

## **ASSEMBLY INSTRUCTIONS - AUTOTROL SIMPLEX INDUSTRIAL SOFTENERS**

Valves covered: 168&255/440 (Time Clock), 168&255/460i (Commander) with digital display,

This water softener has been shipped in kit form to facilitate easier transport and installation. It has been broken down into four (4) main components:

1) Valve with top distributor fitted. Regeneration has been pre-set in our factory. You will need to set frequency of regeneration on '440' time clock valves, or the hardness of the water in degrees Clarke on the '460' Commander valves. An Autotrol instruction manual is included with the valve. The appropriate transformer will be packed with the valve.

2) Pressure vessel with riser tube and distributor cut to length and chamfered. The top of the tube will have a slip on cover to prevent resin falling inside the distributor when the pressure vessel is filled. The riser tube is approximately 30mm longer than the vessel.

3) Brine tank complete with brine well and brine pick up. Brine line is cut to length and is packed in the brine tank.

4) Resin packed in 25 litre sacks plus one smaller bag to balance resin volume if necessary.

### **ASSEMBLY**

Locate the component parts of the softener, and check that everything required has been delivered. Ensure installation site is clear and level.

If possible, place the pressure vessel in its final location before filling. Check that the distributor tube with the slip on cover is in place. Using a hose, 1/3 fill the pressure vessel with water then using the funnel, slowly pour in the resin taking care not spill any on the floor. Ensure that the distributor tube remains central in the vessel during filling. After emptying all the bags, the vessel should be at most 75-80% full. This is to allow rising space for the resin during backwashing. Once the vessel is filled, immediately sweep up any spilled resin. Remove the cover from distributor tube, and brush any resin beads out of the threads in the neck of the pressure vessel.

Unpack valve and slip down over the distributor tube. You will feel slight resistance as the riser tube is forced through the internal sealing 'O' ring. Screw the valve in to the resin vessel, taking care not to cross the threads. Excessive force should not be needed as the valve is running in to the vessel. Finally tighten to approximately 20 ft.lbs. torque. Adjust the position of the vessel to line up pipework connections, not the position of the valve on the vessel.

Position the brine tank and connect brine line to the bulkhead connector above the overflow (3/8" brine line) Ensure that a brass insert is placed inside the brine line before connecting.

Connect inlet and outlet pipework to valve using flexible connections or plastic high pressure piping. Flexible pipework is essential to prevent stress on the vessel as it cycles during service, since it will expand and contract longitudinally.

Connect drain line to the outlet from the drain line. Ensure that there is an air break in the drain at the same height as the valve to prevent negative pressure on the vessel.

Connect brine line to the elbow on the clear aircheck assembly on the main valve (255) or on to the elbow on the front of the valve body (168). Again, ensure that a brass insert is placed inside the brine line before connecting.

Connect power supply to valve and commission.

## COMMISSIONING

The objective of commissioning is to fill the softener and brine tank with water, check for leaks and prepare it for service.

Add water to the brine tank until it is filled approximately 6" (100mm) from the bottom of the tank.

Before opening the inlet water supply or switching on the power supply, remove the valve cover and turn the timer to the backwash position by pressing in the red button and turning the camshaft anti-clockwise. While this can be done just with a large head screwdriver on the red button, it is easier to turn the camshaft with one hand while pressing in the red button with the other. Slowly open the inlet water supply. At first, air will be expelled from the drain line, followed by water once the vessel is full. Allow water to run to drain by backwashing for 5-6 minutes in order to rinse resin.

Then, turn the timer to the fast rinse position/brine refill position. This must be done by turning the camshaft anti-clockwise as before. Water will run swiftly to drain and the brine tank will slowly refill with water. Check that water refills in to the brine tank through the aircheck assembly.

Next, turn the timer to the brine and slow rinse position. Check that the water level in the brine tank drops as water is drawn in. During brine and slow rinse, water will run slowly to drain.

Turn the timer back to the service position

Add salt to the brine tank. If tablet salt is used (recommended) then the brine tank can be filled to the top. If granular salt is used then the brine tank must only be 3/4 filled.

Turn on the power supply.

Set frequency of regeneration on time clock valves. These will be fitted with either a 6 day or 7 day clock and skipper wheel. Press in the pins on the skipper wheel on the days that you wish regeneration to take place, then set the time of day on the tripper arm.

On Commander valves you need to set the hardness by lifting the small white cover on the top left of the valve. Move the small jumper from the top pins marked 'Time' and move it to the next set down marked 'Hardness'. Press the time set button until the required hardness (in degrees Clarke) is indicated. To change from 'ppm' to degrees Clarke, simply divide by 14.3. If you overshoot then you will need to scroll around the display again. Move the jumper back to the 'Time' pins and set the time of day using the 24 hour clock. The Commander valve needs to run into the service position under its own power to correctly reset the internal microswitch, so the timer should be indexed round again to the end of the brine draw position.

The softener will now be commissioned.

Open the outlet from the softener to run water to service.