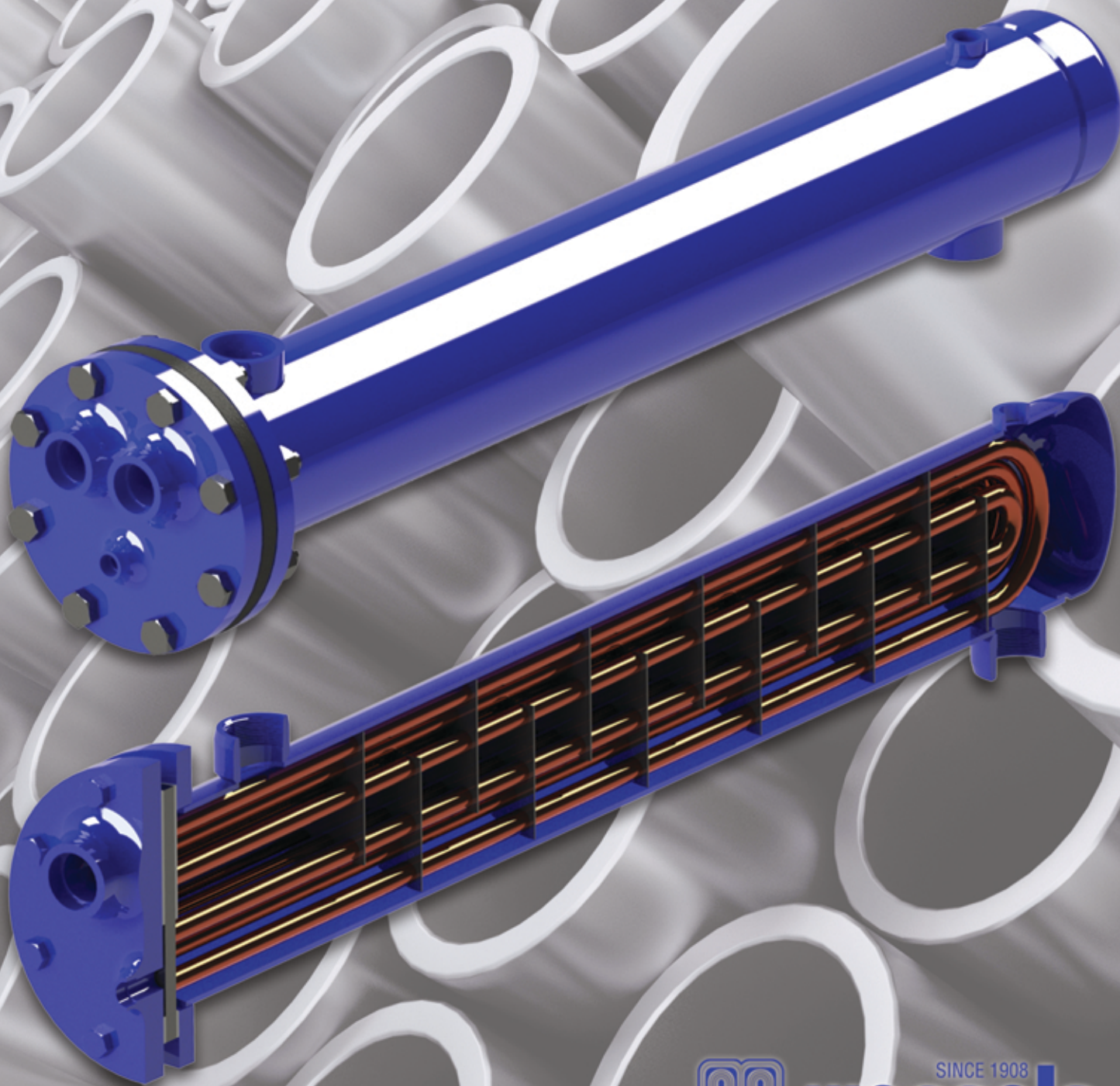


WesTube® Heat Exchangers



SINCE 1908
wessels
company

SHELL & TUBE TYPE HEAT EXCHANGERS

WesTube®

SHELL AND TUBE HEAT EXCHANGERS

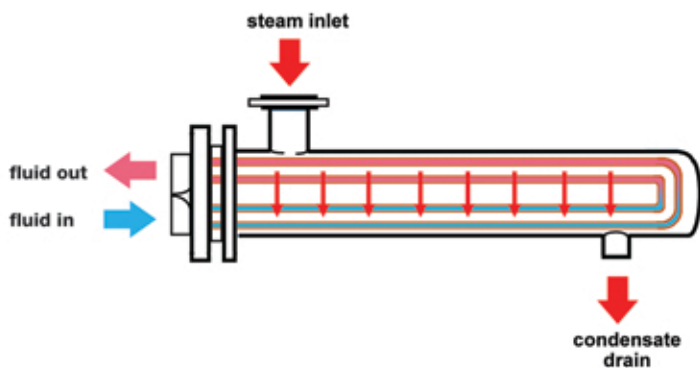
Steam and water are effective media for transferring heat. In typical HVAC heat applications, steam or hot water primary loops distribute heat from the central boiler out to secondary loops through U-tube style heat exchangers. Heat exchangers transfer heat from the building's primary loops to secondary loops and can also serve as separation devices to reduce system costs. These loops serve auxiliary equipment like heating systems, potable water heating and pool water heating. The heat exchangers provide better temperature control, differential system operating pressures and separation of steam, water, glycol and potable water systems. In all cases, the heat exchanger is relied on to transfer as much heat as possible at the lowest cost.

HOW IT WORKS

The WesTube® shell and tube heat exchanger consists of two sides for two different fluids. The Tube Side fluid flows inside the tubes and is diverted by the heat exchanger head located on the end into two or four passes or circuits. The Shell Side fluid flows on the outside of the tubes and is contained by the shell where it is diverted by baffles or tube supports that also carry the weight of the tubes. The wall of the tubes is the heat transfer surface. The tube bundle consists of U-shaped tubes confined at one end by the tube sheet that separates the two fluids. The tube bundle is assembled into a steel shell and head that forms a two sided heat exchanger.

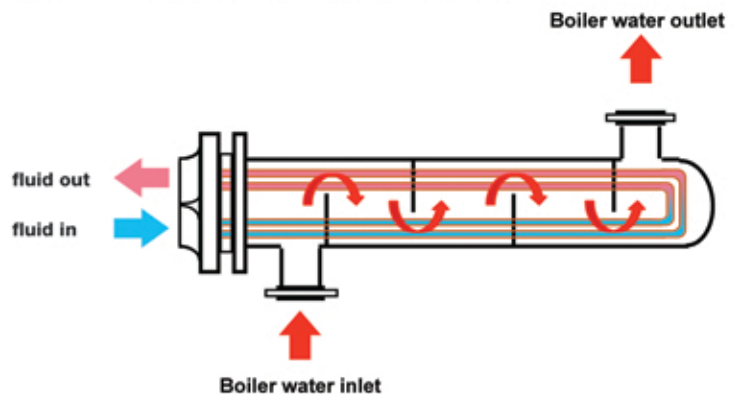
WesTube® comes in two different configurations depending on the shell side fluid:

WST • Steam in Shell



The WST works by introducing steam (water vapor) into the shell where it naturally distributes across the outer tube surface and condenses and heats the water inside the tubes. The condensate exits through a drain in the shell. Tube supports carry the weight of the tubes and do not divert the steam.

WWT • Boiler Water in Shell



The WWT works by introducing boiler water into the shell where it is diverted back and forth across the tube surface by baffles, heating the water inside the tubes. The distance between the baffles is called the "baffle spacing," which controls the rate of heat transfer and pressure drop of the shell side fluid.

MATERIALS OF CONSTRUCTION

TUBES

Standard: Copper | Option: Stainless, 90/10 Cu Ni

SHELL

Standard: Steel | Option: Stainless

TUBESHEETS

Standard: Steel | Option: Stainless, Brass, 90/10 Cu Ni

HEADS

Standard: Cast Iron | Option: Steel, Stainless

CERTIFICATION

SAFETY

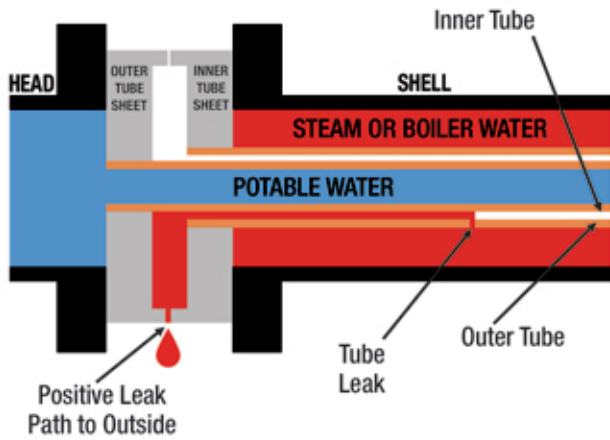
ASME for pressure vessels
CRN for Canadian Registration

DESIGN LIMITS

TUBE SIDE: Standard: 125 | Option: 150, 300, 400 psi
400°F

SHELL SIDE: Standard: 150 | Option: 300 psi
375°F

WSD/WWD • Double Wall



The WSD and WWD are made with inner and outer double tubes and double tube sheets that provide a positive leak path between the two fluids. This design prevents the cross-contamination of the potable water by the surrounding steam or treated boiler water.

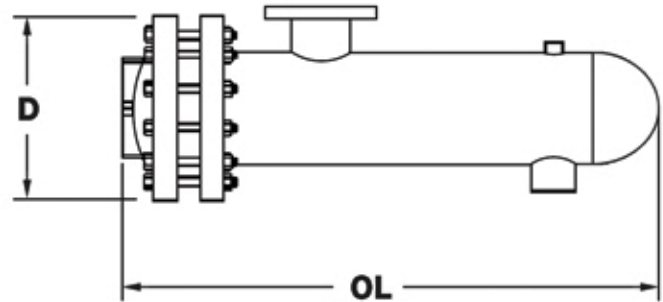
Connection Types



NPT



Flanged



TYPICAL WST CAPACITIES & DIMENSIONS BY MODEL

Duty Btu/Hr	Water Flow GPM	PSI Drop	Model – Size - #Passes	Surface Area Sq. Ft.	Weight Lbs	D Inches	OL Inches
300,000	30	1.5	WST-0404-2	6	90	7.3	52
1,100,000	110	1.5	WST-0604-2	20	190	10.5	53
2,000,000	200	1.5	WST-0804-2	37	300	12.5	53
3,200,000	320	1.5	WST-1004-2	59	460	14.6	54
4,700,000	470	1.5	WST-1204-2	85	670	16.6	55
6,400,000	640	1.5	WST-1404-2	115	820	18	56
8,300,000	830	1.5	WST-1604-2	149	1050	20	62
10,400,000	1040	1.5	WST-1804-2	187	1250	22	66
14,000,000	1400	1.5	WST-2004-2	243	1500	24	70
16,000,000	1600	1.5	WST-2204-2	293	1800	26.1	74
20,000,000	2000	1.5	WST-2404-2	365	2250	28.1	76
24,000,000	2400	1.5	WST-2604-2	431	2810	30.6	80
28,000,000	2800	1.5	WST-2804-2	518	3520	32.6	82
32,000,000	3200	1.5	WST-3004-2	618	4400	34.6	85

Above capacities based on an inlet water temperature of 160°F heated to 180°F using 15 psi saturated steam.

TYPICAL WST CONNECTION SIZES

Model-Size	Tube Side		Shell Side		Model-Size	Tube Side		Shell Side	
	-2 pass	-4 pass	Inlet	Drain		-2 pass	-4 pass	Inlet	Drain
WST-04	1.25	1	2	1	WST-18	6	4	10	4
WST-06	2	1.5	3	1	WST-20	8	6	12	4
WST-08	3	2	3	1	WST-22	10	8	12	4
WST-10	4	3	6	2	WST-24	10	8	14	4
WST-12	4	4	8	2	WST-26	12	8	16	6
WST-14	4	4	8	2.5	WST-28	12	10	18	6
WST-16	6	4	10	3	WST-30	14	10	20	6

NOTES

Connection sizes are inches. Typically 3" and below are NPT and 4" and above are ANSI flanged. Sizes are subject to variation and should be confirmed by Wessels engineering.



*“With over a century of experience in pressure vessel design and manufacture, our goal is to provide sustainable **energy saving solutions** that help make a greener HVAC world.”*

THE **WesTube**® ADVANTAGE

Heavy Duty Construction

The **WesTube**® heat exchanger is one of the most rugged heavy duty heat exchangers on the market. The circular shaped shell and tubes withstand greater pressures than flat plate designs with thinner materials. In accordance with safety codes, corrosion allowances are added to the carbon steel parts for added girth. The tubes are made of various corrosion resistant materials with thicknesses ranging from 20 BWG or 0.035" to 16 BWG or 0.065" making them at least 50% thicker than other heat transfer surfaces. With fewer gaskets, **WesTube**® can withstand higher operating pressures and temperatures than other heat transfer devices.

Human Comfort

WSD and WWD double wall designs prevent potable water contact with chemically altered boiler water. The double wall construction provides a positive leak path between the potable water and the heating media should a leak occur in a tube wall. This design conforms to all US building code requirements.

Long Life Expectancy

WesTube® utilizes U shaped tubes that are anchored at only one end. The tubes are allowed to expand freely in one direction when subject to changing operating temperatures and heat loads. This allows the heat exchanger to cycle with no risk of damage, which ensures a long, trouble-free life for the product.

Low Risk

Heavy duty construction, freely expanding corrosion resistant tubes and minimized use of gaskets make **WesTube**® a low risk investment. All units come certified by the appropriate safety code (ASME, CRN, etc.).

Low Maintenance

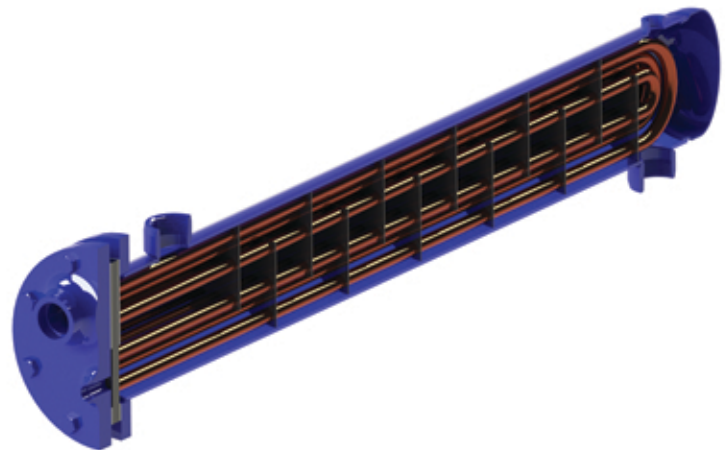
WesTube® heat exchangers are designed with fewer gaskets, which leads to less maintenance. For installations where hard water and scaling may occur, **WesTube**® uses larger diameter tubes that can continue to operate and can be easily cleaned. If necessary, a bundle can be swapped out while the other is being serviced.

Lower Pumping Costs

The heat transfer surface in **WesTube**® is smooth, resulting in less turbulent flow inside the tubes. This design maximizes heat transfer with reduced pressure drop, which lowers pumping costs.

Application Friendly

WesTube® is used for heating domestic water, snow melting, pool heating, condensate cooling, district heating, radiant heating, comfort heating and other heat transfer systems where pressure separation is needed.



HEADQUARTERS 101 TANK STREET, GREENWOOD, IN 46143 TELEPHONE 317-888-9800 FAX 317-888-9988

WEBSITE www.wesselscompany.com