

Performance –

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

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

Accessories –

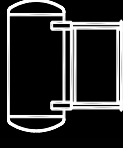
Select package or individual items

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

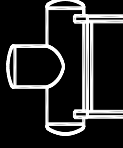
ITEM	DESCRIPTION	ACC PKG	PUMP PKG	SELECT
M	BFP RECIRC			
M1	BFP Recirc Shutoff	NA	OPT	
M2	BFP Recirc Check	NA	OPT	
M3	BFP Recirc Orifice	NA	OPT	
	BFP Recirc ARC Valve	NA	OPT	
M4	BFP Recirc Piping	NA	OPT	
M5	BFP Recirc Pressure Gauge	NA	OPT	
N	BFP SUCTION			
N1	BF Pumps			
	(2) 100% Capacity	NA	STD	
	(3) 50% Capacity	NA	OPT	
	Motors			
	ODP	NA	STD	
	TEFC	NA	OPT	
N2	BFP Suction Isolation Valve	NA	STD	
N3	BFP Suction Strainer	NA	STD	
N4	BFP Suction Piping	NA	STD	
N5	BFP Suction Expansion Joint	NA	STD	
	BFP Discharge Pressure Gauge	NA	OPT	
N6	Gauge	NA	OPT	
N7	BFP Discharge Check Valve	NA	OPT	
N8	BFP Discharge Isolation Valve	NA	OPT	
O	CHEMICAL FEED			
O	Chemical Feed Quill		OPT	
Q	OVERFLOW			
Q1	Overflow Valve/Trap	STD	STD	
Q3	Overflow Piping	OPT	STD	
R	LEVEL SWITCH			
R1	Level Switches			
	High & Low (TWO)	STD	STD	
	High High (ADDITIONAL)	OPT	OPT	
R2	Level Switch Bridle Piping	OPT	STD	
S	GAUGE GLASS			
S1	Gauge Glass			
	Red Line Pyrex	STD	STD	
	Reflex	OPT	OPT	
	Magnetic	OPT	OPT	
S2	Gauge Glass Bridle	OPT	STD	



Standard Deaerating Units



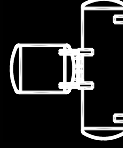
HS Series
Up to 350,000 #/hr Low Headroom



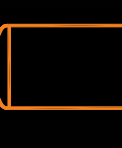
TC Series
Tray Unit Meets HEI Up to 250,000 #/hr



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



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



VS & VT Series
Tray Unit Minimal Plan Area Meets HEI Up to 800,000 #/hr



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

KANSAS CITY DEAERATOR

VS – Vertical Spray Deaerator

Principles of Operation

Kansas City Deaerator Spray deaerators provide an economical alternative to tray type units. The units feature a simple, trouble-free, quiet design and are designed for constant loads.

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 is channeled through a collection basin downcomer, through a tortuous path second stage deoxygenator. Here the hottest, purest steam vigorously scrubs the water to heat it to the saturation temperature and strips the last traces of dissolved gases.

The steam and non-condensables flow upward into the stainless steel vent condensing area where the steam is condensed with the inlet water and the gases are released to atmosphere through the vent outlet. The deaerated water then falls to the storage area.

Standard Vertical Spray Deaerator

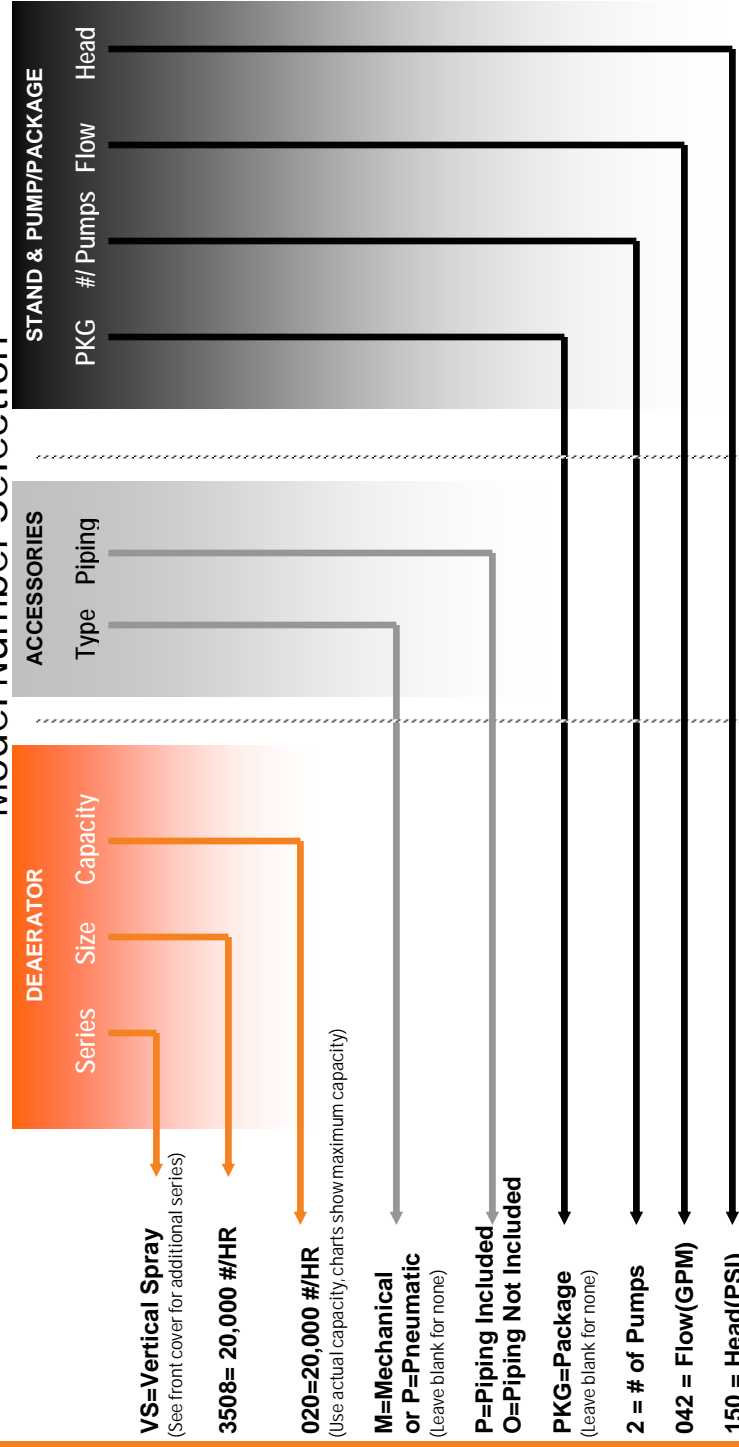


FEATURES

- Spray Model (VS) Deaerator
- Low Cost
- Small footprint / Plan area
- Capacities up to 260,000 #/hr with pre-engineered economy, custom units up to 800,000 #/hr
- 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

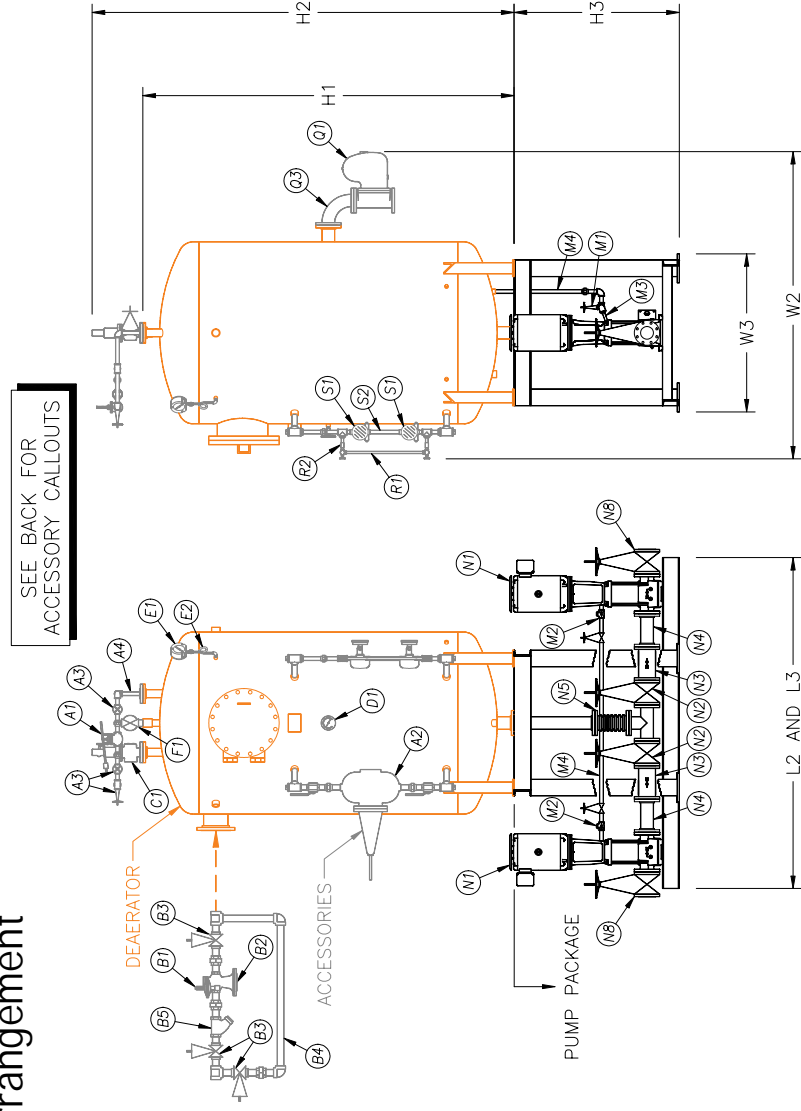


Model Number Selection



EXAMPLE: SERIES - SIZE CAPACITY TYPE PIPED #/PUMPS FLOW HEAD
VS 3508 -- 020 -- M O -- P K G -- 2 -- 042 -- 150

Typical Arrangement



SELECTION CHART
 10 Minutes Storage

DA MODEL	Boiler Capacity (HP)	Rated Capacity (#/HR)	Storage to Overflow (Gallons)	Storage Capacity (Minutes)	Vessel Dimension (L1 x W1 x H1)	Water Inlet "A" (in)	Steam Inlet "B" (in)	Empty Weight (lbs)	Operate Weight (lbs)	Flooded Weight (lbs)	Total Accessory (L2 x W2 x H2)	Pump Package (L3 x W3 x H3)
VS-3006-010	290	10,000	210	10	3'0"x2'7" x 7'9"	1	3	1,300	3,000	4,000	6'6"x5'9" x 9'3"	7'0"x2'11" x 2'10"
VS-3508-020	580	20,000	420	10	3'6"x2'11" x 9'11"	1.5	6	1,700	5,000	7,000	6'10"x7'7" x 11'11"	7'6"x3'3" x 2'10"
VS-4008-025	725	25,000	525	10	4'0"x3'4" x 10'1"	2	6	2,100	7,000	9,000	7'1"x8'3" x 12'1"	8'0"x3'8" x 3'0"
VS-4508-030	870	30,000	630	10	4'6"x3'8" x 10'4"	2	6	2,400	8,000	12,000	7'4"x8'6" x 12'3"	8'0"x4'0" x 3'0"
VS-5008-040	1,159	40,000	840	10	5'0"x4'1" x 10'10"	2	6	2,700	10,000	14,000	6'9"x9'4" x 12'9"	9'0"x4'5" x 4'0"
VS-5508-050	1,449	50,000	1,050	10	5'6"x4'5" x 11'0"	2.5	8	3,100	12,000	17,000	6'9"x10'2" x 12'6"	9'6"x4'9" x 3'6"
VS-6008-060	1,739	60,000	1,260	10	6'0"x5'2" x 11'3"	2.5	8	3,300	14,000	20,000	6'10"x10'6" x 12'9"	10'6"x5'4" x 3'6"
VS-6009-070	2,029	70,000	1,470	10	6'0"x5'2" x 12'3"	3	8	3,600	16,000	23,000	7'3"x11'2" x 13'9"	10'6"x5'4" x 3'6"
VS-6010-080	2,319	80,000	1,680	10	6'0"x5'2" x 13'3"	3	10	4,000	18,000	25,000	7'3"x11'2" x 14'9"	10'6"x5'4" x 3'6"
VS-6510-090	2,609	90,000	1,890	10	6'6"x5'7" x 13'5"	3	10	4,400	20,000	29,000	7'10"x11'5" x 14'11"	12'0"x5'9" x 4'5"
VS-6512-110	3,188	110,000	2,310	10	6'6"x5'7" x 15'5"	4	10	5,100	24,000	34,000	7'6"x12'10" x 18'8"	11'7"x5'9" x 4'5"
VS-7012-130	3,768	130,000	2,730	10	7'0"x5'11" x 15'7"	4	12	5,900	29,000	40,000	8'2"x13'1" x 18'10"	11'7"x6'1" x 4'11"

5 Minutes Storage

DA MODEL	Boiler Capacity (HP)	Rated Capacity (#/HR)	Storage to Overflow (Gallons)	Storage Capacity (Minutes)	Vessel Dimension (L1 x W1 x H1)	Water Inlet "A" (in)	Steam Inlet "B" (in)	Empty Weight (lbs)	Operate Weight (lbs)	Flooded Weight (lbs)	Total Accessory (L2 x W2 x H2)	Pump Package (L3 x W3 x H3)
VS-3006-020	580	20,000	210	5	3'0"x2'7" x 7'9"	1.5	6	1,400	3,000	4,000	6'3"x5'9" x 9'3"	7'0"x2'11" x 2'10"
VS-3508-040	1,159	40,000	420	5	3'6"x2'11" x 9'11"	2	6	2,000	6,000	7,000	6'3"x8'7" x 11'11"	8'6"x3'3" x 3'10"
VS-4008-050	1,449	50,000	525	5	4'0"x3'4" x 10'1"	2.5	8	2,400	7,000	10,000	6'2"x9'5" x 11'7"	8'6"x3'8" x 4'0"
VS-4508-060	1,739	60,000	630	5	4'6"x3'8" x 10'4"	2.5	8	2,700	8,000	12,000	6'3"x9'9" x 11'10"	8'6"x4'0" x 4'0"
VS-5008-080	2,319	80,000	840	5	5'0"x4'1" x 10'10"	3	10	3,200	11,000	15,000	6'11"x10'8" x 12'4"	9'0"x4'5" x 4'0"
VS-5508-100	2,899	100,000	1,050	5	5'6"x4'5" x 11'0"	4	10	3,400	12,000	18,000	6'6"x12'4" x 12'10"	10'0"x4'9" x 5'6"
VS-6008-120	3,478	120,000	1,260	5	6'0"x5'2" x 11'3"	4	12	3,900	15,000	21,000	6'10"x12'7" x 13'0"	10'0"x5'4" x 5'6"
VS-6009-140	4,058	140,000	1,470	5	6'0"x5'2" x 12'3"	4	12	4,300	17,000	23,000	6'10"x12'7" x 14'0"	Consult Factory
VS-6010-160	4,638	160,000	1,680	5	6'0"x5'2" x 13'3"	4	12	4,700	19,000	26,000	6'10"x12'7" x 15'0"	Consult Factory
VS-6510-180	5,217	180,000	1,890	5	6'6"x5'7" x 13'5"	6	14	5,500	22,000	30,000	10'8"x12'6" x 16'8"	Consult Factory
VS-6512-220	6,377	220,000	2,310	5	6'6"x5'7" x 15'5"	6	14	6,200	26,000	35,000	10'8"x13'5" x 18'8"	Consult Factory
VS-7012-260	7,536	260,000	2,730	5	7'0"x5'11" x 15'7"	6	16	6,900	30,000	41,000	11'1"x13'8" x 18'10"	Consult Factory