



WELL-X-TROL®

COMMERCIAL PRE-PRESSURIZED WELL TANKS

INSTALLATION & OPERATION INSTRUCTIONS

Models WX-401(C) through WX-407(C)
Models WX-421 through WX-427
Models WX-447(C) through WX-463C
Models WX-35L(CL) through WX-600-L(CL)



NOTE: Inspect for shipping damage and notify freight carrier or store where purchased immediately if damage is present. To avoid risk of personal injury and property damage, if the product appears to be malfunctioning or shows signs of corrosion, call a qualified professional immediately. Current copies of the Product manual can be viewed at www.amtrol.com. Use proper safety equipment when installing.



THIS IS THE SAFETY ALERT SYMBOL. IT IS USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY AND OTHER HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO REDUCE THE RISK OF PERSONAL INJURY AS WELL AS PROPERTY DAMAGE.

WARNING READ CAREFULLY THE PRODUCT INSTALLATION & OPERATION INSTRUCTIONS. FAILURE TO FOLLOW THE INSTRUCTIONS AND WARNINGS IN THE MANUAL MAY RESULT IN SERIOUS OR FATAL INJURY AND/OR PROPERTY DAMAGE, AND WILL VOID THE PRODUCT WARRANTY. THIS PRODUCT MUST BE INSTALLED BY A QUALIFIED PROFESSIONAL. FOLLOW ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS, IN THE ABSENCE OF SUCH CODES, FOLLOW THE CURRENT EDITIONS OF THE NATIONAL PLUMBING CODE AND NATIONAL ELECTRIC CODE, AS APPLICABLE. EXPLOSION OR RUPTURE HAZARD. THE EXPANSION TANK MUST BE OPERATED SO THAT THE PRESSURE DOES NOT EXCEED THE MAXIMUM WORKING PRESSURE.

WARNING EXPLOSION HAZARD. Failure to follow the instructions in the accompanying product manual can cause a rupture or explosion; possibly causing serious or fatal injury, leaking or flooding and/or property damage.

WARNING Use only with potable water system. Do not operate in a setting with freezing temperatures or where the temperature can exceed 200°F and do not exceed the maximum working pressure specified for this Product in the Manual. Mount vertically only.

WARNING Chlorine & Aggressive Water: The water quality can significantly influence the life of this Product. You should test for corrosive elements, acidity, total solids and other relevant contaminants, including chlorine and treat your water appropriately to insure satisfactory performance and prevent premature failure.

WARNING This Product, like most Products under pressure, may over time corrode, weaken and burst or explode, causing serious or fatal injury, leaking or flooding and/or property damage. To minimize risk, a licensed professional must install and periodically inspect and service the Product. A drip pan connected to an adequate drain must be installed if leaking or flooding could cause property damage. Do not locate in an area where leakage of the tank or connections could cause property damage to the area adjacent to the appliance or to lower floors of the structure.

CALIFORNIA PROPOSITION 65 WARNING! This product contains a chemical known by the State of California to cause cancer and to cause birth defects or other reproductive harm. (California Installer/Contractor - California law requires that this notice be given to consumer/end user of this product.) For more information: www.amtrol.com/prop65.html

WARNING EXPLOSION OR RUPTURE HAZARD A relief valve must be installed to prevent pressure in excess of local code requirement or maximum working pressure designated in the Product Manual, whichever is less. Do not expose Product to freezing temperatures or temperatures in excess of 200° F. Do not adjust the pre-charge or re-pressure this Product except for any adjustments required at the time of initial installation, especially if Product corroded, damaged or with diminished integrity. Adjustments to pre-charge must be done at ambient temperature only. Failure to properly size the Product or follow these instructions may result in excessive strain on the system lead to Product failure, serious or fatal personal injury, leakage and/or property damage.

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY
IMPORTANT GENERAL SAFETY INFORMATION -
ADDITIONAL SPECIFIC SAFETY ALERTS APPEAR IN THE FOLLOWING INSTRUCTIONS.

⚠ WARNING **DANGER! EXPLOSION HAZARD.** WHEN THE WELL TANK HAS BEEN IN SERVICE AND A CHANGE TO A HIGHER PRE-CHARGE PRESSURE IS NECESSARY DUE TO A REQUIRED CHANGE IN THE PRESSURE SWITCH SETTING, FAILURE TO FOLLOW INSTRUCTIONS BELOW CAN CAUSE A RUPTURE OR EXPLOSION, POSSIBLY CAUSING SERIOUS OR FATAL PERSONAL INJURY, AND/OR PROPERTY DAMAGE.

- DO NOT ADJUST OR ADD PRESSURE IF THERE HAS BEEN A LOSS OF AIR.
- DO NOT ADJUST THE PRE-CHARGE PRESSURE IF THERE IS VISIBLE EXTERIOR CORROSION.
- DO NOT ADJUST THE PRE-CHARGE PRESSURE IF THERE HAS BEEN A REDUCTION OF THE PUMP CYCLE TIME OR THE PRE-CHARGE PRESSURE COMPARED TO ITS INITIAL SETTING. THIS IS BECAUSE REDUCTION IN PUMP CYCLE TIME CAN RESULT FROM LOSS OF TANK AIR PRESSURE WHICH IN TURN CAN MEAN THERE MAY BE INTERNAL CORROSION AND ANY RE-PRESSURIZATION OR ADDITIONAL PRESSURE COULD RESULT IN RUPTURE OR EXPLOSION.

⚠ WARNING **MAXIMUM WORKING PRESSURES.** Every Well-X-Trol is air tested to 125 psig, the maximum working pressure for the Well-X-Trol line. Should pressures exceed 125 psig, proper selection and sizing of an ASME constructed Well-X-Trol should be made.

⚠ WARNING **RELIEF VALVE REQUIRED.** A relief valve should be installed which is set to open at excessive pressures (75psig or more). This will protect the Well-X-Trol and other system components should the pressure switch malfunction and fail to shut the pump off. The relief valve should be installed at the connection of the Well-X-Trol to the system piping and have a discharge equal to the pump's capacity at 75 psig.

⚠ CAUTION AS IN ALL PLUMBING PRODUCTS AND WATER STORAGE VESSELS, BACTERIA CAN GROW IN YOUR WELL TANK, ESPECIALLY DURING TIMES OF NON-USE. CONSULT YOUR LOCAL PLUMBING OFFICIAL REGARDING ANY STEPS YOU MAY WISH TO TAKE TO SAFELY DISINFECT YOUR HOME'S PLUMBING SYSTEM.

⚠ WARNING A water test must be taken before installation of any water treatment equipment.

⚠ WARNING **DANGER! EXPLOSION HAZARD.** IF YOU ADJUST THE PRE-CHARGE PRESSURE OR ADD PRESSURE TO A TANK THAT IS CORRODED OR DAMAGED OR WITH DIMINISHED INTEGRITY THE TANK CAN BURST OR EXPLODE, POSSIBLY CAUSING SERIOUS OR FATAL PERSONAL INJURY AND/OR PROPERTY DAMAGE.

- ONLY ADJUST THE PRE-CHARGE AS DESCRIBED IN THIS MANUAL WHEN THE TANK IS NEW OR WHEN THE INTEGRITY OF THE TANK AND LACK OF INTERNAL OR EXTERNAL CORROSION IS CONFIRMED.
- ONLY QUALIFIED PROFESSIONALS SHOULD CHECK, ADJUST OR RE-CHARGE THE PRE-CHARGE OF TANKS.

⚠ WARNING For your safety, the information in this manual must be followed to minimize the risk of electric shock, property damage or personal injury.

- Properly ground to conform with all governing codes and ordinances.

⚠ WARNING Do not install in direct sunlight. Excessive sun heat may cause distortion or other damage to non-metallic parts.

⚠ WARNING Use only lead-free solder and flux for all sweat-solder connections, as required by state and federal codes.

⚠ WARNING Maximum allowable inlet water pressure is 125 psig. If daytime pressure is over 80 psig, nighttime pressure may exceed the maximum. Use a pressure-reducing valve to reduce the flow if necessary.

⚠ WARNING **ELECTROCUTION AND EXPLOSION HAZARD.** before work is performed on the tank, turn off the power to the pump and release all water pressure in the tank and pumping system.

Pre-Installation

Proper WELL-X-TROL® Location

The surface which supports the Well-X-Trol should be capable of supporting its operating weight (including the weight of water).

The Well-X-Trol should be installed as close as possible to the pressure switch. This will reduce the adverse effects of added friction loss and differences in elevation between Well-X-Trol and/or water supply main and switch.

1. Adjacent to pump. This is the location chosen most often. The Well-X-Trol tank can be used whether pumps are above or below the surface. In either case, it protects the pump by reducing surge, dampening pressure spikes, offering a point of pressure control, and providing minimum run time. This location also permits all equipment to be placed in an area that's both serviceable and secure.
2. At the end of long pipe runs. Sometimes it's better to put the Well-X-Trol tank at the end of a long run of pipe so it can provide rapid system response and adequate protection. When this location is chosen, the pressure switch should either be relocated with the Well-X-Trol tank or the setting should be adjusted to compensate for any line pressure drop.
3. Adjacent to shock creating components. If you want to use the Well-X-Trol tank to control shock or pressure fluctuations, then you should locate the tank as close as possible to the cause as possible. This should be done when and where you have back flow preventors, check valves, solenoid, mixing and meter valves, pumps and other system controls which can contribute to system shock.

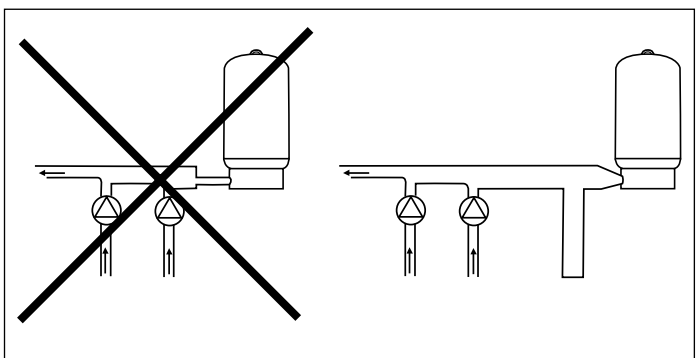
⚠ CAUTION Do not use for shock with flow velocities greater than 10 FPS.

⚠ WARNING DO NOT LOCATE IN AN AREA WHERE LEAKAGE OF THE TANK OR CONNECTIONS COULD CAUSE PROPERTY DAMAGE TO THE AREA ADJACENT TO THE APPLIANCE OR TO LOWER FLOORS.

System Connection

The connecting pipe between the Well-X-Trol tank and the system should be as short as possible with a minimum of bends. It should also be as large in diameter as possible, consistent with system piping. You should never bush down from the Well-X-Trol tank (Figure A).

Figure A



Installation

1. Locate Well-X-Trol® in final desired location.
2. Level as necessary.
3. Connect to pump supply line with same size pipe as from pump. Eliminate unnecessary friction loss.
4. All piping should be in accordance with prevailing local codes and standards.

WX-401(C) through WX-403(C): 1" elbow.

WX-404(C) through WX-407(C): 1-1/4" elbow.

WX-421 through WX-422: 2" elbow.

WX-423 through WX-427: 3" elbow.

WX-447(C) through WX-452(C): 2" elbow.

WX-453(C) through WX-457(C): 3" elbow.

WX-458C through WX-463C: 4" elbow.

WX-35L(CL) through WX-100L(CL): 1-1/4" elbow.

WX-130L(CL) through WX-300L(CL): 1-1/2" elbow.

WX-400L(CL) through WX-600L(CL): 2" elbow.

Adjusting Well-X-Trol Precharge

Models	Factory Precharge
WX-401(C) through WX-407(C)30 psig
WX-421 through WX-463C25 psig
WX-35L(CL) through WX-600L(CL)	...25 psig

1. Remove protective air valve cap and check precharge pressure using a suitable pressure gauge. (Tank should be at room temperature and empty of water.)
2. Release or add air as necessary to make precharge pressure equal to 2 psig below the pressure switch pump cut-in setting or 10%-20% below system pressure for a surge application.

Note: Pressure switch setting may be out-of-adjustment, i.e. if labeled 30/50, it may actually be 28 or 29 to 48 to 49. See Fine Tuning Procedure for correcting this situation. Do not adjust Well-X-Trol precharge for this variation.

When the Well-X-Trol is installed in the system, system pressure must be reduced to exhaust the tank of acceptance water before precharging. Once this has been done, follow above steps 1-3.

Air Pressure - High Pressure Application

If increasing pre-charge above 55 psig, the following steps must be followed:

- a. Tank must be connected to the system with isolation valve open.
- b. System must be pressurized to 25-30 psig, matching the pre-charge setting of the tank.
- c. Isolation valve then needs to be closed.
- d. The pre-charge pressure of the tank can now be increased to the recommended high-pressure setting.
- e. Bring system up to pressure and then open the isolation valve to the tank.

CAUTION Failure to follow these instruction could result in damage to the bladder or diaphragm and void all warranties.

Remember to replace and seal the plug after you've reached the correct air charge (it's a good way to tell if anyone has been tampering with the system).

Pressure Switch

For best performance, you should put the pressure switch at or near the Well-X-Trol where pressure variations will be dampened. When you fine tune the system, you should adjust switch controls instead of the Well-X-Trol precharge.

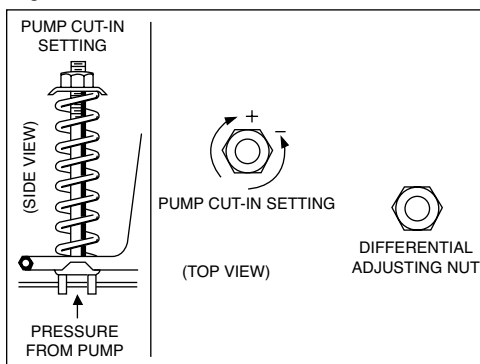
Safety Protection

All installations should be according to prevailing codes and standards. In addition, you should protect the system by installing an adequately sized relief valve at or near the pump discharge. You should also provide facilities to drain the system.

Fine Tuning Procedure:

1. Fill the system and Well-X-Trol until pump cuts off.
2. Open one or more fixtures to drain Well-X-Trol.
3. If there is a momentary pause in the water flow from the time the Well-X-Trol is emptied and the pump starts, adjust pump switch cut-in setting upward (clockwise) slightly (Figure 1). (Refer to Adjustment Instructions by switch manufacturer).
4. Close fixtures and refill Well-X-Trol to pump cut-off. Check time to fill.
5. Open fixtures and see if pause in water is eliminated at pump cut-in. If not, continue adjusting pressure switch.

Figure 1



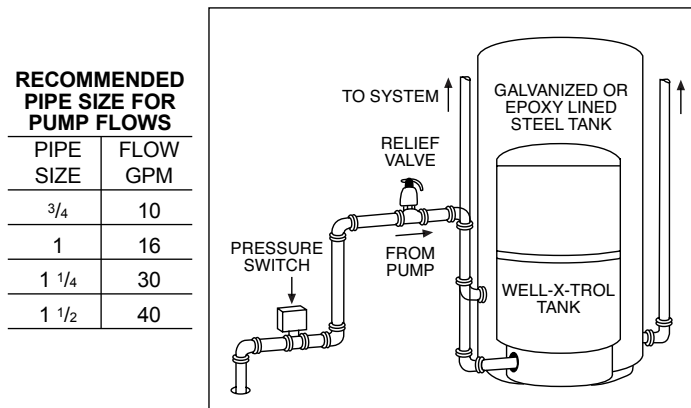
Replacing Galvanized or Epoxy Lined Tanks

Many times a defective steel tank must be replaced with a Well-X-Trol to provide Effective System Protection, (ESP). Because the Well-X-Trol is precharged with air, it will always occupy less space for equal amounts of pressurized water than a galvanized or epoxy lined steel tank.

It is required that a relief valve be installed at the Well-X-Trol connection to ensure system protection (Figure 2).

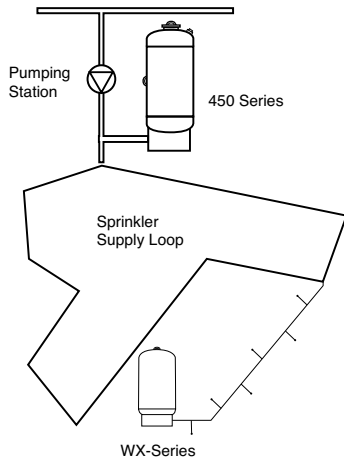
Also BE SURE to plug the air port on a jet pump, as air is no longer required to be supplied to the tank.

Figure 2

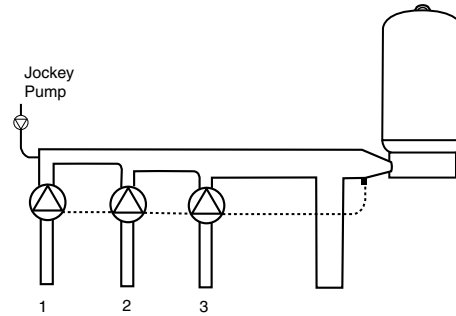


Applications

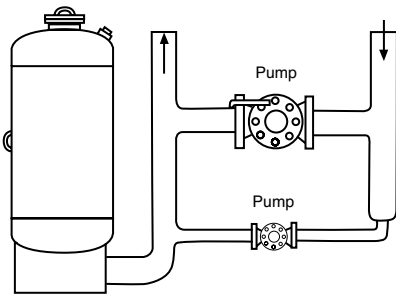
1. In the sprinkler system for a golf course, two Well-X-Trol®s are used. The larger 440 through 460 Series protects and assures proper pump operation. While the smaller 400 Series protects 'dead end' lines from hammer and surge.



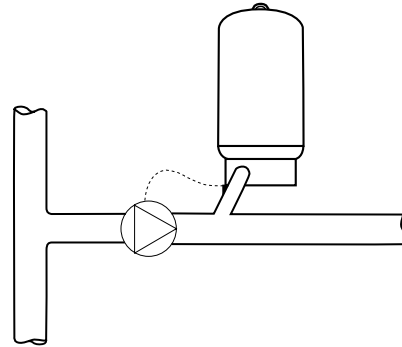
2. In a municipal well system or pressure boosting station, Well-X-Trols are used to control sequential start of the main pumps. At the same time, it reduces surge and provides the jockey pump with guaranteed minimum run times during low peak demand periods.



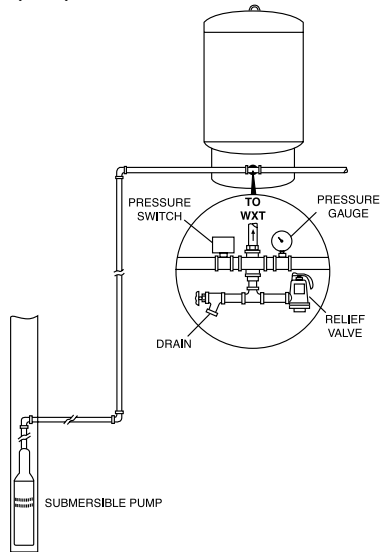
3. Well-X-Trol 440 through 460 Series are sometimes used on pressure regulation stations to provide system dampening during periodic high peak loading such as laundry wheels.



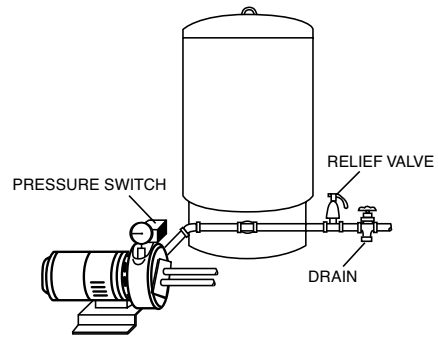
4. Well-X-Trol 400 Series are also used for high pressure booster applications, e.g. high rise buildings, irrigation systems and community wells.



5. WX-35-L(CL) through WX-600-L(CL) installed on-line using submersible pump.



6. WX-35-L(CL) through WX-600-L(CL) installed on-line with jet pump.



Warranty

WX Models: One (1) Year Limited Warranty
 Visit www.amtrol.com for complete warranty details.



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