Spray Flow II
.005 cc/Liter Atmospheric Deaerator

Industrial Steam

industrialsteam.com
Spray Flow II Deaerator

**FEATURES**

**CONSTANT RECYCLING** guarantees deaeration of all dissolved oxygen in excess of .005 cc/liter from 0% to 100% of deaerator capacity.

**UNIQUE FULL PARTITION DESIGN** accepts gravity returns to the atmospheric scrubbing section along with make-up and pumped returns. Deaerating section accepts trapped returns for preferential use of flash steam.

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

**SEPARATE DEAERATING & MIXING SECTIONS** offer a two stage continuous cycle which provides .005 cc/l deaerated water during all load conditions regardless of surges from the system.

**ONLY STAINLESS STEEL components** come in contact with undeaerated water.

**ATMOSPHERIC NON-CODE VESSEL** require no annual shutdown for inspection.

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

**ADVANTAGES**

Industrial Steam’s exclusive constant recycling feature and the use of a partitioned receiver provide the advantages of a two-tank system as a single package. These advantages are available without the necessity for onsite erection or field installed piping. Expanded deaerating sections are standard for surge condensate loads.

**GUARANTEED PERFORMANCE FROM 0% to 100% of capacity regardless of load conditions** is unmatched by any other deaerator.

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

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**OPERATION**

Modulated make-up water is sprayed through a stainless steel spring loaded nozzle into a stainless steel internal vent condenser located in the scrubbing section. The nozzle produces a thin conical sheet of water which condenses the vapors while permitting oxygen to exit through the unrestricted atmospheric vent. Pumped low temperature returns are also sprayed through the nozzle. Gravity returns flow unrestricted to the scrubbing section.

The combined make-up and returns in the scrubbing section are heated with steam and recycled deaerated water from the deaerating section. Both the steam and deaerated water enter the scrubbing section through separate stainless steel manifolds. The perforated steam manifold provides jets of steam to vigorously scrub the major portion of the dissolved oxygen from the make-up, pumped returns, and gravity returns. The temperature in the scrubbing section is controlled at 210ºF (at sea level), which assures the release of the majority of the dissolved oxygen without flash loss.

The scrubbing section water, which is nearly fully deaerated, is continuously recycled to the deaerating section where it is sprayed through stainless steel, wide-angle, full-cone nozzles. Steam enters the deaerating section in response to the temperature in the scrubbing section. Since the cycle is continuous, pure steam is always available for final deaeration. The last traces of oxygen are removed at the point of contact with the purest steam. Excess, fully deaerated water flows continuously from the deaerating section to the scrubbing section through the stainless steel recycle manifold. Trapped returns are piped to the deaerating section where the flash steam is preferentially used for final deaeration.

Since the recycle pump capacity exceeds the deaerator capacity by at least 25%, the deaerator is able to meet .005 cc/l. From zero to 100% load. This same feature also enables the deaerator to supply fully deaerated water to the boiler on start-up. Rapid load changes and on-off boiler feedwater controls, which are very troublesome for other atmospheric deaerators, will not affect the Spray Flow II’s performance or operation.
Components and Sizing

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Rated Capacity</th>
<th>Receiver Size &amp; L</th>
<th>System Cap. to Overflow</th>
<th>Recycle Pump</th>
<th>Approx Overall Dimensions</th>
<th>Approx Shipping Weight</th>
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Consult factory for systems above 300,000#/hr
* Overall height includes 48" stand.
** Shipping weight does not include boiler feed pumps or any optional equipment
Additional Industrial Products

Steam Flow
.005 cc/Liter Pressurized Recycling Deaerators

Tray ST5
.005 cc/Liter Pressurized Tray-type Deaerators

Jet Spray
.005 cc/Liter Spray Type Pressurized Deaerators

Blowdown Heat Recovery Systems, Blowdown Separators

Have questions or need help specifying this equipment?
Email: engineering@industrialsteam.com

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Email: techsupport@industrialsteam.com

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INDUSTRIAL STEAM
1403 SW 7th Street, Atlantic, Iowa 50022 (888) 783-2615 TEL (712) 243-3440 FAX