Backup Sump Pump Systems
SSPMA MEMBERS

Barnes Pumps / Crane Pumps & Systems
Champion Pump Company, Inc.
Franklin Electric / Little Giant
Glentronics Inc.
Goulds Water Technology, a xylem brand
Liberty Pumps
Pentair Water
Superior Pump Company
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Alderon Industries
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John Crane, Inc.
Motor Protection Electronics, Inc.
SJE-Rhombus
SSPMA

Sump and Sewage Pump Manufacturers Association

Since 1956, we are a North American trade organization of sump, effluent, and sewage pump manufacturers and their suppliers.

Working together to:
- train wastewater and plumbing professionals, and
- create product performance and safety standards.

SSPMA members collaborate with each other and government regulators to educate consumers and professionals on the latest products, their application, proper sizing techniques, safe installation and use, and good maintenance practices.

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Pumps bearing the “SSPMA-Certified” seal have been tested by the member manufacturer in accordance with SSPMA Industry Standards.

The Standards are designed to provide accurate performance data for sump, effluent and sewage pumping equipment, to assist in their proper application and selection.
To ensure the homeowner is protected from a future basement flood, recommend an emergency backup sump pump.
Everyone with an AC sump pump because...
Who Needs a Backup Sump Pump System?

- If the power goes out the AC pump will not run and the basement will flood
- During a rain storm the power only needs to be out for a short time to cause extensive damage from flooding
- If the circuit breaker trips AC pump will not run and basement will flood
- If pump becomes unplugged it will not run and basement will flood
When the main pump fails the basement will flood, due to a mechanical problem:

- Stuck float switch
- Clogged or seized pump
- Faulty check valve
- Frozen lines
- Thermal Overload
Most homeowners have either experienced a flood themselves or know someone who has

- They remember the cost, the loss of items, and the headache of cleaning up
- Most homeowners will jump at the chance to protect themselves
- Insurance companies may drop homeowner’s coverage with multiple claims
- Most insurance companies do not offer flood protection in their standard policies
The benefit…

The homeowner will avoid a costly flood in the future
**Battery Backup Sump Pump**
A battery backup pump is a secondary sump pump that runs on DC voltage. It is intended as a backup pump that would only turn on in an emergency, such as a power outage or primary pump failure, because usage will deplete the battery.

**Water-powered Backup Sump Pump**
A water powered backup is a secondary sump pump that is powered by a municipal water supply. It is also intended only as a backup pump as municipal water is used in order to evacuate water out of a sump.

**Inverter System Backup Sump Pump**
An inverter system backup sump pump is a system that utilizes a battery and an inverter to power a secondary AC voltage sump pump. The inverter backup pump is only intended to run in an emergency because usage will deplete the battery.
Choosing a Complete Backup Solution

3 main factors to consider…

- Pumping Capacity
- Run Time
- Monitoring Features
How Do Backup Sump Pumps Differ?

**Pumping Capacity**

- Make sure the capacity of the pump will handle the “worst case scenario”
- It is important to look at gallons moved
- Gallons are rated by the hour (GPH) and by the minute (GPM)
How Do Backup Sump Pumps Differ?

**Pumping Capacity**

- When comparing capacity be sure to compare at the same ‘lift’ or ‘head’

- The vertical distance from the activation level to the highest point of discharge

- A pump may advertise "2100 GPH", but this may be measured at a 0’ lift.

- At 5’ head, that figure might drop to 1600 GPH, and at 10’ it could drop to 1000 GPH
How Do Backup Sump Pumps Differ?

**Run Times**

Battery Backup Systems

- The length of time the battery can run the pump
- Compare run time based on the same duty cycle
- Different pumps pull different amounts of amps to operate
- The lower the amp draw, the longer the run time on one charge of the battery
Some systems can handle multiple batteries in order to extend run time.
How Do Backup Sump Pumps Differ?

Monitoring Features

There are many different systems on the market with a variety of features:

- System that will give both visual (light) and audible (sound) alarms
- System that monitors the condition of the pump
- System that monitors the condition of the battery
- System that monitors the power conditions
Monitoring Features

The more the system tells you, the greater the chance the system will operate when needed.

Different monitoring options and their solution:

- The fluid in the battery is low. Add distilled water.
- The battery terminals are corroded or the battery is defective. Clean the terminals or replace the battery.
- The unit is not receiving AC power. Check the plug or circuit breaker.
- Check the AC fuse on the back of the controller. To silence the alarm during emergencies, press the button for 5 seconds.
- The pump is defective or not connected. Check the plug. Check the DC fuse on the back of the controller. If the fuse blows again, replace the pump.
- The back pump was activated. Check the main pump for failure. To silence the alarm during emergencies, press the button for 5 seconds.
How Do Backup Sump Pumps Differ?

**Batteries**

Battery run times vary, and depend on size and manufacturer of the battery

**Flooded Battery**

**Pros:**
- Lowest cost option
- Batteries are shipped dry
- Shelf life: Indefinite as they are not activated until filled

**Cons:**
- Battery acid needed to activate battery
- Refill water every 6 ÷ 12 months

**Maintenance Free / AGM (Absorbed Glass Mat)**

**Pros:**
- Batteries are shipped complete
- No need to add battery acid
- No need to refill water

**Cons:**
- Much higher cost
- Shelf life: 12 to 18 months
Remote Notification

- Ability to signal problems to the homeowner even if they are out of the house (remote capability)
- Remote terminals allow the unit to connect to one of many devices, such as:
  - Home security system
  - Home automation systems
  - Auto dialer for landline
  - Cellular wireless option
  - Wireless via wi-fi
  - Z-wave
  - Zigbee
  - Other wireless options
Installation of Battery Backup and Inverters
Clean the pit of all debris.

- The pump's intake must be kept clear

The pump should not be set directly onto a clay, earthen, or sand base

- You may install pump stands under the pump to provide a solid base

*The pumps should not touch each other*
Direct Discharge Outside
Above the Pit

- Take the shortest path with the fewest turns
- More turns will reduce the pumping capacity
Primary and backup pumps installed side by side on the bottom of the pit
Backup on top of the primary pump is another installation choice, if the sump pit is too narrow to place the pumps side by side.
Separate discharges for the main and backup pump
Tie-in to the existing discharge with a Y-connector and two check valves
Drill a ¼” pilot hole through the rim or header joist and the siding or brick from the inside on a very slight downward slope.

Then, using the ¼” hole as a guide, drill a 2” hole from the outside in.
This hole will be on a slight upward slope

Drill in this manner in order to avoid splintering the hole and damaging the exterior of the house
Piping the System

Horizontal Run

- Use a flexible, silicone based paintable caulk to absorb any pump vibration and to allow the homeowner to paint the caulk to match house color

- Caulk both the inside and outside the opening

- Assemble the pipes and elbow with PVC primer/cleaner and cement/glue

- Support the pipe runs by attaching to the joists or walls
If the direct discharge method is not possible or convenient the pump can be connected to the same line as your main AC sump pump.

Use a “Y” connector and two (2) check valves.
During times of very heavy rain, many storm sewers fill up. If your pump is trying to discharge water into a full sewer, there is nowhere for the water to go and the basement will flood.
If the discharge line on the main pump is clogged or frozen, there is nowhere for the water to go and the basement will flood.

If the main check valve fails, the basement will flood.
Depending on your installation requirements, PVC pipe lengths will vary.

- Cut the pipes and assemble them as shown in photo.
- *Do not cement them together until you are sure they are cut to the correct lengths.*

- It is important to keep the discharge pipes on both pumps parallel to each other, so that the pumps remain flat on the floor of the sump.
Install a check valve on top of the discharge pipe of the backup pump.

If there is no check valve on the discharge pipe of the main AC pump, one must be installed at this time.

Cut the discharge pipe approximately one (1) foot above the floor.

Install a check valve on the top of the pipe.
Now, cut a small piece of 1½” PVC and insert it in the top of the check valve on the main pump.

Add a “Y” assembly to the top of the discharge pipe with the “Y” extension facing down toward the backup pump.
Connect a 45° elbow to the top of the check valve on the backup pump.

Extend another piece of pipe to reach from the 45° elbow to the “Y” connector on the other pipe.
Connecting to Existing Discharge

Above the Pit

- Reconnect the discharge pipe to the top of the “Y” connector

- Prime and cement all pipe connections securely to prevent leaking, and tighten any hose clamps

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For quieter operation, silent check valves are available.
Attach or adjust the float switch or sensor as per the manufacturer’s recommendations.

When installing a back up, adjust the float or sensor to turn on after the primary pump.
Separate the float or sensor wires and the pump wires on the discharge pipes

Secure with wire ties or tape
Connecting the Battery

Connect the positive wire to the positive post, the negative wire to the negative post
Maintenance should be performed 1-2 times per year

- Check the battery and the water levels
- Remove all debris from the bottom of the sump pit
- Remove all debris floating in the water
Fill pit with water to make sure pump activates

- Ensure that water is being evacuated from the pit
- If a bleed hole was drilled make sure water is streaming from the hole
The water-powered pump is installed in a sump pit, where a float will activate a valve to control the flow of pressurized municipal water. When the water level rises to a certain level, the valve will open. When the water lowers the valve is closed and the flow of water is stopped.

With the valve opened, the pressurized municipal water is allowed to flow through a venturi, creating a low pressure region, which in turn allows atmospheric pressure to push water out of the sump pit and empty it.
Different pumps will have different installation instructions, but there are some good rules of thumb to be followed for any water-powered backup pump installation.
Water-Powered Backup Installation

- It is best practice to use two discharge pipes; one for the primary pump and one for the backup pump.

- If the primary pump and backup are piped together, a failed check valve could cause a flood condition where municipal water is filling the sump or basement.

- Having an air gap at the end of the discharge line is also recommended because a city storm sewer could backup.
Be careful with solder joints in the municipal line

Broken off solder can get stuck in the valve of the water-powered backup pump, which could prevent the valve from opening or closing
Water-Powered Backup Installation

- Backflow prevention code varies from county to county and state to state, the installation also determines what equipment is required.

- In order to protect the municipal water, most water authorities require more than a minimum level of backflow prevention, up to and including an RPZ valve.
Quick and easy to install!!

Pre-Assembled Systems