Tech Sheet #119
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Safety and Relief Valves

The ASME Code requires that the deaerator vessel be protected from pressurization beyond its maximum allowable (stamped) pressure by the provision of safety valves. The required total safety valve capacity in the system shall be determined by the user or his designated agent . In most cases, this will not be the deaerator manufacturer. Typical items to be considered are:

- Fail open capacity of steam pressure reducing valve(s) supplying steam to the deaerator or wide open capacity of any manually operated steam control bypass valves.
- Flash steam produced by high pressure drains/condensate returns.
- Type of control system.

In the case of a deaerator, the principle source of overpressure does not originate within the unit and therefore the total required safety valve capacity need not be installed on the deaerator vessel itself. However, the deaerator may be provided with a relief valve capable of passing a limited amount of steam to provide a warning that the deaerator is receiving excessive energy input prior to full operation of the system's safety valves. Safety valves providing full capacity to meet ASME Code rules shall be installed in the steam piping upstream of the deaerator but downstream of any stop or regulating valves. The size and quantity of these additional safety valve(s) shall be determined by the party responsible for specifying the steam pressure controls for the deaerator.

This Tech Sheet was developed by the members of the Heat Exchange Institute's (HEI) Deaerator Section. HEI is a trade association comprising the leading manufacturers of heat exchange and vacuum equipment. HEI Tech Sheets are information tools and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific instructions regarding their equipment.