

**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	<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

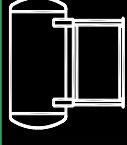
ITEM	DESCRIPTION	ACC PKG	PUMP PKG	SELECT
A	WATER INLET			√
A1	Inlet Valve			
	Mechanical	STD	STD	
	Pneumatic	OPT	OPT	
A2	Level Controller	STD	STD	
A3	Level Transmitter	OPT	OPT	
A4	Inlet Valve Bypass Valves	OPT	STD	
A5	Inlet Valve Bypass Piping	OPT	STD	
A5	Inlet Valve Bypass Strainer	OPT	STD	
B	STEAM CONTROL			
B1	Steam PRV		OPT	
	Self Contained		OPT	
	Pneumatic		OPT	
B2	Steam PRV Controller		OPT	
B3	Steam PRV Bypass Valves		OPT	
B4	Steam PRV Bypass Piping		OPT	
B5	Steam PRV Bypass Strainer		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 GAUGE			
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	
M4	BFP Recirc ARC Valve	NA	OPT	
M5	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	
N6	BFP Discharge Pressure 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	

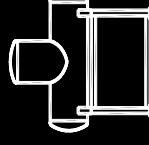
Tray - .005 cc/l - 7PPB



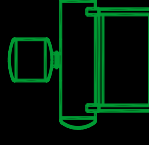
Standard Deaerating Units



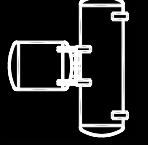
**HS Series**  
Up to 350,000 #/hr  
Low Headroom



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



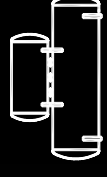
**BDS Series**  
Up to 250,000 #/hr  
Tray Unit  
Meets HEI



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



**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

**BDS – Bolted Double Shell 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. KCD trays are among the heaviest in the industry, fabricated of 16 gauge, type 430 stainless steel.

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.

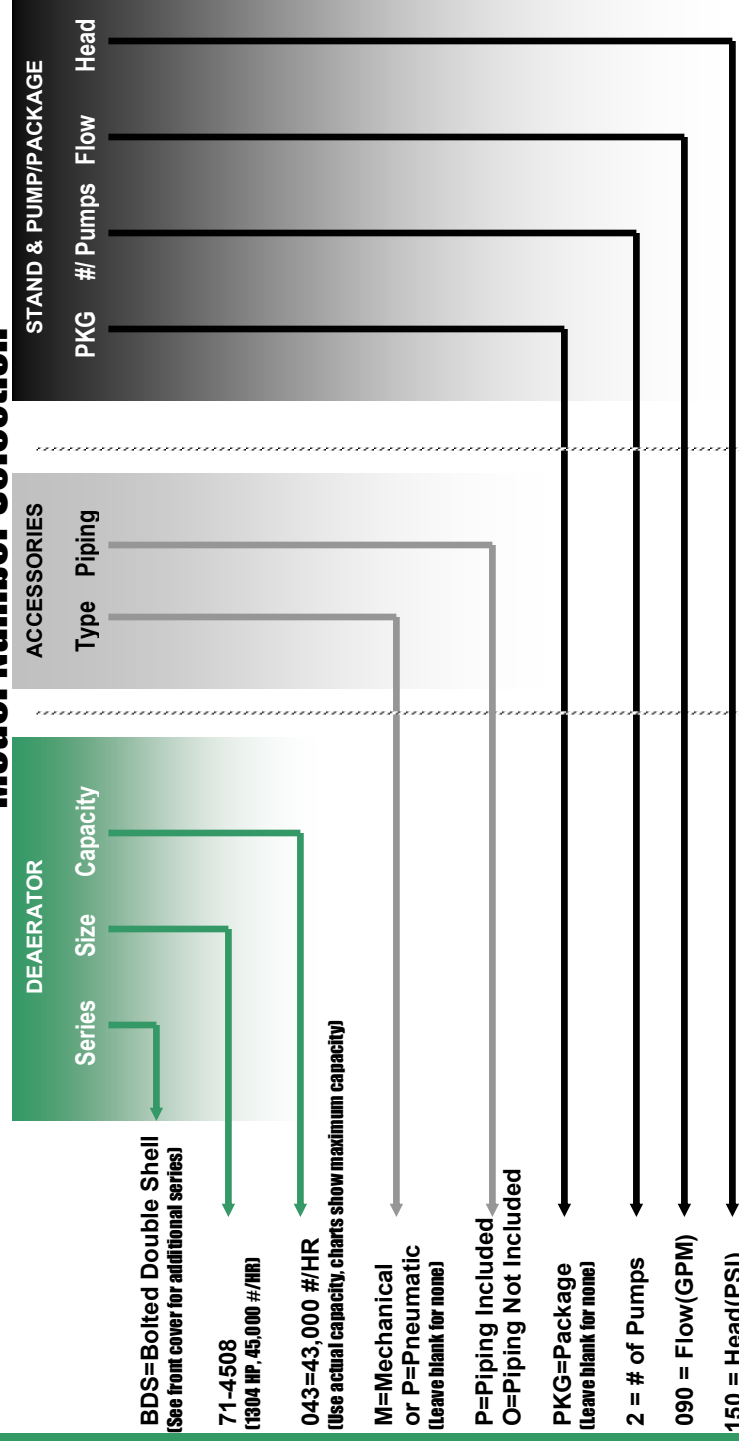
**FEATURES**

- Tray Model (BDS) Bolted Double Shell Deaerator
- Same high quality design as the TC Model except in a bolted 2 tank design for ease of installation
- 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
- Heat Exchange Institute (HEI) design

BDS - Bolted Double Shell Deaerator



**Model Number Selection**



**BDS=Bolted Double Shell**  
(See front cover for additional series)

**71-4508**  
(1304 HP, 45,000 #/HR)

**043=43,000 #/HR**  
(Use actual capacity, charts show maximum capacity)

**M=Mechanical**  
**or P=Pneumatic**  
(Leave blank for none)

**P=Piping Included**  
**O=Piping Not Included**

**PKG=Package**  
(Leave blank for none)

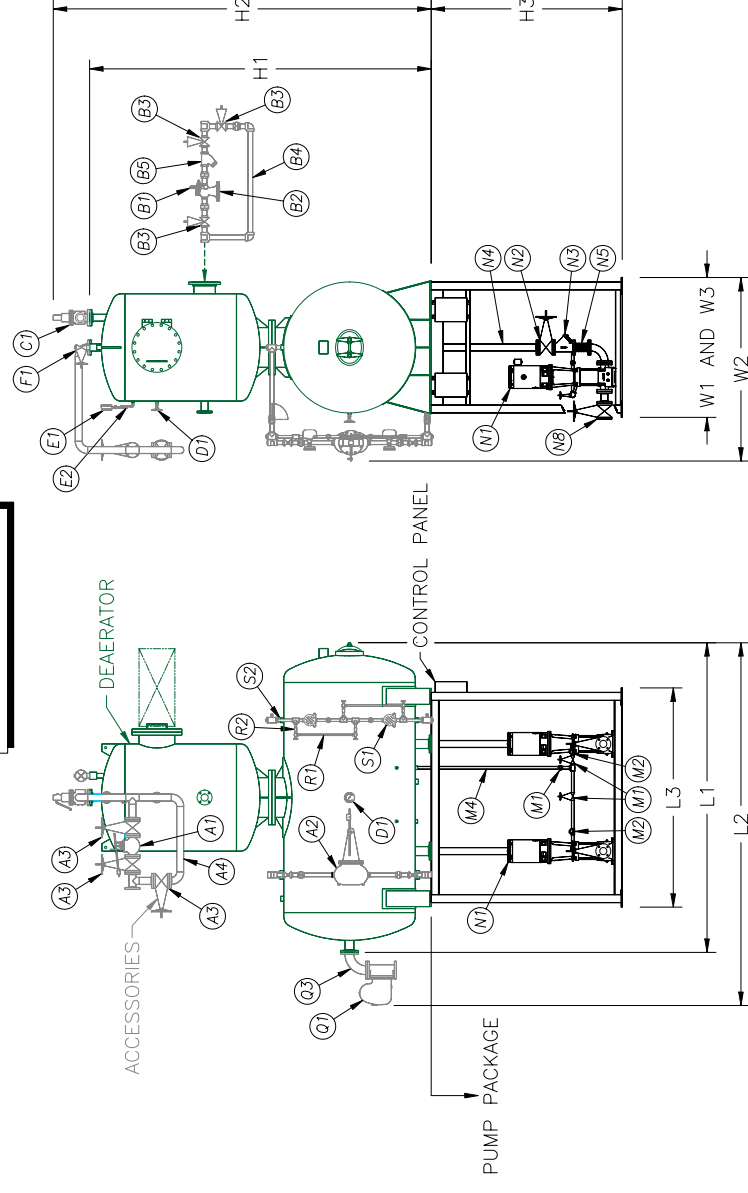
**2 = # of Pumps**

**090 = Flow(GPM)**  
**150 = Head(PSI)**

**EXAMPLE: SERIES - SIZE CAPACITY TYPE PIPED #/PUMPS FLOW HEAD**  
**BDS 71 4508 -- 043 -- M O -- PKG -- 2 -- 090 -- 150**

**Typical Arrangement**

SEE BACK FOR ACCESSORY CALLOUTS



**SELECTION CHART**

DA MODEL	Boiler Capacity (HP)	Rated Capacity (#/HR)	Storage to Overflow (Gallons)	Storage Capacity (Minutes)	Vessel Dimension (L1 x W1 x H)	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)
BDS18-3006-011	319	11,000	231	10	7'8"x3'5" x 11'0"	2.5	3	3,100	5,000	7,000	8'10"x4'9" x 12'6"	5'11"x3'5" x 5'0"
BDS32-4006-026	754	26,000	546	10	8'1"x4'5" x 11'9"	2.5	6	4,300	9,000	12,000	9'6"x5'9" x 13'3"	5'9"x4'5" x 5'0"
BDS50-4508-030	870	30,000	629	10	10'3"x4'1" x 12'5"	2.5	6	5,100	10,000	17,000	11'8"x6'9" x 13'11"	7'9"x4'1" x 6'6"
BDS50-4508-041	1,188	41,000	860	10	10'3"x4'1" x 12'5"	2.5	6	5,100	12,000	17,000	11'8"x6'9" x 13'11"	7'9"x4'1" x 6'6"
BDS71-4508-045	1,304	45,000	944	10	10'3"x4'1" x 12'10"	2.5	6	5,300	14,000	18,000	11'8"x6'9" x 14'4"	7'9"x4'1" x 6'6"
BDS71-5008-057	1,652	57,000	1,196	10	10'10"x5'5" x 13'4"	2.5	6	6,000	16,000	21,000	13'0"x7'0" x 14'10"	7'9"x5'5" x 6'6"
BDS93-5510-076	2,203	76,000	1,595	10	13'0"x5'1" x 14'0"	3	8	7,200	20,000	29,000	15'3"x7'9" x 15'6"	9'3"x5'1" x 8'0"
BDS122-5510-085	2,464	85,000	1,783	10	13'0"x5'1" x 14'2"	3	8	7,600	23,000	31,000	15'3"x7'9" x 15'9"	9'3"x5'1" x 8'0"
BDS122-5512-100	2,899	100,000	2,098	10	15'0"x5'1" x 14'2"	3	8	8,200	26,000	35,000	17'3"x7'9" x 15'9"	10'9"x5'1" x 8'0"
BDS149-5514-116	3,362	116,000	2,434	10	17'0"x5'1" x 14'4"	3	8	8,900	29,000	40,000	20'2"x7'9" x 15'11"	12'9"x5'1" x 8'0"
BDS149-6016-122	3,536	122,000	2,560	10	19'2"x6'5" x 15'5"	4	10	9,900	31,000	49,000	22'4"x8'0" x 16'11"	14'11"x6'5" x 9'0"
BDS184-6016-150	4,348	150,000	3,147	10	19'2"x6'5" x 15'6"	4	10	10,400	36,000	52,000	22'4"x8'0" x 17'4"	Consult Factory
BDS209-6016-157	4,551	157,000	3,294	10	19'2"x6'5" x 15'9"	6	10	10,600	38,000	54,000	22'4"x8'0" x 17'6"	Consult Factory
BDS209-6516-170	4,928	170,000	3,567	10	19'4"x6'1" x 16'3"	6	12	11,600	41,000	61,000	22'6"x8'9" x 18'0"	Consult Factory
BDS246-6516-200	5,797	200,000	4,196	10	19'4"x6'1" x 16'10"	6	12	13,000	47,000	69,000	22'6"x8'9" x 18'8"	Consult Factory

The above capacities are designed for 100% make up. For 50% make up and 50% condensate, increase capacities by 25%. A Model BDS246-6516 would be capable of 250,000 #/HR of 50% make up.

