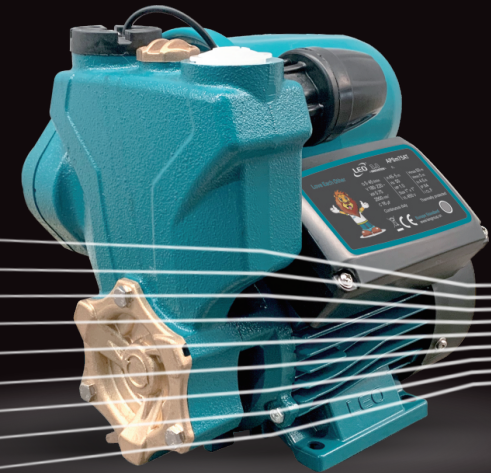




- No-water power-off protection
- Anti-rusting protection
- Start protection
- Power-off protection



Brass



Copper pump cover



SS Shaft



Copper & Cold-rolled



FULL-AUTOMATIC SELF-PRIMING PUMP

APSm-AT

Leo in the world

Asia

America

Europe

Oceania



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Failure	Cause	Measures
Motor continue to work or stator burnout	Incorrect grounding or cable damage, electric pump incurs lightning strike.	Check for cause and replace winding coil.
Front end cap leakage	Mechanic seal got worn out by impurities.	Wash or replace mechanical seals.
Noise	Bearing is damaged.	Replace bearings
	Impeller is jammed.	Remove sundries.
	Too much lift.	Adjust outlet pressure.
Water pump idle spin for 6min without stopping	Circuit board failure.	Replace circuit board.
	Flow sensor not connected.	Check if the flow sensor is connected or if the check valve is stuck. Replace flow sensor or remove obstruction in check valve.
Valve shutdown yet the water pump still operates under automatic mode	Circuit board failure.	Replace circuit board.
	Flow sensor failure.	Check if the flow sensor is connected or if the check valve is stuck. Replace flow sensor or remove obstruction in check valve.
	Water outlet leakage.	Check if there is leakage in the outlet pipeline.
Startup failure when pressure is lower than rated	Pressure sensor failure.	Check if the pressure sensor is connected or replace it.
The motor can't start and is not powered.	Poor cable contact or break	Check the terminals or replace the new one.
	Capacitor broken or unconnected capacitor	Replace suit capacitor
	Stator winding burnout	Replace winding(Repair Location)
	Circuit board burnout	Bypass the wiring of the circuit board and check if the motor is running normally.

Notes:

- 1). The drawings in this book are all illustrations . Please understand that the electric pump and accessories you purchased may be different from this manual ;
- 2). The performance of this product is constantly improving, all products (including appearance and color, etc.) are subject to the actual product, if there is any change, forgive no further notice.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Attention!

If the appliance or the supply cord is damaged, it must be repaired by manufacturer, its service agent or qualified person.



Meaning of crossed –out wheeled dustbin:
Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact you local government for information regarding the collection systems available.



Before installation, please carefully read this manual and pay attention to the safety warning signs and the content of the manual. Any violation of the safety warning signs and manual content may cause injury, water pump damage and other property losses. The manufacturer will not be responsible for it and any claim arising from it. The electric pump must be reliably grounded and installed with an electric leakage protection device before using. Do not touch the electric pump when it is operating.

1. Product Description

The full-intelligence APSm-AT series water pump is a kind of intelligent and automatic water supply system that combines the electric motor, water pump, pressure tank, pressure switch, flow sensor, electronic controller and mobile phone control. The electronic controller can timely start or shutdown the water pump according to the pressure and flow changes inside of the pipe, which provides customers with a stable, safe and comfortable water using environment.

2. Application Environment

- It can be used for living water supply, equipment matching, pipe pressurizing, garden irrigation, vegetable greenhouse watering, breeding industry, water supply and drainage of factories, enterprises and high buildings as well as for central air-conditioning and concentrated heating circulatory systems etc.
- It can only be used for supplying clean water and other low-viscosity and erosion-free liquids. It can not be used to supply liquids that are inflammable, explosive, easy for evaporation and that do not contain solid particles or fibers.
- Liquid PH value: 6.5-8.5
- Max.ambient temperature: 40°C
- Medium temperature: 60°C
- Max.particle size: 0.2mm
- Max.volume ratio of solid impurities: 0.1%

3. Model Description

APSm-AT

APS m 37 AT

Control mode: Automatic

Output power/10, unit: (W)

Single Phase Motor (Omitted for three phase motor)

LEO3.0 Series Self-priming Periphercel pump

11. Common Failures and Troubleshooting



Check the pump after power cut-off.

Failure	Cause	Measures
The motor can't start, there is a buzz sound	Capacitance is too small	Replace with suit capacitance
	The shaft and the bearing are stuck	Motor rotation direction is wrong
	Motor rotation direction is wrong	Use a screwdriver to move the blades or disassemble the pump to remove debris.
	The voltage is too low	Adjust the power supply voltage to 0.9-1.1 times the rated voltage.
	Cable voltage drops too much	Replace thicker as required
No water coming out when the motor is in operation	One of the main and auxiliary windings is open	Check motor(Repair location)
	Motor rotation direction is wrong	Check and correct if it's wrong
	The pump isn't filled with water	Fill the pump with water
	Impeller damaged	Replace impeller(repair location)
	Suction pipe leakage	Check sealing
	Water pump leakage.	Check if there is leakage on the product and determine the leak points through water or air tests.
	Inlet pipeline leakage.	Check if the pipeline is installed correctly.
Insufficient pressure	Loose screws on inlet joints.	Screw in lock nut.
	The bottom valve is not open or is blocked.	Check the flexibility of bottom valve and remove obstruction.
	Wrong type of water pump.	Select proper water pump.
	Inlet pipeline too long or has too many bends, inlet pipe has improper diameter.	Select proper pipe size and shorten the inlet pipeline.
Vibration of pumps	Obstruction in water inlet, filter or pump chamber.	Wash pipeline, bottom valve and remove obstruction.
	Serious wearing of impeller.	Replace for new impeller.
	Pump not fastened onto the foundation.	Fasten foundation bolts.
Motor continue to work or stator burnout	Obstruction in pipeline or pump chamber.	Check and wash pipeline and pump body.
	Foundation not stable enough.	Install on stable foundation.
	Motor wording overload and overtime.	Set valve in the water outlet to reduce outlet volume.
	Impeller got stuck or overload for a long time.	Remove obstruction in the pump chamber, making it operate under rated flow.

Attention:

- 1). If the water is not discharged after 5 minutes of water injection, turn off the electric pump, please refill the water, or check the inlet pipe for leaks;
- 2). If there is any danger of frosting or freezing damage, please open the drain plug to drain the water in the pump chamber. However, when the pump is started again, it must be filled with water plug before the start, filled with water, and then tightened before the water injection screw plug is used;
- 3). If the pump is not used for a long time , drain the water in the pump and wash the pump body , the impeller and the support , apply the anti - rust oil , and place it in the dry air .
- 4). Restart after a long time stop , operate according to Figure 7 ;
- 5). When the summer season or the ambient temperature is high, please pay attention to the ventilation to prevent the electric part from producing dew and causing electric electricity.
- 6). If the motor is found to be hot or abnormal, immediately cut off the power supply and check the fault according to the following table.
- 7). After the water pump is used, it is necessary to check the pressure inside the tank regularly. The inspection method is as shown in Figure 13 below , if the pressure in the gas tank is lower than 1 . For 2Bar, the inside can be inflated by a pump or other inflator, as shown in Figure 14 below. The maximum pressure in the tank should not be greater than 1.6 Bar, and the pressure value in the tank is recommended to be within the range of 1.4-1.6 Bar.

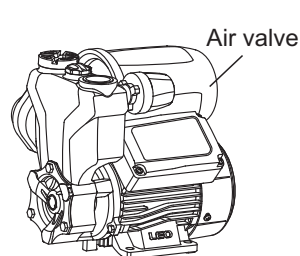


Fig. 12 Water Pump

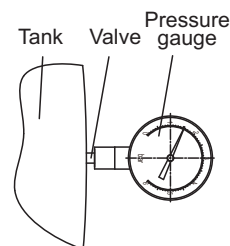


Fig. 13

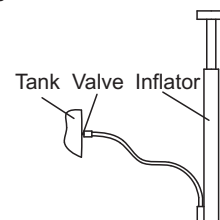


Fig. 14

4. Intelligent Function of Water Pump

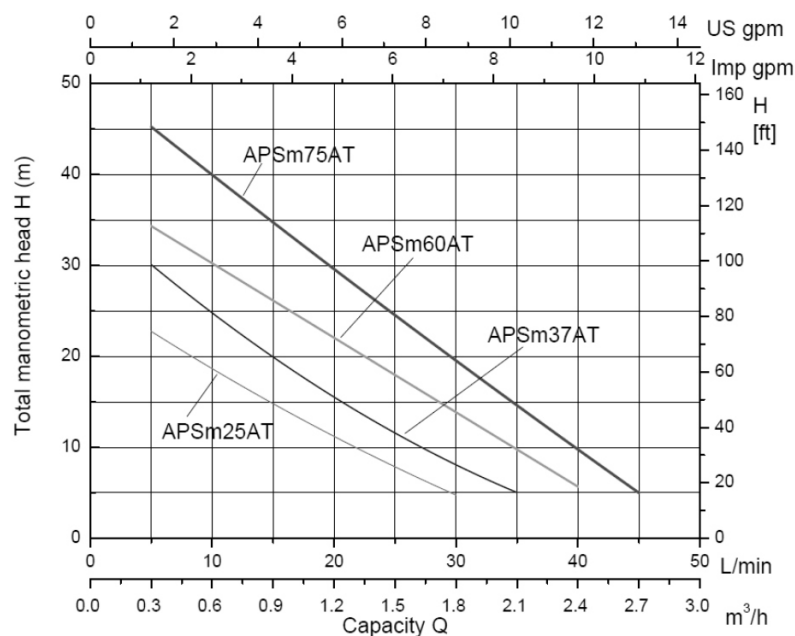
NO.	Name	Function description
1	Start protection	The pump chamber is filled with water, and the inlet pipe and the outlet pipe are connected. When the 220v / 50Hz is powered, the water pump is delayed by 2S.
2	No-water power-off protection	1. In the power-on mode, when the water enters the pump body from the water inlet, the water pump will continue to run for 6 minutes and then stop, automatically start the water-free power-off protection, avoid running for a long time in the water less state, restart after 10 minutes of shutdown, check whether If there is water, return to the pre-protection mode if it detects water. If it is no water, run it again for 6 minutes and then stop running again. Then, every 2 hours, the pump will restart for 6 minutes to detect the presence or absence of water. 2 . If the water suddenly comes in: 1. When the water pressure is small or no pressure, it is necessary to pull out the plug and restart it; or after the pump automatic detection function is started, the pump runs; 2.When the water pressure is high, the pump will automatically start after the inlet check valve is jacked up.
3	Anti-rusting protection	After the water pump is in standby for $12 \pm 1h$, the water pump runs for 10s to prevent the water pump from rusting in the stopped state. (It can't be operated during the test process. At the same time, the pipe pressure within 12h of the stop state can not be less than the starting pressure).
4	Automatic Function	1 . Automatic stop function : When the pressure in the pump chamber is greater than the starting pressure value and the flow sensor is not able to flow until the water pump runs for 10s , the water pump automatically stops and enters the standby mode ; 2 . Automatic start function: When the pressure drop in the pump chamber is the starting pressure ($1.5Bar \pm 0.2Bar$), the pump starts, or when the pressure in the pump chamber decreases, the inlet water pressure will lift the check valve and the pump will start early (Note) : The auto start function takes priority to the flow sensor, ie when the pump flow sensor senses a flow and the pressure is greater than the start pressure, the pump will still start).



Because some functions will cause automatic operation of the water pump, the plug must be pulled off under the circumstance that human body may contact the rotary part of the water pump, our company will not be responsible for any accident caused by it.

5. Technical data and hydraulic performance curves

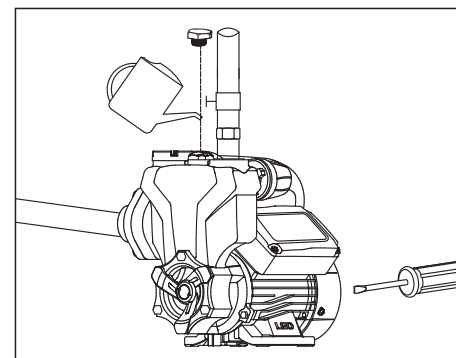
Model	Max. Flow	Lift Rated	Flow Rated	Lift Rated	Power Rated	Max. Suction	Pipe Diameter
	m ³ /h	m	m ³ /h	m	kW	m	mm
APSm25AT	2.0	25	1.2	10	0.25	8	25
APSm37AT	2.0	35	1.2	15	0.37	8	25
APSm60AT	2.8	40	1.8	15	0.60	8	25
APSm75AT	3.0	50	1.7	20	0.75	8	25



10. Startup and Maintenance



Do not start the water pump before the pump chamber is filled with water
Do not touch the electric pump unless the power supply is cut for at least 5 min.
Do not remove pump body unless the water in the pump chamber is fully evacuated.



Flip the fan blades before startup to ensure the water pump rotates freely; then unscrew the filling plug to fill water into the pump chamber. After the air inside is cleared out, screw in the water injection plug. The valve should be turned up in startup, then adjust the valve for suitable flow (indicated flow and range of lift on the nameplate) when the water pump is in normal operation.

Fig 11 Schematic Diagram for Water Injection

9. Electrical Connection



Do not connect wiring to the terminal box unless power is cut off.
The electric pump shall be reliably grounded to prevent electric leakage and leakage circuit breaker shall be provided.

- 1). Electrical connection and protection shall be carried out according to local regulations. The working voltage indicated on the nameplate shall be referred for the power supplies for motor.
- 2). If the working area of the electric pump is far away from the power source, the power supply line shall be appropriately thickened, or normal operation of electric pump may cted by great voltage drop.
- 3). If the electric pump is used outdoors, the cable for extension shall be rubber cables specially made for outdoors.
- 4). Check motor rotation (three-phase motor).
- 5). Check whether the electric pump is running normally, and whether the steering is correct or not. It can be seen from the end of the vane, if its clockwise rotation indicates that the pump is running in the correct direction.

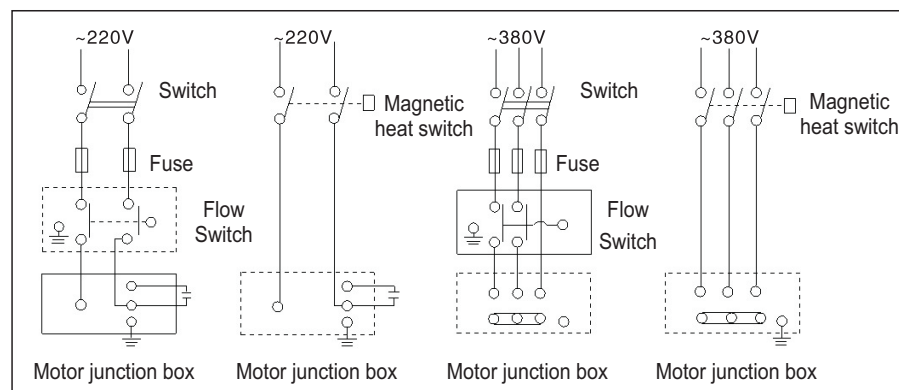
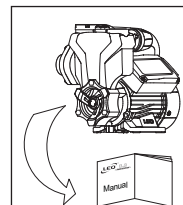
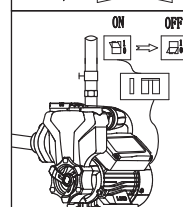


Fig. 10 Schematic Diagram for Electrical Connection

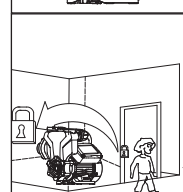
6. Safety Precautions



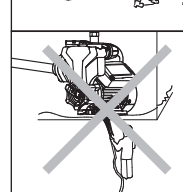
1. Please read the manual carefully before use to ensure normal and safe operation of the electric pump.



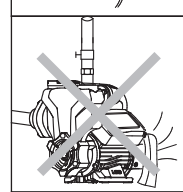
2. The electric pump shall be reliably grounded to prevent electric leakage. To ensure safety, battery socket shall not be wet. Make sure the socket is not located in humid area. The pump must be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30mA.



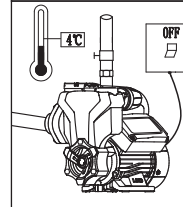
3. When the electric pump is in operation, no touching is allowed. To prevent accidents, no washing, swimming or herding livestock into the water is allowed.



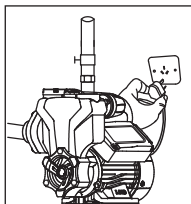
4. Avoid splashing of pressurized water onto the electric pump, and prevent the pump from immersing into water.



5. Keep the water pump ventilated.

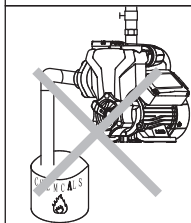


6. When the environment temperature is lower than 4°C or when the pump will not be operated for a long time, it is better to evacuate all fluids within the pipe system to avoid icing or frost cracking within the pump chamber.

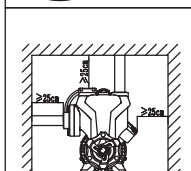


7. To ensure the water pump not operating during installation and maintenance, please cut off the water pump's power source before operation.

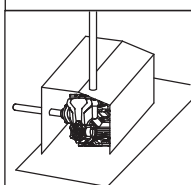
There's must be an all-pole disconnection switch directly connected to the supply terminals and shall have a contact separation that provide full disconnection under overvoltage category III conditions in all poles.



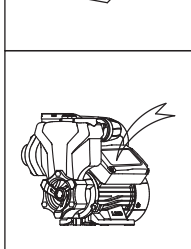
8. Do not use the water pump to transmit any flammable, gasifiable or explosive gas that is not within the specified range.



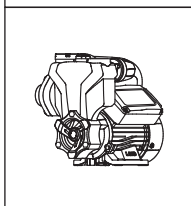
9. Water pump should be installed in places convenient for maintenance and inspection. Do keep the pump dry and ventilated. When installing the pump in narrow places, the process should be done in accordance with the Fig. on the left. Fan cover should be more than 10cm above ground for the thermal dissipation.



10. The water pump should not be used when flooded by or submerged in water. When installed outdoors, proper coverings should be provided to protect the pump from exposing to sunlight or rain.



11. Power supply should be done in accordance with the indicated figures on the nameplate; The pump should be kept dry and ventilated when not in use for a long time.



12. The pump can be mounted on a cement base or onto a wooden platform to prevent accidental falling over. Use bolts and lock nuts to fix the pump.

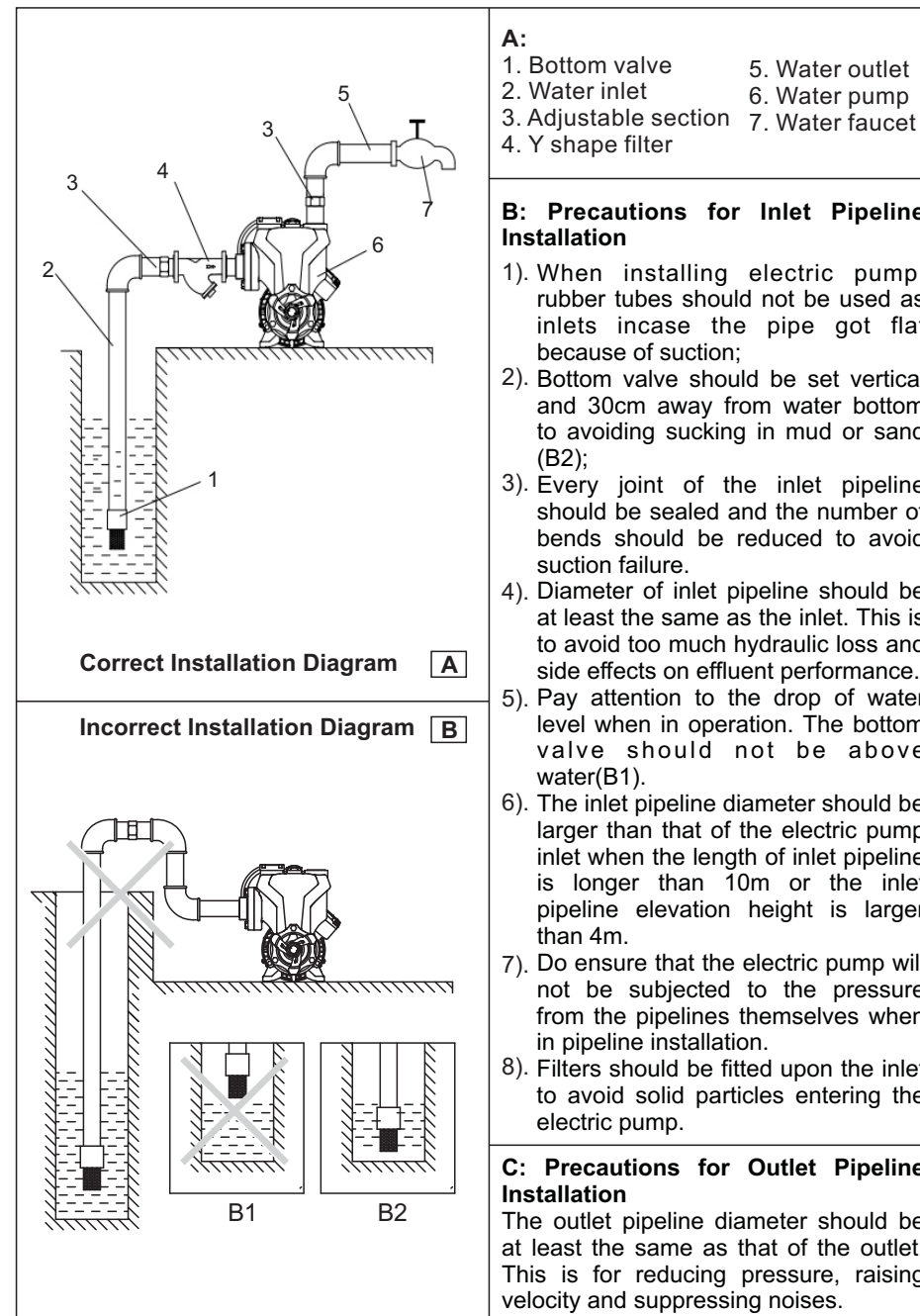


Fig. 9 Schematic Diagram for Water Pump Installation

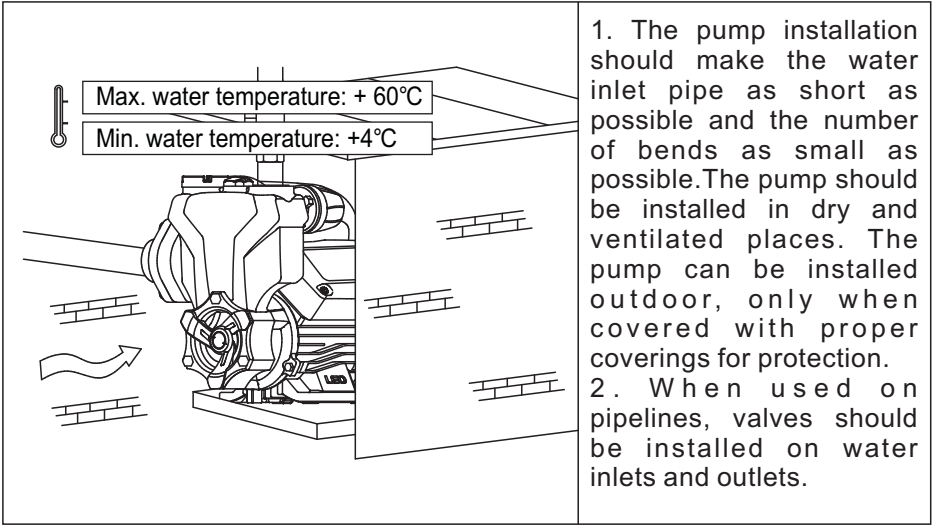
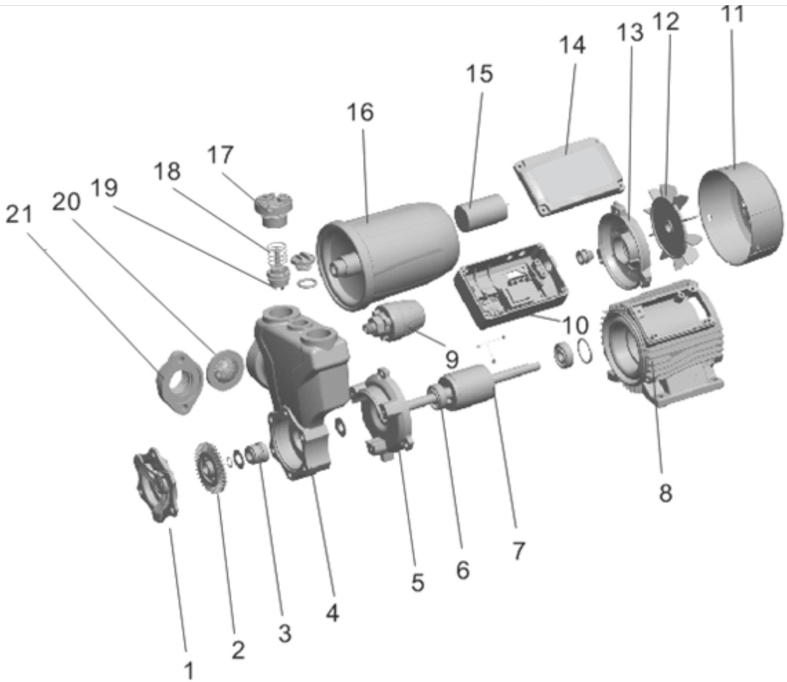


Fig. 8

7. Product Structure



No.	Item
1	Pump cover
2	Impeller
3	Mechanical seal
4	Pump body
5	Front cover
6	Bearing
7	Rotor
8	Stator
9	Rear cover
10	Fan

No.	Item
11	Fan cover
12	Air tank
13	Terninal cover
14	Capacitor
15	Terninal box
16	Pressure sensor
17	Pump head cover
18	Check valve spring
19	Check valve
20	Water inlet connector
21	Sealing ring

8. Pipeline Installation



Installation and commissioning can only be performed by staff who is qualified with certificate and has mastered this instruction. Installation and operation should conform to local codes and regulations as well as common operation codes. Pipeline installation should be properly done in accordance with this instruction; anti-freezing measures should also be taken.

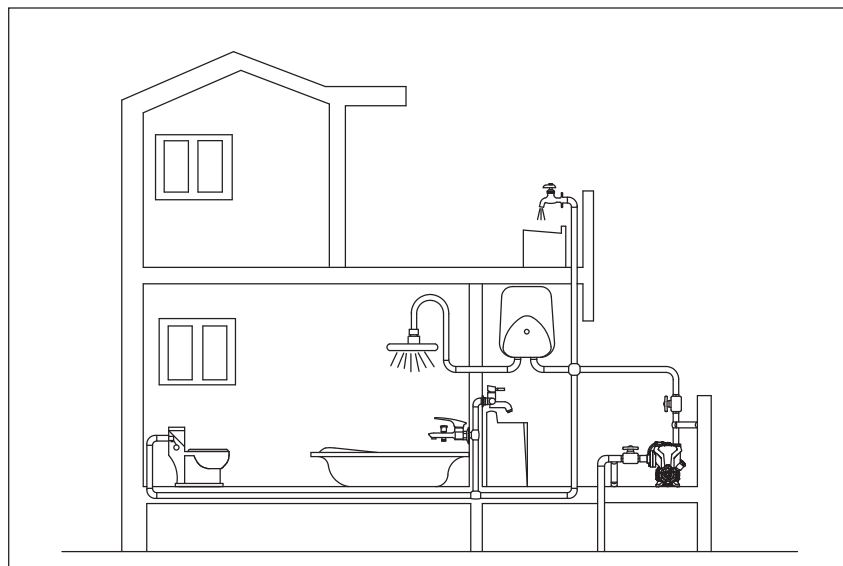


Fig. 5 Tap Water Direct Pressurization

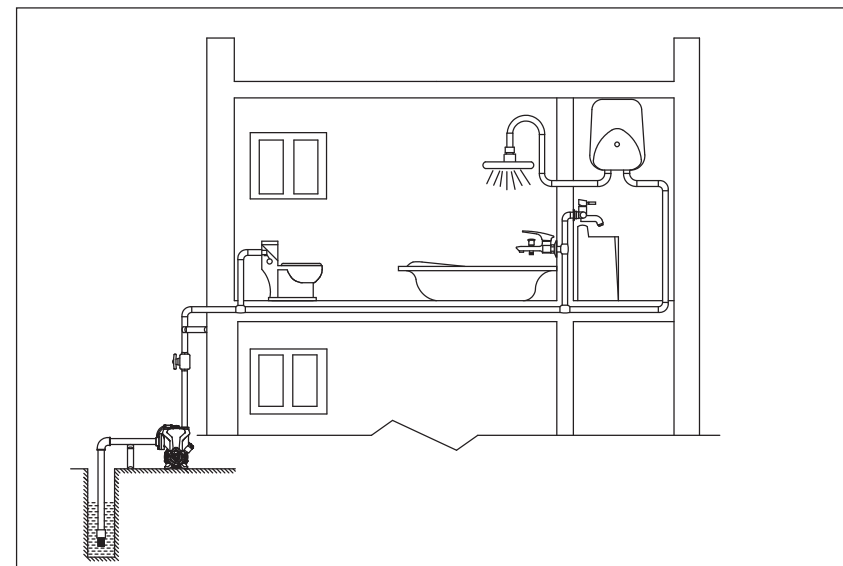


Fig. 6 Pumped Well Water Pressurization

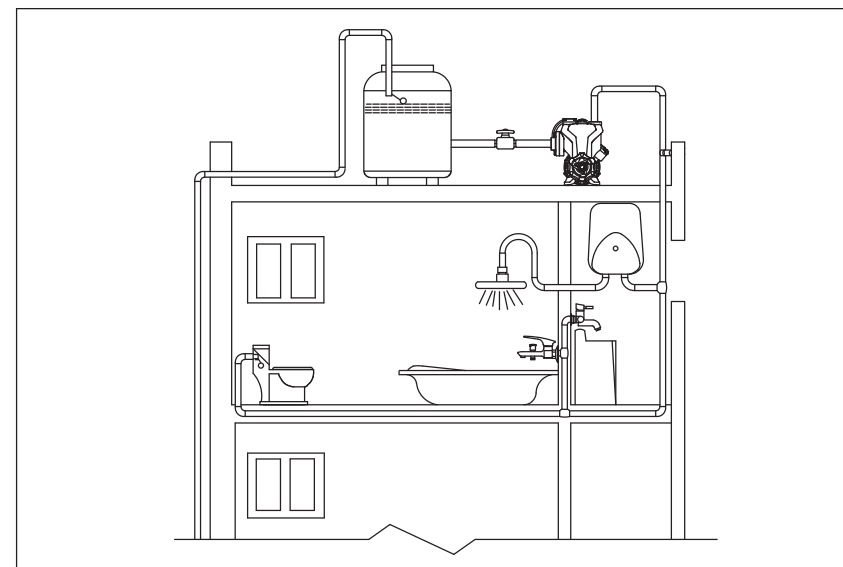


Fig. 7 Secondary Pressurization for Rooftop Water Tower