Tray ST5

INDUSTRIAL STEAM

Pressurized and Atmospheric Deaerators

Tray Type Deaerator
Pressurized .005 cc/liter

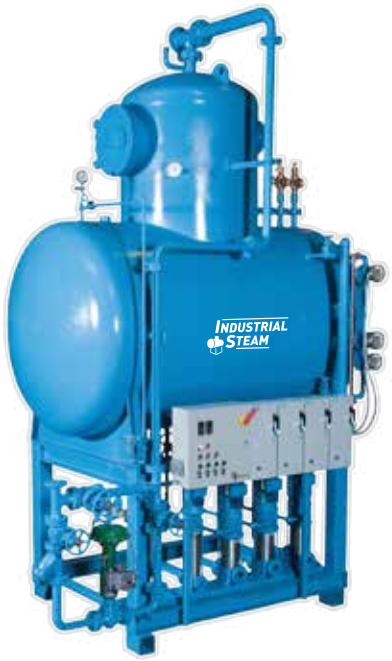
COUNTER FLOW TRAY design provides guaranteed removal of all dissolved oxygen in excess of .005 cc/liter from 5% to 100% of deaerator capacity.

Tray Type Deaerator
Pressurized .005 cc/liter

When to use

100% Makeup 0% condensate	Yes
30% Makeup 70% condensate	
High Pressure condensate returns	Yes
100% Turndown	
Load Swings	Yes

*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)

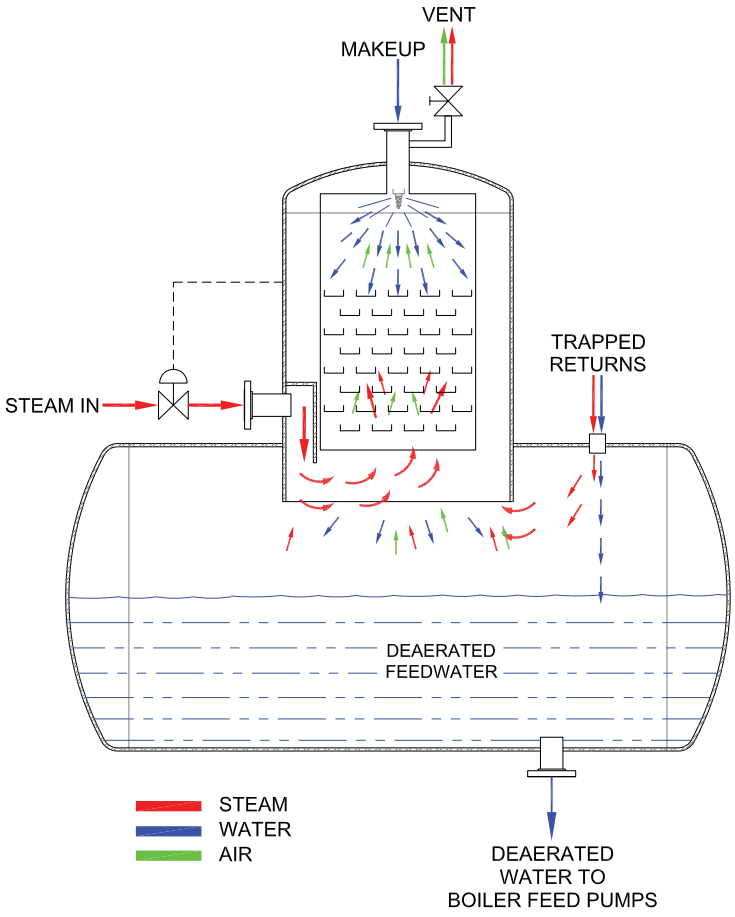
CUSTOM ENGINEERED PACKAGED SYSTEM results in a small foot print, minimal onsite installation costs, and a single source of responsibility for all major components.

OPERATION

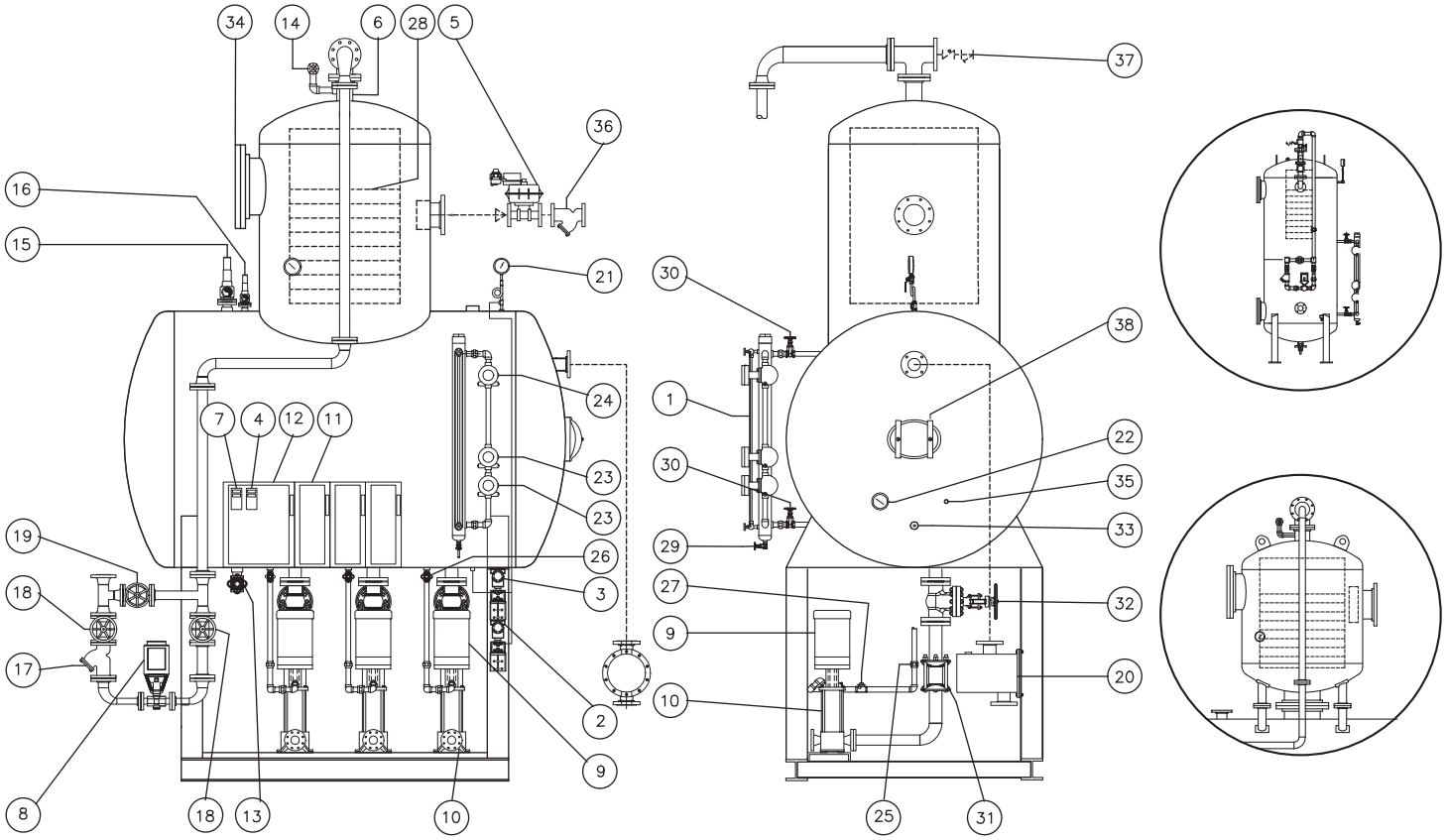
Makeup water and pumped returns are sprayed into the tray section through a stainless steel spray nozzle. The spray nozzle provides a thin conical sheet of water that condenses the vapors while permitting oxygen to exit through the vent. The partially deaerated water then begins to cascade through the 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 (50 DEGREE - 500 DEGREE F)
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

MODEL NUMBER	RATED CAPACITY		RECEIVER SIZE Tank Diameter x Overall Length	HEATER SECTION	SYSTEM CAPACITY TO OVERFLOW		APPROXIMATE OVERALL DIMENSIONS, in.			APPROXIMATE WEIGHT, lbs.		
	LBS/HR	HP		O.D.	GALS.	MINS.	HT*	L	W**	SHIPPING	OPERATING	FLOODED
2ST5	6,900	200	42" x 48" V	24"	264	18.9	124	78	50	1,850	4,250	5,850
4ST5	13,600	400	48" x 72" V	24"	585	20.8	152	98	56	3,270	8,150	10,435
6ST5	20,700	600	48" x 96" V	36"	755	17.9	152	122	56	3,875	10,175	12,610
8ST5	27,600	800	48" x 96" V	36"	755	13.4	156	122	56	3,915	10,215	12,650
10ST5	34,500	1000	48" x 96"	42"	755	10.9	156	122	56	3,925	10,225	12,660
12ST5	41,400	1200	60" x 72"	42"	935	11.2	169	104	68	5,130	12,930	17,410
15ST5	51,750	1500	60" x 96"	42"	1,200	11.4	169	128	68	5,845	15,855	20,560
18ST5	62,100	1800	60" x 96"	48"	1,200	9.5	169	128	68	5,885	15,895	20,600
21ST5	72,450	2100	72" x 96"	48"	1,780	12.1	182	132	80	6,995	21,840	28,055
24ST5	82,800	2400	72" x 96"	54"	1,780	10.6	182	132	80	6,995	21,840	28,055
30ST5	100,000	3,000	72" x 120"	60"	2,160	10.3	184	156	80	8,030	26,045	33,550
36ST5	125,000	3,600	84" x 144"	66"	3,515	13.9	198	186	92	11,325	40,640	50,860
45ST5	150,000	4,500	84" x 144"	72"	3,515	11.2	198	186	92	11,420	40,735	50,955
60ST5	200,000	6,000	84" x 192"	72"	4,400	11	222	186	92	12,500	44,100	66,533
75ST5	250,000	7,500	96" x 240"	84"	5,175	10.4	240	280	98	16,600	58,600	78,358
90ST5	300,000	9,000	96" x 288"	84"	6,750	11.3	246	328	108	18,700	60,700	80,458

- 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

Additional Industrial Products

High Efficiency Boilers

L.E.S Boilers, LLC
Horizontal Boilers
Vertical Boilers
www.lesboilers.com

INDUSTRIAL FUEL SYSTEMS, LLC
Mission Critical Fuel Oil Systems

Industrial Fuel Systems, LLC
Mission Critical Fuel Oil Systems
Pump Sets
www.ifuelsys.com

atlantic feedwater systems
"Specialists in Boiler Feedwater Equipment"

Atlantic Feedwater Systems, Inc
Boiler Feed Systems
Feedwater Steam
www.boilerfeedsystems.com

WILSON ENGINEERING

Wilson Engineering
Boiler Blowdown Systems
Blowdown Heat Recovery
www.wilsonblowdown.com

Have questions or need help specifying this equipment? Email: engineering@industrialsteam.com
Need help with an existing system or parts? Email: techsupport@industrialsteam.com
Looking for a local representative? Email: sales@industrialsteam.com
Literature available for download at industrialsteam.com

INDUSTRIAL STEAM

Pressurized and Atmospheric Deaerators

Industrial Steam

1403 SW 7th Street, Atlantic, Iowa 50022
TEL (712) 243-5300 FAX (712) 243-3440