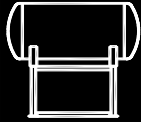
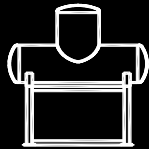


Standard  
Deaerating  
Units

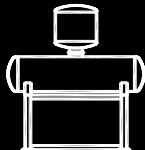
# KANSAS CITY DEAERATOR



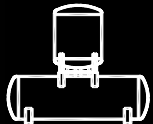
## HS Series

Up to 350,000 #/hr  
Low Headroom

## TC Series

Up to 250,000 #/hr  
Tray Unit  
Meets HEI

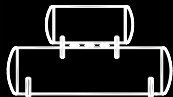
## BDS Series

Up to 250,000 #/hr  
Tray Unit  
Meets HEI

## DS Series

Up to 800,000 #/hr  
Tray Unit  
Meets HEI

## VS & VT Series

Up to 800,000 #/hr  
Tray Unit  
Minimal Plan Area  
Meets HEI

## HH Series

Up to 16,000,000 #/hr  
Tray Unit-Meets HEI

## VT – Vertical Tray Deaerator

### Principles of Operation

Corrosion in boiler cycles is caused by the presence of non-condensable gases such as oxygen and carbon dioxide in the boiler feed water. In order to remove the non-condensable gases, the feedwater is heated and vigorously scrubbed by a counter current flow of steam.

The incoming undeaerated water enters the deaerator through spring-loaded, stainless steel, spray valves. These variable orifice valves produce a fine spray in a uniform pattern from 5% to 200% of design. The fine droplets of water maximize the surface area in contact with steam, raising the temperature to within a few degrees of saturation temperature and instantly releasing the majority of the corrosive, non-condensable gases.

The preheated and partially deaerated water flows through the tray stack where the hottest, purest steam vigorously scrubs the water to heat it to saturation temperature and strip the last traces of dissolved gases.

The entire deaeration process takes place in a stainless steel enclosure that eliminates any need for vessel lining or cladding and ensures a long life with little maintenance.

## FEATURES

- Vertical Tray Model (VT) Deaerator
- Guaranteed performance over wide load swings
- Rugged design with “Central Station” durability
- Quiet operation
- Capacities up to 200,000 #/hr with 100% makeup, 250,000 #/hr with condensate
  - Oxygen removal to 0.005 cc/liter (7ppb) Per HEI
  - Certified ASME construction
  - Options:
    - a. Accessory Package
    - b. Accessory Piping
    - c. BF Pump Package
    - d. Heat Exchange Institute (HEI) Design

### Standard Vertical Tray Deaerator



## Performance –

Fill in and send to Kansas City Deaerator or request a detailed specification sheet.  
Add additional thermal cases as needed.

<b>PROJECT</b>		<b>OPERATING CONDITIONS</b>		<b>SPECIAL REQUIREMENTS</b>	
<b>DEAERATOR</b>		Operating Pressure		HEI	
Quantity		<b>FEEDWATER INLET</b>		Post Weld Heat Treatment	
Capacity		% Makeup		Minimum Radiography	
<b>DESIGN</b>		MU Temperature		WFMP Testing	
ASME SEC. VIII, DIV.1		%Condensate			
Design Pressure		Cond. Temperature		<b>BF PUMPS</b>	
Full Vacuum Design		<b>STORAGE CAPACITY</b>		Quantity	
Design Temperature		Minutes at Overflow		Capacity	
Corrosion Allowance		Gallon at Overflow		TDH	

## Accessories –

Select package or individual items

ITEM	DESCRIPTION	ACC PKG	PUMP PKG	✓ SELECT
<b>A</b>	<b>WATER INLET</b>			
<b>A1</b>	<b>Inlet Valve</b>			
	Mechanical	STD	STD	
	Pneumatic	OPT	OPT	
<b>A2</b>	<b>Level Controller</b>	STD	STD	
	Level Transmitter	OPT	OPT	
<b>A3</b>	<b>Inlet Valve Bypass Valves</b>	OPT	STD	
<b>A4</b>	<b>Inlet Valve Bypass Piping</b>	OPT	STD	
<b>A5</b>	<b>Inlet Valve Bypass Strainer</b>	OPT	STD	
<b>B</b>	<b>STEAM CONTROL</b>			
<b>B1</b>	<b>Steam PRV</b>		OPT	
	Self Contained	OPT	OPT	
	Pneumatic	OPT	OPT	
<b>B2</b>	<b>Steam PRV Controller</b>	OPT	OPT	
<b>B3</b>	<b>Steam PRV Bypass Valves</b>	OPT	OPT	
<b>B4</b>	<b>Steam PRV Bypass Piping</b>	OPT	OPT	
<b>B5</b>	<b>Steam PRV Bypass Strainer</b>	OPT	OPT	
<b>C</b>	<b>RELIEF VALVE</b>			
<b>C1</b>	<b>Relief Valve</b>			
	Sentinel	STD	STD	
	Full	OPT	OPT	
<b>C2</b>	<b>Relief Valve Exhaust Piping</b>	OPT	OPT	
<b>D</b>	<b>THERMOMETER</b>			
<b>D1</b>	<b>(2) 5" Thermometer w/ss wells</b>	STD	STD	
<b>E</b>	<b>PRESSURE GAUGE</b>			
<b>E1</b>	<b>(1) 4 1/2" Pressure Gauge</b>	STD	STD	
<b>E2</b>	<b>Siphon &amp; Cock</b>	STD	STD	
<b>E3</b>	<b>Pressure Transmitter</b>	OPT	OPT	
<b>F</b>	<b>VENT</b>			
<b>F1</b>	<b>Vent Valve</b>	STD	STD	
<b>F2</b>	<b>Vent Orifice w/Flange</b>	OPT	OPT	
<b>F3</b>	<b>Vent Bypass Valves</b>	OPT	OPT	
<b>F4</b>	<b>Vent Bypass Piping</b>	OPT	OPT	
<b>H</b>	<b>VACUUM BREAKER</b>			
<b>H1</b>	<b>Vacuum Breaker</b>	STD	STD	

ITEM	DESCRIPTION	ACC PKG	PUMP PKG	✓ SELECT
<b>M</b>	<b>BFP RECIRC</b>			
<b>M1</b>	<b>BFP Recirc Shutoff</b>	NA	OPT	
<b>M2</b>	<b>BFP Recirc Check</b>	NA	OPT	
<b>M3</b>	<b>BFP Recirc Orifice</b>	NA	OPT	
	BFP Recirc ARC Valve	NA	OPT	
<b>M4</b>	<b>BFP Recirc Piping</b>	NA	OPT	
<b>M5</b>	<b>BFP Recirc Pressure Gauge</b>	NA	OPT	
<b>N</b>	<b>BFP SUCTION</b>			
<b>N1</b>	<b>BF Pumps</b>			
	(2) 100% Capacity	NA	STD	
	(3) 50% Capacity	NA	OPT	
	<b>Motors</b>			
	ODP	NA	STD	
	TEFC	NA	OPT	
<b>N2</b>	<b>BFP Suction Isolation Valve</b>	NA	STD	
<b>N3</b>	<b>BFP Suction Strainer</b>	NA	STD	
<b>N4</b>	<b>BFP Suction Piping</b>	NA	STD	
<b>N5</b>	<b>BFP Suction Expansion Joint</b>	NA	STD	
	<b>BFP Discharge Pressure Gauge</b>	NA	OPT	
<b>N6</b>	<b>BFP Discharge Check Valve</b>	NA	OPT	
<b>N7</b>	<b>BFP Discharge Isolation Valve</b>	NA	OPT	
<b>O</b>	<b>CHEMICAL FEED</b>			
<b>O</b>	<b>Chemical Feed Quill</b>	OPT	OPT	
<b>Q</b>	<b>OVERFLOW</b>			
<b>Q1</b>	<b>Overflow Valve/Trap</b>	STD	STD	
<b>Q3</b>	<b>Overflow Piping</b>	OPT	STD	
<b>R</b>	<b>LEVEL SWITCH</b>			
<b>R1</b>	<b>Level Switches</b>			
	High & Low (TWO)	STD	STD	
	High High (ADDITIONAL)	OPT	OPT	
<b>R2</b>	<b>Level Switch Bridle Piping</b>	OPT	STD	
<b>S</b>	<b>GAUGE GLASS</b>			
<b>S1</b>	<b>Gauge Glass</b>			
	Red Line Pyrex	STD	STD	
	Reflex	OPT	OPT	
	Magnetic	OPT	OPT	
<b>S2</b>	<b>Gauge Glass Bridle</b>	OPT	STD	

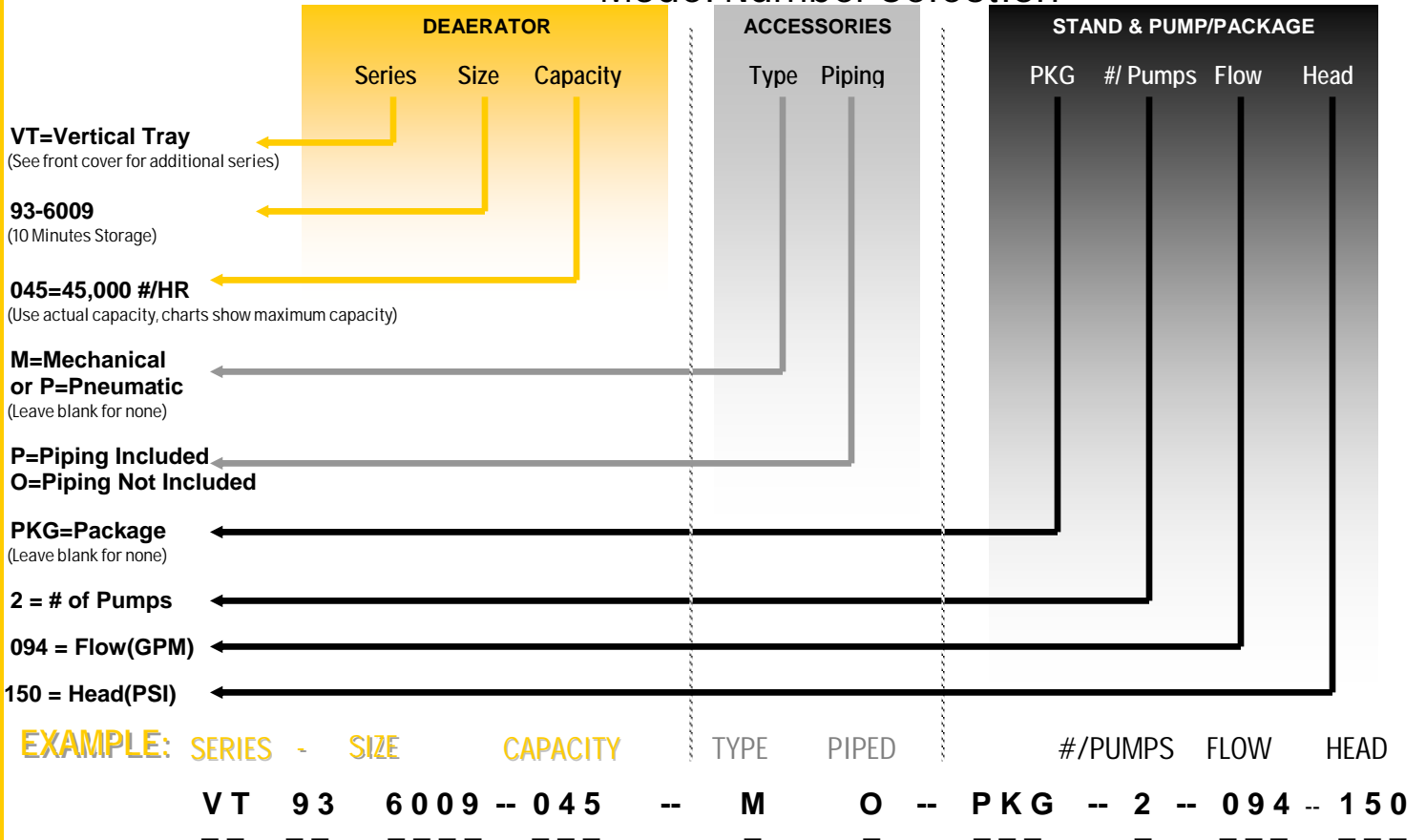
SELECTION CHART  
10 Minutes Storage

DA MODEL	Boiler Capacity (HP)	Rated Capacity (#/HR)	Storage to Overflow (Gallons)	Storage Capacity (Minutes)	Vessel Dimension (L1 x W1x H1)	Water Inlet "A" (in)	Steam Inlet "B" (in)	Empty Weight (lbs)	Operate Weight (lbs)	Flooded Weight (lbs)	Total Accessory (L2 x W2x H2)	Pump Package (L3 x W3x H3)
VT32-3006-10	290	4,000	93	10	3'0"x2'7" x 7'9"	1	3	1,300	3,000	4,000	6'6"x5'9" x9'3"	6'9"x2'11" x2'10"
VT32-3508-10	580	10,000	270	10	3'6"x2'11" x 9'11"	1.5	6	1,700	5,000	7,000	6'10"x7'7" x11'11"	7'6"x3'3" x2'10"
VT32-4008-10	725	15,000	353	10	4'0"x3'4" x 10'1"	2	6	2,100	7,000	9,000	7'1"x8'3" x12'1"	8'0"x3'8" x3'0"
VT32-4508-10	870	20,000	446	10	4'6"x3'8" x 10'4"	2	6	2,400	8,000	12,000	7'4"x8'6" x12'3"	8'0"4'0" x3'0"
VT32-5008-10	1,159	25,000	539	10	5'0"x4'1" x 10'10"	2	6	2,700	10,000	14,000	7'7"x9'4" x12'9"	8'4"x4'5" x4'0"
VT50-5508-10	1,449	30,000	681	10	5'6"x4'5" x 11'0"	2.5	8	3,100	12,000	17,000	7'7"x10'2" x12'6"	9'3"x4'9" x3'6"
VT50-6008-10	1,739	40,000	811	10	6'0"x5'2" x 11'3"	2.5	8	3,300	14,000	20,000	7'10"x10'6" x12'9"	10'6"x5'4" x3'6"
VT93-6009-10	2,029	50,000	1,022	10	6'0"x5'2" x 12'3"	3	8	3,600	16,000	23,000	8'3"x11'2" x13'9"	10'6"x5'4" x3'6"
VT93-6010-10	2,319	60,000	1,234	10	6'0"x5'2" x 13'3"	3	10	4,000	18,000	25,000	8'3"x11'2" x14'9"	10'6"x5'4" x3'6"
VT93-6510-10	2,609	70,000	1,447	10	6'6"x5'7" x 13'5"	3	10	4,400	20,000	29,000	8'3"x11'5" x14'11"	11'5"x5'9" x3'6"
VT122-6512-10	3,188	90,000	1,943	10	6'6"x5'7" x 15'5"	4	10	5,100	24,000	34,000	8'3"x12'10" x18'8"	12'0"x5'9" x4'5"
VT122-7012-10	3,768	100,000	2,255	10	7'0"x5'11" x 15'7"	4	12	5,900	29,000	40,000	8'6"x13'1" x18'10"	11'7"x6'1" x4'11"

5 Minutes Storage

DA MODEL	Boiler Capacity (HP)	Rated Capacity (#/HR)	Storage to Overflow (Gallons)	Storage Capacity (Minutes)	Vessel Dimension (L1 x W1x H1)	Water Inlet "A" (in)	Steam Inlet "B" (in)	Empty Weight (lbs)	Operate Weight (lbs)	Flooded Weight (lbs)	Total Accessory (L2 x W2x H2)	Pump Package (L3 x W3x H3)
VT32-3006-05	580	8,000	93	5	3'0"x2'7" x 7'9"	1.5	6	1,400	3,000	4,000	6'6"x5'9" x9'3"	7'0"x2'11" x2'10"
VT32-3508-05	1,159	25,000	270	5	3'6"x2'11" x 9'11"	2	6	2,000	6,000	7,000	6'10"x8'7" x11'11"	8'6"x3'3" x3'10"
VT50-4008-05	1,449	30,000	353	5	4'0"x3'4" x 10'1"	2.5	8	2,400	7,000	10,000	6'10"x9'5" x11'7"	8'6"x3'8" x4'0"
VT50-4508-05	1,739	40,000	446	5	4'6"x3'8" x 10'4"	2.5	8	2,700	8,000	12,000	7'1"x9'9" x11'10"	8'6"x4'0" x4'0"
VT93-5008-05	2,319	50,000	539	5	5'0"x4'1" x 10'10"	3	10	3,200	11,000	15,000	7'9"x10'8" x12'4"	9'0"x4'4" x4'0"
VT93-5508-05	2,899	60,000	681	5	5'6"x4'5" x 11'0"	4	10	3,400	12,000	18,000	7'4"x12'4" x12'10"	9'6"x4'9" x5'6"
VT93-6008-05	3,478	75,000	811	5	6'0"x5'2" x 11'3"	4	12	3,900	15,000	21,000	7'7"x12'7" x13'0"	9'6"x5'4" x5'6"
VT122-6009-05	4,058	100,000	1,040	5	6'0"x5'2" x 12'3"	4	12	4,300	17,000	23,000	7'7"x12'7" x14'0"	10'9"x5'4" x3'6"
VT149-6010-05	4,638	120,000	1,234	5	6'0"x5'2" x 13'3"	4	12	4,700	19,000	26,000	7'7"x12'7" x15'0"	11'1"x5'4" x3'6"
VT184-6510-05	5,217	140,000	1,447	5	6'6"x5'7" x 13'5"	6	14	5,500	22,000	30,000	9'8"x12'6" x16'8"	Consult Factory
VT209-6512-05	6,377	170,000	1,943	5	6'6"x5'7" x 15'5"	6	14	6,200	26,000	35,000	9'8"x13'5" x18'8"	Consult Factory
VT246-7012-05	7,536	200,000	2,255	5	7'0"x5'11" x 15'7"	6	16	6,900	30,000	41,000	9'11"x13'8" x18'10"	Consult Factory

## Model Number Selection



## Typical Arrangement

