

Mascontrol®

An intelligent system

Mascontrol is the newest product innovation providing optimum control for electric pumps used in residential and commercial plumbing and irrigation systems. An intelligent mix of hydraulic and electronic engineering, Mascontrol monitors both pressure and flow, and automatically controls pump operations. Mascontrol eliminates the use of expansion tanks needed with traditional systems. No plenum chambers to recharge, and no irritating variations in pressure and flow at the point of use. No risk of the pump running dry. No adjustment or maintenance is required. Much more compact than traditional tank systems, Mascontrol is absolutely dependable, durable and simple to install. Over one million units currently in use across Europe.



Mascontrol is the most advanced economical solution for controlling electric pumps.

Features of operation

- Eliminates pressure tank and switch
- Maintains constant pressure and flow
- Built-in check valve
- Built-in run-dry sensor
- Dual voltage 115 V or 230 V
- Absorbs water hammer
- Simple installation saves time and space
- No adjustment or maintenance required
- Can be used with surface or submersible pumps

Features of construction

Mascontrol includes a hydraulic section and electronic control box.

The hydraulic section comprises:

- a molded housing in reinforced plastic.
- a diaphragm and spring responsive to variations in pressure.
- a valve responsive to variations in flow.
- a check valve
- safety valve preventing any water leakage in case of diaphragm break down

The electronic section comprises:

- a NEMA 12 electronic box molded in self-extinguishing plastic.
- an individually-tested electronic circuit board protected by insulating film.
- a relay with special contacts and an electrical life of over 300,000 cycles or approximately 10 years (continuous rating).
- a varistor protecting against voltage peaks.

Materials

Housing	Glass fiber reinforced polyamide PA 6 FV 30%
Diaphragm	EPDM
Spring	Steel C 72 UNI 3545
Flow valve	Stainless steel AISI 304
Check valve	Glass fiber reinforced polyamide PA 6 FV 30%
Control box	Self extinguishing thermoplastic resin 94 - 5 VA
Printed circuit	Vetronite

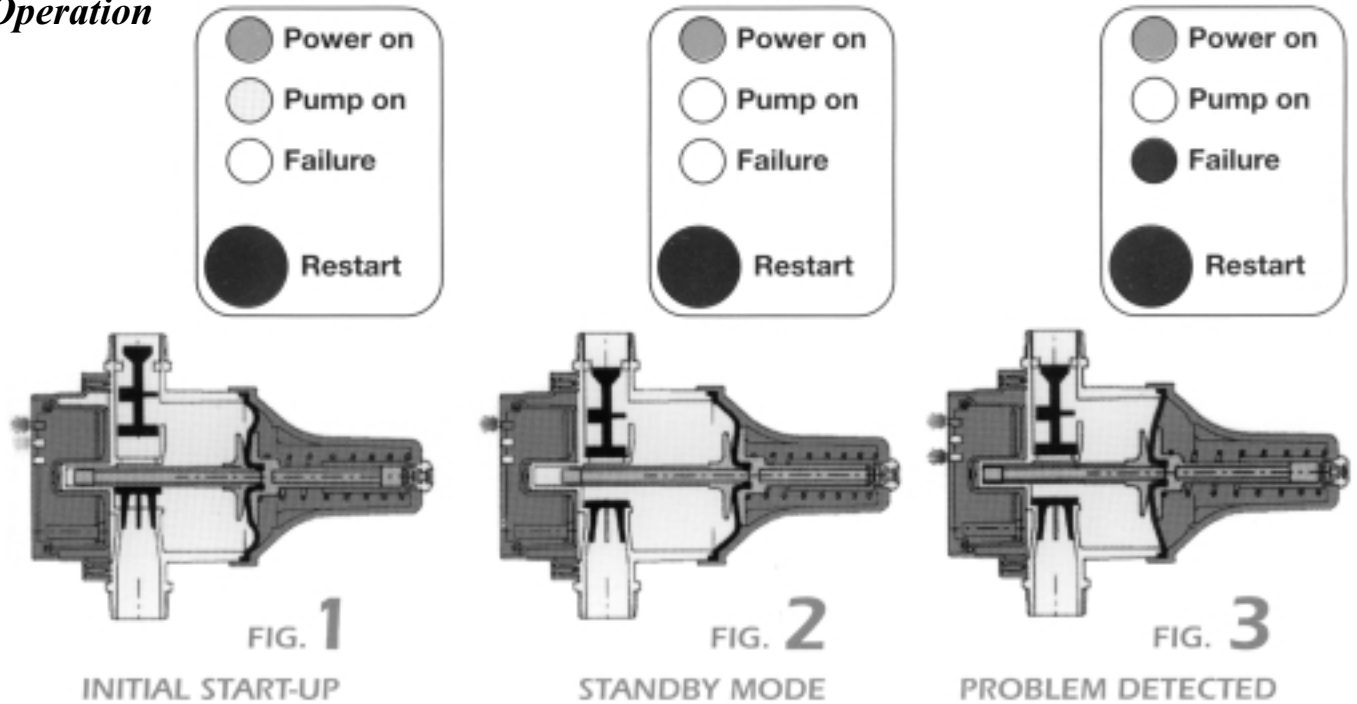


Listed by Underwriters Laboratories Inc. to U.S. and Canadian safety standards



Fully in compliance with current EEC directives

Operation



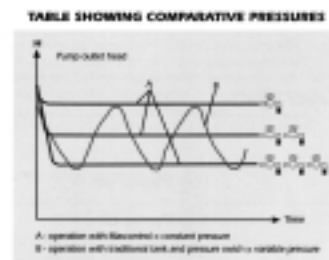
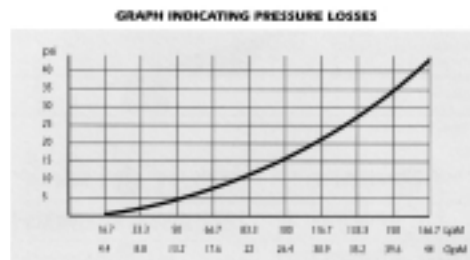
The system's easy operating steps are displayed by indicator lights on a small panel at the front of the control box. Two of these will light up when the Mascontrol is connected to the power supply: **Power on** (green) and **Pump on** (yellow), indicating that the circuit powered up and the pump is running (see fig. 1). The pump will continue to operate for a few seconds so that pressure can be established in the system.

At this point, the pump is automatically shut off and switched to the standby mode (green light on), ready to respond to the various monitoring and control signals generated by the system (fig. 2). Whenever a tap or valve is opened, the pump is immediately started by the Mascontrol unit and continues to run as long as the tap remains open (fig. 1). When the tap is closed, the Mascontrol unit shuts off the pump and returns the system to maximum pressure and reverts to the standby mode (fig. 2).

Irregular operating conditions such as a dry or blocked inlet line, etc., are recognized by the **Failure** light (red light on). The pump is shut off immediately. Once the problem is corrected the user need only press the red **Restart** button to restore normal operation. (fig. 3). If power is lost, the Mascontrol system will reset and restart automatically when power is restored.

Technical Specifications

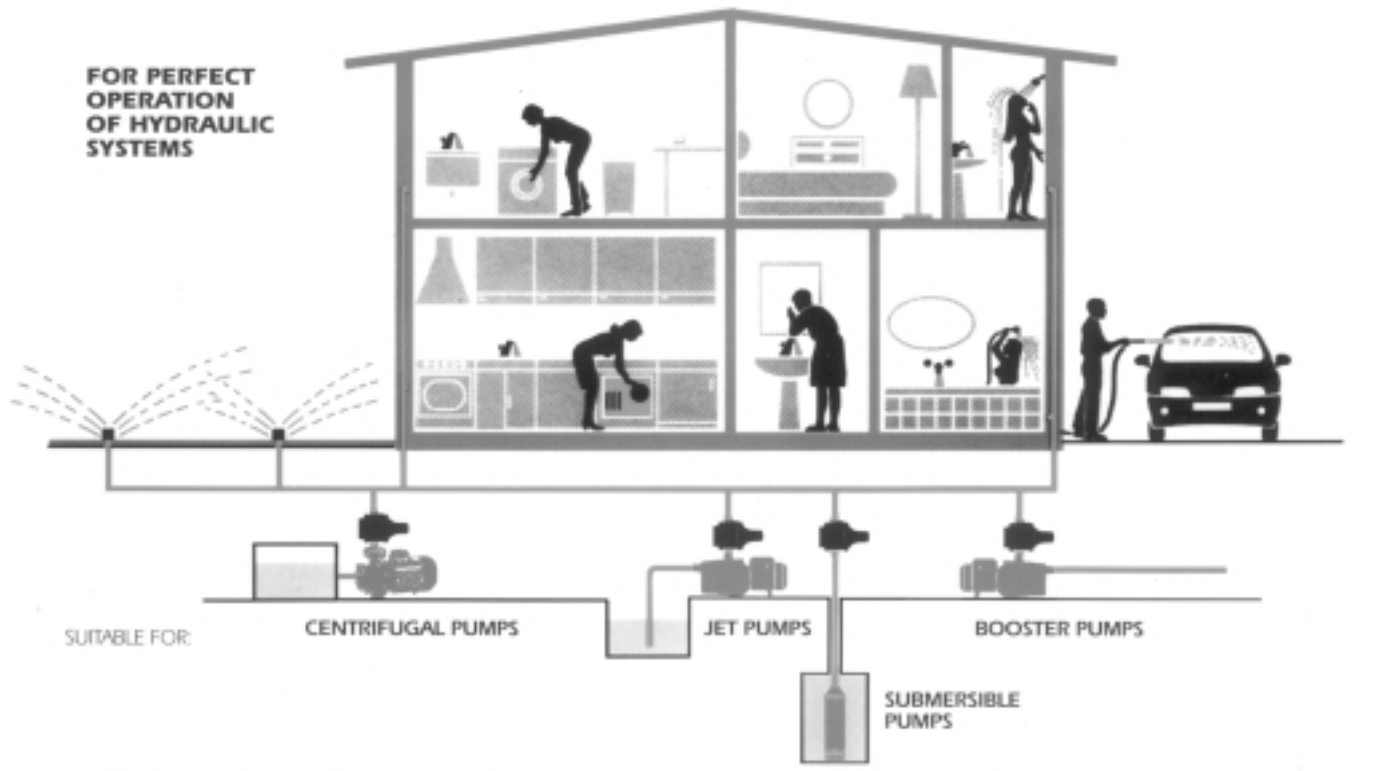
Dual voltage 115V / 230V
 Acceptable power fluctuations $\pm 10\%$
 Frequency 50/60 Hz
 Amp rating 115V-16FLA / 230V-20FLA
Use starter for higher amp draws
 Electronic enclosure NEMA 12
 Maximum operating pressure 145PSI
 Operating temperature 32-149°F (0-65°C)
 Male threaded connections 1" NPT
 Electrical conduit connections 1/2"



Mascontrol is available in 1' and 1 1/4' models. By utilizing a bypass, the Mascontrol is adaptable to almost any flow and horse power pump. Product warranty is two years from installation date (see footnote below). Replacement parts are the electronic box and hydraulic body - no rebuilds required.

- Mascontrol 1" - for flows up to 15GPM
- Mascontrol 1-1/4" - for flows up to 25GPM
- Use bypass application with either model for flows in excess of 25 GPM.

- Item # 79980 Mascontrol, 1" NPT, 50 feet (suitable for 50 feet maximum elevation above Mascontrol)
- Item # 79983 Mascontrol, 1" NPT, 70 feet (suitable for 70 feet maximum elevation above Mascontrol)
- Item # 79984 Mascontrol, 1" NPT, 90 feet (suitable for 90 feet maximum elevation above Mascontrol)
- Item # 79985 Mascontrol, 1-1/4" NPT, 50 feet (suitable for 50 feet maximum elevation above Mascontrol)
- Item # 79986 Mascontrol, 1-1/4" NPT, 70 feet (suitable for 70 feet maximum elevation above Mascontrol)

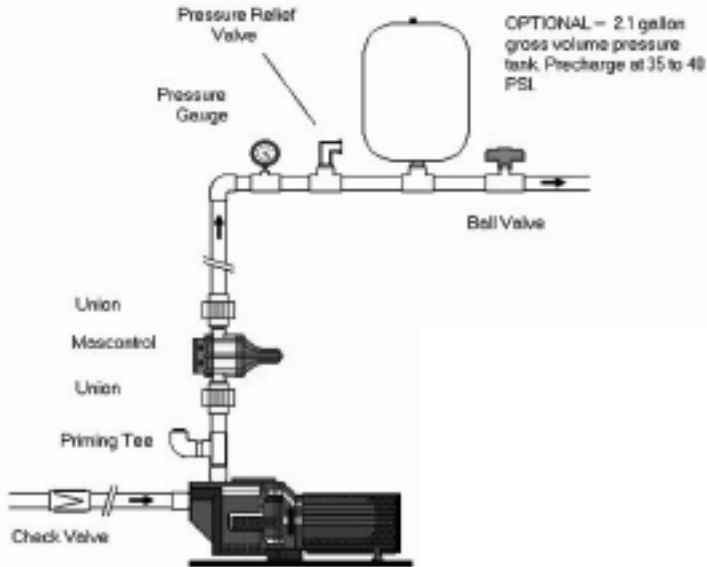


WARRANTY AND DISCLAIMER OF WARRANTY

The following warranty for the product is in lieu of all other conditions or warranties, whether express, implied or statutory, including but not limited to any implied conditions or warranties of merchantability or fitness for a particular purpose and on any other condition or warranty obligation on the part of the manufacturer or its distributors, which are hereby expressly disclaimed. Mascontrol is warranted to be free of defects occurring either in hydraulic or electronic parts for a period of two years from date of installation when installed by a licensed professional in accordance with the product manual and due professional care. The manufacturer reserves the right to inspect and evaluate defective units prior to warranty claim settlement. Improper installation, application or mishandling of unit voids the warranty.

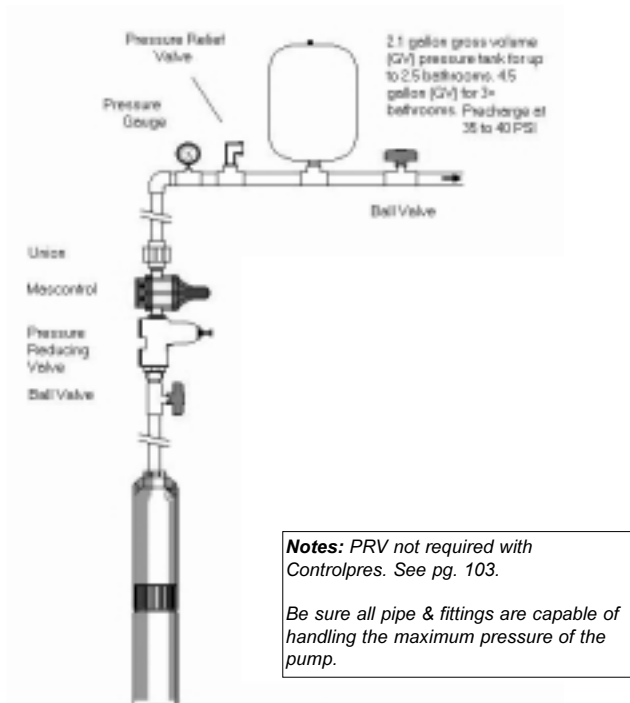
Mascontrol Installation Diagram

Surface Pump - Residential Application



The pressure tank is optional. The tank, if used, provides a “cushion” for small demands such as icemakers, reverse osmosis systems, leaks, glasses of water, etc. The tank precharge should be set at 35 to 40 PSI or generally not less than 20 PSI below the system pressure. With single stage surface pumps, system pressure is usually between 50 and 60 PSI. Do not install a pressure tank larger than 8.6 gallons gross volume as the system may perform like a standard tank set-up. Be sure to install a ball valve on the main after the Mascontrol for system maintenance. Gate valves may be used instead of ball valves. Remove the pressure switch from the pump (if supplied) and wire the Mascontrol directly to the pump.

Submersible Pump - Residential Application

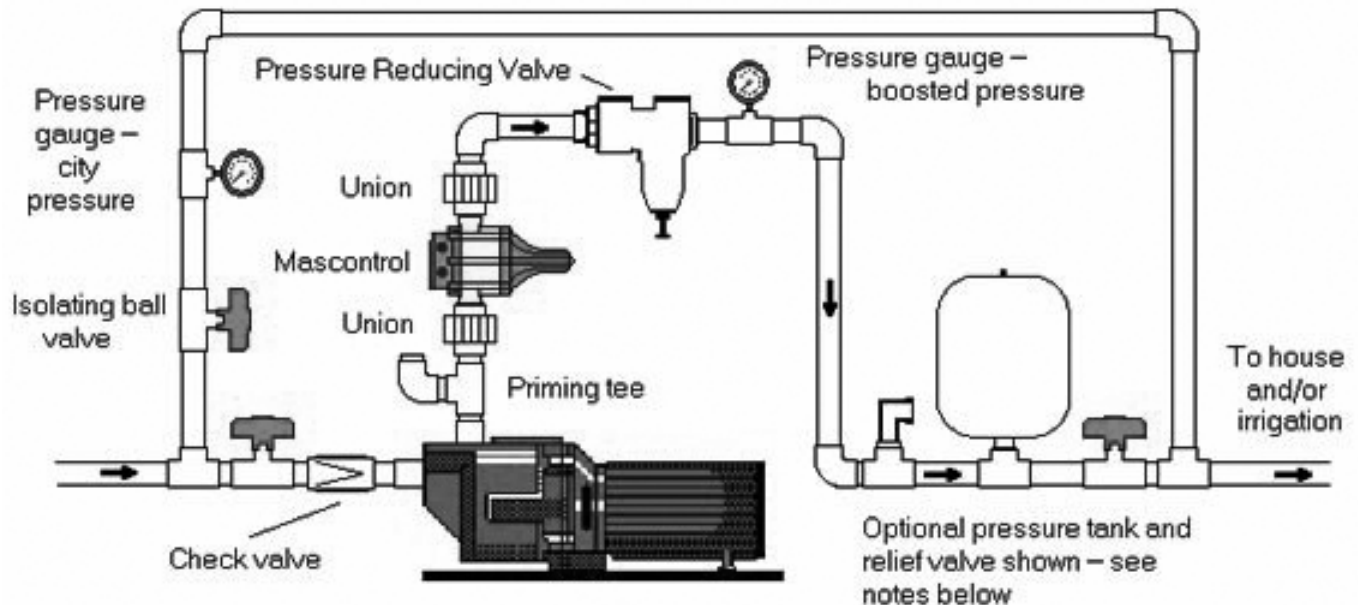


The submersible system may be operated without a tank for 3-wire submersible systems, however the tank provides a “cushion” for small demands such as icemakers, reverse osmosis systems, leaks, glasses of water, etc. The tank precharge should be set at 35 to 40 PSI or generally not less than 20 PSI below the system pressure. Do not install a pressure tank larger than 8.6 gallons gross volume as the system may perform like a standard tank set-up. Irrigation systems do not require a tank unless the system has significant leaks. The pressure reducing valve provides safe water pressures to the house as submersible pumps are usually capable of producing significantly higher pressure than is needed for the home or application. The ball valves shown are for system maintenance. At least one ball valve should be placed after the Mascontrol on the main. Gate valves may be used instead of ball valves.

Mascontrol City Water Booster Pump Application

Isolation Bypass Shown

*Diagram shows OPTIONAL Pressure Reducing Valve and
OPTIONAL Pressure Tank - See notes below*



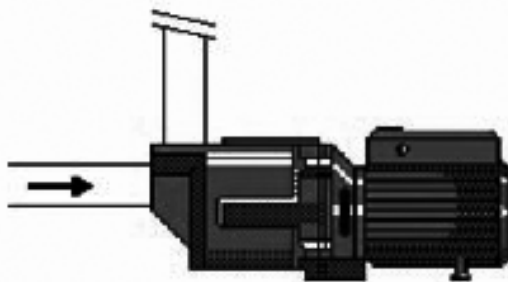
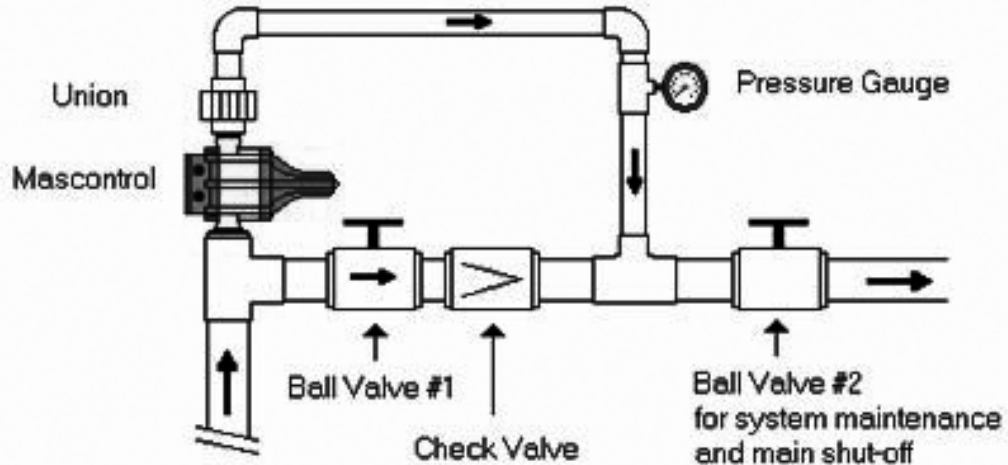
NOTES:

Pressure Reducing Valve - only required if incoming city pressure PLUS pump's maximum pressure exceeds desired service pressure. If city pressure fluctuates use highest pressure reading and use pump's maximum pressure to arrive at total surface pressure. Most residential booster pumps will generate at least 50 to 55 PSI. Follow local codes on maximum in-house water pressure. If irrigation requires higher pressure, tee off after the Mascontrol but before the pressure reducing valve to supply the irrigation system with the highest pressure available. Do not tee off BEFORE the Mascontrol

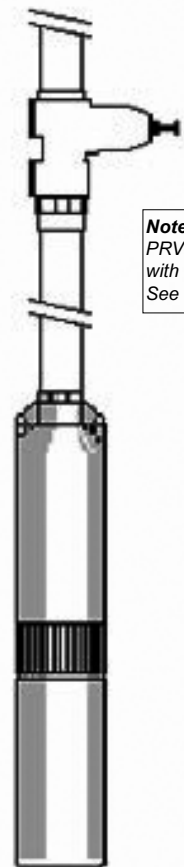
Pressure Tank and Relief Valve - OPTIONAL -The Mascontrol provides "on demand" pump control. To prevent the pump from starting for small water uses such as ice makers, glasses of water, etc., install a 2.1 gallon gross volume pressure tank (example JR6) AFTER the Mascontrol and pressure reducing valve (if one is installed). Precharge pressure tank to between 35 and 40 PSI, BUT NOT LESS THAN 20 PSI below system pressure. DO NOT install pressure switch. The tank will "feed" small demands. When the tank is emptied, the Mascontrol will start the pump and repeat pump cycling. On larger homes (3 or more bathrooms) a 4.5 gross volume tank may be used, such as a JR15. Precharge according to above instructions. A pressure relief valve may be added as dictated by local code.

Mascontrol Bypass Application

*With 1" Mascontrol use on flows above 15 GPM
With 1 1/4" Mascontrol use on flows above 25 GPM*



Pressure
Reducing
Valve



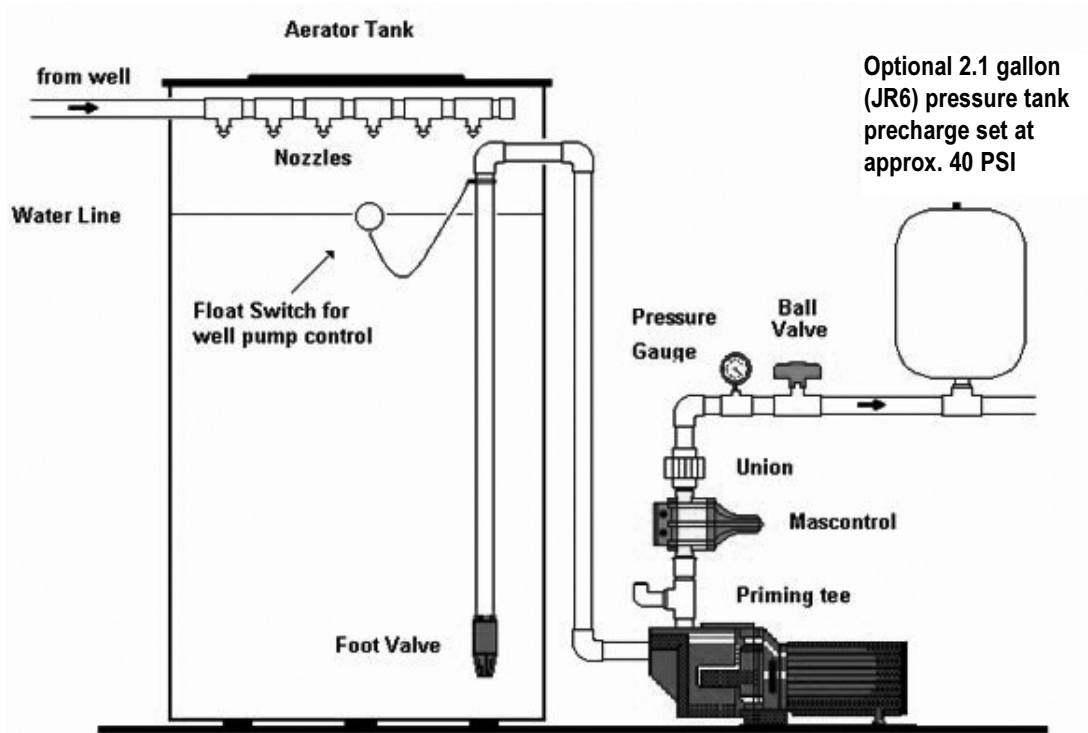
Note:
PRV not required
with Controlpres.
See pg. 103.

NOTES:

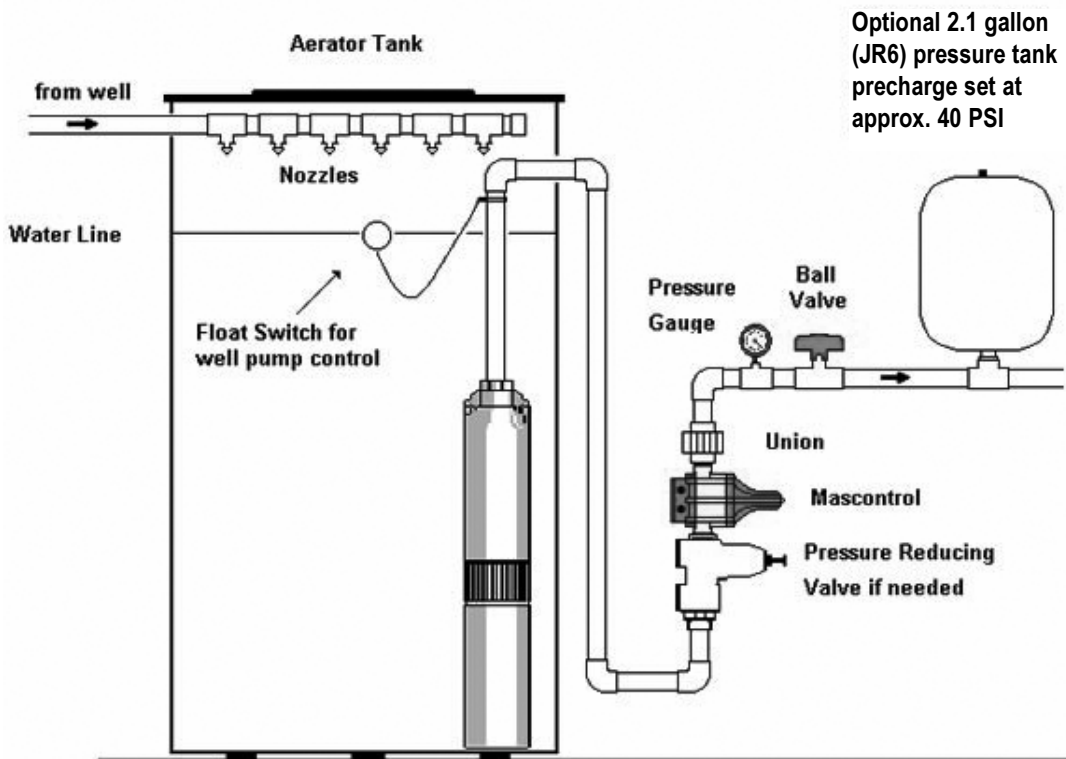
Ball valve #1 is used to provide back-pressure to the pump and also to throttle more water into the bypass if necessary. Pressure reducing valve shown on submersible is used when maximum head pressure is greater desired system pressure. In most cases, a pressure reducing valve will be required as most submersibles are capable of generating much more PSI than is required, especially with varying flow rates. If rapid cycling occurs, the bypass/Mascontrol is not getting enough flow and ball valve #1 should be adjusted (more closed) to force additional water into the bypass. Note that as less of the pump's capacity is used, flow slows down/pressure increases and water will follow the least resistant path - the main line. Fast cycling on a particular zone (when the other zones run normal) usually indicates an undersized zone. Check the pressure gauge to see if pressure rises significantly on the cycling zone.

Mascontrol Installation with Aerator Tank

Surface Pump Application



Submersible Pump Application



Notes:
2 wire pumps must have a tank installed.
PRV not required with Controlpres.
See pg. 103.