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0822

Supersedes

0821

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



**50 Hz**

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# INSTALLATION INSTRUCTIONS

## Package System

### Preassembled Sewage Package

SEWAGE / GRINDER	222, 264, 266, 267, 268, 270, 4270, 271, 4271, 282, 292, 293, 294, 4290, 4291, 422, 807, 2702, 2722
EFFLUENT/SUMP/DEWATERING	49, 53, 55, 57, 59, 72, 76, 86, 88, 98, 137, 139, 140, 4140, 145, 4145, 152, 153, 161, 162, 163, 165, 185, 189, 371, 372, 373

### PREINSTALLATION CHECKLIST - ALL INSTALLATIONS

- Inspect your pump.** Occasionally, products are damaged during shipment. If the unit is damaged, contact your dealer before using. Do Not remove the test plug in the cover.
- Carefully read the literature** provided to familiarize yourself with specific details regarding installation and use. These materials should be retained for future reference.

<p><b>WARNING</b></p> <p>SEE BELOW FOR LIST OF WARNINGS</p>	<p><b>CAUTION</b></p> <p>SEE BELOW FOR LIST OF WARNINGS</p>
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- To reduce the risk of electrical shock, a properly grounded receptacle or control box must be installed in accordance with the governing codes. Never remove ground pin from plug.
- Make certain that the receptacle is within the reach of the pump's power supply cord. DO NOT USE AN EXTENSION CORD. Extension cords that are too long or too light do not deliver sufficient voltage to the pump motor. But more important, they could present a safety hazard if the insulation were to become damaged.
- Make sure the pump's electrical supply circuit is equipped with fuses or circuit breakers of proper capacity. A separate branch circuit is recommended, sized according to the governing electrical codes for the current shown on the pump name plate.
- Testing for ground.** As a safety measure, each electrical outlet should be checked for ground using a circuit analyzer which will indicate if the power, neutral and ground wires are correctly connected to your outlet. If they are not, call a qualified licensed electrician.
- FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING.** If pump is wired direct, de-energize the circuit at the control box. DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE GROUND PIN. Wear insulated protective shoes and do not stand in water. Pumps equipped with a grounded plug are designed to help protect against electrical shock. A properly grounded receptacle or control box must be installed in accordance with governing codes.
- Installation and servicing of the pump's electrical circuits and hardware should only be performed by a qualified licensed electrician.
- Installation and maintenance of this appliance is not intended for persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Risk of electrical shock.** Do not remove power supply cord and strain relief or connect conduit directly to the pump. If the supply cable is damaged, it must be replaced by an authorized Zoeller Representative.
- Pump may contain oil which becomes pressurized and hot when operating. Allow 2-1/2 hours after disconnecting before attempting service.
- Pump is not intended for potable water due to possible contamination by oil contained in the pump.
- Risk of electric shock.** These pumps have not been investigated for use in swimming pools and marine areas.

- This unit is not designed to handle any material larger than the pump's solids-passing ability.
  - Model 49 and the 70 and 80 series pumps are designed to pass 9 mm (3/8") spherical solids.
  - 50 and 90 series, 140, 371, 372 model pumps are designed to pass 12 mm (1/2") spherical solids.
  - 130 series pumps are designed to pass 15 mm (5/8") spherical solids.
  - 145 and 373 models and the 150, 160 and 180 series pumps are designed to pass 19 mm (3/4") spherical solids.
  - 422, 4290 series pumps are designed to pass 37 mm (1-1/2") spherical solids.
  - 200 series sewage pumps are designed to pass 50 mm (2") spherical solids.
- Check to be sure your power source is capable of handling the voltage requirements of the motor, as indicated on the pump name plate.
- All plumbing (discharge and vent lines) must be installed to meet local codes. Unit must be vented. DO NOT USE AN AUTOMATIC PLUMBING VENT DEVICE SIMILAR TO A "PROVENT". Some states require this product to be installed by a licensed plumber.
- The installation of variable level float switches is the responsibility of the installing party, and care should be taken that the tethered float switch will not hang up on the pump apparatus or peculiarities and is secured so that the pump will shut off. It is recommended to use rigid piping and fittings and the pit be 45 cm (18") or larger in diameter.
- Vent hole. It is necessary that all submersible sump, effluent, and sewage pumps capable of handling various sizes of solid waste be of the bottom intake design to reduce clogging and seal failures. If a check valve is incorporated in the installation, a 5 mm (3/16") vent hole must be drilled in the discharge pipe below the check valve and pit cover to purge the unit of trapped air. Vent hole should be checked periodically for clogging. The vent hole on a High Head application may cause too much turbulence. You may not want to drill one. If you choose not to drill a vent hole, be sure the pump case and impeller is covered with liquid before connecting the pipe to the check valve. **NOTE: THE HOLE MUST BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY.** Water stream will be visible when pump is operating.
- Pump should be checked frequently for debris and/or build up which may interfere with the float "on" or "off" position.
- Maximum operating temperature for standard model pumps must not exceed 54 °C (130 °F) for cast iron pumps, or 40 °C (104 °F) for pumps with plastic motor housings.
- Do not operate a pump in an application where the Total Dynamic Head is less than the minimum Total Dynamic Head listed on the Pump Performance Curves.
- For health reasons, do not unplug, turn off, or disable pump and use pump tank system as a way to fill up a sink or laundry tray, etc.
- CHECK VALVE MUST BE USED TO REDUCE UNNECESSARY CYCLING OF PUMP.**
- This system must be installed above the water table. Groundwater outside the basin will cause it to collapse.

REFER TO WARRANTY ON PAGE 2.

# LIMITED WARRANTY

Manufacturer warrants, to the purchaser and subsequent owner during the warranty period, every new product to be free from defects in material and workmanship under normal use and service, when properly used and maintained, for a period of one year from date of purchase by the end user, or 18 months from date of original manufacture of the product, whichever comes first. Parts that fail within the warranty period, one year from date of purchase by the end user, or 18 months from the date of original manufacture of the product, whichever comes first, that inspections determine to be defective in material or workmanship, will be repaired, replaced or remanufactured at Manufacturer's option, provided however, that by so doing we will not be obligated to replace an entire assembly, the entire mechanism or the complete unit. No allowance will be made for shipping charges, damages, labor or other charges that may occur due to product failure, repair or replacement.

This warranty does not apply to and there shall be no warranty for any material or product that has been disassembled without prior approval of Manufacturer, subjected to misuse, misapplication, neglect, alteration, accident or uncontrolled act of nature; that has not been installed, operated or maintained in accordance with Manufacturer's installation instructions; that has been exposed to outside substances including but not limited to the following: sand, gravel, cement, mud, tar, hydrocarbons, hydrocarbon

derivatives (oil, gasoline, solvents, etc.), or other abrasive or corrosive substances, wash towels or any other abusive entity, etc. in all pumping applications. The warranty set out in the paragraph above is in lieu of all other warranties expressed or implied; and we do not authorize any representative or other person to assume for us any other liability in connection with our products. Contact authorized distributors to obtain any needed repair or replacement of part(s) or additional information pertaining to our warranty.

MANUFACTURER EXPRESSLY DISCLAIMS LIABILITY FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OR BREACH OF EXPRESSED OR IMPLIED WARRANTY; AND ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND OF MERCHANTABILITY SHALL BE LIMITED TO THE DURATION OF THE EXPRESSED WARRANTY.

Some jurisdictions do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.

**In those instances where damages are incurred as a result of an alleged pump failure, the Homeowner must retain possession of the pump for investigation purposes.**

## EASY DO'S & DON'T'S FOR INSTALLING UNIT

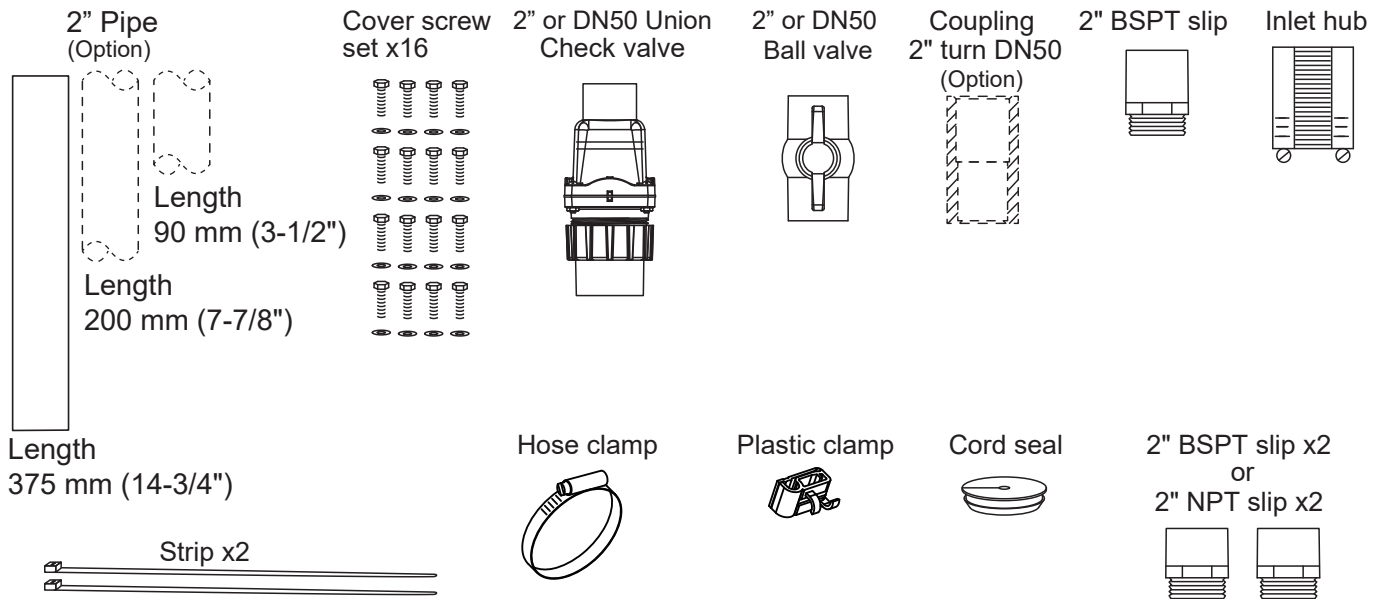
1. **DO** read all installation material with the unit.
2. **DO** inspect unit for any visible damage caused by shipping. Contact dealer if unit appears to be damaged.
3. **DO** remove all debris from the basin. Be sure that the pump will have a hard, level surface beneath it. **DO NOT** install on sand, gravel or dirt.
4. **DO** be sure that the area is large enough to allow proper clearance for the level control switch(es) to operate properly.
5. **DO Always Disconnect Pump From Power Source Before Handling.** **DO** always connect to a separately protected and properly grounded circuit. **DO NOT** ever cut, splice, or damage power cord (only splice in a watertight junction box). **DO NOT** carry or lift pump by its power cord. **DO NOT** use an extension cord.
6. **DO** install a check valve and a union in the discharge line. **DO NOT** use a discharge pipe smaller than the pump discharge.
7. **DO NOT** utilize this unit for pumping gasoline or other hazardous liquids.
8. **DO** test pump immediately after installation to be sure the system is working properly.
9. **DO** review all applicable governing codes and verify that the installation conforms to each of them.
10. **DO** consult manufacturer for clarifications or questions.
11. **DO** consider duplex system with an alarm where an installation may become overloaded or primary pump failure would result in property damages.
12. **DO** inspect and test system for proper operations at least every 3 months.

## SERVICE CHECKLIST

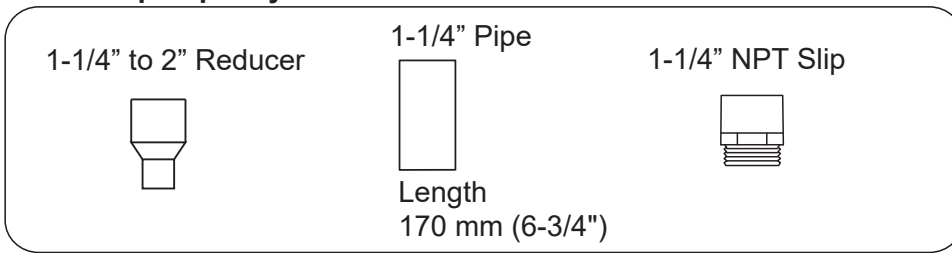
CONDITION	COMMON CAUSES
A. Pump will not start or run.	Check fuse, low voltage, overload open, open or incorrect wiring, open switch, impeller or seal bound mechanically, motor or wiring shorted. Float assembly held down. Switch, damaged or out of adjustment.
B. Motor overheats and trips overload or blows fuse.	Incorrect voltage, negative head (discharge open lower than normal) impeller or seal bound mechanically, motor shorted.
C. Pump starts and stops too often.	Float switch tether length too short, check valve stuck open, or none installed in long distance line, overload open, bidding, sump pit too small.
D. Pump will not shut off.	Debris under float assembly, float bound by basin sides or other, switch, damaged or out of adjustment.
E. Pump operates but delivers little or no water.	Check inlet, strainer housing, discharge pipe, and vent holes for obstructions. Discharge head exceeds pump capacity. Low or incorrect voltage. Incoming water containing air or causing air to enter pumping chamber. Incorrect motor rotation. (3 phase pumps only)
F. Drop in head and/or capacity after a period of use.	Increased pipe friction, clogged line or check valve. Abrasive material and adverse chemicals could possibly deteriorate impeller and pump housing. Check line. Remove base and inspect.
G. If tank or fittings leak.	Carefully tighten pipe joints (use pipe dope) and screws. Check gasket location, tighten lid evenly. Do not over tighten fittings or screws.

**If the above checklist does not reveal the problem, consult the factory. Do not attempt to service or otherwise disassemble pump. Service must be performed by an authorized Zoeller Company representative.**

# ACCESSORIES DESCRIPTION (Basin 610x610 mm)



## Grinder pump only



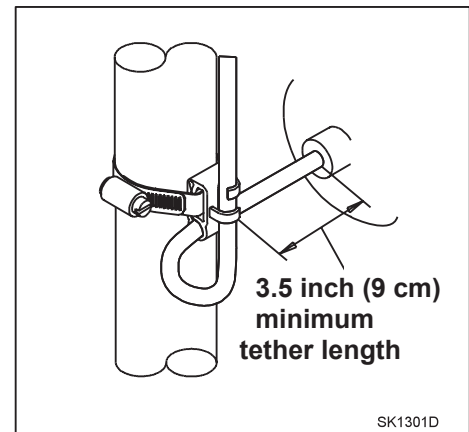
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## MOUNTING THE SWITCH

1. Place the cord into the clamp as shown as shown in Figure A.
2. Locate clamp at desired activation level and secure the clamp to the discharge pipe as shown in Figure A.

**Note:** Do not install cord under hose clamp.

3. Tighten the hose clamp using screwdriver. Over tightening may result in damage to the plastic clamp. Make sure the float cable is not allowed to touch the excess hose clamp band during operation.



SK1301D

**WARNING:** Tethering switches below minimum tether length can effect switch operation and will reduce the fatigue life of the cable.

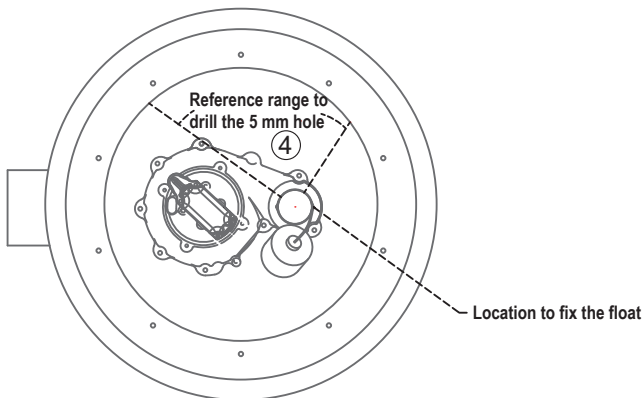
**Figure A**

<p><b>WARNING</b></p>	<p><b>ELECTRICAL SHOCK HAZARD</b> Disconnect power before installing or servicing this product. A qualified service person must install and service this product according to applicable electrical and plumbing codes.</p>	<p><b>WARNING</b></p>	<p><b>EXPLOSION OR FIRE HAZARD</b> Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.</p>
<p>Failure to follow these precautions could result in serious injury or death. Replace product immediately if switch cable becomes damaged or severed. Keep these instructions with warranty after installation. This product must be installed in accordance with National Electric Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within boxes, conduit bodies, fittings, float housing, or cable.</p>			

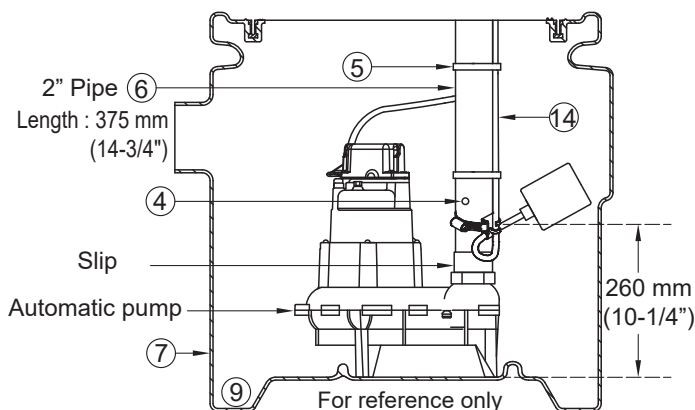
# RECOMMENDED INSTALLATION FOR ALL APPLICATIONS (Basin 610x610 mm)

- ① Electrical wiring and protection must be in accordance with governing electrical code and any other applicable local electrical requirements.
- ② Install proper Zoeller unichek (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair.
- ③ All installations require a basin cover to prevent debris from falling into the basin and to prevent accidental injury.
- ④ When a Unichek is installed, drill a 5 mm dia. hole in the discharge pipe even with the top of the pump. The 50 and 90 Series pumps have a built in vent hole. To avoid the water stream impact on the float operation, the hole location should avoid facing the float. To reduce the voice from water stream hitting basin, drill the hole below "off" point is recommended. **NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY.** (High Head unit see #3 under "Caution" on front page). Water stream will be visible from this hole during pump run periods.
- ⑤ Securely tape or clamp power cord to discharge pipe, clear of the float mechanism(s).
- ⑥ Use full-size discharge pipe.
- ⑦ Basin must be in accordance with applicable codes and specifications.
- ⑧ Pump must be level and float mechanism(s) clear of sides of basin before starting pump.
- ⑨ Basin must be clean and free of debris after installation.
- ⑩ Gate Valve or Ball Valve to be supplied by installer and installed according to any and all codes.
- ⑪ Locate float switches as shown in sketches. The best place for the "off" point is above the motor housing and positioned 180° from the inlet. Never put "off" point below discharge on pump (Sewage & Effluent only). **NOTE: FOR AUTOMATIC PUMPS, USE DEWATERING INSTALLATION SKETCH.**
- ⑫ Gas tight seals required to contain gases and odors.
- ⑬ Vent gases and odors to the atmosphere through vent pipe.
- ⑭ **Keep switch cable outside hose clamp.**

## STEP 1

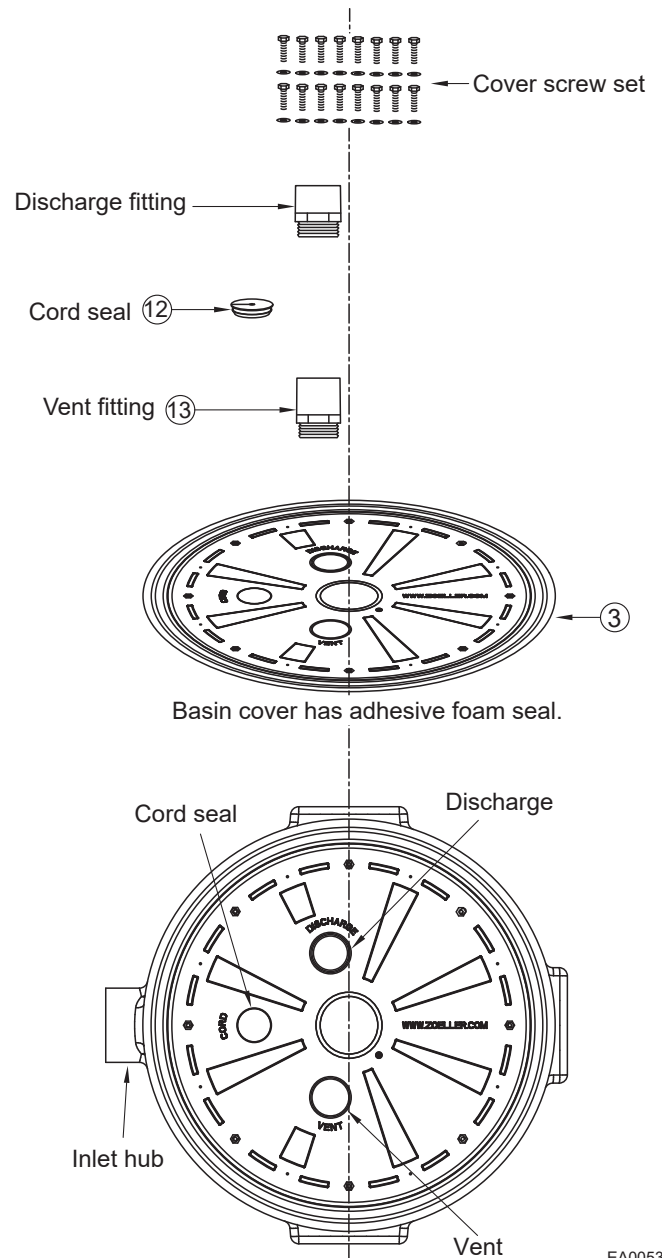


Apply glue on every piping connection.



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## STEP 2



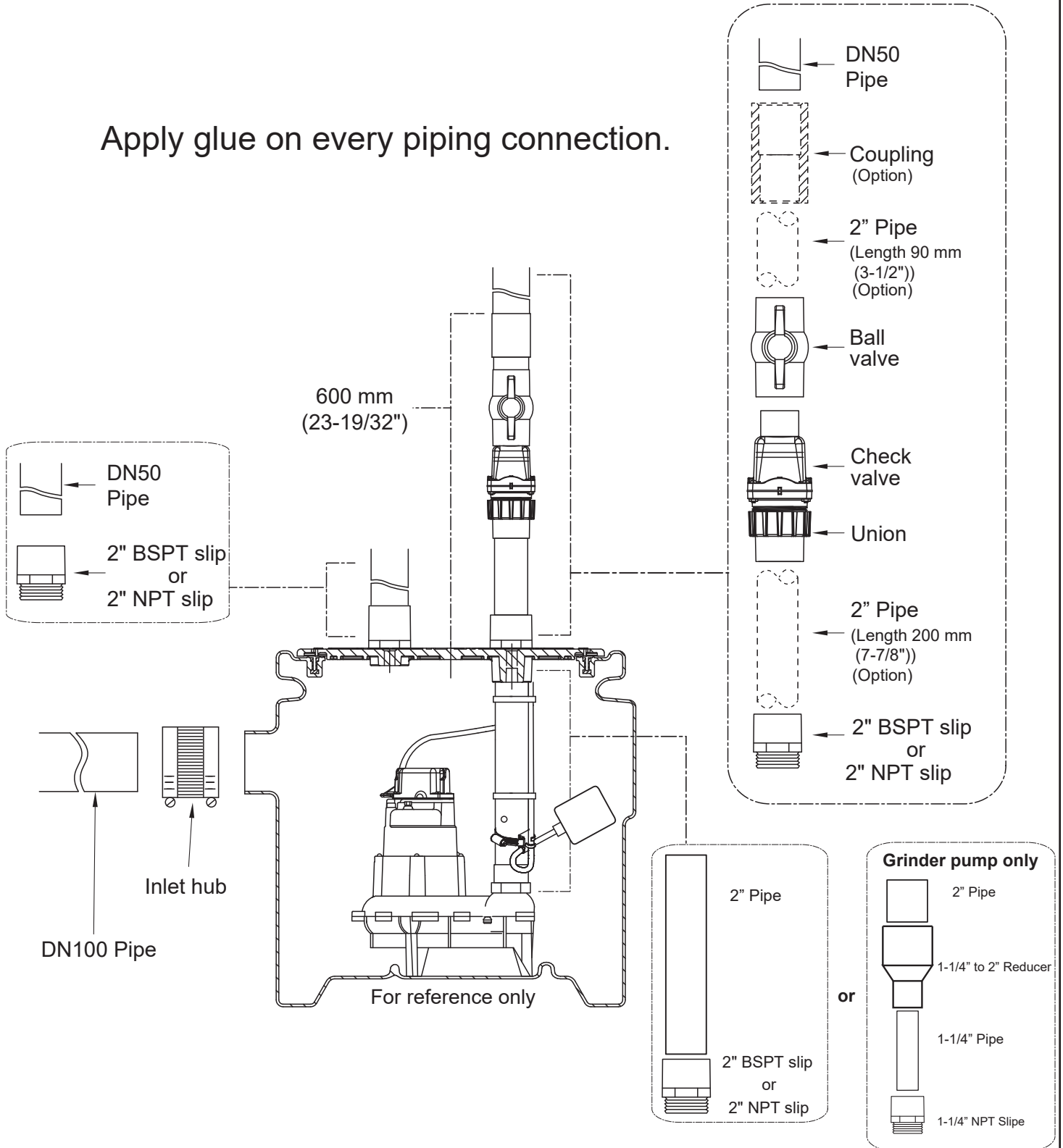
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# RECOMMENDED INSTALLATION FOR ALL APPLICATIONS

(Basin 610x610 mm)

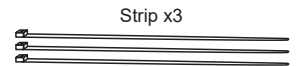
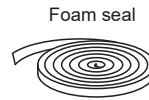
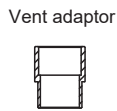
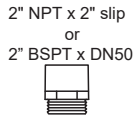
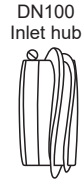
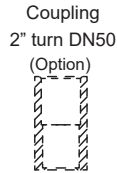
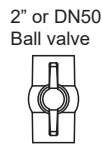
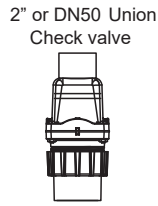
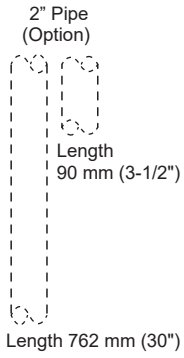
STEP 3

Apply glue on every piping connection.

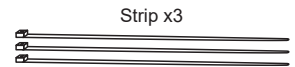
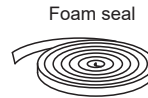
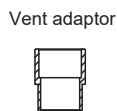
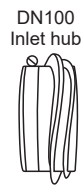
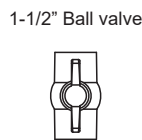
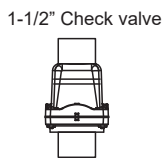
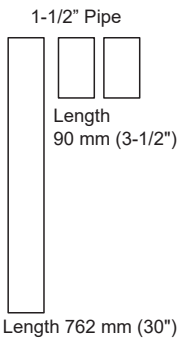


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# ACCESSORIES DESCRIPTION (Basin 460x560 mm)

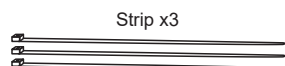
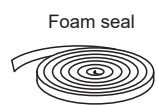
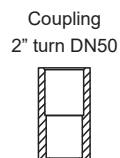
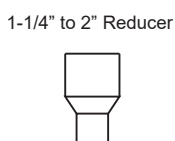
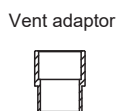
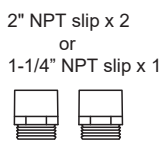
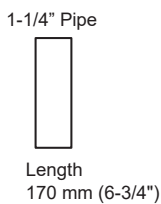
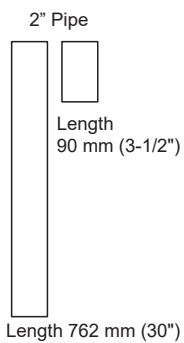


## Sump pump only



EA0054

## Grinder pump only



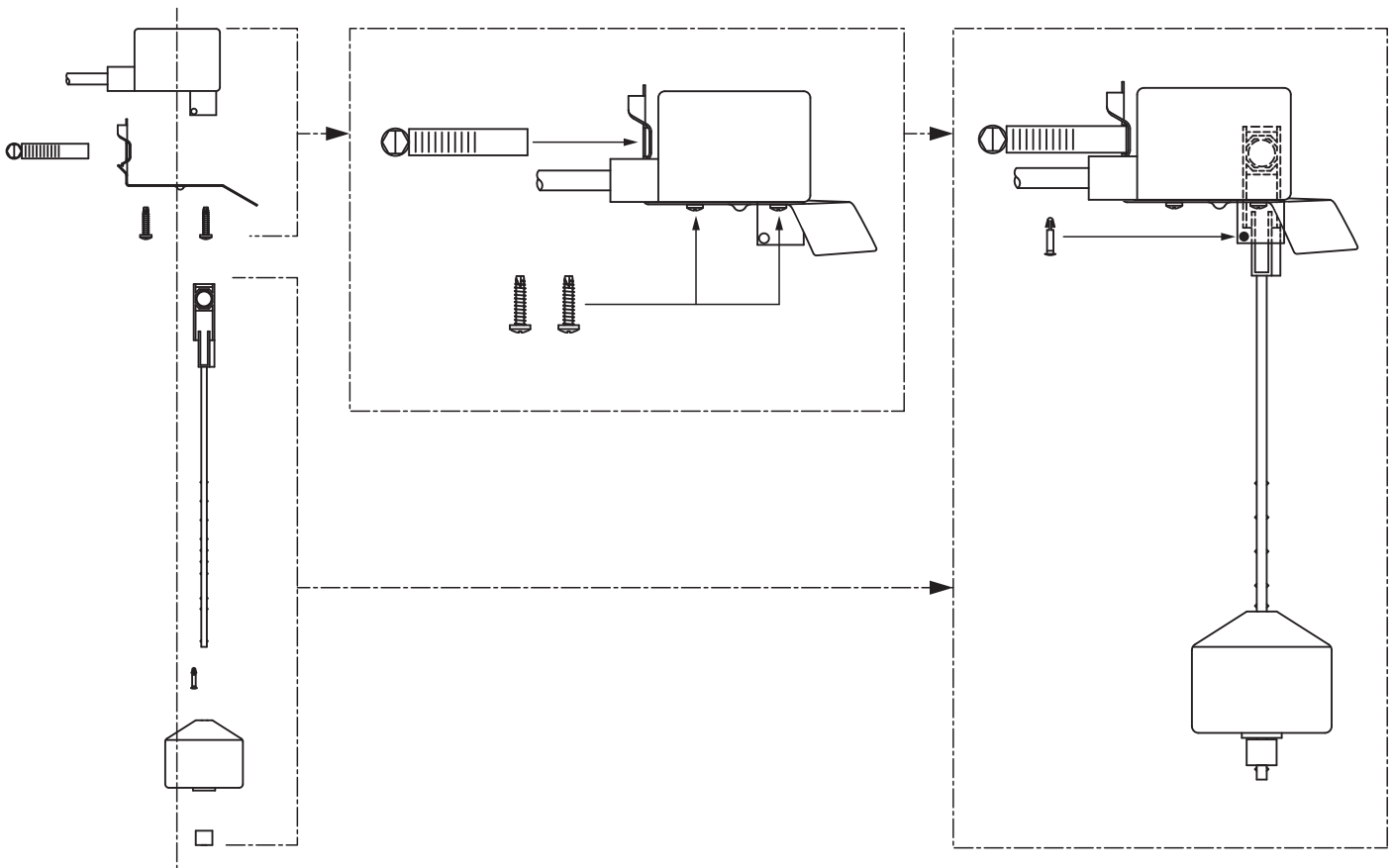


# Vertical Pump Piggyback Switch Installation Instructions

This mechanically activated pump switch is designed for direct control of pumps in non-potable water and sewage applications. It works well in applications with limited space such as: small sump chambers, effluent applications, and laundry trays, as well as in large tanks. The vertical pump switch is not sensitive to turbulence and is available for pump down applications only.

- Heavy-duty contacts.
- Adjustable pumping range of 2 to 17 cm (3/4" to 6-1/2").
- Maximum operating temperature 52 °C (125 °F).

U.S. Patent No. 5,155,311  
Canadian Patent No. 2,060,748



## PREVENTATIVE MAINTENANCE

- Periodically inspect the product. Check that the cable has not become worn or that the housing has not been damaged so as to impair the protection of the product. Replace the product immediately if any damage is found or suspected.
- Periodically check to see that the float and rod are free to move and operate the switch.
- Use only Zoeller® replacement parts.

### ⚠ WARNING



### ELECTRICAL SHOCK HAZARD

Disconnect power before installing or servicing this product. A qualified service person must install and service this product according to applicable electrical and plumbing codes.

### ⚠ WARNING



### EXPLOSION OR FIRE HAZARD

Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.

Failure to follow these precautions could result in serious injury or death. Replace product immediately if switch cable becomes damaged or severed. Keep these instructions with warranty after installation. This product must be installed in accordance with National Electric Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within boxes, conduit bodies, fittings, float housing, or cable.

# Vertical Pump Piggyback Switch Installation Instructions

## MOUNTING THE SWITCH

**Warning:** Do not install switch in direct line of incoming liquid.

1. Determine desired activation level and pumping range as shown in Figure A. Pumping range can be adjusted by moving the float stop up or down the rod.
2. Insert hose clamp through slots in mounting bracket as shown in Figure B.
3. Position hose clamp around discharge pipe with bracket gripping tabs against pipe. Cable should remain outside of hose clamp.
4. Tighten the hose clamp securely.
5. Secure pump cable and switch cable to discharge pipe as shown in Figure A.

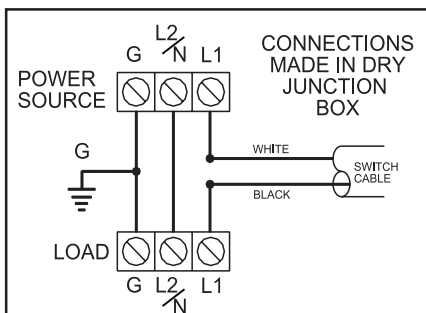
## PIGGY-BACK PLUG INSTALL

- Electrical outlet must not be located in pump chamber.
- Electrical outlet voltage, piggy-back plug voltage, and pump voltage must match.

1. Follow steps 1 through 5 of "Mounting The Switch."
2. Insert the switch's piggy-back plug into outlet.
3. Plug pump into piggy-back plug as shown in Figure A.
4. Check installation. Allow system to cycle to ensure proper operation.

## DIRECT WIRE INSTALL

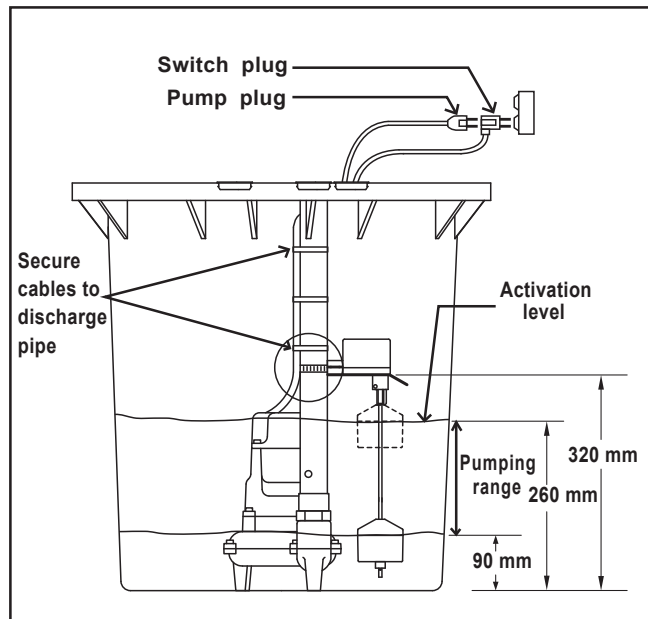
1. Follow steps 1 through 5 of "Mounting The Switch."
2. Wire switch as shown below.
3. Check installation. Allow system to cycle to insure proper operation.



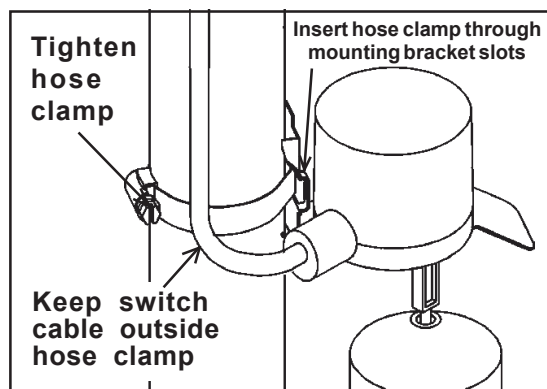
**WARNING** In 230 VAC installations, one side of the line going to the load is always **HOT**. This condition exists if the switch is on or off. Install double pole disconnect on all 230 VAC circuits.

Ensure cable connections are performed in a **dry** junction box or other watertight seal that seals both conductors and cable jacket. Failure to do so could result in electrical shock hazard and/or water traveling down cable and entering the switch. Failure to guard against this may effect switch performance.

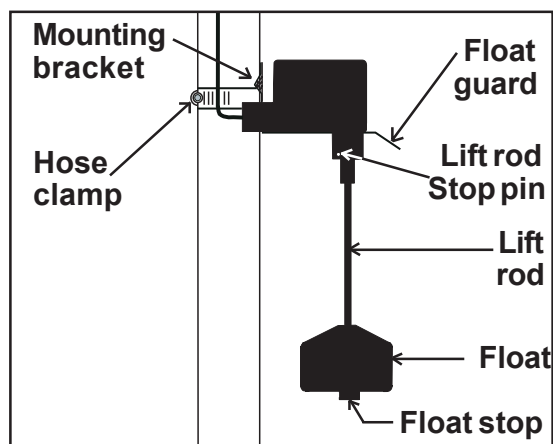
**Figure A**



**Figure B**



**Figure C**

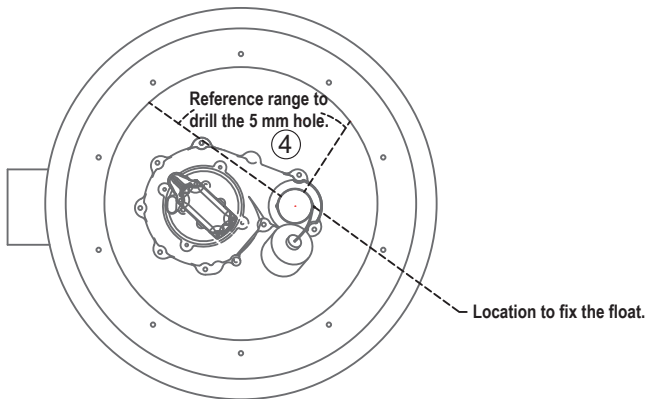




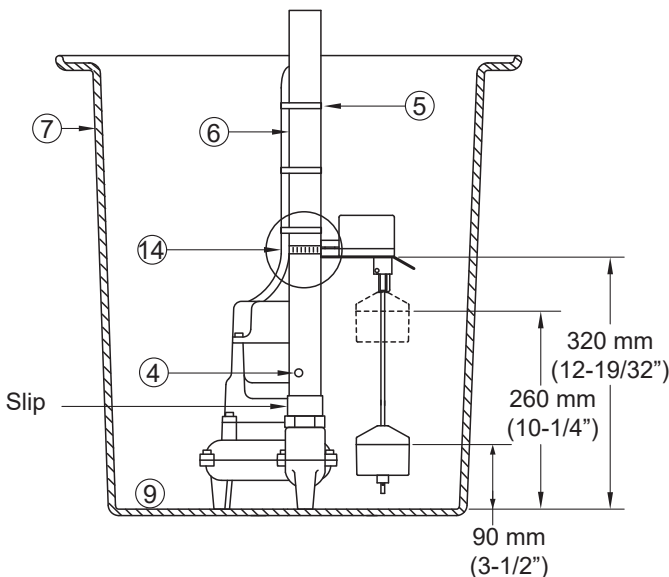
# RECOMMENDED INSTALLATION FOR ALL APPLICATIONS (Basin 460x560 mm)

- ① Electrical wiring and protection must be in accordance with governing electrical code and any other applicable local electrical requirements.
- ② Install proper Zoeller unichek (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair.
- ③ All installations require a basin cover to prevent debris from falling into the basin and to prevent accidental injury.
- ④ When a Unichek is installed, drill a 5 mm dia. hole in the discharge pipe even with the top of the pump. The 50 and 90 Series pumps have a built in vent hole. To avoid the water stream impact on the float operation, the hole location should avoid facing the float. To reduce the voice from water stream hitting basin, drill the hole below "off" point is recommended. **NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY.** (High Head unit see #3 under "Caution" on front page). Water stream will be visible from this hole during pump run periods.
- ⑤ Securely tape or clamp power cord to discharge pipe, clear of the float mechanism(s).
- ⑥ Use full-size discharge pipe.
- ⑦ Basin must be in accordance with applicable codes and specifications.
- ⑧ Pump must be level and float mechanism(s) clear of sides of basin before starting pump.
- ⑨ Basin must be clean and free of debris after installation.
- ⑩ Gate Valve or Ball Valve to be supplied by installer and installed according to any and all codes.
- ⑪ Locate float switches as shown in sketches. The best place for the "off" point is above the motor housing and positioned 180° from the inlet. Never put "off" point below discharge on pump (Sewage & Effluent only). **NOTE: FOR AUTOMATIC PUMPS, USE DEWATERING INSTALLATION SKETCH.**
- ⑫ Gas tight seals required to contain gases and odors.
- ⑬ Vent gases and odors to the atmosphere through vent pipe.
- ⑭ **Keep switch cable outside hose clamp.**

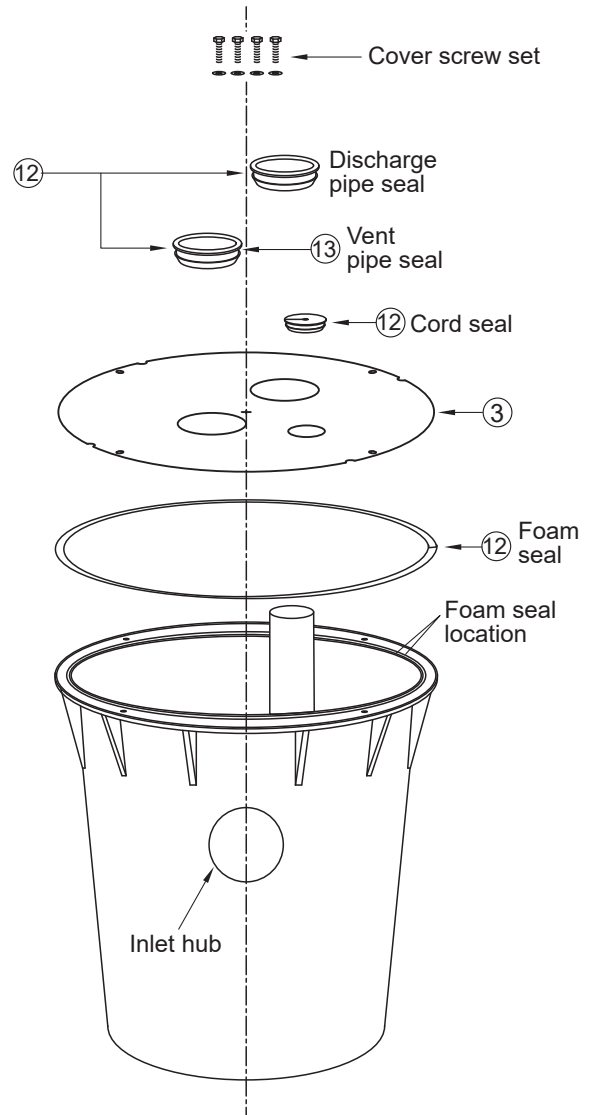
## STEP 1



Apply glue on every piping connection.



## STEP 2

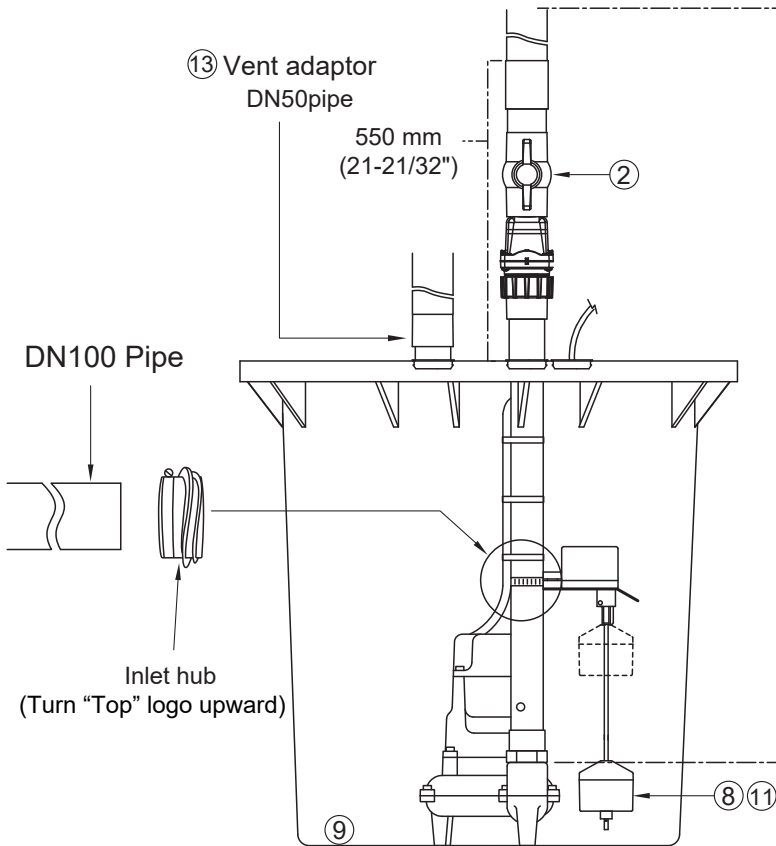


EA0054

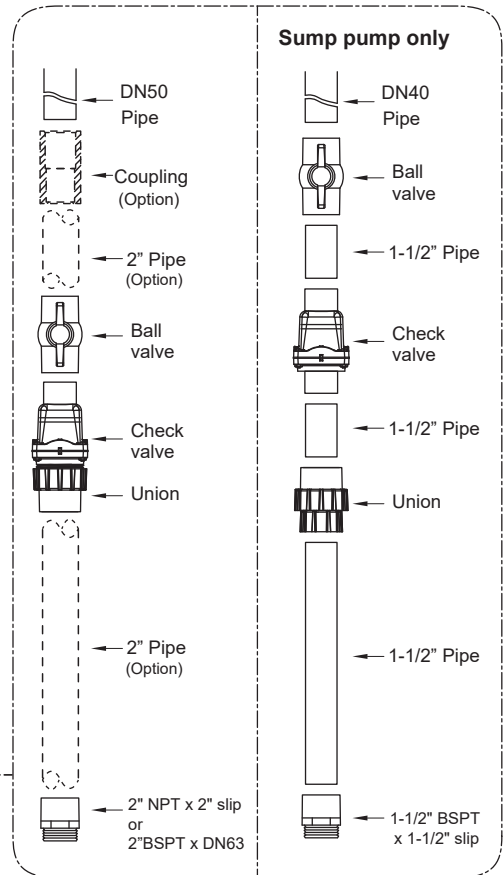
# RECOMMENDED INSTALLATION FOR ALL APPLICATIONS (Basin 460x560 mm)

STEP 3

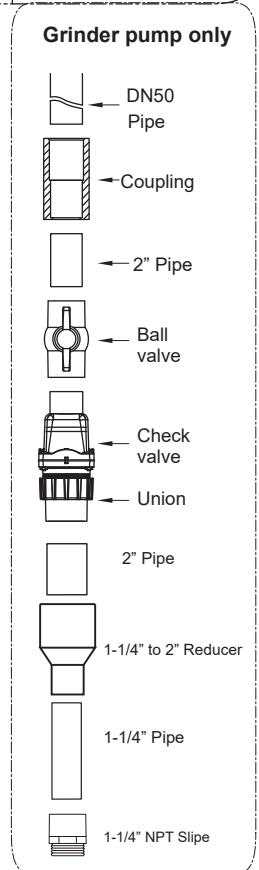
Apply glue on every piping connection.



TYPICAL DEWATERING INSTALLATION



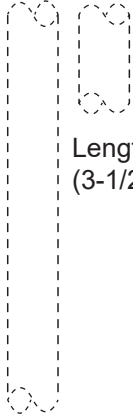
or



EA0054

# ACCESSORIES DESCRIPTION (Basin 460x760 mm)

2" Pipe  
(Option)



Length 90 mm  
(3-1/2")

Length 762 mm (30")

2" NPT x 2" slip x 2  
or  
1-1/4" NPT slip x 1



(Grinder only)

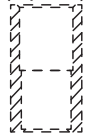
2" or DN50 Union  
Check valve



2" or DN50  
Ball valve



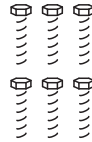
Coupling  
2" turn DN50  
(Option)



2" BSPT x 2" slip  
or  
2" NPT x 2" slip



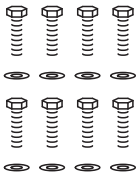
Plate screw x6



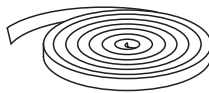
Strip x3



Cover screw  
set x8



Foam seal



Cord seal



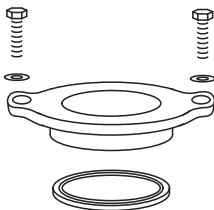
(For alarm)

(For control panel)

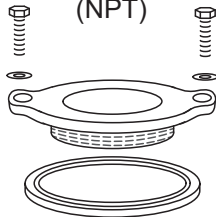
DN100 Inlet hub



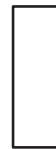
Discharge  
pipe seal



Vent pipe seal  
(With thread)  
(NPT)



1-1/4" Pipe



Length  
170 mm (6-3/4")  
(Grinder only)

1-1/4" to 2" Reducer

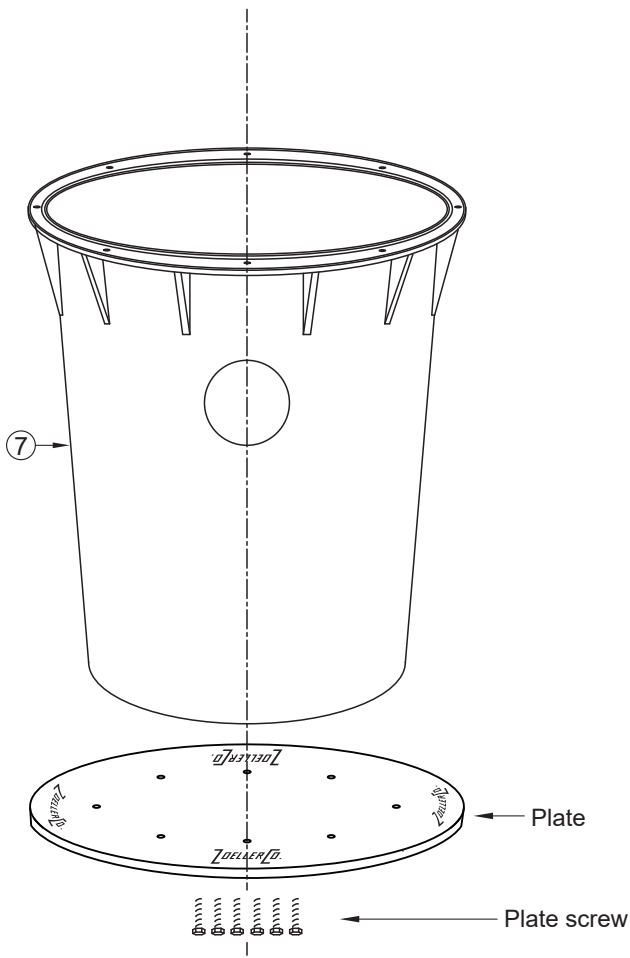


(Grinder only)

# RECOMMENDED INSTALLATION FOR ALL APPLICATIONS (Basin 460x760 mm)

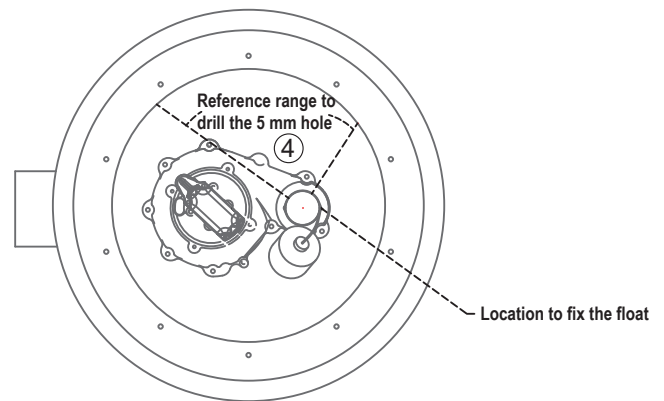
- ① Electrical wiring and protection must be in accordance with governing electrical code and any other applicable local electrical requirements.
- ② Install proper Zoeller unichuck (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair.
- ③ All installations require a basin cover to prevent debris from falling into the basin and to prevent accidental injury.
- ④ When a Unichuck is installed, drill a 5 mm dia. hole in the discharge pipe even with the top of the pump. The 50 and 90 Series pumps have a built in vent hole. To avoid the water stream impact on the float operation, the hole location should avoid facing the float. To reduce the noise from water stream hitting basin, drill the hole below "off" point is recommended. **NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY.** (High Head unit see #3 under "Caution" on front page). Water stream will be visible from this hole during pump run periods.
- ⑤ Securely tape or clamp power cord to discharge pipe, clear of the float mechanism(s).
- ⑥ Use full-size discharge pipe.
- ⑦ Basin must be in accordance with applicable codes and specifications.
- ⑧ Pump must be level and float mechanism(s) clear of sides of basin before starting pump.
- ⑨ Basin must be clean and free of debris after installation.
- ⑩ Gate Valve or Ball Valve to be supplied by installer and installed according to any and all codes.
- ⑪ Locate float switches as shown in sketches. The best place for the "off" point is above the motor housing and positioned 180° from the inlet. Never put "off" point below discharge on pump (Sewage & Effluent only). **NOTE: FOR AUTOMATIC PUMPS, USE DEWATERING INSTALLATION SKETCH.**
- ⑫ Gas tight seals required to contain gases and odors.
- ⑬ Vent gases and odors to the atmosphere through vent pipe.

## STEP 1

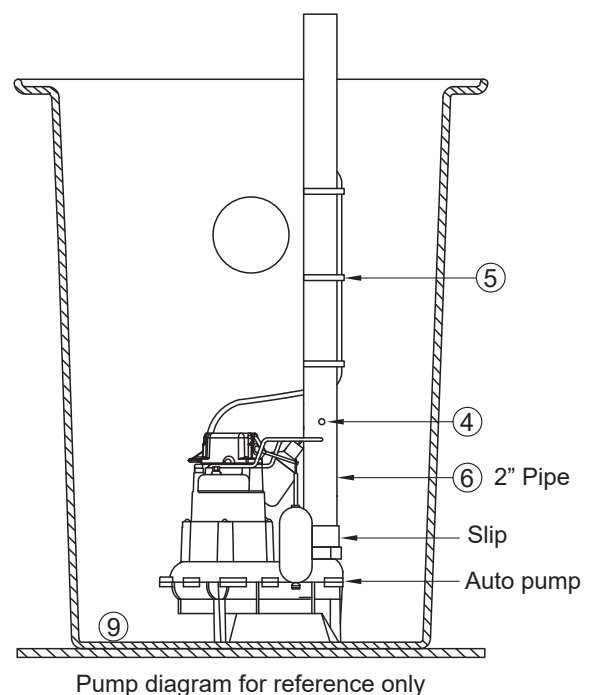


EA0055

## STEP 2



Apply glue on every piping connection.

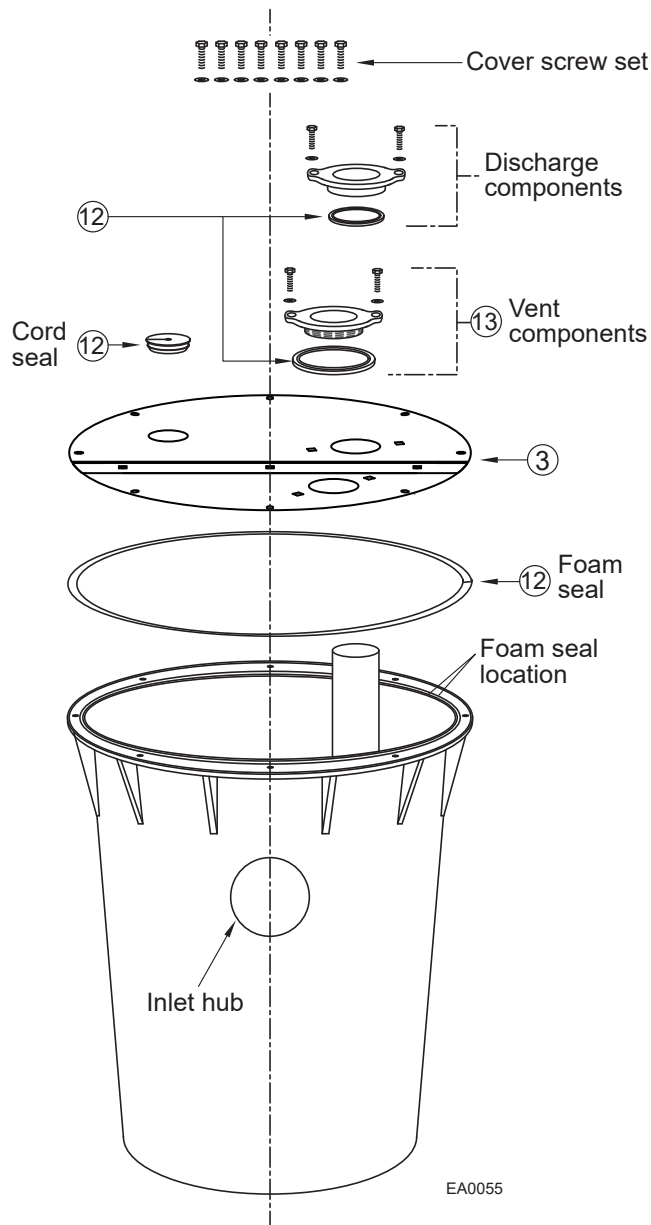


EA0055

# RECOMMENDED INSTALLATION FOR ALL APPLICATIONS (Basin 460x760 mm)

- ① Electrical wiring and protection must be in accordance with governing electrical code and any other applicable local electrical requirements.
- ② Install proper Zoeller unichuck (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair.
- ③ All installations require a basin cover to prevent debris from falling into the basin and to prevent accidental injury.
- ④ When a Unichuck is installed, drill a 5 mm dia. hole in the discharge pipe even with the top of the pump. The 50 and 90 Series pumps have a built in vent hole. To avoid the water stream impact on the float operation, the hole location should avoid facing the float. To reduce the noise from water stream hitting basin, drill the hole below "off" point is recommended. **NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY.** (High Head unit see #3 under "Caution" on front page). Water stream will be visible from this hole during pump run periods.
- ⑤ Securely tape or clamp power cord to discharge pipe, clear of the float mechanism(s).
- ⑥ Use full-size discharge pipe.
- ⑦ Basin must be in accordance with applicable codes and specifications.
- ⑧ Pump must be level and float mechanism(s) clear of sides of basin before starting pump.
- ⑨ Basin must be clean and free of debris after installation.
- ⑩ Gate Valve or Ball Valve to be supplied by installer and installed according to any and all codes.
- ⑪ Locate float switches as shown in sketches. The best place for the "off" point is above the motor housing and positioned 180° from the inlet. Never put "off" point below discharge on pump (Sewage & Effluent only). **NOTE: FOR AUTOMATIC PUMPS, USE DEWATERING INSTALLATION SKETCH.**
- ⑫ Gas tight seals required to contain gases and odors.
- ⑬ Vent gases and odors to the atmosphere through vent pipe.

## STEP 3



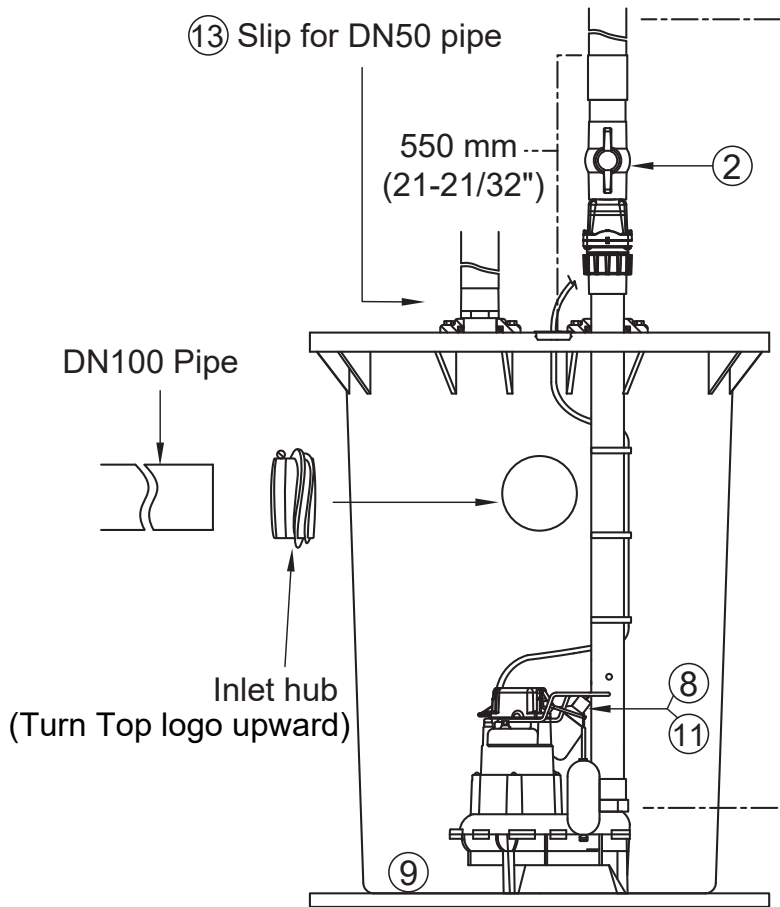
EA0055

# RECOMMENDED INSTALLATION FOR ALL APPLICATIONS

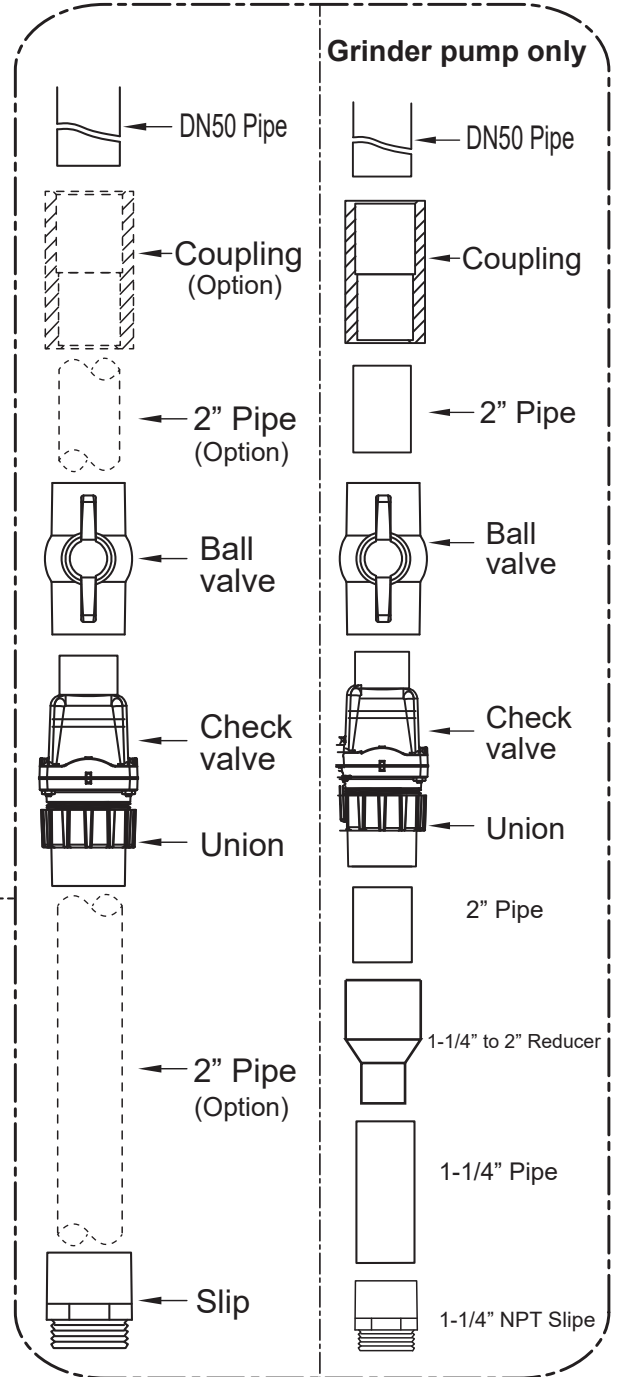
(Basin 460x760 mm)

STEP 4

Apply glue on every piping connection.



Pump diagram for reference only  
TYPICAL DEWATERING INSTALLATION



EA0055





# INSTALLATION INSTRUCTIONS

## HOW TO INSTALL

### JACKEL'S 4" DWV SNAP-IN HUB\*

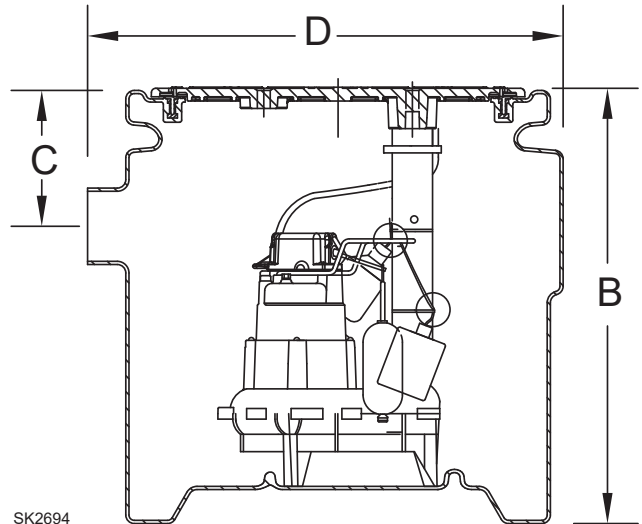
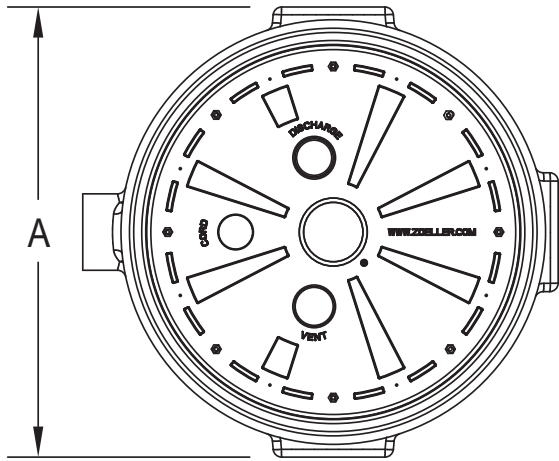
**Note:** *The Snap-in hub is made from plastic rubber and is designed for use with 4" DWV ABS Schedule 40 pipe and 4" PVC Schedule 40 pipe (4-1/2" O.D.) and has an operating range from -28 °C (-20 °F) to 50 °C (120 °F).*

- (A) Step 1** Hold Snap-in hub in upward position in right hand so that the ARROW and TOP markings are visible.
- Step 2** With right hand push bottom track, which is molded in the Snap-in hub, into the bottom edge of tank hole.
- Step 3** Hole in place with left hand inside tank. Then squeeze hub outside of tank into oval shape and push into hole, pulling with left hand and fitting rest of hole edge into the track.
- Step 4** If hub appears out of round, run fingers around inside hub seal to make sure it has a tight fit. Examine outer lip edge and press into track if caught on outer edge.
- (B) To insert your 4" ABS or PVC pipe:**
- Step 1** Cut pipe square.
- Step 2** Chamfer end. Failure to do so can cut built-in 'O' rings off. The 'O' rings in the Snap-in hub make the seal and are vital.
- Step 3** USE ANY LIQUID SOAP and rub around the circumference of the pipe approximately 102 mm (4") back from the chamfered end and insert chamfered end of pipe into the Snap-in hub using sufficient pressure to push pipe through the Snap-in hub. Extend pipe into tank approximately 25 mm (1") beyond the inside edge of the snap-in hub.
- Caution:* DO NOT USE A TWISTING FORCE – rather, use a sideways motion.
- Step 4** Install non-corrosive clamp by placing the worm gear housing of clamp in slot provided on the top of the Snap-in hub. Wrap strap around inside the groove and tighten sufficiently.

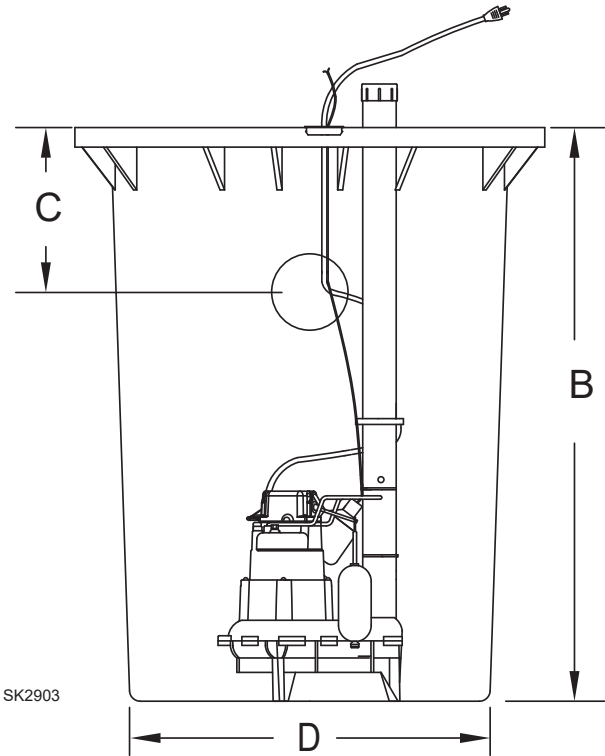
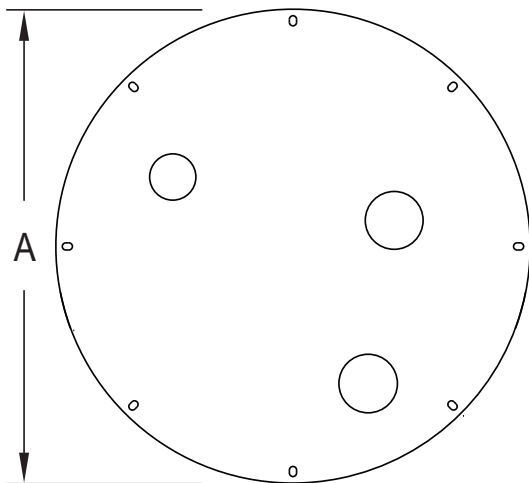
Note: Snap-in hub is not mechanically sealed.

## DIMENSIONAL DATA

Basin 610x610 mm



Basin 460x560 mm, 460x760 mm

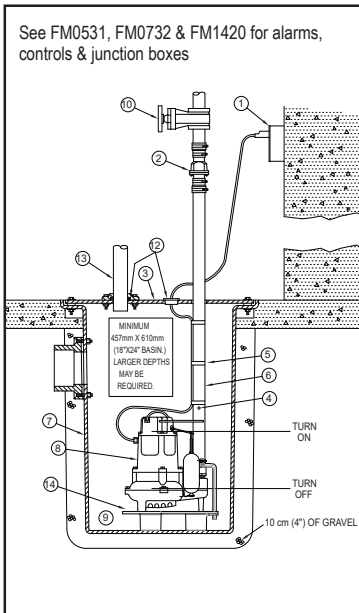


Size	Dimensions			
	A	B	C	D
24" x 24" (610 x 610 mm)	26-1/2" (673 mm)	25-5/8" (651 mm)	8" (203 mm)	28" (711 mm)
18" x 22" (460 x 560 mm)	20-1/2" (520 mm)	22-1/16" (560 mm)	9-1/2" (241 mm)	16" (406 mm)
18" x 30" (460 x 760 mm)	21-3/4" (552 mm)	30" (762 mm)	10-1/2" (267 mm)	16-1/2" (419 mm)

## RECOMMENDED INSTALLATION FOR ALL APPLICATIONS

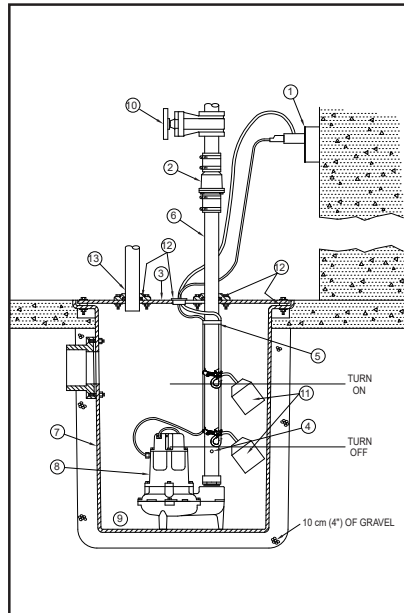
- (1) Electrical wiring and protection must be in accordance with governing electrical codes.
- (2) Install proper Zoeller unichuck (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair.
- (3) All installations require a basin cover to prevent debris from falling into the basin and to prevent injury.
- (4) When a Unichuck is installed, drill a 5 mm (3/16") diameter hole in the discharge pipe even with the top of the pump. **NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY.** (High Head unit see #4 under "Caution" on front page). Water stream will be visible from this hole when pump is operating.
- (5) Securely tape or clamp power cord to discharge pipe, clear of the float mechanism(s).
- (6) Use full-size discharge pipe.
- (7) Basin must be in accordance with governing codes and specifications.
- (8) Pump must be level and float mechanism(s) clear of sides of basin before starting pump.
- (9) Basin must be clean and free of debris after installation.
- (10) Gate valve, shut-off valve or ball valve to be supplied by installer and installed according to any and all codes.
- (11) Locate float switches as shown in sketches. The best place for the "off" point is above the motor housing and positioned 180° from the inlet. Never put "off" point below discharge on pump.
- (12) Gas tight seals required to contain gases and odors.
- (13) Vent gases and odors to the atmosphere through vent pipe.
- (14) Optional pump stand (P/N 10-2421) eliminates the need for blocks or bricks under the pump. For use with effluent and dewatering pumps only.
- (15) Optional watertight control box available.
- (16) For proper spacing of "On" - "Off" switches refer to local or national standards and guidelines.
- (17) Optional septic tank risers for easy access to pump, controls and filters.

**NOTE:** Double-seal pumps offer extra protection from damage caused by seal failure.



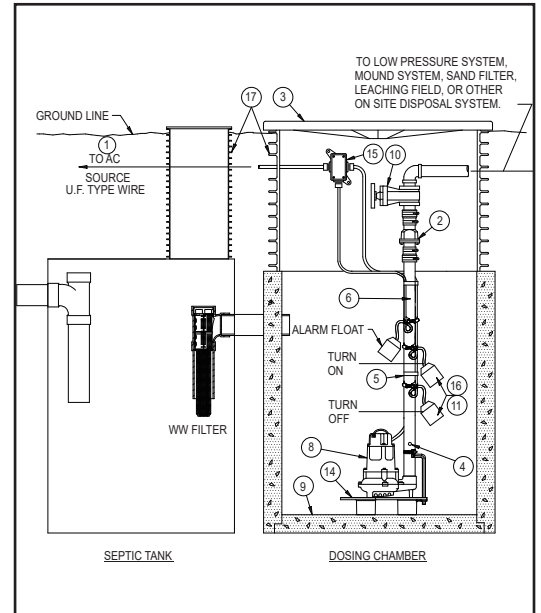
TYPICAL DEWATERING INSTALLATION

SK292



TYPICAL SEWAGE INSTALLATION

SK290



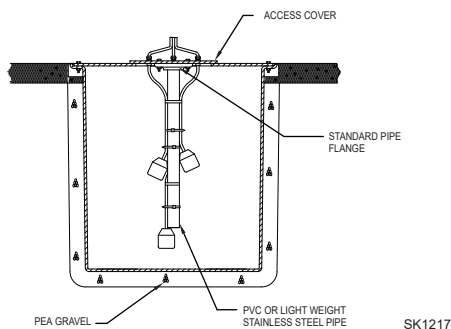
TYPICAL EFFLUENT INSTALLATION

SK291

All installations must comply with all applicable electrical and plumbing codes.

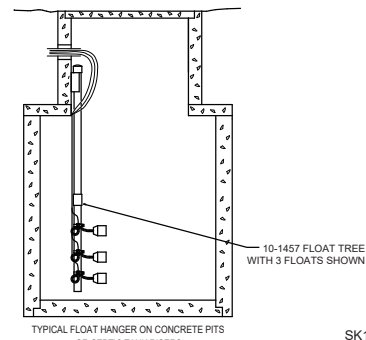
## SUGGESTED METHODS OF FLOAT INSTALLATION

On some installations it may be desirable to install an independent hanger for the level control switches to avoid possible hang ups on the pumps, piping, valves, etc. Float hangers are available from Zoeller Company on Catalog Sheet FM0526 or can be fabricated from standard pipe and fittings.



TYPICAL FLOAT HANGER ON STEEL COVER PITS

SK1217



TYPICAL FLOAT HANGER ON CONCRETE PITS OR SEPTIC TANK RISERS

SK1218

# PUMP WIRING INSTRUCTIONS



**▲ WARNING** FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING. For single phase pumps supplied with a grounded plug, **DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE GROUND PIN.** The plug **must** be inserted into a mating grounded receptacle. If the installation does not have such a receptacle, it must be changed to the proper type, wired and grounded in accordance with all applicable local codes and ordinances.

All three phase pumps require motor starting devices with motor overload protection. Three phase pumps **must** be installed in accordance with all applicable local codes and ordinances. Pumps are not to be installed in locations classified as hazardous.



**▲ WARNING** Risk of electrical shock. Do not remove power supply cord and strain relief or connect conduit directly to the pump.

**▲ WARNING** Installation and checking of electrical circuits and hardware should be performed by a qualified licensed electrician.

## Single Phase Installation

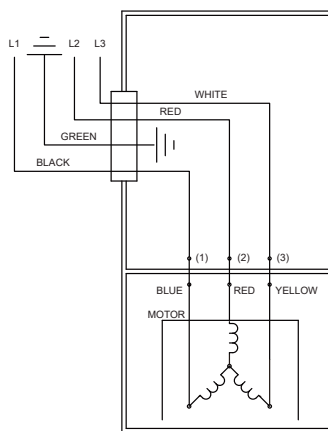
To operate a non-automatic pump automatically, a control panel or 20 amp control switch (P/N 10-0748) must be added to the power circuit. Follow the instructions provided with the panel or float switch to wire the system.

## Three Phase Installation

Three phase pumps are nonautomatic. To operate automatically, a control panel is required. Follow the instructions provided with the panel to wire the system. For automatic three phase pumps see automatic 3 phase wiring diagram located to the far right.

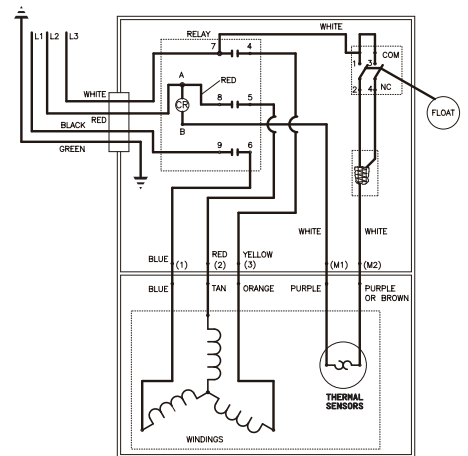
Before installing a pump, check the pump rotation to insure that wiring has been connected properly to power source, and that the green lead of power cord, is connected to a valid ground, momentarily energize the pump, observing the directions of kick back due to starting torque. Rotation is correct if kick back is in the opposite direction of rotation arrow on the pump casing. If rotation is not correct, switching of any two power leads other than ground, should provide the proper rotation.

### NONAUTOMATIC 3 PHASE



006848

### AUTOMATIC 3 PHASE



013071

## EXTRA PROTECTION SYSTEMS

### TWO-PUMP SYSTEM

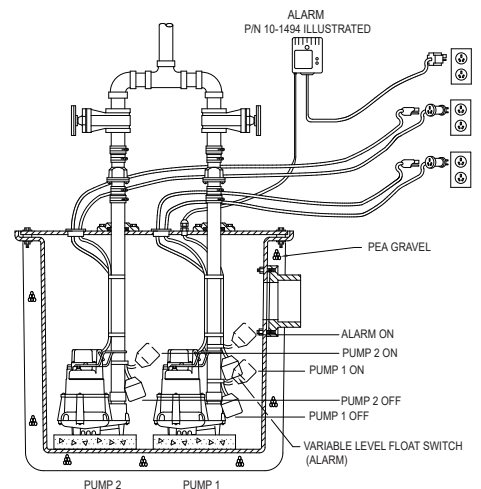
The extra protection two-pump system is an economical solution to the costly duplex alternating pump system and it's easy to install.

The extra protection two-pump systems consists of:

- two nonautomatic pumps with float switch of your choice
- one alarm system
- two unichek valves as required

### ADVANTAGES

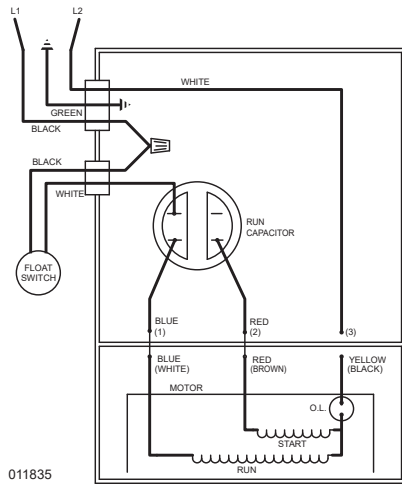
- The two pump system offers high pump performance without the high price. It is economical and easy to install.
- Delivers more dependability than a single pump system and greatly reduces the risk of costly and time-consuming problems.
- Affords greater satisfaction and peace of mind to all concerned by providing state of the art protection for costly and expensive surroundings.
- Ability to change lead and lag positions by changing pump plug connection.



SK878

\*MINIMUM DISTANCE 50 mm (2") BETWEEN PUMPS

# V, WU MODEL INSTALLATION

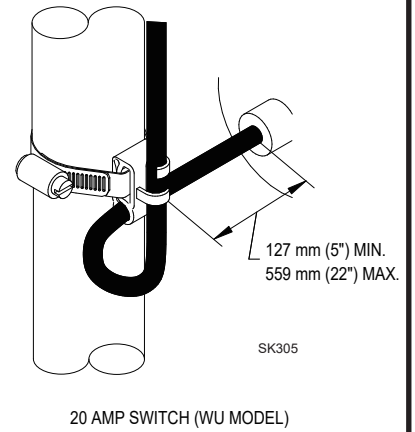


**WIRING DIAGRAM FOR MODELS**  
WU, V - 220 V, 1 Ph, 50 Hz.

Determining Pumping Range in Inches (1 inch - 2.5 cm)					
	min.		max.		
Tether Length	5	10	15	20	22
(mm)	127	254	381	508	559
Pumping Range	9	13.5	18	22	24
(mm)	229	343	457	559	610

Use only as a guide. Due to weight of cable, pumping range above horizontal is not equal to pumping range below horizontal. Ranges are based on testing in nonturbulent conditions. Range may vary due to water temperature and cord shape. As tether length increases, so does the variance of the pumping range.

Model WU are fully automatic. Afloat switch is included and factory wired in the pump circuit to provide automatic operation once the float switch is secured properly to the outlet pipe. Use the diagram above to secure the float switch properly and obtain the proper tether to customize the on-off cycle to each application.



**Note:** Failure to keep within proper tether limits may prevent reliable switch operation.  
**Note:** Cable must be mounted in horizontal position.

**NOTE:** for CE-rated pumps only.

## DECLARATION OF CONFORMITY

We, Zoeller, declare under our sole responsibility that the models 49/53/55/57/59/72/76/86/88/98/137/139/140/4140/145/4145/152/153/161/162/163/165/185/189/222/264/266/267/268/270/4270/271/4271/282/4290/4291/292/293/294/371/372/373 to which this declaration relates, are in conformity with the Council Directives on the approximation of the laws of the EC Member States relating to:

- Machinery Directive (2006/42/EC)  
Standards used: EN 809: 1998 + A1: 2009
- Electromagnetic Compatibility (2014/30/EU)  
Standards used: EN 55014-1: 2006 / A1: 2009 / A2: 2011, EN61000-3-2:2014, EN61000-3-3:2013, EN 55014-2: 1997 / A2: 2008, IEC 61000-4-2:2008, IEC 61000-4-3:2006+A1:2007+A2:2010, IEC 61000-4-4:2012, IEC 61000-4-5:2014, IEC 61000-4-6:2013, IEC 61000-4-11:2004
- Electrical equipment designed for use within certain voltage limits (2014/35/EU)  
Standards used: EN60335-1: 2012+A11:2014 and EN60335-2-41: 2003+A1:2004+A2:2010



MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347 USA  
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961 USA  
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# 安装前务必详读说明书

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文件仅供参考  
若有任何修改  
恕不另行通知

请至美国卓勒水泵公司  
官网完成您的产品注册



50 Hz

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[www.zoellerpumps.com](http://www.zoellerpumps.com)

## 安装说明书

### 非预组式/套装系统污物提升器

污物 / 磨碎	222, 264, 266, 267, 268, 270, 4270, 271, 4271, 282, 292, 293, 294, 4290, 4291, 422, 807, 2702, 2722
污水 / 废水	49, 53, 55, 57, 59, 72, 76, 86, 88, 98, 137, 139, 140, 4140, 145, 4145, 152, 153, 161, 162, 163, 165, 185, 189, 371, 372, 373

### 安装前检查

1. 安装前请仔细检查所有零件。产品如果在运送中受损，请尽快联络经销商。
2. 安装前仔细阅读所有提供的文件，熟悉安装细节，并保存资料以供未来参考。
3. 请依照国内电工法规标准进行安装。国内法规允许，污物水泵可用在污水系统上，非自动型水泵应用在化粪池，建议搭配外接式水位控制。



#### 警告

1. 为防范使用者触电，本公司所有产品皆配有包含接地功能的电线及三插插头。为确保安全，请勿将插头的接地插销拆除。
  2. 为确保安全请勿使用延长线。加装延长线容易使水泵马达接收不到足够的电压。更重要的是，若延长线的绝缘遭破坏、或插头松脱掉入水中，将可能造成危险。
  3. 请确认在供给水泵电源的电路中加装适当规格的保险丝或断路器。在此建议依照水泵铭牌上的电流值，并参照国内电工法则来选择及安装独立的断路器。
  4. 请在安装前测试插座的漏电保护功能。为了安全考量，请使用符合国内电工法规的电路测试仪器来检查插座中的火线、中性线及地线是否配置正确。若发现异常，请联络合格的水电技师来为您解决问题。
  5. 为了保护您的安全，接触水泵前请先拔除电源。如果水泵使用电线直接连接，需在电控箱内断电。任何情况下都不允许移除接地插销。确保人未站在水中，且穿上绝缘鞋。泵配有接地插头的设计，以帮助防止触电。必须按国内法规，正确安装接地的插座或控制箱。
  6. 仅得由持有证照的合格水电技师来进行水泵安装、管路搭配及电路配线。
  7. 若无监督本产品不适合给儿童、心智不健全或经验不足者使用，前述条件者使用本产品时，监督者应负全部责任。
  8. 为避免触电，请勿移除电缆线。如果电缆线受损，请联络经销商或本公司认可的服务单位维修。
  9. 本水泵含冷却油，在运作状态下会受压变热——请在断电2.5小时后再进行维修。
  10. 水泵不可使用于饮用水，冷却油有可能会污染水质。
  11. 为防范触电，本产品勿用于游泳池。
- 请勿使用于油类、汽油、石油产品或含任何化学成分的液体。

#### 注意

1. 本机水泵的固体通过能力如下，请勿用来处理任何大于水泵的固体通过能力。
  - 49型和70、80系列可通过固粒直径9 mm。
  - 50、90系列和140、371、372型可通过固粒直径12 mm。
  - 130系列可通过固粒直径15mm。
  - 145、373型和150、160、180系列可通过固粒直径19 mm。
  - 422,4290系列可通过固粒直径37 mm。
  - 200系列可通过固粒直径50 mm。
2. 检查并确认使用的电源符合水泵铭牌上的规格需求。
3. 需依当地法令规章安装所有的配管(出口水管及通气管)。本装置必须有通气。请勿使用自动管路通气设备。
4. 安装含自动浮球开关或外接式自动浮球开关的自动型产品时，安装者有责任确保浮球摆放于正确位置，且不会卡在水泵机组或机坑壁边，以确保本产品能正常运作。建议使用硬水管做为配管。
5. 排气孔的目的：  
一般潜水型污水泵都是从底部抽水，以防止水泵阻塞和泄漏。空气会因此容易积在水泵或管路内，造成气锁。排气孔是为了将这些空气排出。因此，必须在逆止阀与机坑盖下的管路凿一排气孔(直径约5 mm)，用以排出来自底部入水口的积存空气。积存的空气可能源自于水泵运作时的搅动，或在水槽干涸时进入水泵。排气孔应定期检验，排除阻塞。本产品运转时看见水从排气孔流出，为正常现象。
6. 时常检查是否有杂物卡住浮子。维修请联络本公司认可的维修站。
7. 铸铁水泵最高环境温度不得超过华氏130度(摄氏54度)，塑胶马达外壳的水泵最高环境温度不得超过华氏104度(摄氏40度)。
8. 请勿在总动力扬程低于性能曲线中扬程下限的场合使用。运转时需保持直立。请勿倾斜水泵。
9. 基于健康理由，不要使用水泵系统来注入水槽或洗衣机的水等。
10. 务必安装止回阀减少水回流，以免造成不必要的水泵持续运转。
11. 本套装系统需安装在平均地下水位以上，避免损坏箱体。

保修请参阅第2页。



# 保修说明

本产品的保修为自购买日起算的一年、或从工厂制造日期起算的1.5年，以先到期者为准。若能证明产品的缺陷是由材料或制造过程造成，本公司将负责维修或更换。本公司保留决定是否维修或更换产品、零件或配件的权利。维修或更换期间买方所产生的费用或损失不在保修范围内。本公司无法控制的损坏不在保修范围内。保修不适用于：

- (1) 未依照说明书安装、操作或维护所造成的故障或损坏。
- (2) 不当操作、意外或疏忽所造成故障或损坏。
- (3) 加装不属于本产品的零、配件。
- (4) 未依照当地法规进行安装所造成的危害。
- (5) 将产品用在非原本设计的用途上所造成的损坏。(例：抽取

沙、碎石、水泥、泥巴、沥青、碳氢化合物及其衍生物、汽油、化学溶剂或其他有腐蚀性的液体、毛巾、女性卫生用品等。) 保修零、配件的退回：在本保修之下任何修理或更换需送回本公司或其他本公司所指定的维修服务点，运费需自付。在任何情况下本公司不承担其他责任，包含资产或设备的损坏、利润损失、等.....

本公司的责任不超过产品的实售价格。

上述为本产品唯一的保修说明，任何人的修改或另做承诺皆为无效。

在因涉嫌产品故障而招致损害的情况下，财产拥有人必须保留该产品以供调查之用。

# 安装注意事项

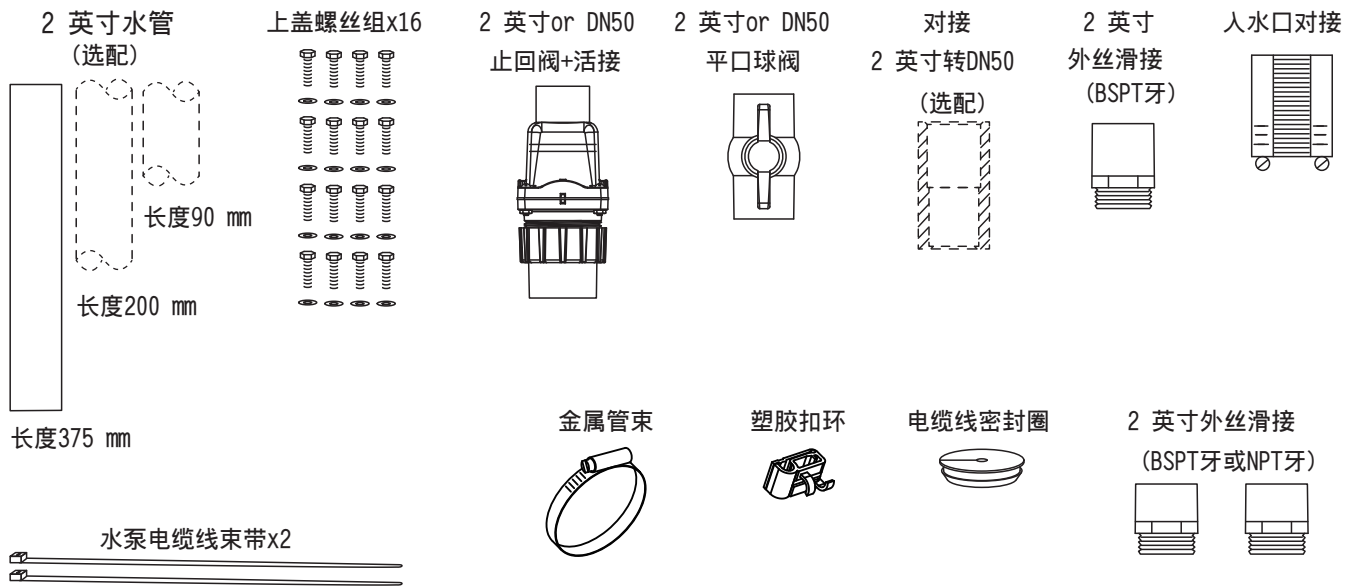
1. 请务必阅读本装置之所有安装资料。
2. 请务必检查装置是否在运送中产生可见的损坏。若装置显示受损，请联系经销商。
3. 请务必清除水坑中的杂物。将水泵放置在坚固地面上。切勿将水泵放置在泥沙上。
4. 请务必确认水坑大小足以允许浮球自由活动。
5. 处理前切断水泵电源。连结到独立受保护的接地漏电电流断路器。请勿切断、拼接或损坏电源线。请勿用电源线拉动或举起水泵。请勿使用延长线。
6. 请务必在出水管线安装止回阀和管接头。切勿使用小于出水口径尺寸的水管安装。
7. 切勿使用污水泵抽取沙砾、污物或危险液体。
8. 请务必在安装后立即测试水泵，以确认系统正常运作。
9. 请务必以适合的盖子覆盖水坑。
10. 请务必详阅所有适用当地及国家规则，确认安装符合各项规定。
11. 若有疑问，请务必联系制造商查明。
12. 请务必考虑使用双水泵系统(见第4页)，以防单一水泵失效或过载时造成财产损失。
13. 请务必考虑电池备用系统，以防停电或故障造成的财产损失。
14. 请务必每3个月检查一次系统是否正常运作。

# 检查清单

异常状况	可能原因	补救措施
<b>A. 水泵未开始运作。</b>	低电压、保险丝烧断、电路中断。	由合格电气技师检查保险丝和电路。
	叶轮卡住。	联络经销商。
	马达或电线短路。	
	浮子开关上有杂物。	去除杂物
<b>B. 马达过热造成跳电或保险丝烧断。</b>	电压错误、负扬程(出水口高度低於水泵)、叶轮或轴封卡死、电容器、继电器或马达短路。	联络经销商。
<b>C. 水泵启动停止次数太频繁。</b>	止回阀阻塞、无止回阀、热过载保护器启动或浮子有瑕疵。	联络经销商。
<b>D. 水泵不停止。</b>	浮子下方有杂物。	去除浮子周围的杂物。
	浮子开关故障。	联络经销商。
<b>E. 水泵运转正常，但抽不到水或水流量太少</b>	进水口周围有杂物。	清理进水口附近区域。
	排放管堵塞。	必要时卸除排放管，冲走杂物。
	电压太低或不当电压。	由合格电气技师检查家庭管线。
	叶轮受损。	联络经销商。
	马达运转不当、电容器瑕疵、入水含空气或造成空气进入水机室。	联络经销商。
	水泵气锁。	确保排放管中的通气孔畅通。
	安装扬程超过系统设计的扬程。	更换排放管或联络经销商。
<b>F. 扬程或流量使用一般时间後降低。</b>	管路或止回阀阻塞。磨蚀性物质及有害的化学物质造成叶轮及水机损坏。	检查管路、打开并检查水机。
<b>G. 如果桶子或接头漏水。</b>	管配件或螺丝锁过紧或太松，或垫圈没有平均的锁紧。	小心锁紧管接头(使用管路密封胶)和螺丝。检查垫圈的位置，均匀地锁紧盖子。不要将管接头或螺丝锁的过紧。

如果检查后仍无法排除问题，请与Zoeller公司授权的经销商联络，切勿自行拆卸水泵。

# 配件及电缆式浮子安装说明 (610x610mm 箱体尺寸)



限磨碎泵

1-1/4 英寸转 2 英寸异径接头



1-1/4 英寸水管



长度170 mm

1-1/4 英寸外丝滑接

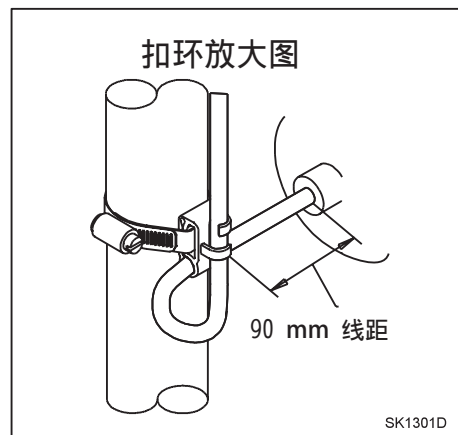


EA0053

## 架设浮子步骤

1. 如图1，将电缆线置入塑胶扣环。
2. 如图1，将金属管束调整至所需位置并固定于水管上。  
(所需位置高度请见安装说明)  
注意：不可将电缆线直接束於金属管束上。
3. 以螺丝起子将金属管束束紧。勿过度施压避免伤害塑胶扣环，并确认浮子线运作时，不会受扣环末端束线干扰。

图 1



警告：浮子开关低於90 mm长度，会影响开关操作，减少电缆寿命

### 警告



### 电击的危险

安装或维修前请先切断电源。合格的维修人员必须在安装或维修产品时依照合适的电机和配管法规。

### 警告



### 爆炸或火灾危险

请勿将本产品与易燃液体一起使用。不要安装在危险场所，须符合国家电器法规。

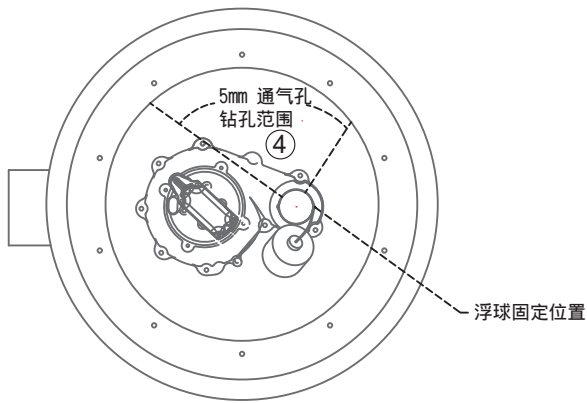
未能遵守这些预防措施，可能会导致严重的人身伤害或死亡。如果开关的电缆损坏或断裂请立即更换产品。安装后妥善保存说明书。请依照国家电器规范安装本产品，防止水分由外壳，水管件，配件，浮球或电缆进入或聚积。

# 安装说明 (610x610mm 箱体尺寸)

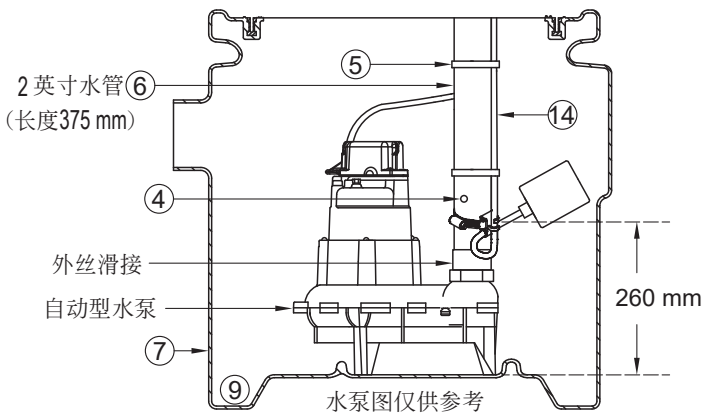
- ① 电气配线及保护措施需符合相关电气规范与当地其他应用惯例的需求。
- ② 请在水槽稍高处安装适当的活接与止回阀组合组件，以便于拆卸水泵供清洁整理或维修。於污水、污物或排水应用时若需高扬程或安装于盖板下。
- ③ 所有安装需使用水槽盖板防止杂物掉入水槽，并防止人员意外受伤。
- ④ 请在水泵水管钻一直径 5 mm 小孔，为避免通气孔水流影响对浮子的正常运作，通气孔的位置请避免面向浮子。建议钻孔位置低於”停止”水位，建议向下45度角可降低水流撞击桶子产生的噪音。注：该孔需低於水槽盖板，并需定期清理，水泵运转时可看见该小孔有水流出。
- ⑤ 用束带将电源线在出水管上固定牢靠，并使其避开浮子开关机构。

- ⑥ 出水管管径不可小于水泵出口口径。
- ⑦ 水槽需符合适用规范及规格。
- ⑧ 启动水泵前确认水泵水平，且浮子开关机构与水槽边墙保持净空距离，并确认浮子开关机构不被入水水流干扰。
- ⑨ 完成安装后必须清理水槽内所有杂物碎屑。
- ⑩ 闸阀或球阀由安装者提供，并需依照所有相关规范安装。
- ⑪ 如图示安装浮球开关。「停止」点的最佳位置为马达外壳上方、与入口成180°的方位。切勿将「停止」点配置在水泵出口以下。
- ⑫ 应使用气密密封圈隔绝气体与气味。
- ⑬ 利用通气管将气体与气味排出。
- ⑭ 勿将电缆线固定在铁箍内。

## 步骤 1

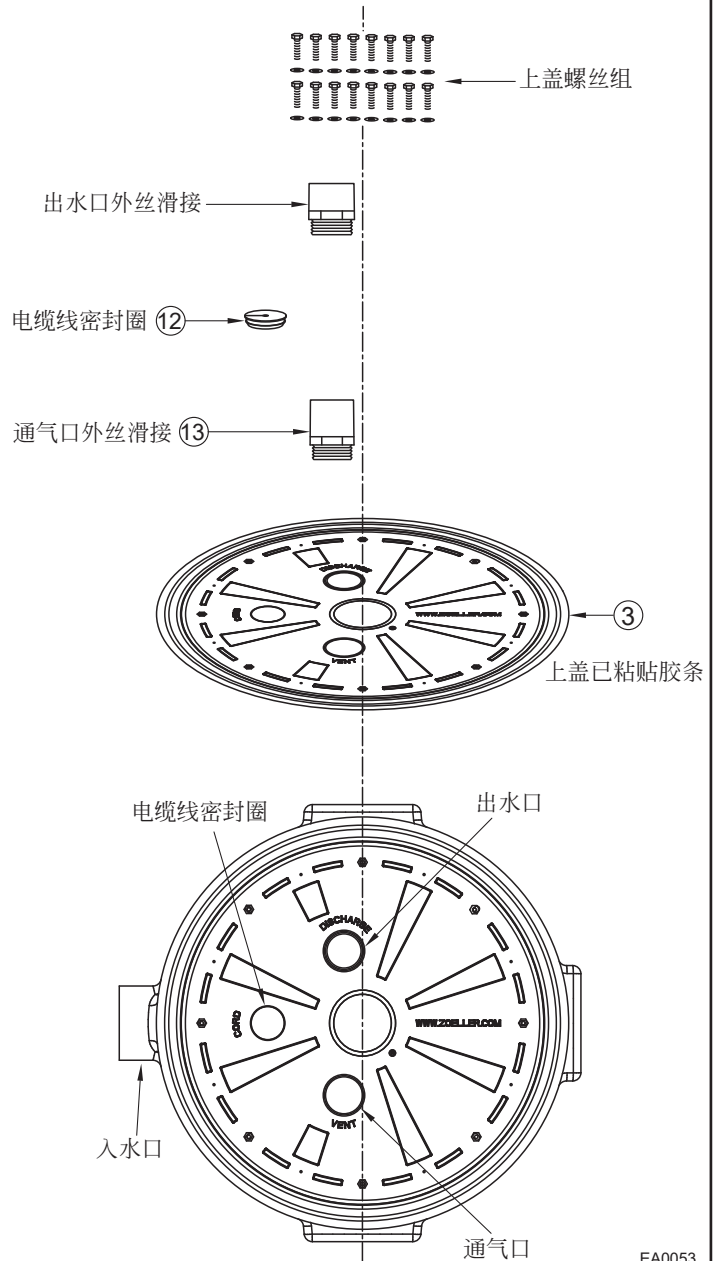


所有水管接合处都需上管路密封胶。



EA0053

## 步骤 2

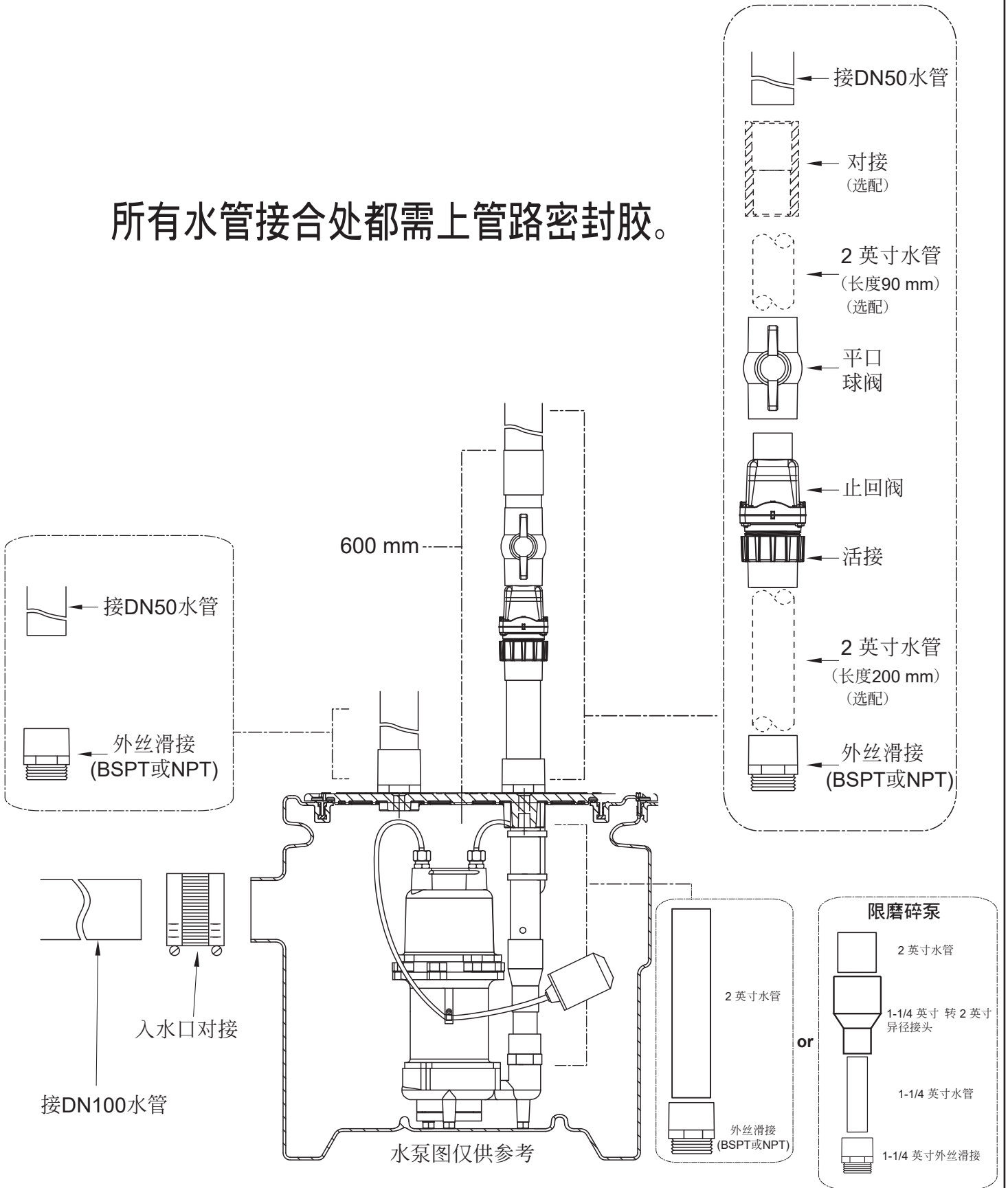


EA0053

# 安装说明 (610x610mm 箱体尺寸)

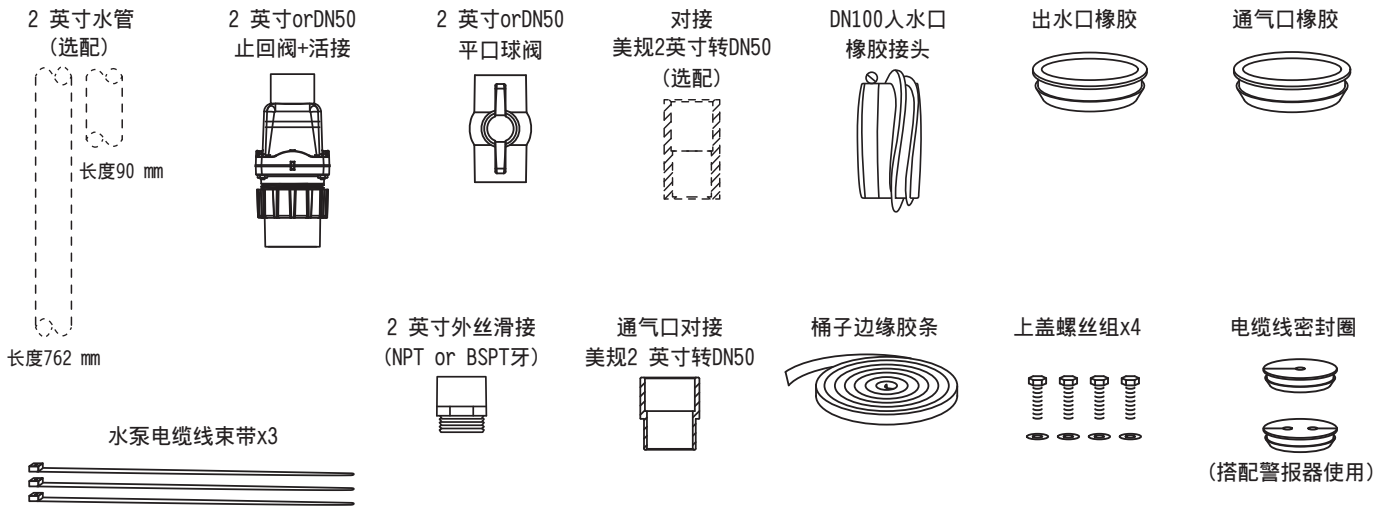
## 步骤 3

所有水管接合处都需上管路密封胶。

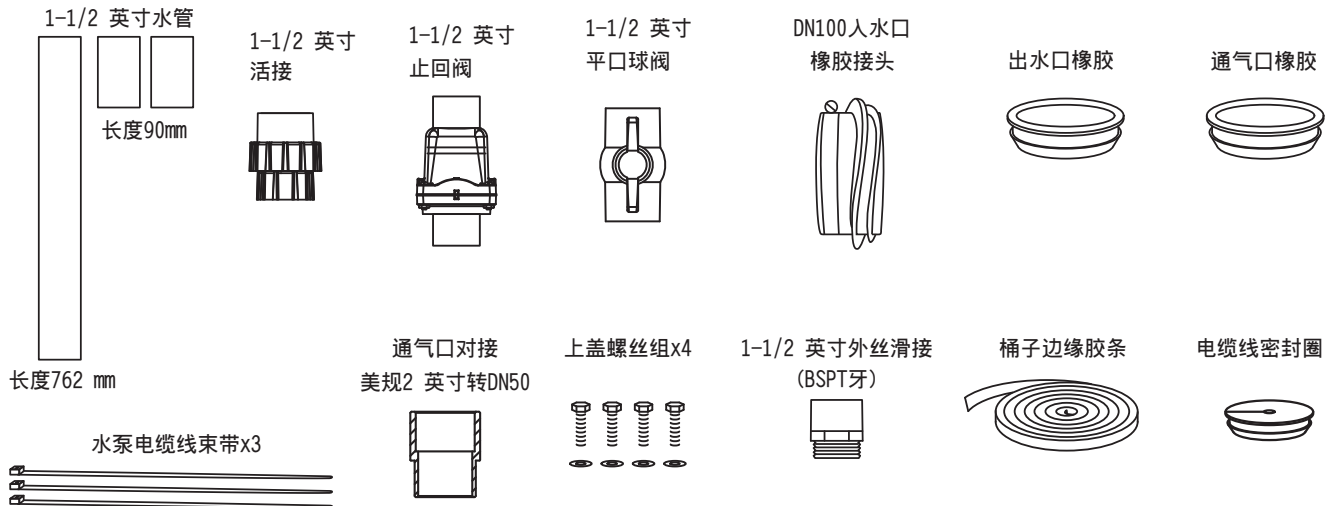


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# 配件说明 (460x560mm 箱体尺寸)

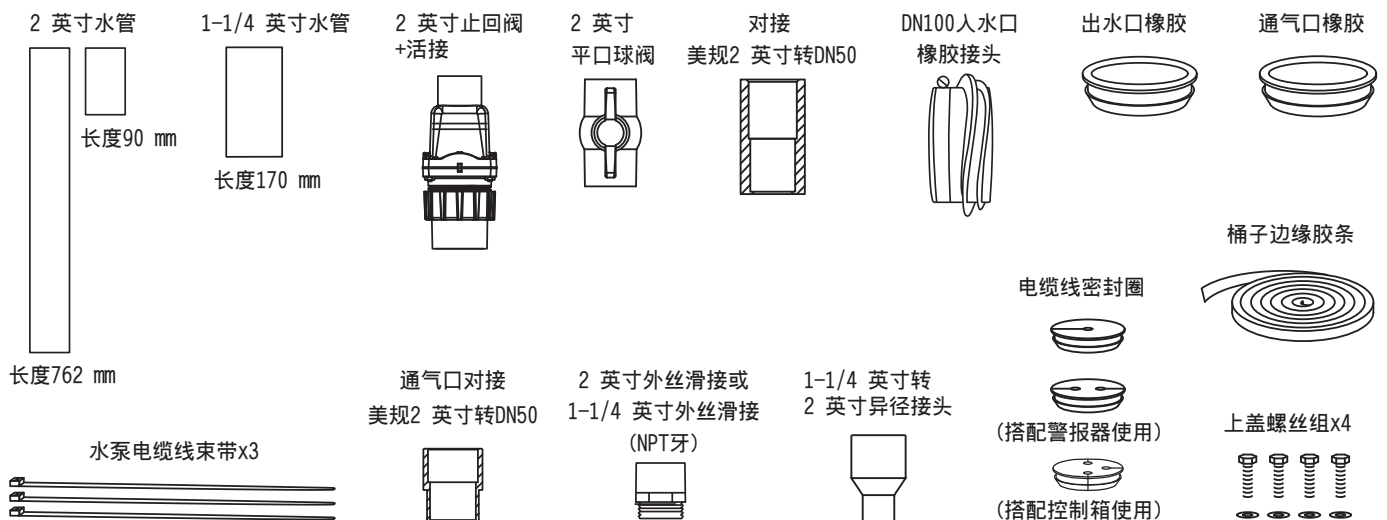


## 限污水型水泵



EA0054

## 限磨碎型水泵

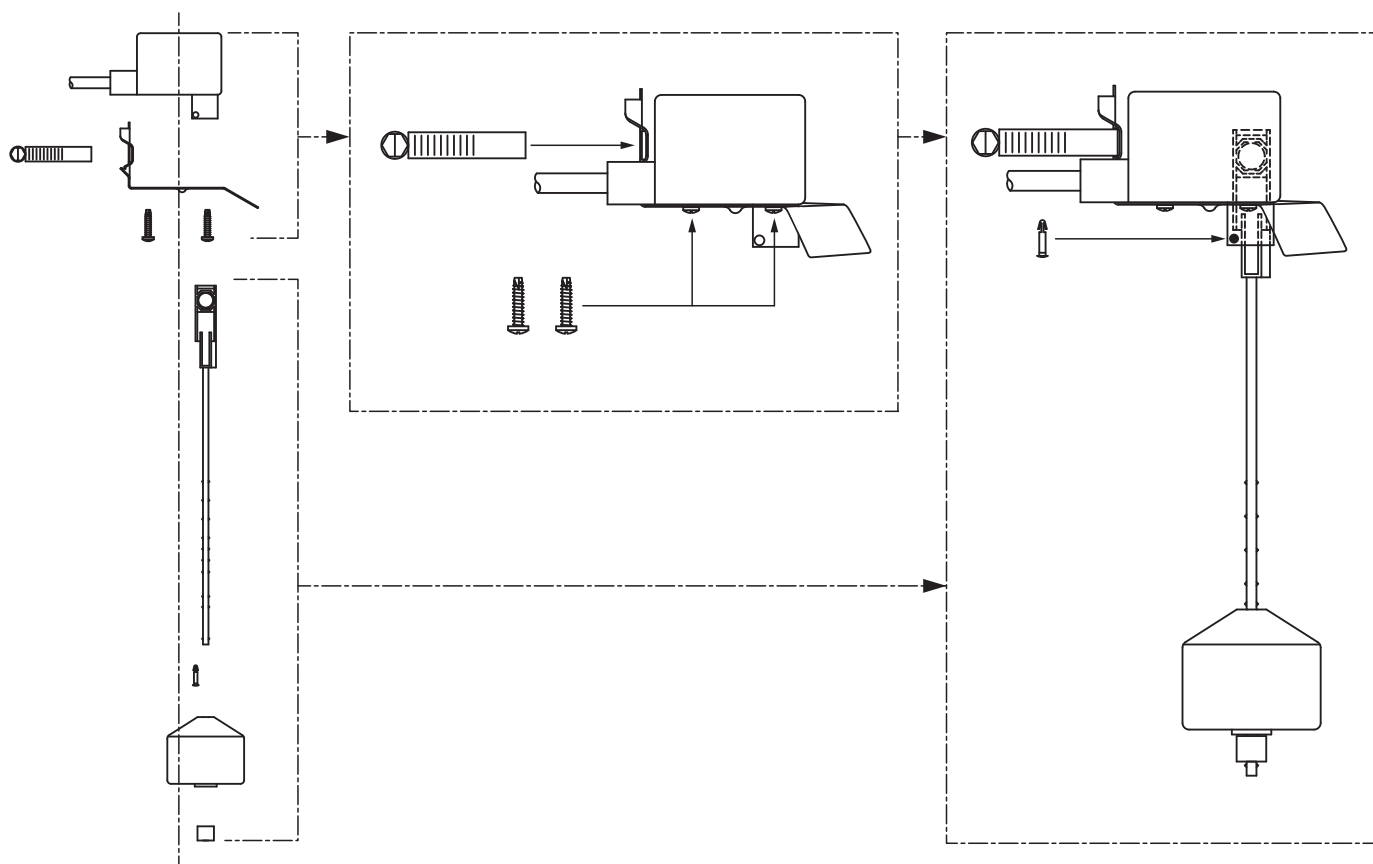


# 外接垂直式浮子开关安装说明书

这是机械式启动水泵开关设计于直接控制泵在非饮用水和污水处理的应用。它在有限的空间的应用上有良好的工作特性内，如：小水池，污水应用和洗衣盘在大型桶子中也可使用。垂直式水泵开关无法感应湍流而且只用于水泵应用。

- 重负荷的接触器。
- 可调整抽水范围为20~170 mm。
- 最高环境温度52 °C (125 °F)。

U.S. Patent No. 5,155,311  
Canadian Patent No. 2,060,748



## 预防性维护

- 定期检查的产品。检查电缆是否老旧损坏或水泵外壳是否已经损坏无法保护水泵。如果发现或怀疑有任何损坏，立即更换产品。
- 定期检查地看到，操作开关时，浮子和浮子杆可以自由移动。
- 更换时，只能使用原厂零件。

### 警告

#### 电击的危险

安装或维修前请先切断电源。合格的维修人员必须在安装或维修产品时依照合适的电机和配管法规。



### 警告

#### 爆炸或火灾危险

请勿将本产品与易燃液体一起使用。不要安装在危险场所，须符合国家电器法规。



未能遵守这些预防措施，可能会导致严重的人身伤害或死亡。如果开关的电缆损坏或断裂请立即更换产品。安装后妥善保存说明书。请依照国家电器规范安装本产品，防止水分由外壳，水管件，配件，浮球或电缆进入或聚积。

EA0095



# 外接垂直连杆式水泵说明

## 安装开关

**▲ 警告** 请勿直接安装于入水口。

1. 确定所需的动作水位与抽水范围请参考图A。抽水范围可以经由杆子上的浮子移动上下来调整。
2. 在支撑托架上由狭缝插入软管铁箍，如图B所示。
3. 将软管箍在排水管上，托架紧箍著排水管。电线必须留在软管铁箍外。
4. 锁紧管夹。
5. 水泵电缆和开关的电缆连接著排水管，如图A所示。

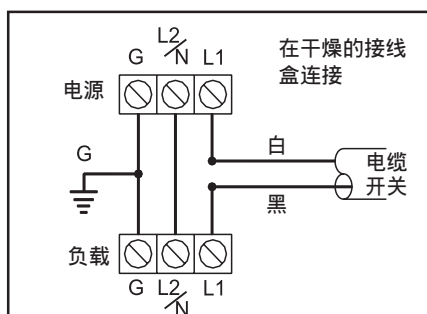
## 外接式浮子插头安装

- 电源插座不能安装在水泵槽内。
- 电源插座的电压、浮球开关电压和水泵电压必须一致。

1. 按照步骤1~5安装开关。
2. 将开关的外接式浮子插头插入电源插座。
3. 将水泵插头插入外接式浮子插头，如图A所示。
4. 检查安装。让系统循环以确保正确的操作。

## 电线安装

1. 按照步骤1-5安装开关。
2. 电线开关，如下所示。
3. 检查安装。让系统循环以确保正确的操作。



### ▲ 警告



在230伏交流电的安装，一个侧边的负载总是热的。如果开关是开或关，这个条件是存在。安装双极断路器在230伏交流电所有回路上，确保电缆连接在干燥的接线箱或是其他防水密封，密封件包括导体和电缆夹克。

如果不这样做，可能会导致触电的危险或水沿著电缆和进入开关。

没遵照防范的预防可能影响开关的效能。

图 A

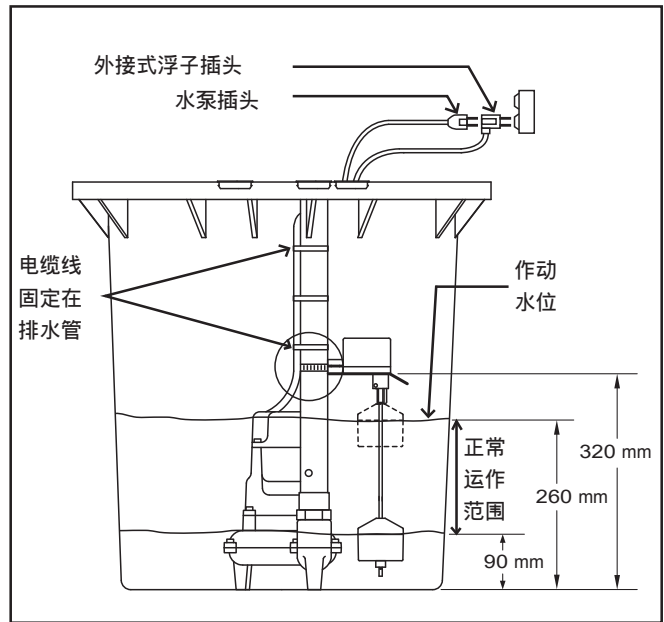


图 B

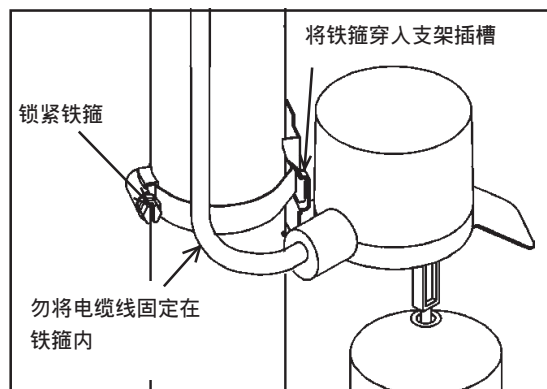
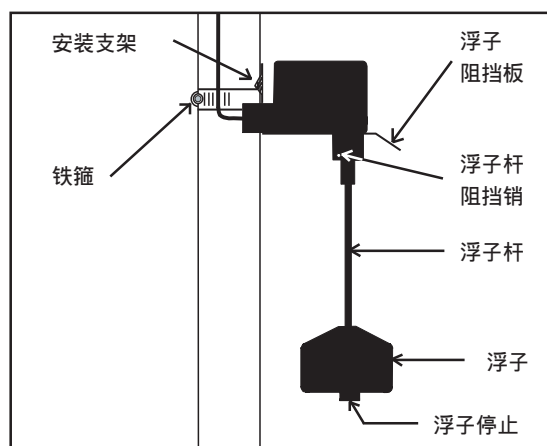


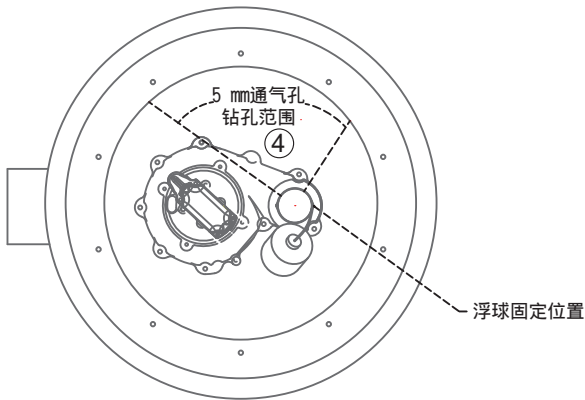
图 C



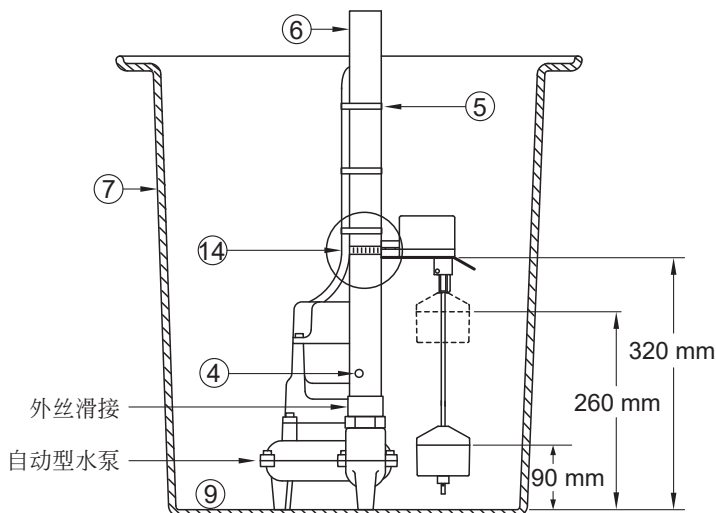
# 安装说明 (460x560mm 箱体尺寸)

- ① 电气配线及保护措施需符合相关电气规范与当地其他应用惯例的需求。
- ② 请在水槽稍高处安装适当的活接与止回阀组合组件，以便于拆卸水泵供清洁整理或维修。於污水、污物或排水应用时若需高扬程或安装于盖板下。
- ③ 所有安装需使用水槽盖板防止杂物掉入水槽，并防止人员意外受伤。
- ④ 请在水泵水管钻一直径 5 mm 小孔，为避免通气孔水流影响对浮子的正常运作，通气孔的位置请避免面向浮子。建议钻孔位置低於”停止”水位，建议向下45度角可降低水流撞击桶子产生的噪音。注：该孔需低於水槽盖板，并需定期清理，水泵运转时可看见该小孔有水流出。
- ⑤ 用束带将电源线在出水管上固定牢靠，并使其避开浮子开关机构。
- ⑥ 出水管管径不可小于水泵出口口径。
- ⑦ 水槽需符合适用规范及规格。
- ⑧ 启动水泵前确认水泵水平，且浮子开关机构与水槽边墙保持净空距离，并确认浮子开关机构不被入水水流干扰。
- ⑨ 完成安装后必须清理水槽内所有杂物碎屑。
- ⑩ 闸阀或球阀由安装者提供，并需依照所有相关规范安装。
- ⑪ 如图示安装浮球开关。「停止」点的最佳位置为马达外壳上方、与入口成180°的方位。切勿将「停止」点配置在水泵出口以下。
- ⑫ 应使用气密密封圈隔绝气体与气味。
- ⑬ 利用通气管将气体与气味排出。
- ⑭ 勿将电缆线固定在铁箍内。

## 步骤 1

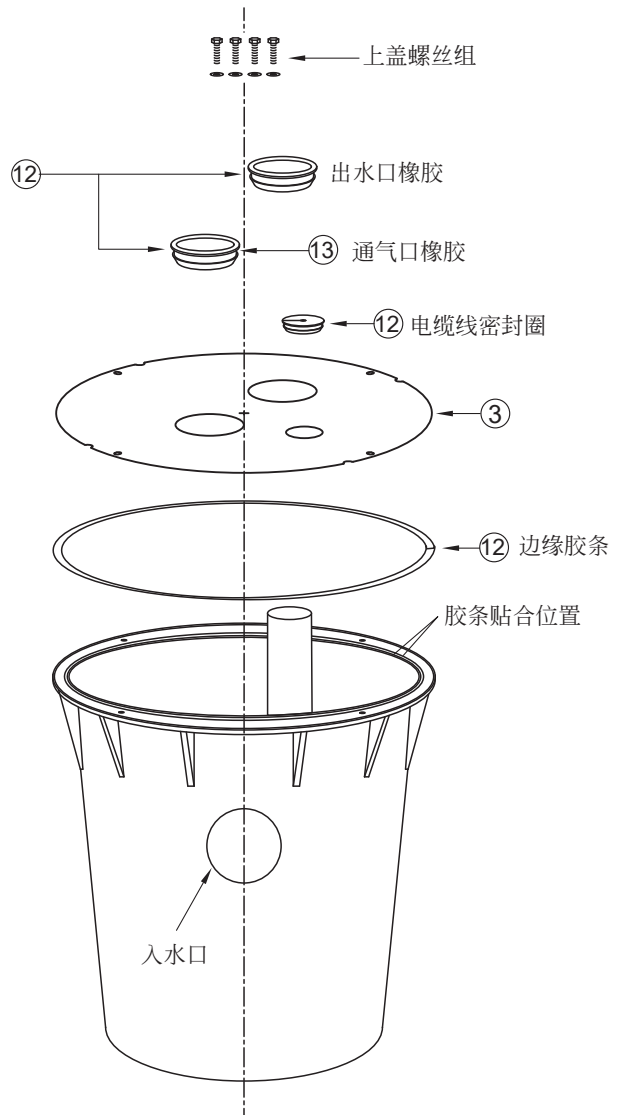


所有水管接合处都需上管路密封胶。



EA0054

## 步骤 2

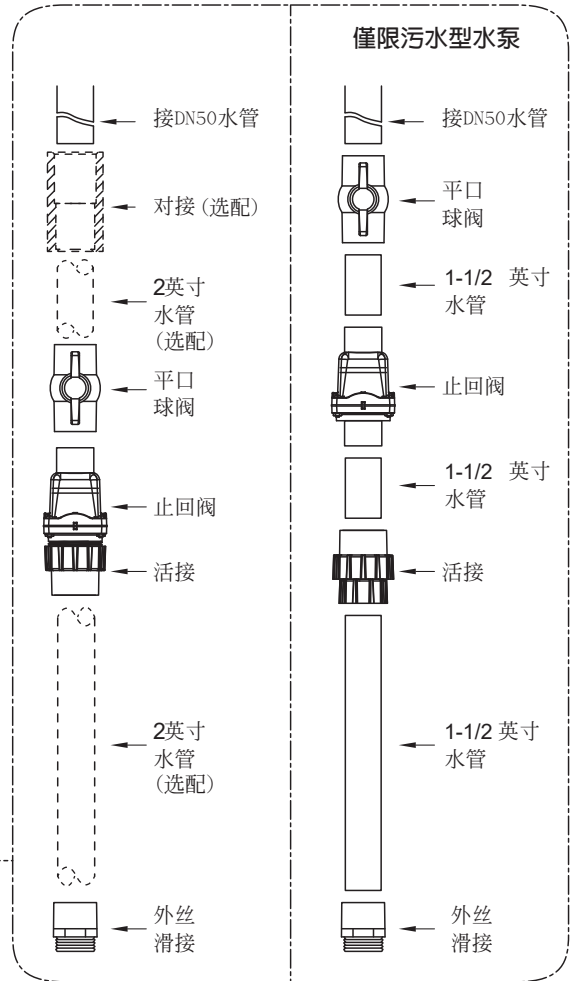
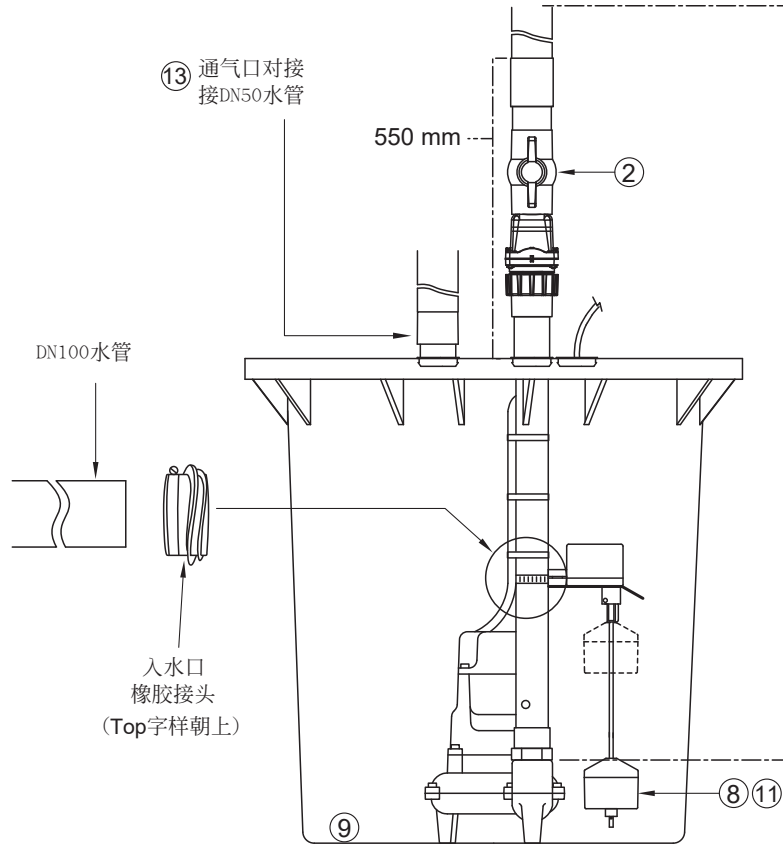


EA0054

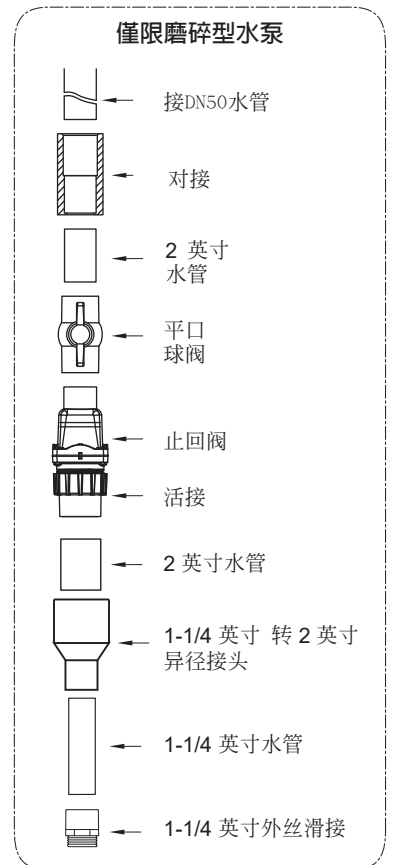
# 安装说明 (460x560mm 箱体尺寸)

## 步骤 3

所有水管接合处都需上管路密封胶。



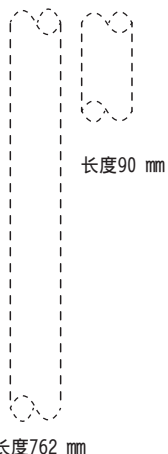
or



EA0054

# 配件说明 (460x760mm 箱体尺寸)

2 英寸水管  
(选配)



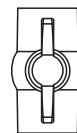
2 英寸外丝滑接或  
1-1/4 英寸外丝滑接  
(NPT牙)



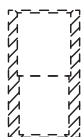
2 英寸 or DN50  
止回阀+活接



2 英寸 or DN50  
平口球阀



对接  
美规2 英寸转DN50  
(选配)



2 英寸通气孔  
外丝滑接  
(NPT or BSPT牙)



底盘螺丝x6



水泵电缆线束带x3



电缆线密封圈

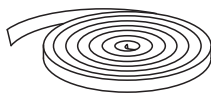


(搭配警报器使用)

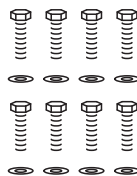


(搭配控制箱使用)(限磨碎泵)

桶子边缘胶条



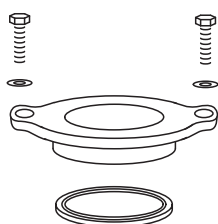
上盖螺丝组x8



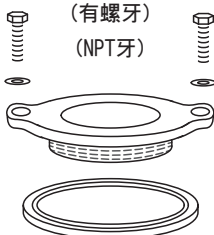
DN100入水口  
橡胶接头



出水口组件



通气口组件  
(有螺牙)  
(NPT牙)



1-1/4 英寸水管



长度170 mm  
(限磨碎泵)

1-1/4 英寸转  
2 英寸异径接头



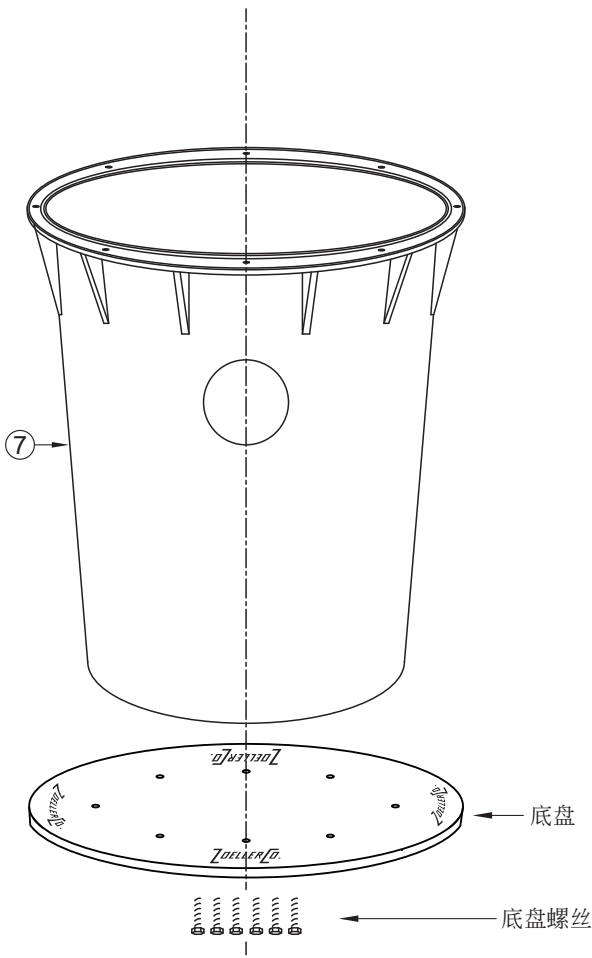
(限磨碎泵)

EA0055

# 安装说明 (460x760mm 箱体尺寸)

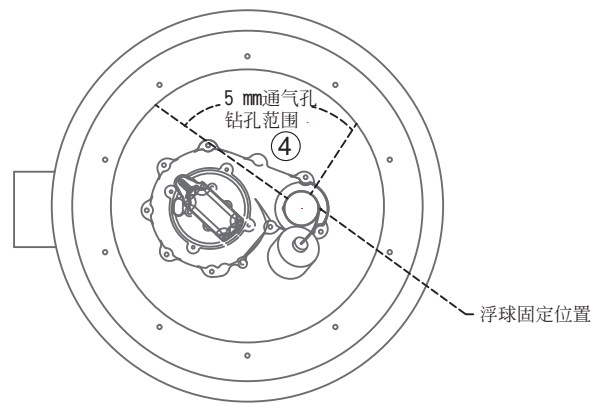
- ① 电气配线及保护措施需符合相关电气规范与当地其他应用惯例的需求。
- ② 请在水槽稍高处安装适当的活接与止回阀组合组件，以便于拆卸水泵供清洁整理或维修。於污水、污物或排水应用时若需高扬程或安装于盖板下。
- ③ 所有安装需使用水槽盖板防止杂物掉入水槽，并防止人员意外受伤。
- ④ 请在水泵水管钻一直径 5 mm 小孔，为避免通气孔水流影响对浮子的正常运作，通气孔的位置请避免面向浮子。建议钻孔位置低於”停止”水位，建议向下45度角可降低水流撞击桶子产生的噪音。注：该孔需低於水槽盖板，并需定期清理，水泵运转时可看见该小孔有水流出。
- ⑤ 用束带将电源线在出水管上固定牢靠，并使其避开浮子开关机构。
- ⑥ 出水管管径不可小于水泵出口口径。
- ⑦ 水槽需符合适用规范及规格。
- ⑧ 启动水泵前确认水泵水平，且浮子开关机构与水槽边墙保持净空距离，并确认浮子开关机构不被入水水流干扰。
- ⑨ 完成安装后必须清理水槽内所有杂物碎屑。
- ⑩ 闸阀或球阀由安装者提供，并需依照所有相关规范安装。
- ⑪ 如图示安装浮球开关。「停止」点的最佳位置为马达外壳上方、与入口成180°的方位。切勿将「停止」点配置在水泵出口以下。
- ⑫ 应使用气密密封圈隔绝气体与气味。
- ⑬ 利用通气管将气体与气味排出。
- ⑭ 勿将电缆线固定在铁箍内。

## 步骤 1

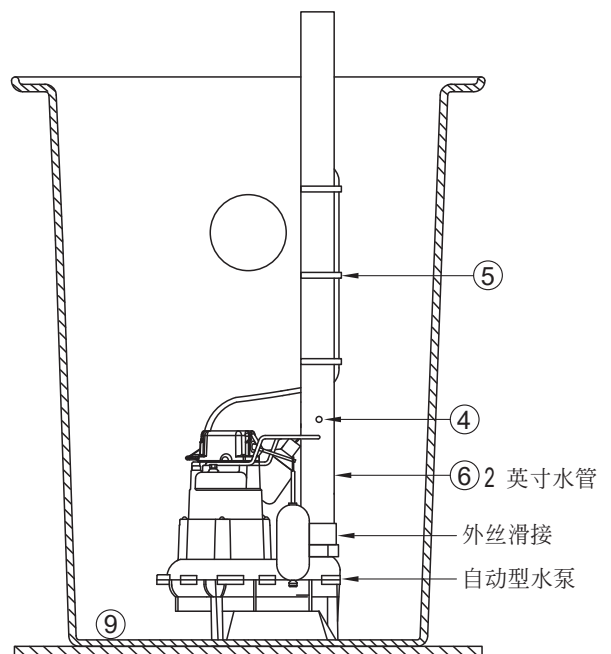


EA0055

## 步骤 2



所有水管接合处都需上管路密封胶。



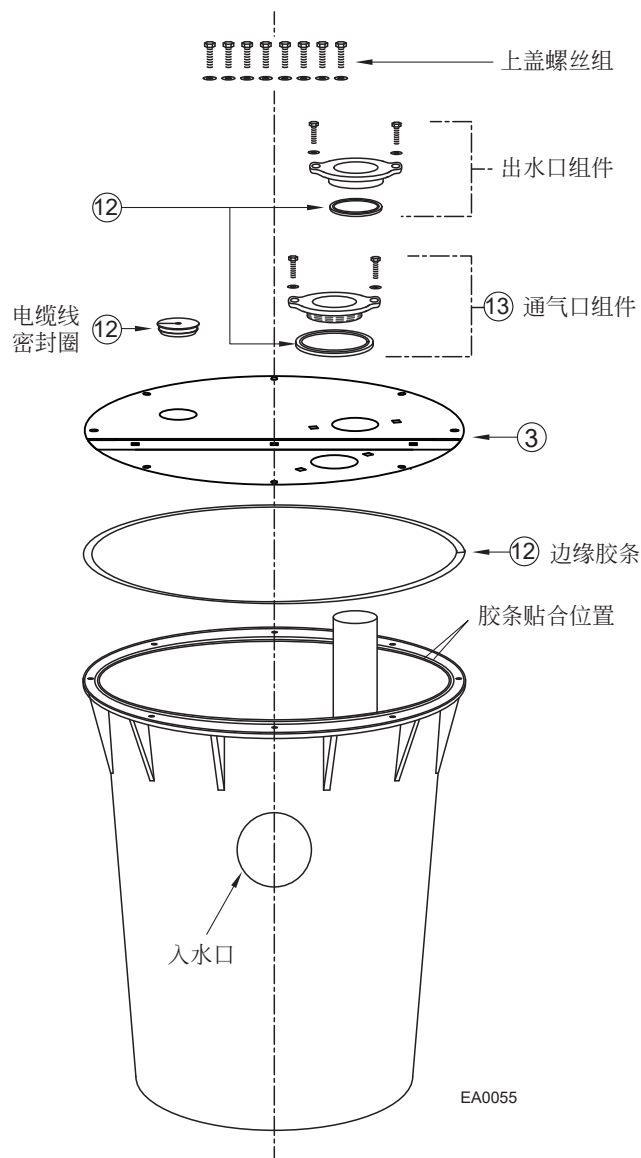
水泵图仅供参考

EA0055

# 安装说明 (460x760mm 箱体尺寸)

- ① 电气配线及保护措施需符合相关电气规范与当地其他应用惯例的需求。
- ② 请在水槽稍高处安装适当的活接与止回阀组合组件，以便于拆卸水泵供清洁整理或维修。於污水、污物或排水应用时若需高扬程或安装于盖板下。
- ③ 所有安装需使用水槽盖板防止杂物掉入水槽，并防止人员意外受伤。
- ④ 请在水泵水管钻一直径 5 mm 小孔，为避免通气孔水流影响对浮子的正常运作，通气孔的位置请避免面向浮子。建议钻孔位置低於”停止”水位，建议向下45度角可降低水流撞击桶子产生的噪音。注：该孔需低於水槽盖板，并需定期清理，水泵运转时可看见该小孔有水流出。
- ⑤ 用束带将电源线在出水管上固定牢靠，并使其避开浮子开关机构。
- ⑥ 出水管管径不可小于水泵出口口径。
- ⑦ 水槽需符合适用规范及规格。
- ⑧ 启动水泵前确认水泵水平，且浮子开关机构与水槽边墙保持净空距离，并确认浮子开关机构不被入水水流干扰。
- ⑨ 完成安装后必须清理水槽内所有杂物碎屑。
- ⑩ 闸阀或球阀由安装者提供，并需依照所有相关规范安装。
- ⑪ 如图示安装浮球开关。「停止」点的最佳位置为马达外壳上方、与入口成180°的方位。切勿将「停止」点配置在水泵出口以下。
- ⑫ 应使用气密密封圈隔绝气体与气味。
- ⑬ 利用通气管将气体与气味排出。
- ⑭ 勿将电缆线固定在铁箍内。

## 步骤 3

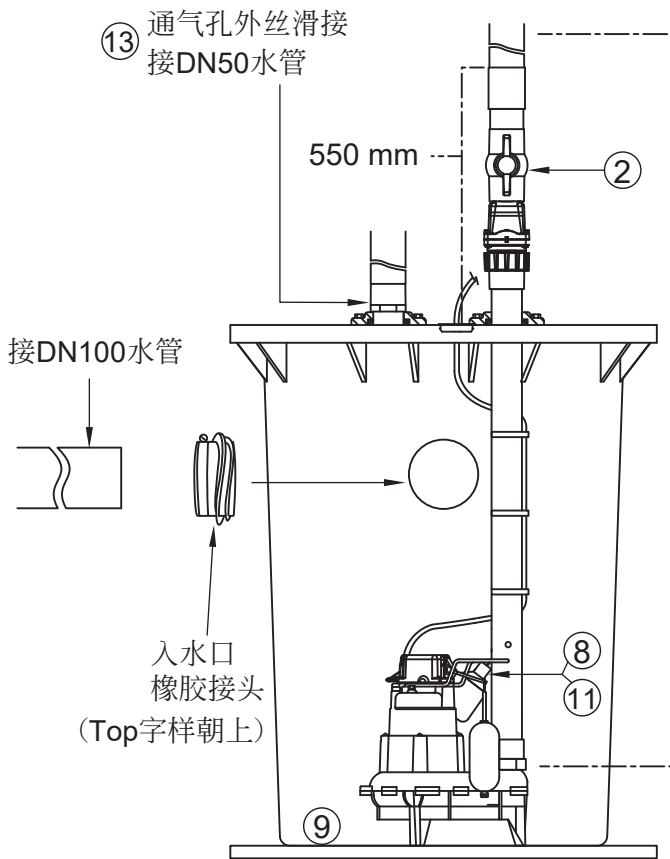




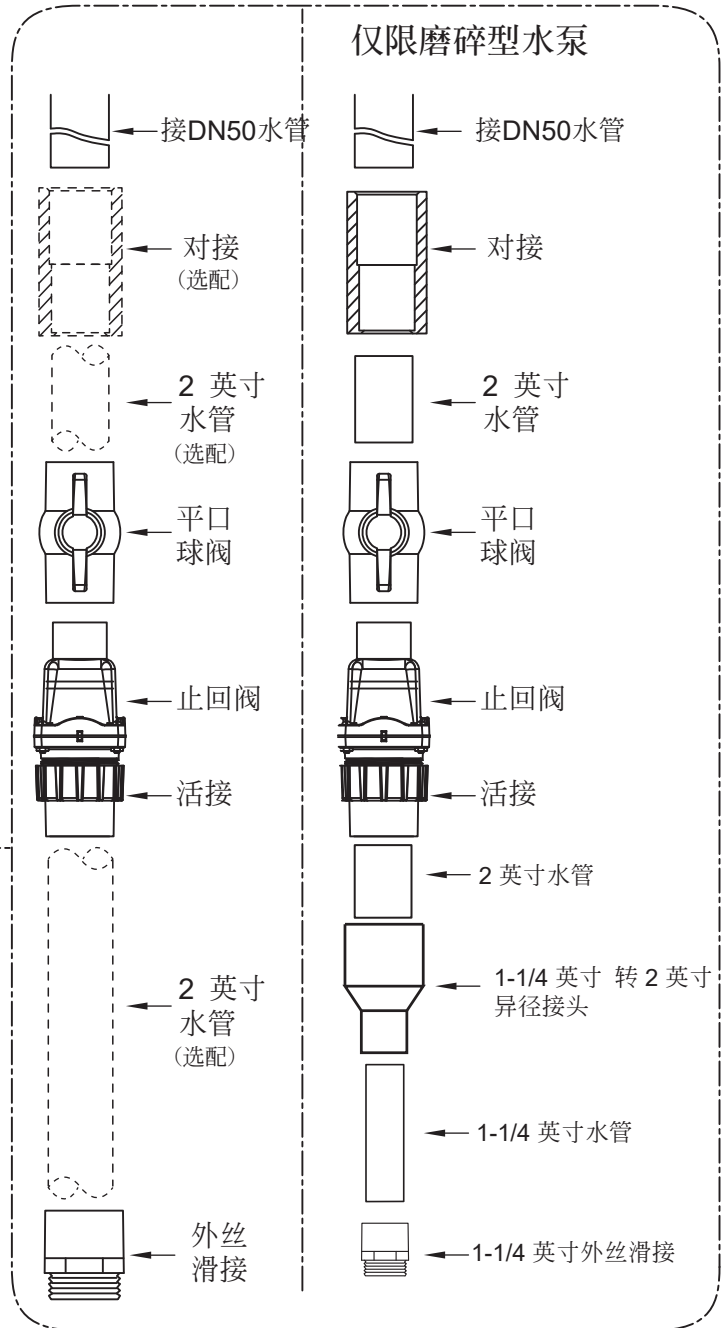
# 安装说明 (460x760mm 箱体尺寸)

## 步骤 4

所有水管接合处都需上管路密封胶。



水泵图仅供参考



### 仅限磨碎型水泵



## 安 装 说 明 书

# 如何安装橡胶密封环

备注：橡胶密封环设计使用在4”DWV ABS Sch40的管子及4”PVC Sch40 (外径4-1/2”)的管子，使用温度范围为华氏-20度到120度。

**(A) 步骤一：**用右手拿起橡胶密封环，使得箭头方向朝上，及可看见“TOP”字样。

**步骤二：**将密封环的沟槽，卡入位于桶子侧边入水口的开孔下缘。

**步骤三：**在挤压密封环到孔里之前，先将密封环压成椭圆形，再将它整个装入。

**步骤四：**假如密封环呈现非圆形，使用手指在密封环内部绕，确认有适合的紧度，假如唇边外露，需挤回沟槽内。

**(B) 安装4”ABS或PVC管：**

**步骤一：**将管子切平。

**步骤二：**管子外缘需倒角来避免伤害到密封环凹槽的O Ring；O Ring 对于密封是非常重要的。

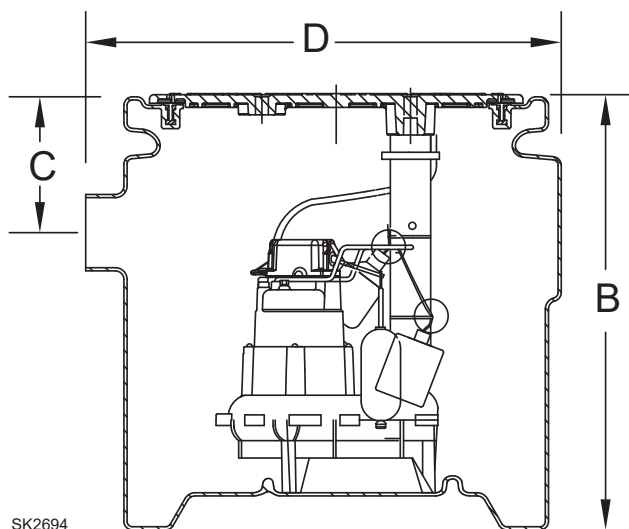
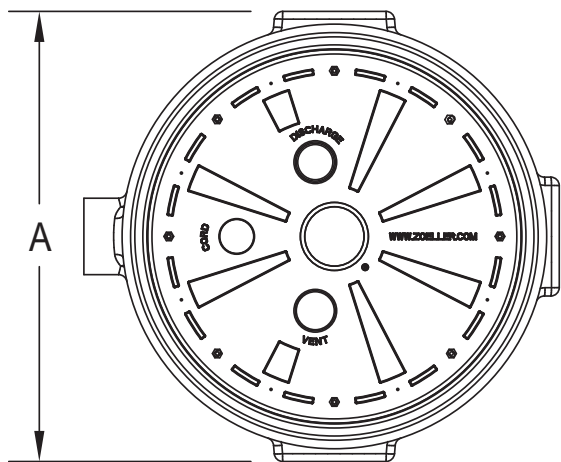
**步骤三：**使用肥皂水涂抹管子周围，约从管子倒角至安装于密封内管子的另一端长度范围4”，在管子倒角那端，施予足够的压力插入橡胶密封环，需注意管子插入密封环后，管子需外露超出密封环1”，使其延伸入桶子。

**警告：**需直接插入管子，不可旋转。

**步骤四：**在橡胶密封环的狭长浅沟槽，使用不锈钢管束夹紧。

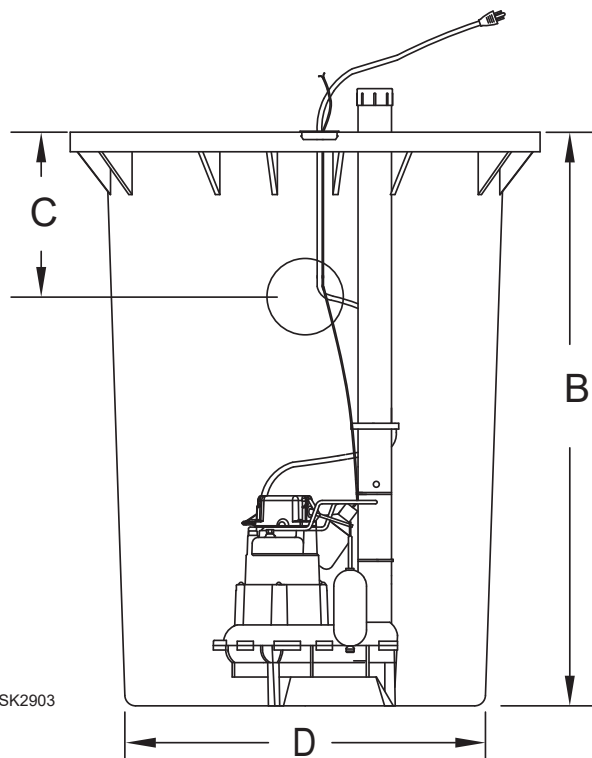
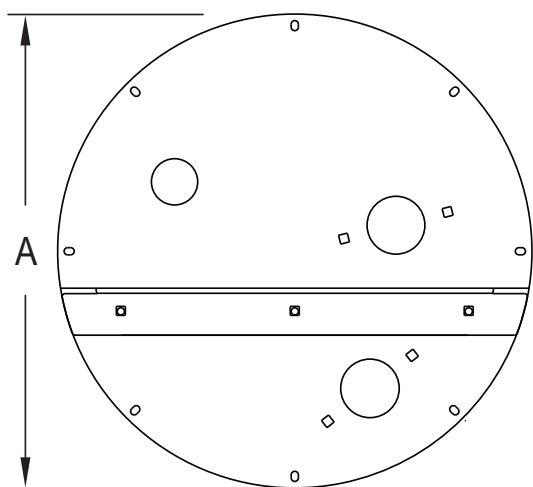
# 产品尺寸

箱体尺寸  
610x610 mm



SK2694

箱体尺寸  
460x560 mm, 460x760 mm



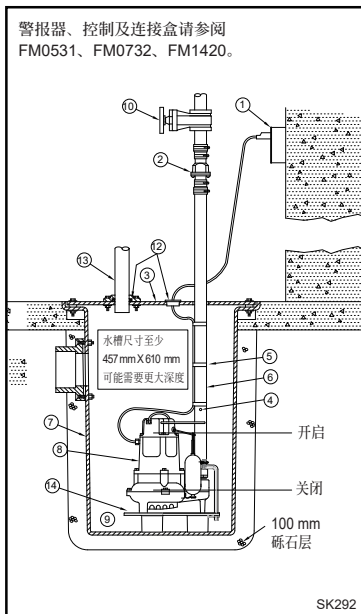
SK2903

箱体尺寸	尺寸			
	A	B	C	D
610 x 610	673	651	203	711
460 x 560	520	560	241	406
460 x 760	552	762	267	419

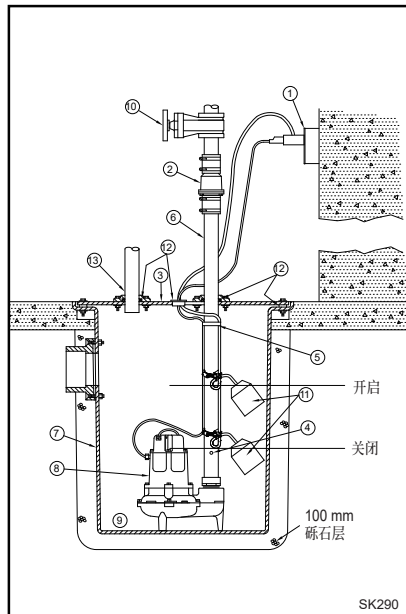
单位：mm

# 各种应用建议安装方式

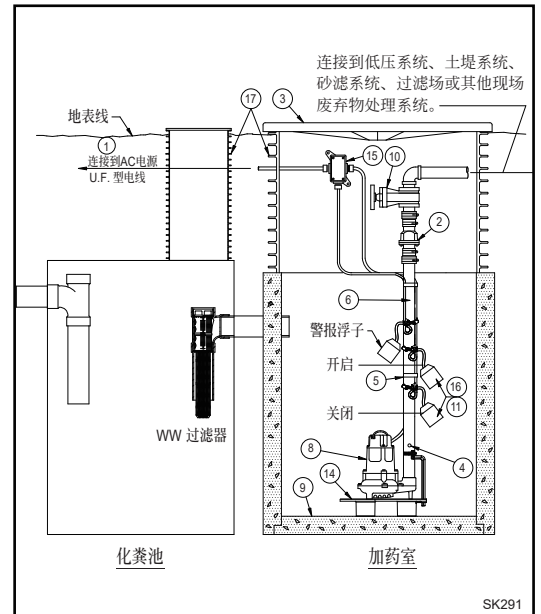
- (1) 电源线长度少于10米仅用于室内。电气配线及保护措施需符合相关电气规范与当地其他应用惯例的需求。
  - (2) 请在水槽稍高处安装适当的由令与止回阀组合组件，以便于拆卸水泵供清洁整理或维修。若需高扬程或安装于盖板下，需使用30-0164外径 $\varnothing 50\text{ mm}$ (1-1/2")管，30-0152外径 $\varnothing 63\text{ mm}$ (2")管和30-0160外径 $\varnothing 90\text{ mm}$ (3")管。
  - (3) 所有安装需使用水槽盖板防止杂物掉入水槽，并防止人员意外受伤。
  - (4) 在装设由令止回阀的场合，请在水泵顶部等高处钻一直径5 mm小孔。为避免通气孔水流影响对浮子的正常运作，通气孔的位置请避免面向浮子。建议钻孔位置低于"停止"水位，可降低水流撞击桶子产生的噪音。注：该孔需低于水槽盖板，并需定期清理（高扬程机组请参考封面页第4项「注意事项」）水泵运转时可看见该小孔有水流出。
  - (5) 用胶带或线夹将电源线在出水管上固定牢靠，并使其避开浮子开关机构。
  - (6) 出水管管径不可小於水泵出口口径。
  - (7) 水槽需符合适用规范及规格。
  - (8) 启动水泵前确认水泵水平，且浮子开关机构与水槽边墙保持净空距离。
  - (9) 完成安装后必须清理水槽内所有杂物碎屑。
  - (10) 闸阀或球阀由安装者提供，并需依照所有相关规范安装。
  - (11) 如图示安装浮球开关。「停止」点的最佳位置为马达外壳上方、与入口成180°的方位。切勿将「停止」点配置在水泵出口以下（仅适用于污水与污物）。注：水泵自动控制请参照「排水安装图」。
  - (12) 应使用气密密封圈隔绝气体与气味。
  - (13) 利用通气管将气体与气味排至大气（仅适用于污水与排水）。
  - (14) 请在水泵下方安装卓勒水泵座(型号10-2421)以形成沉淀池（仅适用于污物与排水）。
  - (15) 可选择防水控制箱，请参考FM1597文件。
  - (16) 适当的浮子开关距离需参考当地或国际标准和说明书。
  - (17) 请使用化粪池直管以便利近接水泵与过滤器。
- 注：双重密封水泵可提供额外保障，预防密封故障造成的损坏。



标准排水安装



标准污水安装



标准污物安装

所有安装作业必须符合适用的水电规范，至少包括现行电工规则、当地、区域及 / 或现行配管规则等。不适用于危险性场所。



**警告**

## 水泵配线注意事项

为您的安全著想，处理水泵前务必先切断电源。单相水泵均附带3芯接地插头以防止触电的可能性。任何情况下都不允许移除接地插销。3插插头必须插入3插用插座。如果无法提供3插用插座，也必须更改为有接地功能按照国家电气法规和所有适用当地的法规和条例的安装方式。

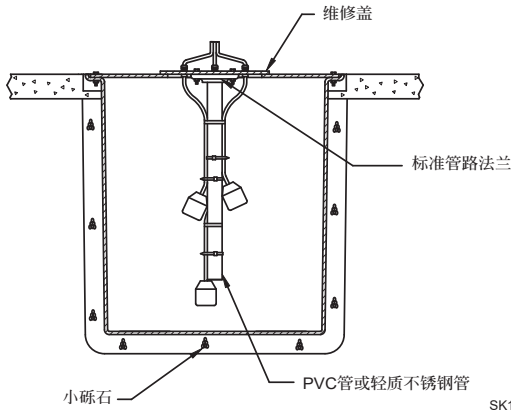
所有三相水泵需配备有电机启动的设备与电机超载保护。安装水泵必须按照国家电气法规和所有适用当地的法规和条例。水泵不得安装在美国国家电气规范 ANSI/NFPA 70列为危险环境的位置。

「触电危险」切勿拆卸电源线或拉扯直接连接在水泵上的释压管或接线路。

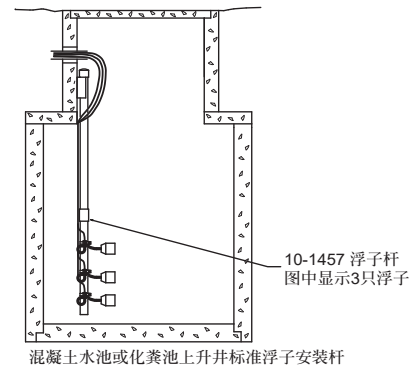
电器电路及五金配件的安装与检查必须由合格专业电工执行。

# 浮球的建议安装方式

某些安装场合可能需要利用独立的浮子杆安装各控制开关，以免牵挂到水泵、管路、阀门等。卓勒提供各种浮子杆，请参考FM0526型录；也可利用标准管材与配件制作。



钢盖板水池上标准浮子安装杆



混凝土水池或化粪池上升井标准浮子安装杆

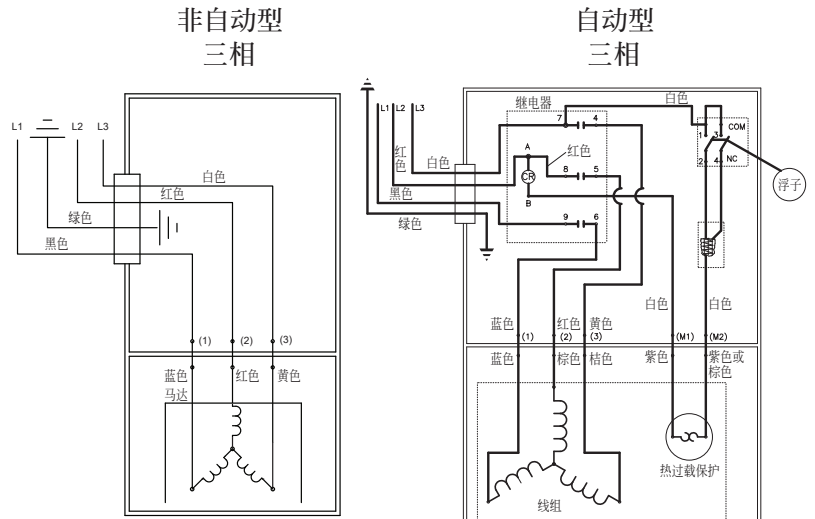
## 单相配线注意事项

要使非自动水泵运转，需配置控制箱或20 安培的浮子开关(P/N 10-0748)在电路上。按照面板提供的电路系统说明安装。

## 三相配线注意事项

三相非自动水泵自动运转必须搭配控制柜。按照面板提供的电路系统说明安装。三相自动型水泵线路图请参阅位于最右侧。

安装水泵之前，请检查以确保线路已正确连接到电源，绿色接地线（请参见配线图）已连接到有效的接地面。临时充电，观察启动扭矩造成的旋转，旋转方向如果是与水机上的箭头相反即为正确。如果旋转不是正确的，交换地线以外的两条接线安装，即可成为正确的安装。



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# 额外保护系统

## 双泵系统

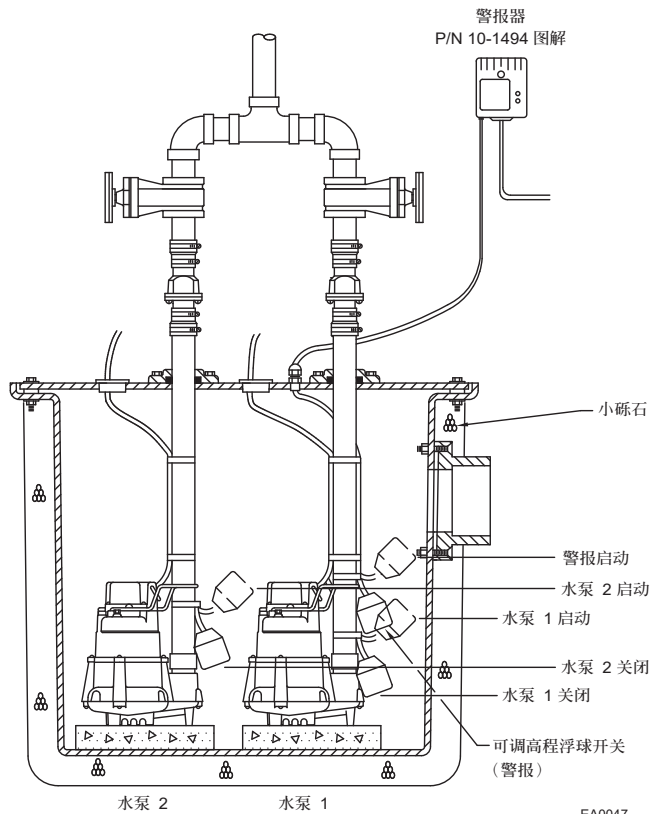
「额外保护」双泵系统为昂贵双工切换水泵系统的经济型替代方案，且安装极为简便。

「额外保护」双泵系统包括：

- 两台任选的含浮子开关非自动水泵
- 一套警报系统
- 两只适用的由令止回阀

## 优点

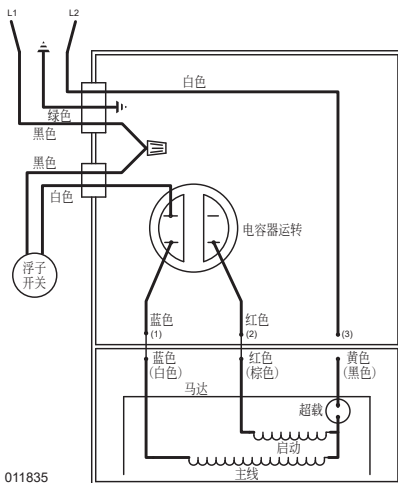
- 双泵系统提供优越的水泵性能但价格低廉。该系统安装简单又经济。
- 比单一水泵系统更为可靠，大幅降低因磨损或损坏所导致的危险及费时费钱的系统故障问题。
- 以巧夺天工的保护工艺，为高级豪华的居住环境提供最高满意度的安心使用。
- 改变水泵插头连接即可变换前导与滞后位置。



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\*水泵之间最小距离50 mm

# V, WU 型安装



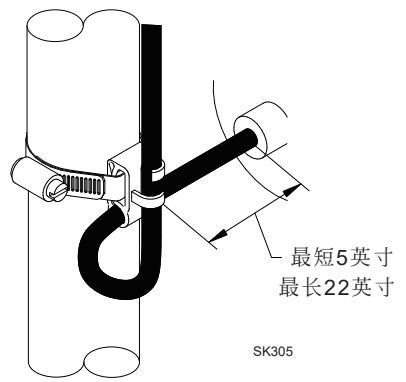
011835  
线路图  
V, WU - 220 V, 1 Ph, 50 Hz.

确定抽水范围  
以英寸为单位 (1英寸= 25公厘)

缆线系线长度	5	10	15	20	22
	最短				最长
抽水范围	9	13.5	18	22	24

使用仅作为指南。由于电缆的重量，水平以上抽水范围不等于水平以下的抽水范围。抽水范围是基于水无波动的的条件测试得知。水的温度和浮子线的形状都可能造成抽水范围有所不同。线的长度增加，抽水的范围就会增加。

WU型是完全自动型产品。一旦浮子开关缆线正确地固定在出口管上正确供电，浮子开关则会自动运作。参考电路图及浮子线长度以确认设定浮子开关的运作设定。



20安培开关 (WU 型)

备注：未能保持适当的系线的限度内，可能会影响正常的开关操作。  
备注：电缆线必须水平位置方式安装。