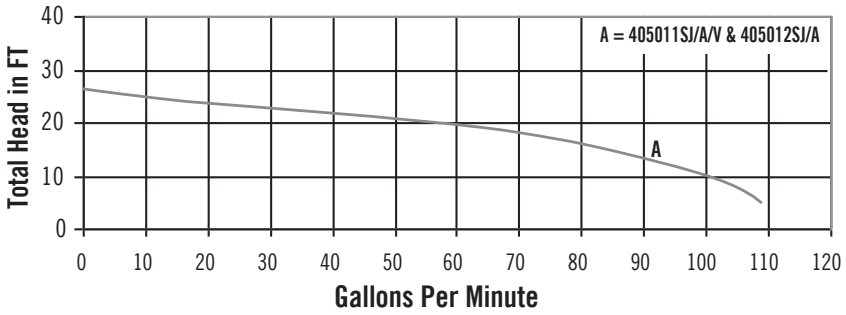
Performance Curve



THE CUSTOMER IS THE BOSS
EST. 1856
McDonald

WITHOUT YOU THERE IS NO US.

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EST. 1856 McDonald

IMPORTANT NOTICE - READ CAREFULLY

405011SJ/A/V, 405012SJ/A

Sump / Effluent / Sewage Pumps

Non-Potable Use Only

The A.Y. McDonald pumps are heavy duty cast iron 1/2 HP sump / effluent / sewage pumps capable of full 2" solids.

BEFORE OPERATION – Important Product and Safety Information – **WARNING** – Personal Injury and/or property damage could result if not adhered to.

! Risk of Electric Shock – Fatal electric shock could occur. Always disconnect the power source before attempting to install, service, relocate or check the pump. Never touch pump, pump motor, water, or discharge piping when pump is connected to electrical power. Never enter a wet or flooded area, basement, basin, etc. that is in contact with the pump or electrical circuit before power supply has been disconnected.

! Pump has not been investigated for use in swimming pool areas or any area that might reasonably expect aquatic, animal, or human entrance. Precautions should be taken to prevent such entrance during use.

! Connect only to a properly grounded, grounding type receptacle. Use of a ground fault circuit interrupter (GFCI) is required for maximum safety.

! All wiring must be performed by qualified electrician in accordance with all local and national electric code.

! When power source or supply is turned off (in open position) a lock and tag out should be used to prevent accidental power application or activation.

! Do not use extension cord or cut off grounding pin. Should be installed on separate 15 AMP circuit breaker.

! Use only with a properly sized (input AMPS, volts, HP) motor controller.

! Do not use to pump flammable/explosive liquids such as gasoline, fuel oil, kerosene, and /or chemicals, salt water, etc.

! Do not use pump in an explosive atmosphere or classified as hazardous per NEC, ANSI/ NFPA 70.

! Make sure pump is on hard level bottom in sump, do not set directly on earth, gravel, or other debris. This could cause excessive wear or possible jamming and flooding.

! Make sure pump is secure in basin and piping is firmly supported wall so that pump cannot move, not allowing liquid level switch to interfere with basin or other obstacle preventing proper operation. Flooding or overheating could occur if not prevented.

! All basins or sumps must have covers and must be installed to meet health and plumbing codes with proper sealing and venting. Before opening or entering sump safety precautions per OSHA requirements should be strictly adhered.

General Information

These pump models are offered without a liquid level motor control switch (manual models) or with attached switches. The manual versions need a liquid level switch for proper operation in a basin. An A.Y. McDonald Mfg. Co. pump liquid level vertical switch or float switch is recommended. These control switches easily mount to the discharge piping and are adjustable for different basin and liquid levels. Pump plug is plugged into back of piggyback receptacle on switch cord.

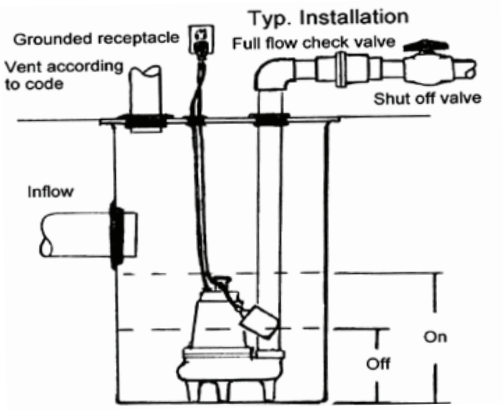
Models with attached vertical or float factory preset liquid level switches are:

Pump	Min. Basin Dia.	On Level	Off Level
Vertical Float	18”	9 7/8”	5 3/4”
Tethered Float	18”	17 3/4”	10 3/4”

Max. solid size - 2” **NOTE:** All pump discharge sizes 2 NPT

Sump/Effluent/Sewage Installation

1. Provide proper sump basin size. A larger size is recommended as it allows more reserve, and reduces switching.
2. Make sure level control switch has full motion without possible interference or hang up.
3. Make sure pump is on solid, clean, debris free base.
4. Schedule 40 PVC pipe is recommended, check local code. Hand tighten piping into pump. Install a union or other means of separating discharge line for easy pump removal.
5. A full flow check valve is recommended just above or in place of the union to prevent water backflow. Connect additional piping as needed to direct discharge to desired location. Keep piping as short as possible with minimum number of turns. Secure piping.
6. A ball or gate valve is recommended after the check valve to prevent backflow when removal is necessary.
7. In effluent and sewage applications, check with health and plumbing codes for proper basin size, sealing, and venting requirements.
8. In sewage applications, pumps should not be installed where sludge can build up
9. An audible high water alarm should be installed for additional protection.
10. Check pump system for proper operation once installed and power connected by filling basin with water.



Maintenance and Troubleshooting

Sympton	Possible Cause(s)	Corrective Action
Pump will not start or run	1. Blown fuse, tripped breaker 2. Low line voltage 3. Defective motor 4. Defective float switch 5. Impeller bound 6. Float obstructed, low water	1. If fuse is blown, replace with proper sized fuse or reset breaker. 2. If voltage is under 108 volts, check wiring size. 3. Replace pump 4. Replace float switch 5. If impeller will not turn, remove housing and remove blockage 6. Make sure float moves freely up and down, check level
Pump starts and stops too often	1. Backflow of water from piping 2. Faulty float switch	1. Install or replace check valve 2. Replace float switch
Pump will not shut off or thermal protector turns off	1. Defective float switch 2. Obstacle in piping, valve shut 3. Float obstructed 4. Low line voltage 5. Too many appliances on circuit	1. Replace float switch 2. Remove pump and clean pump and piping, open valve 3. Make sure float moves freely up and down 4. If voltage is under 108 volts, check wiring size 5. Install pump on dedicated circuit. **IMPORTANT:** Do not use extension cord to power pump
Pump operates but delivers little or no water	1. Plugged impeller 2. Check valve installed backwards, or faulty 3. Pump air locked	1. Clean out impeller 2. Reverse position of check valve, or replace 3. Drill 1/8” hole in discharge between pump and check valve