

1. Sterilizer Service Area

- Service access should be 18" minimum, 24" recommended, each side and back, unless previously approved by CSS
- It is the customer's responsibility to provide all utility connections in the same room within 5 feet of sterilizer and to follow all federal, state and local codes and regulations regarding plumbing and wiring
- All electrical disconnects, shutoff valves and safety devices must be easily accessible when standing in the sterilizer service area without ladders or removing panels

2. Water Connections

- Backflow preventers may be required by local codes, to be provided by others.
- Water, 45 psig dynamic minimum, 80 psig static maximum, ¾"-1" NPT, 12 gpm, with shut off valve and union so that unit can be serviced. For more information on CSS' water quality specs, see CSS' blog post: <https://consteril.com/why-water-quality-is-important-when-using-a-steam-autoclave/>
 - Vacuum device and quench water quality must meet requirements in Table 1 under "General Vacuum Device and Quench"
 - Carbon Steel Boiler (if ordered) feedwater must meet requirements in Table 1 under "Carbon Steel Steam Generators"
 - If building cold water does not meet these specifications, a separate treated/filtered water line may be provided to the electric steam generator: 45 psig dynamic minimum, 80 psig static maximum, 1 gpm, ½" NPT with shut off valve and union.

Table 1: Nominal Water Quality Requirements

Characteristic	Carbon Steel Steam Generators*		General Vacuum Device & Quench	
	Recommended Condition	Maximum Condition	Recommended Condition	Maximum Condition
Temperature [°F (°C)]	As Supplied	140 (60)	40-60 (4-16)	70 (21)
Total Hardness (mg/L)	17	85	10-85	171
Alkalinity (mg/L)	50-180	350	50-180	350
Total Dissolved Solids (mg/L)	50-150	250	50-200	500
pH	7.5-8.5	7.5-9.0	6.8-7.5	6.5-9.0
Total Silica (mg/L)	0.1-1.0	2.5	0.1-1.0	2.5
Resistivity (Ω•cm)	2,000-6,000	26,000**	2,000-26,000	500,000

* Stainless-steel generators require deionized water with resistivity ≥ 1MΩ•cm.

** If water supplied is greater than 26,000 Ω•cm contact Consolidated for recommendation.

- Stainless Steel Boiler or Indirect Steam-to-Steam Boiler (if ordered) feedwater must meet the following:
 - De-ionized water with resistivity > 1 MΩ•cm, 1 gpm, 45 psig dynamic minimum, 80 psig static maximum, ½" NPT with shut off valve and union

3. Drain Connection:

- Facility waste connection needs 2-1/2" air gap to prevent backflow into sterilizer (see Figure 1)
- 3" diameter gravity floor drain funnel required, 6" floor sink recommended, 15 gpm, minimum 1-1/2" drain piping, drain location external to sterilizer footprint recommended
- Sterilizer drain is 1-1/2" NPT Copper.
- Waste sent to drain will be less than 140°F unless cold water supply is cut off

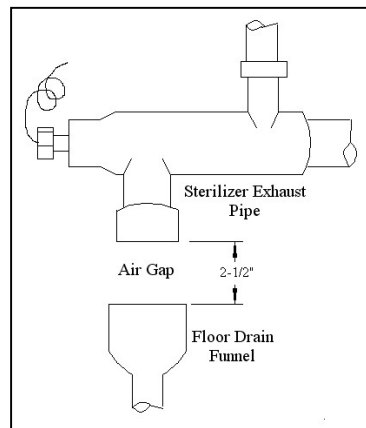


Figure 1: Sterilizer Drain Connection

4. Steam Connection (job specific):

- Direct Steam: 50-80 psig dynamic, ¾"-1" NPT, 180 lbs/hr, insulated line, with shut off valve and union
 - Drip leg (with float type inverted bucket or thermostatic trap) 18" under steam connection required, supplied and installed by others (See Figure 2)
 - Saturated steam at temperature 300°F-325°F, condensate and particulate free, between 97% to 100% dry
- Indirect Steam Generator: Requires both a steam inlet and steam and condensate return line
 - Steam Inlet: 1-¼" NPT, 75-90psig, insulated line, saturated steam 90-99% dry, 350 lb/hr minimum capacity
 - Condensate Return Line: 1-¼" NPT, piped to condensate return

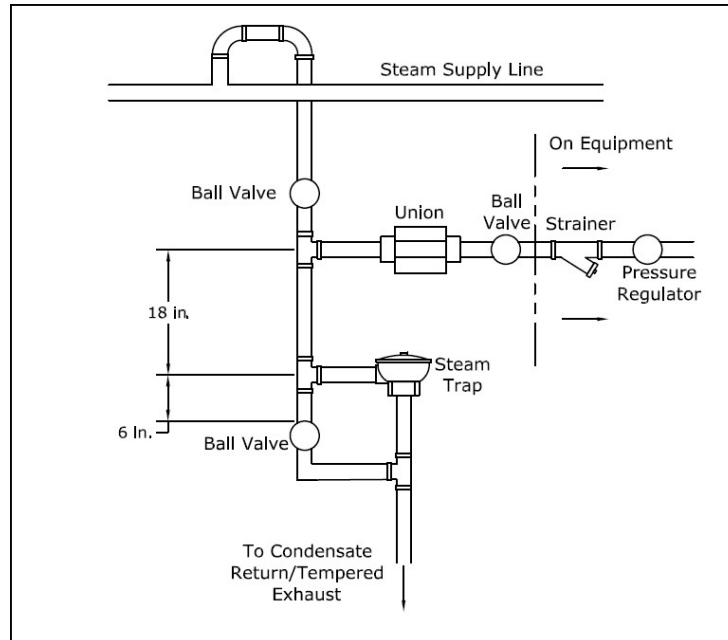


Figure 2: Typical Drip Leg and Trap Configuration

5. Electrical (job specific):

- Unit controls: 120V±10%/60Hz, Single Phase, 10 amp minimum, 3 prong NEMA 5-15P receptacle dedicated
- Unit controls: 220-240V±10%/50Hz, Single Phase, 10 amp minimum, hard wired, dedicated
- Electric Steam Generator: Fused disconnect located by unit, follow local codes and CSD-1 requirements, 208V/240V/380V/480V, amp draw and phase per product specification sheet
- Vacuum Pump: Fused disconnect located by unit, follow all local codes, 208V/240V/480V, amp draw and phase per product specification sheet
- Booster Pump for Water Ejector: Disconnect located by unit, 120V/220V, single phase, 20 amp, hardwired

6. Data/Telco (job specific):

- SteriNET Connex (if ordered): RJ-45 Ethernet cable with internet connection
- Dry Contacts (if ordered): 2 signal wires per contact compatible with Form C standard dry contacts.

7. Air Connections (job specific):

- Air Over-Pressure or Steam-Air Mix: Compressed air, ½" NPT, 50-75 psig dynamic, 10-35 SCFM, 99% Dry & Oil Free
- 3AV, 26AV & 26BV Vertical door models (optional): Compressed air, ½" NPT, 50-75 psig dynamic, 10 SCFM, 99% Dry & Oil Free

8. Chilled Water (job specific):

- On units ordered with WaterEco Vacuum Plus or Water Eco Plus a facility provided closed loop chilled water system is required
 - Chilled Water Feed: 1" NPT, 20 psi dynamic min, 35°F-55°F Max temp, 10 gpm capacity, insulated line with ball valve and union
 - Chilled Water Return: 1" NPT, -5 psi max drop on return side, +15°F max rise, insulated line with ball valve and union

9. Environmental & Ventilation:

- Provide adequate ventilation for heat and steam capture around the sterilizer. Inadequate ventilation may interfere with facility fire detection and suppression equipment. CSS recommends following NIH Design Requirements Manual Appendix E.5 for ventilation and hood design around an autoclave. For more information on hood design, see our blog at <https://consteril.com/canopy-hood-designs-ventilation-solutions/>
- Sterilizer area should be ventilated to maintain temperature in the range of 50°F-100°F while equipment is in operation, maximum 80% relative humidity at 88°F
- Sterilizers intended for indoor use only
- If pressure relief valves are piped outside the equipment service area, these pipes must include drip legs and must not cause back pressure to the safety valve. Recommended piping practices for relief valve piping can be found in ASME Boiler and Pressure Vessel Code, Section VIII, Paragraph UG-135 and appendix M
- Smoke alarms and low-temperature sprinkler heads (<135C sensitivity) are not recommended in the service or immediate use area of the autoclave due to the possibility of steam discharge causing false alarms. For more details see <https://consteril.com/lab-ventilation-systems/>