

US DEAERATOR

**For all your deaerator, boiler feed,
condensate, and water heating
equipment needs.**



**ASME CODE CONSTRUCTION
VERTICAL OR HORIZONTAL DESIGN
COUNTERFLOW OPERATION
HINGED ACCESS DOOR**

USDeaerator.com | 888-381-5581



About Us

US Deaerator manufactures tray type deaerating systems sized from 20,000 PPH to 1,000,000 PPH capacity for industrial, commercial and institutional applications. Our deaerators are custom built to your requirements and are always designed for minimum **50 PSIG ASME code construction**.

Our standard design offers the **simplicity and reliability of the spray pipe** with no moving parts but spray valves are available as an option. Our trays are constructed of **heavy gauge metal** and are available in a **range of stainless alloy materials** to suit your needs. Simple, reliable design coupled with rugged construction are what make the US Deaerator an outstanding investment.



We manufacture custom boiler feed systems, either free standing or in conjunction with a deaerator.

A wide variety of high efficiency boiler feed pumps are available along with **custom control panels** and **automatic recirculation systems**.

Pumps can be skid mounted with pre-wired controls, pre-piped suction and discharge headers containing all valves, flow monitoring and pressure gauges.



Custom condensate return packages

are available with steel or stainless steel tanks in **vertical or horizontal orientation**, ASME code or non code and with all pumps, piping and controls. Units can be arranged and sized according to your exact needs.

Steam operated storage water heaters are also available in horizontal or vertical configuration, **skid mounted, pre-insulated** and **complete with all controls** for any flowrate or temperature rise. ASME code tanks can be stainless steel or cement lined carbon steel.



Operation

STAGE 1

Water enters the deaerator through the spray pipe that divides the water into tiny droplets. Steam heats the droplets to approach steam saturation temperature.

STAGE 2

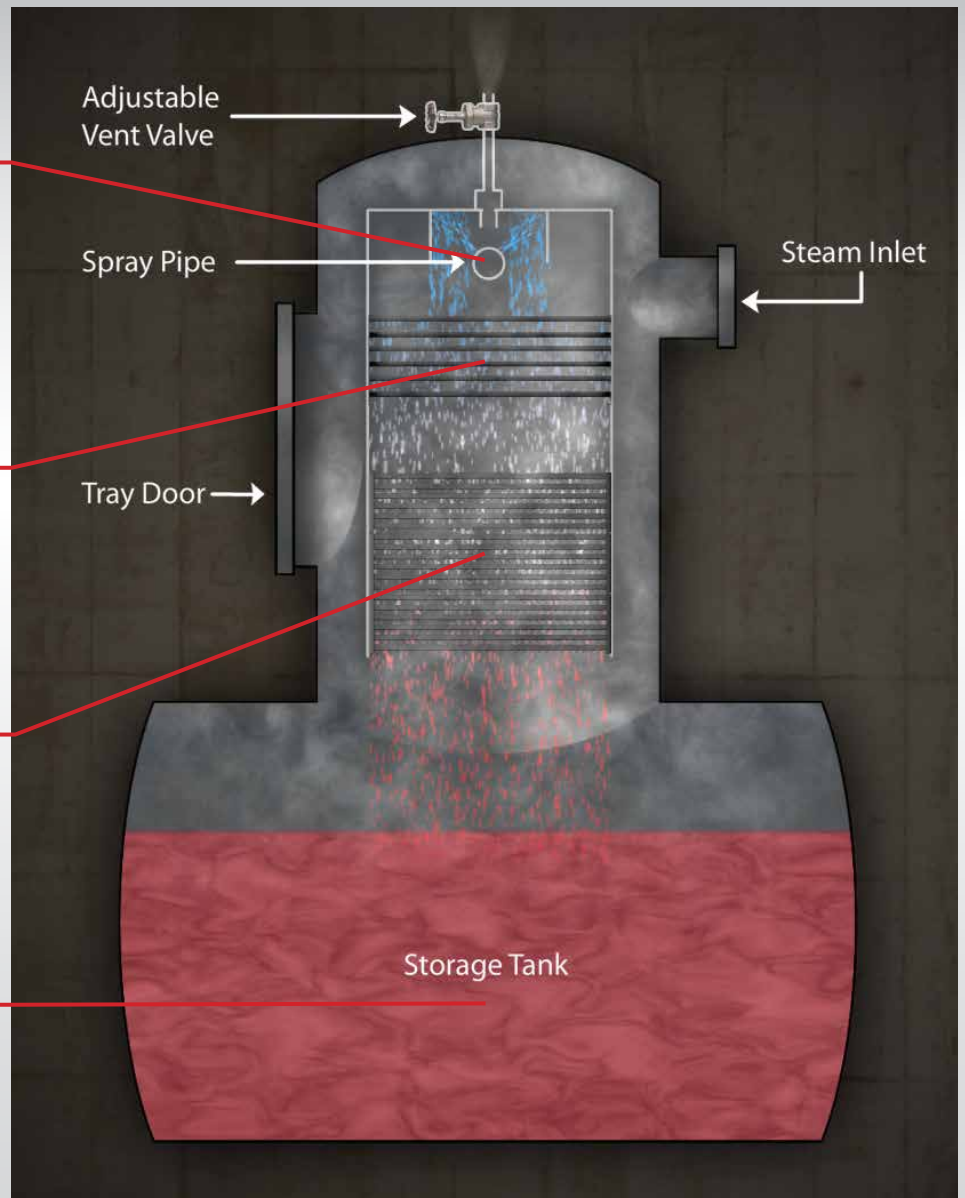
The water is retained and heated to full saturation temperature while being evenly distributed throughout the traybox.

STAGE 3

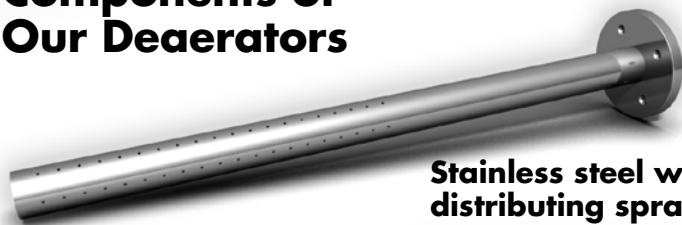
The water then cascades over air separation trays where final deaeration is completed down to 7 PPB.

STAGE 4

Water falls into the insulated storage tank, ready for boiler feed.



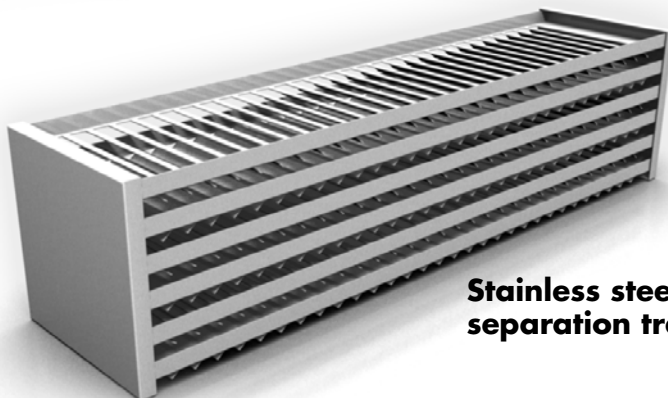
Components of Our Deaerators



Stainless steel water distributing spray pipe



Stainless steel heating and distributing tray assembly



Stainless steel air separation tray assembly

U S Deaerator Details

Function

The function of the U S Tray Deaerator is to remove dissolved oxygen, carbon dioxide and other noncondensable gases from boiler feedwater, thus preventing corrosion in piping, economizers and boilers. In addition, the deaerator heats the boiler feedwater and provides the deaerated water at saturated steam temperature to the boiler feed pumps.

Deaeration is achieved by:

Heating the water to full saturation temperature at which point the solubility of any gas is zero. Cascading the heated water over trays to minimize the distance the liberated gas bubbles must travel to reach the surface. Finally the scrubbing action of the counterflow steam, sweeping the liberated gases from the surface of the water and carrying them out the vent.

Construction and features

The shells of U.S. Deaerator tray type deaerators are constructed of welded steel plate and internals are stainless steel. The deaerator shell and storage sections are furnished in compliance with ASME Code with Stamp and Certificate. The minimum design pressure is 50 PSIG. The entire tray compartment including the preheater/vent condenser is fabricated of 10 gauge stainless steel. All internal bolts are stainless steel and trays are 16 gauge stainless steel. Heating and air separating trays are easily accessible through ample manways in the pressure vessel shell and tray compartment.

Typical System

