Tray ST5

Tray Type Deaerator
Pressurized .005 cc/liter
COUNTER FLOW TRAY design provides guaranteed removal of all dissolved oxygen in excess of .005 cc/liter from 5% to 100% of deaerator capacity.

industrialsteam.com
Tray Type Deaerator
Pressurized .005 cc/liter

When to use

<table>
<thead>
<tr>
<th>Condition</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% Makeup 0% condensate</td>
<td>Yes</td>
</tr>
<tr>
<td>30% Makeup 70% condensate</td>
<td></td>
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<tr>
<td>High Pressure condensate returns</td>
<td>Yes</td>
</tr>
<tr>
<td>100% Turndown</td>
<td>Yes</td>
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<tr>
<td>Load Swings</td>
<td>Yes</td>
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</tbody>
</table>

*Requires surge tank

FEATURES

COUNTER FLOW TRAY design provides guaranteed removal of all dissolved oxygen in excess of .005 cc/liter from 5% to 100% of deaerator capacity.

ELECTRONIC INSTRUMENTATION FOR MODULATING LEVEL control includes a HART compatible differential pressure transmitter, PID controller, and motorized control valve.

MULTIPLE CONFIGURATIONS: vertical single tank, standard “tank car” type, or flanged heater section, all providing the same high quality deaeration.

ONLY STAINLESS STEEL components come in contact with undeaerated water. Trays and tray box are all stainless steel.

A.S.M.E. Code and National Board stamped receivers at 50 psi is standard. Standard vessel options include stress relieving, non-destructive testing and full vacuum.

CUSTOM ENGINEERED PACKAGED SYSTEM includes boiler feedwater pumps and quality components to insure reliable service.

Testing Requirements
This system requires steady state conditions per the ABMA testing procedure.
ADVANTAGES
Counter Flow Tray type deaerators are capable of accepting high percentages of condensate returns without adverse effects on performance. This is possible because the deaeration process does not require a flow of steam for scrubbing. All second stage scrubbing is done by the cascading process through the trays. The counter flow design provides maximum performance because the cleanest incoming steam contacts the water that requires final deaeration, thus stripping out the last traces of oxygen.

GUARANTEED PERFORMANCE from 5% to 100% of load standard sizes ranging from 6,900 lbs/hr to 300,000 lbs/hr (up to 1,000,000 #/hr upon request)

CUSTOM ENGINEERED PACKAGED SYSTEM results in a small foot print, minimal onsite installation costs, and a single source of responsibility for all major components.

OPERATION
Makeup water and pumped returns are sprayed into the tray section through a stainless steel spray nozzle. The spray nozzle provides a thin conical sheet of water that condenses the vapors while permitting oxygen to exit through the vent. The partially deaerated water then begins to cascade through the trays.

The combined makeup and pumped returns are heated with steam that flows upward through the stainless steel trays. The steam vigorously scrubs the dissolved oxygen from the makeup and pumped returns. The trapped returns enter the storage section. Steam from the returns also flows upward through the trays, while the water drops to the water level in the storage section.

The fully deaerated water remains in the storage section for use by the boiler, while the excess steam flows into the tray section. Non-condensable gases enter the vent and pass to the atmosphere.
Components and Sizing

1 Sight Glass Assembly
2 Pressure Transmitter
3 Differential Pressure Transmitter (Level)
4 Pressure Controller
5 Pressure Control Valve
6 Make-Up Nozzles
7 Make-Up Controller
8 Make-Up Control Valve
9 Boiler Feed Pump Motor
10 Boiler Feed Pump
11 Starter
12 Control Panel (Nema1)
13 Gate Valve (Drain)
14 Gate Valve (Vent)
15 Safety Relief Valve
16 Sentinal Relief Valve
17 Y-Strainer (Make-Up)
18 Gate Valve (Make-Up)
19 Globe Valve (Make-Up)
20 Overflow Trap
21 Pressure Gauge w/cock
22 Thermometer w/thermowell
23 Low Water Alarm & Cut Off Switch
24 High Water Alarm Switch
25 Recirculation Orifice Union
26 Recirculation Gate Valve
27 Recirculation Check Valve
28 Stainless Steel Tray Assembly
29 Gate Valve (Water Column Drain)
30 Gate Valve (Water Column Isolation)
31 Pump Suction Coupling
32 Pump Suction Gate Valve
33 Magnesium Anode
34 18" Diameter Manway
35 Chemical Feed Quill
36 Y-Strainer (Steam)
37 Pumped Return
38 12x16 Manway

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<table>
<thead>
<tr>
<th>MODEL NUMBER</th>
<th>RATED CAPACITY LBS/HR</th>
<th>RECEIVER SIZE Tank Diameter x Overall Length</th>
<th>HEATER SECTION</th>
<th>SYSTEM CAPACITY TO OVERFLOW</th>
<th>APPROXIMATE OVERALL DIMENSIONS, in.</th>
<th>APPROXIMATE WEIGHT, lbs.</th>
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</thead>
<tbody>
<tr>
<td>2ST5</td>
<td>6,900</td>
<td>48&quot; x 72&quot; v</td>
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</table>

* Consult Factory for systems over 300,000 lbs/hr.
* Weights do not include pumps or optional equipment
* Heater sections sized for 100% make-up

• Includes 48" Stand
** Includes Control Panel
v - Single tank vertical design

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- Single Tank Vertical Design
- Flanged Heater Section
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