pre-filter or Skimmer Basket clogged Closed Valve in Piping System. ● Air leak in Suction Line. ● Pump installed more than 10 ft.(3 m.) above Water Level or otherwise too high for Hydraulic Conditions of Pool Plumbing System. ● Pump Shaft rotating in wrong direction.
Low Flow- High Filter Pressure	● Filter is dirty. ● Restriction in Filter Line.
Low Flow- Low Filter Pressure	● Pre-filter or Skimmer Basket clogged. ● Clogged Impeller. ● Air leak in Suction Line Restriction in Suction Line. ● Cavitation - NPSHA less than NPSHR Pump Shaft rotating in wrong direction.
Motor Does Not Turn	● Power Switch is off. ● Circuit Breaker has tripped Thermal Protector has tripped Pump is in OFF mode of Timer. ● Motor Shaft is locked by bad Bearing Impeller is jammed.
Motor Over Heating	● Electrical Supply Connections are incorrect Wiring to Pump is undersized. ● Inadequate Voltage supplied to Site Ventilation is inadequate for Motor. ● Voltage differential between legs of 3 Phase Circuit >5% Pump Shaft rotating in wrong direction.
High Pitch OR Growling Noise Coming from WET END of Pump	● Air Leak in Suction Line. ● Cavitation - NPSHA less than NPSHR. ● A Valve, Elbow or Tee is located too close to the Suction Inlet of the Pump. ● Pump Shaft rotating in wrong direction.

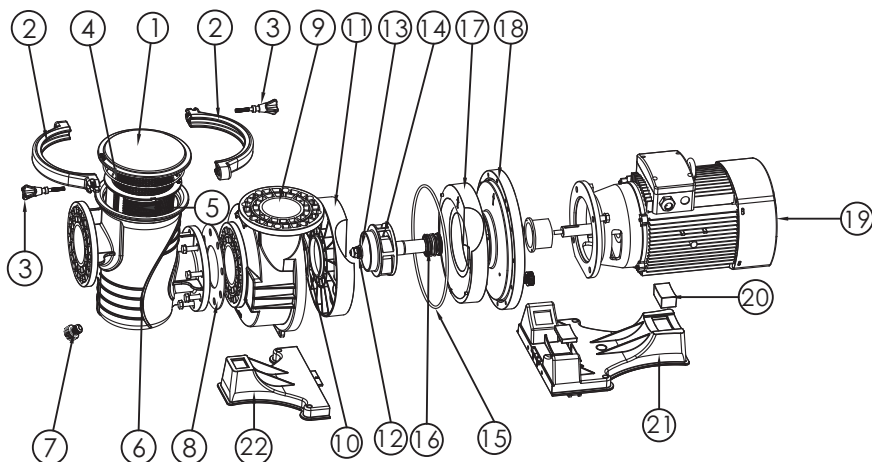
Typical Installation example



No.	Descriptions
DN	Diameter of inlet and outlet of the pump
DN1	Diameter of the Pipe
1	Air-bleed hole should be installed at the highest point
2	Holding the pipes with racks so as to prevent too much load on the branch of the pump, and the racks should be coated with corrosion resisting material.
3	The water outlet pipe delivers the pumped liquid to a liquid storage layer, and the current velocity shouldn't exceed 5m/s
4	Flow meter checks the amount of pumped liquid
5	Comparing with tight bending radius, the pressure loss of the loose bending radius is relatively low, which can prevent the forming of cavitation.
6	The water outlet entrance is the terminal of the water outlet pipe; before starting the water pump, the water pump and water inlet pipe should be firstly filled with water
7	The bypass ensures the minimum flow of the pump and delivers liquid to liquid storage container or water inlet pipe.

8	Sluice valve departs the pump from the pipes
9	Sluice valve allows the adjustment of the flow of the pump
10	Check valve can protect the water hammer that formed in the process of operation of the pump so as to prevent the draining-off of the water outlet pipe after the pump is stopped
11	The soft connection can prevent the forming of cavitation
12	Pressure gauge can check the working pressure
13	Drain plug for drainage and air-out
14	The water outlet entrance is the terminal of the pump and connects with the water outlet entrance
15	The water inlet entrance is the terminal of the pump and connects the water inlet pipe
16	The transition pipe should be flexible so as to prevent the forming of cavitation
17	Vacuum Gauge is to measure the suction pressure
18	The soft connection can prevent the forming of cavitation
19	Sluice valve departs the pump from the pipes
20	Holding the pipes with racks so as to prevent too much load on the branch of the pump, and the racks should be coated with corrosion resisting material.
21	The aim of the water inlet is to deliver the liquid to the pump, so when installing it, try to make it short and straight.
22	Steel reinforced concrete bottom ensures the stability of the pump
23	The plastic cushion is used to cushion the force between the reinforced concrete base and the pump base.
24	Explosive screw used to stabilize water pump

Spare Part List



Item	Part NO	Product Description	QTY
1	420386559	Transparent Lid (APS5.5HP-7.5HP)	1
	420386556	Transparent Lid (APS10HP-15HP)	1
2	420556559	Neck Clip (APS5.5-APS7.5HP)	2
	420556556	Neck Clip (APS10HP-15HP)	2
3	420566559	Lid Fastener (APS5.5HP-7.5HP)	2
	420566556	Lid Fastener (APS10HP-15HP)	2
4	111010040	Transparent Lid O-Ring (APS5.5HP-7.5HP)	1
	111010037	Transparent Lid O-Ring (APS10HP-15HP)	1
5	420236559	Basket (APS5.5HP-7.5HP)	1
	420236556	Basket (APS10HP-15HP)	1
6	420246559	Pre-Filter Body (APS5.5HP-7.5HP)	1
	420246556	Pre-Filter Body (APS10HP-15HP)	1

Item	Part NO	Product Description	QTY
7	4100110754	Drain Plug	2
	111002530	Ding-Qing O-ring	2
8	111322402	O-ring(APS5.5HP-7.5HP)	1
	111042408	O-ring(APS10HP-15HP)	1
9	420336559	Pump Body(APS5.5HP-7.5HP)	1
	420336556	Pump Body(APS10HP-15HP)	1
10	111010041	O-ring(APS5.5HP-7.5HP)	1
	111010038	O-ring(APS10HP-15HP)	1
11	420576571	Volute foreside (APS5.5HP-7.5HP)	1
	420576569	Volute foreside (APS10HP-15HP)	1
12	420586559	Impeller Nut(APS5.5HP-7.5HP)	1
	204146175	Impeller Nut(APS10HP-15HP)	1
13	111042406	O-ring(APS5.5HP-7.5HP)	1
	111030009	O-ring(APS10HP-15HP)	1
14	420366716	Impeller APS5.5HP	1
	420366560	Impeller APS7.5HP	1
	E024002	Impeller APS10HP	1
	E024001	Impeller APS15HP	1
15	111010042	O-ring for flange(APS5.5HP-7.5HP)	1
	111010039	O-ring for flange(APS10HP-15HP)	1
16	113006715	Mechanical Seal(APS5.5HP-7.5HP)	1
	113006710	Mechanical Seal(APS10HP-15HP)	1

Item	Part NO	Product Description	QTY
17	420576572	Volute hind side(APS5.5HP-7.5HP)	1
	420576570	Volute hind side(APS10HP-15HP)	1
18	420206559	Flange(APS5.5HP-7.5HP)	1
	420206556	Flange(APS5.5HP-7.5HP)	1
19	104036713	Motor(APS5.5HP)	1
	104036714	Motor(APS7.5HP)	1
	104036711	Motor(APS10HP)	1
	104036712	Motor(APS15HP)	1
20	111000028	Arch Cushion (APS5.5HP-7.5HP)	1
	111000027	Arch Cushion APS(15HP)	1
	111000026	Arch Cushion APS(10HP)	1
21	420126568	Rear of Base(APS5.5HP-7.5HP)	1
	420126564	Rear of Base(APS10HP-15HP)	1
22	420126567	Front part of Base(APS5.5HP-7.5HP)	1
	420126563	Front part of Base(APS10HP-15HP)	1