



## **INSTALLATION REQUIREMENTS:**

### **Overview:**

Before the SAI Service Technician arrives at your facility the equipment must be connected to all utilities including but not limited to Steam, Water, Air, Drain as well as Electrical requirements. If Network cabling is utilized the cabling must be run with connectors mated at each point of communication. The information below is to provide guidelines for utility attachment but in no way provides Manifold and or Boiler Sizing to the “Drop Point” of the sterilizer. To size supply manifolds and calculate boiler Horsepower and design an engineering evaluation should be performed by local Engineering expertise familiar with local codes.

### **Physical Installation:**

Before installation please refer to the installation instruction regarding Point Loading. Your floor needs to meet Loading requirements to support the weight of the sterilizer.

- The sterilizer shall be lifted at the lifting point eyelets provided with the sterilizer. Proper cradling between the eyelets should be utilized. We do not recommend a Sling Lift as it places unnecessary strain on the shell at the vessel attachment points.
- Upon placing the sterilizer at floor elevation level, it should be placed on Skates that have the ability to maneuver the sterilizer in a 360° position. At this point the sterilizer can be maneuvered into final position. Pushing and or Pulling the sterilizer needs to be done cautiously and from recommended locations only.
- Once the sterilizer is in position it will need to be matched to the elevation of the loading equipment. To achieve this alignment with unknown floor conditions the final elevation of the sterilizer can be lifted from the Leg Positions that is on the skate. A hydraulic jack located at each leg should be lifted in a coordinated manner to keep the sterilizer balanced and level.
- The sterilizer should be lifted until the Rails in the sterilizer are at a Level Plane with the Roller Rails on the Trolley and or Shuttle Deck. It is a common practice to utilize a basket to verify a smooth transition into and out of the sterilizer.
- Once the elevation of the sterilizer is in its final position mounting plates can be installed and adjusted to the elevation. When the plates are secure, verify the basket transition and make any final adjustments utilizing the threaded rod adjustments. PLEASE NOTE there are Front Plates and Rear Plates. Follow the installation diagram.

### **Steam:**

- Pipe size from the manifold to the sterilizer connecting flange shall be equal to or greater than the point of connection at the sterilizer
- A flexible pipe ~36” in length shall be utilized for the connection from the sterilizer flange to the pipe from the manifold
- A DIN flange is located on the sterilizer so a DIN to ANSI flange with a Flexible pipe between should be utilized when installing the flexible connection.
- A Full Port Ball Valve should be installed as a BLOCK SERVICE Valve at a location between the Manifold and the Sterilizer Flange
- A Steam Rated “Y” Strainer should be utilized between the Manifold and the Sterilizer Flange





- At the lowest possible position between the Sterilizer Connecting Flange and the Manifold a Condensate Removal Device should be installed and operated in an automatic mode to ensure clean dry steam is supplied to the sterilizer. A shutoff valve to this device is recommended
- The material utilized for manifolds shall meet all local codes. Please be aware if Black Pipe is utilized the Stainless Steel vessel will discolor over time.
- A Pressure Reducing Valve (PRV) is required to reduce line pressure to the pressure required at the steam control valve (see specification). If this is a Multi-Unit sterilizer installation the PRV should be sized to provide a flow rate (Capacity) of equal to or greater than the sum of all the "Steam Flow" (Cv) requirements.
- A pressure gauge should be installed on the drop to the retort to visually verify pressure aft of the PRV and before the control valve inlet.
- For ABRS installations with multiple sterilizers it is recommended a pressure gauge and secondary port (weld-out) be installed for installation of a sensor to verify line pressure

#### Water:

- SAI recommends the Water Supply line piping be run in SS or Copper. The use of mild steel piping will promote rust residual on SS shell.
- Water should be clean (Strainer) and treated with a residual Chlorine level of less than 2PPM.
- For sterilizers with Heat Exchangers water from a reclaimed cooling tower is acceptable provider the water is clean (free of solids/particulates) and meets the Federal Regulatory guidelines for Cooling Towers for use in Food Processing Facilities.
- A water source shall be installed to provide adequate flow rates for either direct or indirect cooling. Please refer to the Utility Load specification provided with the proposal.
- If the water pressure is higher than allowed based on the retort specification a Pressure Reducing Valve (PRV) is required to reduce line pressure to the pressure required at the water control valve (see specification). If this is a Multi-Unit sterilizer installation the PRV should be sized to provide a flow rate (Capacity) of equal to or greater than the sum of all the "Water Flow" (Cv) requirements.
- A pressure gauge should be installed on the drop to the retort to visually verify pressure aft of the PRV and before the control valve inlet.
- For ABRS installations with multiple sterilizers it is recommended a pressure gauge and secondary port (weld-out) be installed for installation of a sensor to verify line pressure.

#### Air (Process and Instrument):

- There are two sources of Air required. For sterilizers that require Air for Overpressure a clean, oil free source is adequate for "Process Air." Process air is determined in CFM Cubic Feet Per Minute and is noted in the utility requirements of the proposal.
- Both the process air and instrument air supplies should have the ability to be shut off independently.
- Process Air should be regulated by a Pressure Reducing Valve (PRV) and set to the maximum pressure as stated in the utility specification
- Process Air supply must have an accumulation receiver (holding tank) to manage peak demands of the sterilization process. See the utility requirements listed in the proposal.




**Instrument Air:**

Instrument Air can be obtained from the Process Air Source, however, should be independently regulated by the supplied Instrument air PRV. Instrument Air must be “Clean and Dry” with filtration to ISA (Instrument Society of America) standard of less than 5 micron. The pneumatic panel supplied as a built-in filter that meets the requirements for ISA (5-micron filtration) but cannot ensure the air is “dry” to the pneumatic components within the panel and field instruments. If the sterilizer will be installed in areas of high humidity additional Drier Capability should be added to insure a moisture free air source.

**Drain:**

- Local authorities regulate the maximum drain water temperature allowed for your jurisdiction. It is imperative to verify with them the maximum temperature allowed.
- Drains should be run with a metalized pipe. The use of PVC/CPVC of any type should not be utilized.
- Drain lines should be run with a minimal size of equal to or greater than the flange that exits the sterilizer.
- A flap check valve should be installed to prevent the back up of drain water in the event there are other sterilizers on a common manifold and or the drain line runs on an upgrade.
- If more than one sterilizer is to be plumbed the Manifold the drains are run to should be sized to handle multiple units in the Drain Phase
- The drain line exiting the sterilizer should be cut into the manifold at a 45° angel to promote directional flow.
- **Condensate Drain** circuits should be designed to drain to a tempering tank, tempered with cooler water to allow for temperature diffusion. This is Retort Specific.
- **Heat Exchanger** Return circuits should be designed to minimize back pressure on the Inlet Cooling Side of the Heat Exchanger. If the return line is excessive, boost pumps may be required to promote flow consistency allowing water to be pushed on the inlet side of the H/E and Pulled from the Outlet side of the H/E. This requires data and engineering.

The purpose of this form is to confirm the customer’s facility is prepared for the STOCK team’s arrival for startup and installation. Should the STOCK team arrive to find the requirement list incomplete, the lead engineer will assess the delay and decide whether to stay onsite or return to the STOCK Technical Facility. It is the customer’s responsibility to pay all expenses associated with the service trip and to reschedule startup.

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 Printed Name

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 Signature

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 Date

