

Water Pasteurization Subsystem Build Instructions

Water Inlet

1. Tank Support Rack (WS-12)
 - a. Acquire specified length of 2"x4" lumber and 1/4" plywood
 - b. Using miter saw, measure and cut specified lengths and angles to form structure
 - c. Using 2" long deck screws, assemble support rack.
2. Water Feed Tank (WS-11)
 - a. With a drill or a sharp knife cut a hole of specified size in the specified location for hose inlet
3. Inlet Flex Hose to Circle- Square Coupling Plug (WS-15/16)
 - a. Cut Inlet flex hose to desired length
 - b. Drill a hole the diameter of the flex pipe in the circle-square coupling plug
4. Tank-Hose Connector (WS-13/14)
 - a. Purchase a male and female coupling of the specified size
5. Full Assembly
 - a. Attach the tank-hose connector to the water feed tank through the whole (Threaded assembly)
 - b. Place the water feed tank onto the tank support rack (gravity)
 - c. Push one end of the inlet flex hose onto the external nozzle of the tank-hose connector (friction fit)
 - d. Push the other end of the inlet flex hose into the circular hole in the circle-square coupling (friction fit)

Heat Exchanger

1. Heat Exchanger Coil (WS-22)
 - a. Acquire specified length of 1"x1" mild steel square pipe
 - b. Using a chop saw calibrated to cut mild steel, cut square pipe to specified lengths with specified angles (majority of angles are 45°)
 - c. Use a metal file to assure a clean and safe cut surface
 - d. Use a TIG welding set up to weld together cut lengths of square pipe
 - i. At first only weld two pieces together for ease of handling
 - ii. Weld together other pipe sections
2. Tie Bar (WS-24)
 - a. Acquire specified length of 1/4 " mild steel rod
 - b. Cut mild steel rod to specified lengths
3. Tie Hook (WS-23)
 - a. Acquire specified length of 1/4 " mild steel rod
 - b. Use a chop saw calibrated to cut mild steel, cut rod to specified lengths
 - c. Use a vice and pliers to bend on end of the rod to form a hook
4. Square Support Bar (WS-21)
 - a. Acquire specified length of 1"x1" mild steel square pipe
 - b. Using a chop saw calibrated to cut mild steel, cut square pipe to specified length
5. Full Assembly

- a. Use a TIG welding set up to weld tie bars to heat exchanger coil in specified location
- b. Use a TIG welding set up to weld tie hooks to square support bar in specified location
- c. Support bar will be held by exchanger support rack and heat exchanger coil will be suspended beneath the support by the tie hooks. The tie hooks attach onto the exchanger coil in specified location near the tie bars.

Water Outlet

1. Square Coupling (WS-31)
 - a. Acquire the specified length of mild steel solid 1.75" x 1.75" stock
 - b. Use a vertical mill to cut a 1.5" square hole 2.0" deep on one end of solid stock
 - c. Use vertical mill to cut a 1.0" square hole 2.0" deep on other end of solid stock
2. Thermostat Housing (WS-32)
 - a. Purchase specified length of 1.5" OD, 1.25" ID square pipe
 - b. Use CNC machine or band saw to cut 0.13" thick mild steel plate to make 2, 3.25" x 3.25" square plates
 - c. Use Vertical mill to drill 0.25" holes in each corner of both plates
 - d. Use vertical mill to drill 1.25" hole in middle of each plate
 - e. Use vertical mill to drill 1/16" hole in one side of square pipe
 - f. Tig weld each 3.25" x 3.25" plate to end of square pipe
3. Valve (WS-36)
 - a. Acquire the specified length of mild steel solid ___ stock
 - b. Use a vertical mill to drill a 1/8" hole in the center of the solid stock
4. Gasket, Nuts, Washers, Bolts, Thermostat (WS-33/34/35/37/38)
 - a. Purchase parts of specified dimensions
5. Full Assembly
 - a. Place thermostat with gasket into the central hole of the Thermostat Housing
 - i. Make sure wax side of thermostat is located in square pipe with 1/16" hole
 - b. Use wrench and pliers to tighten bolts, nuts and washers to attach both sides of thermostat housing securing the thermostat inside.
 - c. Push wax side of thermostat housing into square coupling (friction fit)
 - d. Push valve into other side of thermostat housing (friction fit)