York - Shipley Global
Division of AESYS Technologies, LLC

PACKAGED SPRAY DEAERATING BOILER FEEDWATER SYSTEMS

AESYS
Engineered Systems for Your World

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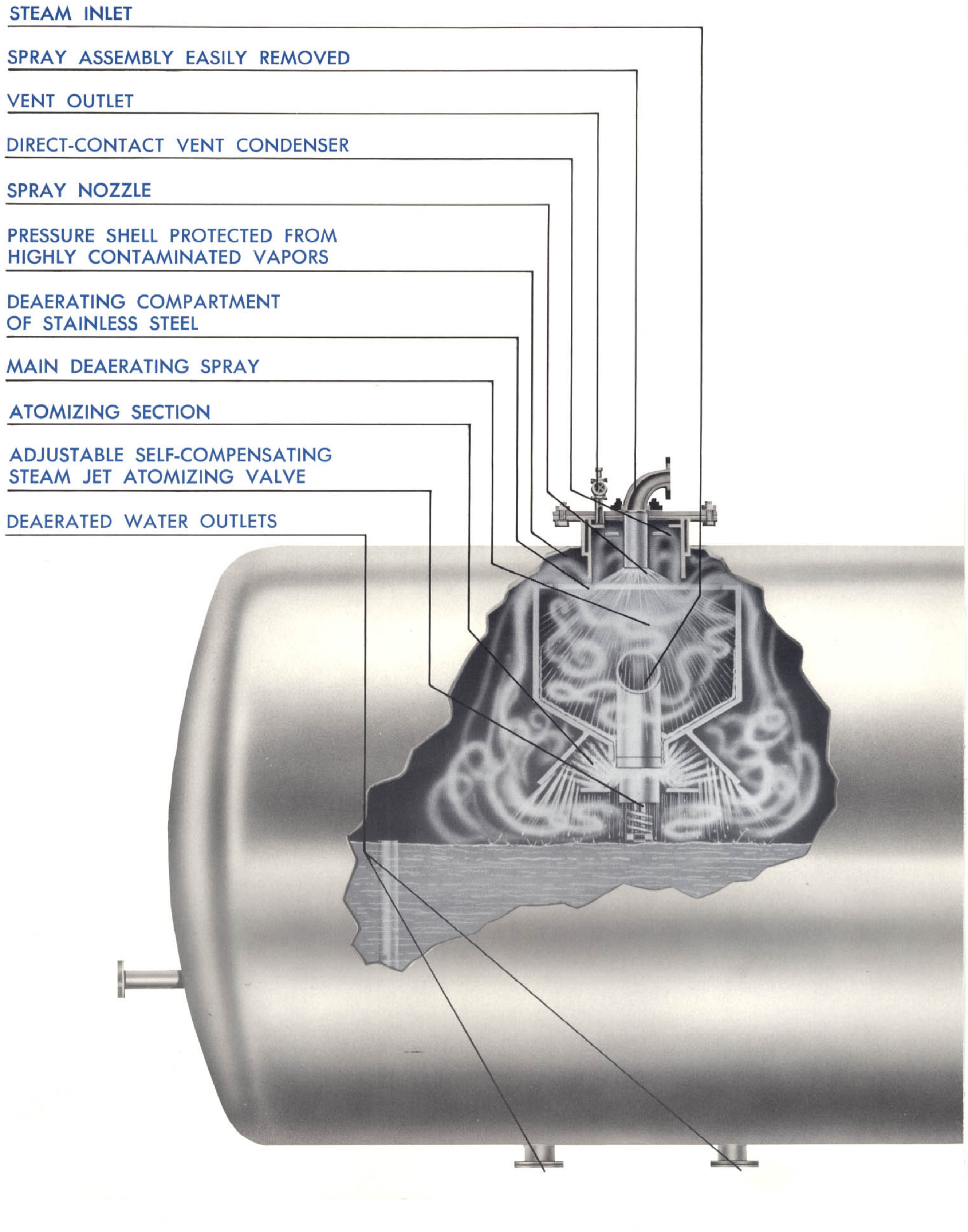
Cutaway View of the Packaged Deaerating Boiler Feedwater System



York-Shipley Packaged Spray Deaerator

OBJECTIVE

The objective of the York-Shipley Deaerating Boiler Feedwater System is to provide a well engineered and coordinated group of components usually needed for boiler make-up purposes, all factory assembled and tested prior to shipment, requiring only that it be set in place and be ready for operation after water, steam, drain and electrical services are connected to respective terminal points on the assembly.

The York-Shipley Deaerator recovers flash heat, as well as, exhaust heat from the boiler. This otherwise wasted heat is instrumental in raising boiler feedwater temperatures to within several degrees of boiler steam temperature. Typically, for every 10° F the Deaerator raises boiler feedwater temperature, you save 1% in fuel costs.

Even in smaller boiler room installations the York-Shipley Deaerator can save you money. Under any operating load or condition, the York-Shipley Deaerator protects your boiler investment by eliminating carbon monoxide and oxygen to a *minimum level of 0.005 cc/liter* from feedwater. These corrosive elements may quickly cause boiler down time for boiler tube replacement, condensate and feedwater line replacement and immanently boiler replacement. The York-Shipley Deaerator quickly pays for itself in fuel cost savings and no one can put a price on the saving from the high cost of boiler down time.

FEATURES

- GUARANTEED to remove oxygen to 0.005 cc/liter under all operating conditions.
- Tank constructed per ASME Unfired Pressure Vessel Code. All internal fabricated parts in contact with highly corrosive vapors are made of stainless steel. The entire preheating and deaerating compartment is stainless steel. The direct contact vent condenser and primary-stage spray heater are stainless steel. The compound inlet water spray nozzle and the steam-atomizing valve are cast bronze.
- Minimum head room requirement provided by deaerator mounted in and integral with horizontal cylindrical storage tank.
- Minimum floor space requirement provided by judicious placement of Boiler Feed Pumps directly under tank.
- Ready access to all parts for easy maintenance.
- Eight storage capacities available.
- Efficient and high quality pumps suitable for boiler feed service.
- Assembled, tested and ready to operate prior to shipment.

OPERATION

Make-up water and/or condensate is first sprayed into the direct contact vent condenser and heated to within a few degrees of steam temperature. In this primary heating stage 90% to 95% of the oxygen originally in the solution is removed from the water being heated. The water is then passed to the atomizing section, where a high velocity jet of incoming steam forcibly breaks up, or atomizes, the water into minute particles. The atomized water presents a tremendous amount of surface exposure to the violent scrubbing action of the high velocity stream and accomplishes the removal of dissolved gases. The deaerated water drops from the atomizing section to the storage area below; steam flows counter currently from the deaerating section to the preheating section.

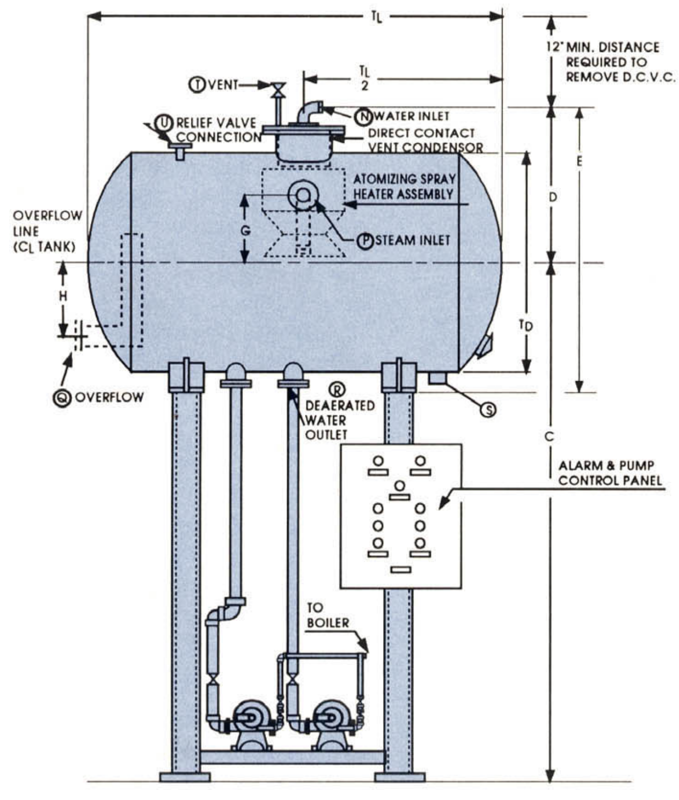
The York-Shipley steam-jet atomizing valve is spring loaded and adjustable. It maintains a substantially constant pressure differential on the steam supply, regardless of the temperature at which water is received by the deaerator.

Under variable load conditions with substantially constant water inlet temperature, the York-Shipley spring-loaded, stream-jet atomizing valve maintains continuous high velocity and uniform energy application to the deaerating process.

The spring loading on the atomizing valve may be adjusted to the exact requirements of the particular installation operating conditions.

All steam used to heat the incoming water and substantially all the steam used in both the heating and deaerating processes passes through the dearating stage and provides a volume of scrubbing vapors 100 to 150 times the volume of the water being deaerated.

Deaerator Catalog Number	** Capacity Lbs/hr	T_D	T_L for Maximum Storage										Openings***						
			5	10	15	20	30	C*	D	E	G	H	N	P	Q	R****	S	T	U
YSD-10	10,000	5'-0"	N/A	4'-0"	5'-6"	6"-6"	9'-6"	12'-6"	3'-1"	7'-2"	171/2"	21/4"	2"	4"	2"	3"	11/2"	3/4"	3"
YSD-15	15,000	5'-0"	N/A	5'-6"	7'-6"	9'-6"	13'-6"	12'-6"	3'-1"	7'-2"	16	21/4"	2"	4"	2"	3"	11/2"	3/4"	3"
YSD-25	25,000	5'-6"	N/A	7'-0"	9'-6"	12'-6"	N/A	12'-9"	3'-4"	7'-8"	21"	21/2"	2"	6"	2"	4"	11/2"	3/4"	3"
YSD-35	35,000	6'-0"	N/A	7'-9"	11'-4"	14'-7"	N/A	13'-0"	3'-6"	7'-3"	213/4"	6"	3"	6"	4"	4"	11/2"	3/4"	3"
YSD-50	50,000	6'-0"	6'-0"	11'-0"	15'-6"	N/A	N/A	13'-1"	3'-7"	7'-4"	213/4"	6"	3"	6"	4"	4"	11/2"	3/4"	3"
YSD-70	70,000	6'-6"	7'-0"	13'-0"	N/A	N/A	N/A	13'-3"	4'-2"	8'-0"	24"	6"	3"	8"	4"	4"	11/2"	3/4"	3"
YSD-90	90,000	7'-0"	8'-0"	14'-0"	N/A	N/A	N/A	13'-6"	4'-6"	8'-11"	251/2"	6"	4"	8"	4"	6"	11/2"	3/4"	3"
YSD-110	110,000	7'-6"	8'-6"	15'-0"	N/A	N/A	N/A	13'-4"	4'-11"	10'-0"	283/4"	6"	4"	10"	4"	6"	11/2"	3/4"	3"



*	Approximate only dimension "C" will be adjusted to provide adequate NSPH, clearances etc.
**	Basic rating, 100% cold inlet 0.005 CC/Liter guarantee Increase rating 25% with 50% hot condensate, 0.005 CC/Liter guarantee Increase rating 25% with cold inlet, 0.03 CC/Liter guarantee Increase rating 50% with 50% hot condensate 0.003 CC/Liter guarantee
***	Additional openings and or connections provided as required to accommodate accessories
****	YSD-10 and YSD-15 have common pump suction connection YSD-25 thru YSD-110 have indivdual pump suction connections
N/A	Not Available

LIMITED WARRANTY

York Shipley Division of **AESYS TECHNOLOGIES LLC** warrants against defective material and workmanship on the entire unit for a period of one year from the date of original installation but not to exceed 18 months from the date of shipment. A detailed Limited Warranty is furnished in conjunction with the shipment of equipment.

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ID 71-544-0493 7M

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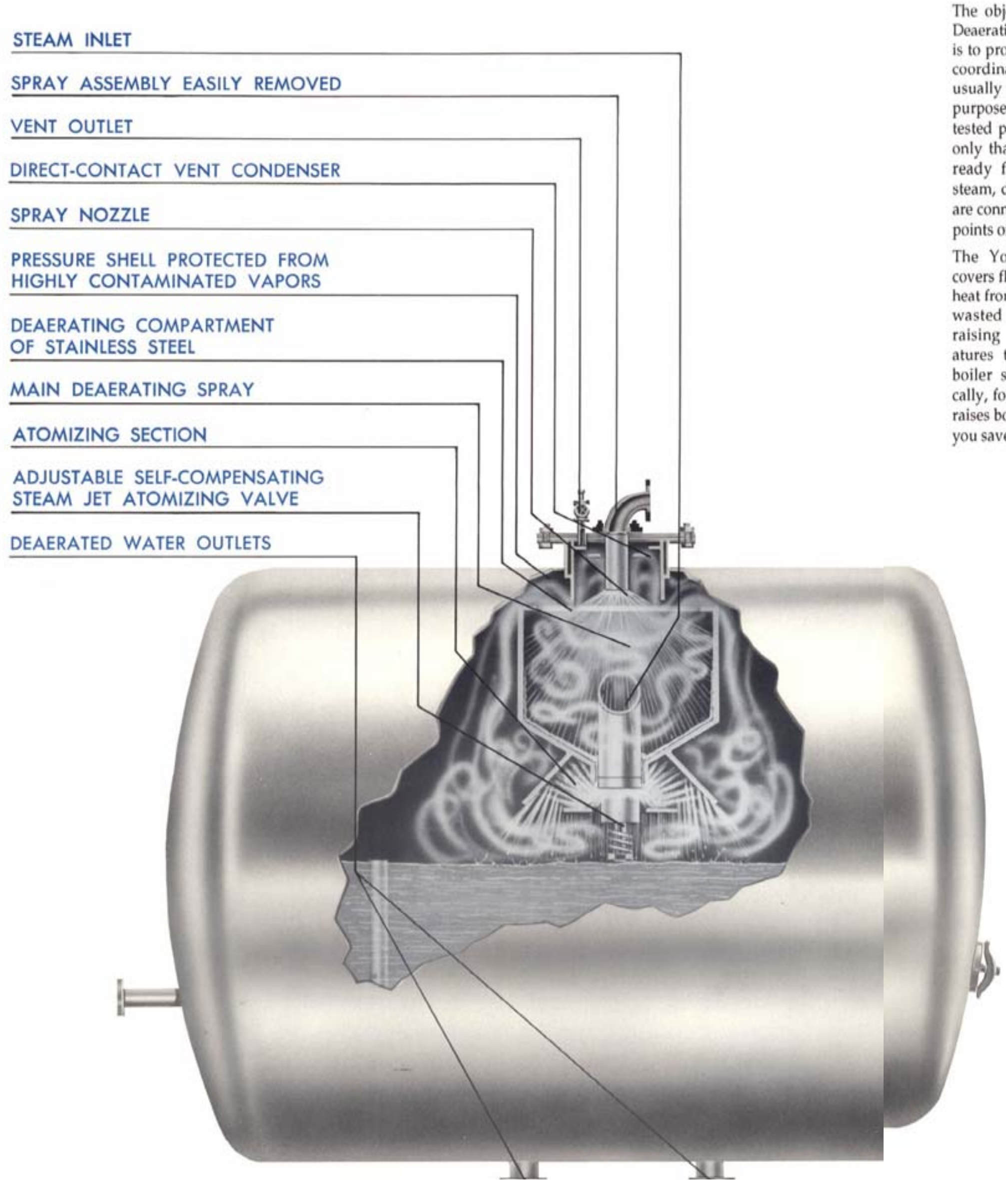

York-Shipley Packaged Spray Deaerator

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- Efficient and high quality pumps suitable for boiler feed service.
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OPERATION

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