

# EXERGY



HEAT TRANSFER SOLUTIONS

# INDUSTRIES

## **Delivering unsurpassed quality, design and value.**

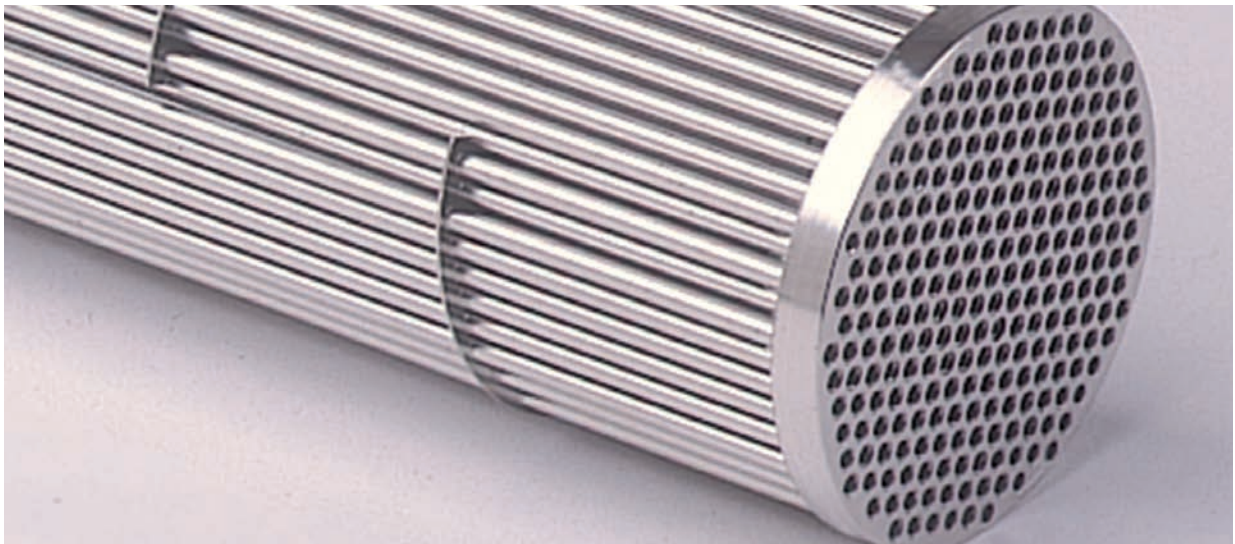
Exergy is the leading global supplier of compact heat exchangers. For more than 30 years, we have utilized state-of-the-art design and manufacturing techniques to provide heat transfer solutions for a wide variety of industries. Customers' applications range from a single unit for research and development to production quantities for OEM equipment.

Exergy offers a comprehensive product line of highly efficient Shell & Tube and Tube-in-Tube heat exchangers constructed of 316L SS, Hastelloy®, Inconel®, Titanium and other alloy's. Many standard models are available from stock or we can create a custom design. Exergy's engineers will evaluate your requirements and recommend the optimal heat exchanger that meets your specifications, delivery and budget.

## **Exergy. The ideal choice for compact design and unequalled thermal performance.**

## **Successful in Thousands of Applications**

- Aerospace/Defense
- Alternative Energy
- Chemical/Industrial
- Extraction
- Food & Beverage
- Fuel Cell
- Pharmaceutical/Biotech
- Process Equipment
- Semiconductor



# SHELL & TUBE

Exergy's compact shell & tube heat exchangers provide maximum performance in a minimum package.

A unique compact arrangement of small diameter tubes results in a lightweight, cost effective design that is easily installed in space constrained areas.

## Performance Features:

- Large heat transfer area in a small volume
- Heat transfer rates to 3,955,000 BTU/hr (1158 kW)
- Liquid flows to 160 GPM (605 LPM)
- Pressures up to 1,500 psi (104 bar)

## Design Features:

- 316L SS, Hastelloy®, Inconel®, Titanium and other alloys
- Nickel brazed (no welds)
- NPT, tube stub or custom fittings
- Mounting kits available
- Every unit pressure tested
- Maintenance free

## Typical Applications:

- Processing equipment
- Condensing and evaporating
- Regenerative heat transfer
- Process fluid temperature control
- Batch process cooling or heating
- Cryogenic cooling
- Sample cooling



Series	Shell Diameter		Transfer Area ft <sup>2</sup> (m <sup>2</sup> )	Pressure Rating			
	in	(mm)		Tube Side psi (bar)	Shell Side psi (bar)		
10	.50	(13)	.05 to .17 (.005 to .016)	1,500 (104)	1,000 (69)		
23	1.00	(25)	.40 to 2.25 (.04 to .21)	1,500 (104)	1,000 (69)		
35	1.50	(38)	1.43 to 5.93 (.13 to .55)	1,200 (83)	800 (55)		
54	2.25	(57)	3.27 to 13.66 (.30 to 1.27)	750 (52)	500 (35)		
73	3.00	(76)	6.51 to 20.46 (.60 to 1.9)	600 (41)	400 (28)		
95	4.00	(102)	10.82 to 45.27 (1.0 to 4.20)	750 (52)	500 (35)		

# SANITARY SHELL & TUBE

Exergy's sanitary shell & tube heat exchangers are designed to meet the high quality requirements and hygienic standards of the pharmaceutical industry. All product contact surfaces have a maximum surface finish of  $20\mu\text{in}$  ( $0.5\mu\text{m}$ )  $R_a$ , and can be improved to  $15\mu\text{in}$  ( $0.38\mu\text{m}$ )  $R_a$  or better, with optional electropolishing. Available with single tubesheet or double tubesheet to eliminate risk of cross-contamination between the product and working fluids.

## Performance Features:

- Heat transfer rates to 3,955,000 BTU/hr (1158 kW)
- Liquid flows to 160 GPM (605 LPM)
- Pressures up to 1,500 psi (104 bar)

## Design Features:

- 316L SS, Hastelloy®, Inconel®
- Nickel brazed (no welds)
- Fully drainable on tube side
- ASME BPE sanitary fittings
- ASME BPE compliant
- Clean-in-place (CIP)
- Available with or without electropolish
- Material & process certifications included
- Available with single or double tubesheet

## Typical Applications:

- Point of use cooling or heating
- Water for Injection (WFI)
- Clean steam condensing and sub-cooling
- Temperature control of high purity product
- Product sampling



Series	Shell Diameter		Transfer Area ft <sup>2</sup> (m <sup>2</sup> )	Pressure Rating*			
	in	(mm)		Tube Side psi (bar)	Shell Side psi (bar)		
17	.75	(19)	.14 to 1.16 (.013 to .11)	1,500	(104)	1,000	(69)
35	1.50	(38)	1.34 to 5.51 (.12 to .54)	1,200	(83)	800	(55)
60	2.50	(64)	3.91 to 17.24 (.36 to 1.6)	600	(41)	400	(28)
73	3.00	(76)	6.50 to 27.20 (.60 to 2.5)	600	(41)	400	(28)
95	4.00	(102)	10.82 to 45.27 (1.0 to 4.2)	750	(52)	500	(35)

\*Pressure rating may be limited by sanitary flange clamp. Refer to manufacturer's literature.

# TUBE-IN-TUBE

Exergy's tube-in-tube heat exchangers consist of two tubes, an inner and an outer coiled together. This unique, compact design prevents thermal fatigue, increases efficiency and reduces the overall size. It is ideal for high temperature, high pressure and low flow applications.

The Sanitary models are designed to meet the high quality requirements and hygienic standards of the pharmaceutical industry. All product contact surfaces have a maximum surface finish of  $20\mu\text{in}$  ( $0.5\mu\text{m}$ )  $R_a$ , and can be improved to  $15\mu\text{in}$  ( $0.38\mu\text{m}$ )  $R_a$  or better with optional electropolishing. Our unique design ensures there is no risk of cross-contamination between the product and working fluids.



## Performance Features:

- Heat transfer rates to 100,000 BTU/hr (29 kW)
- Liquid flows to 10 GPM (38 LPM)
- Pressures up to 4,500 psi (310 bar)

## Sanitary Features:

- Available with or without electropolish
- No risk of cross-contamination between fluids
- Sanitary fittings ASME BPE
- Material & process certifications included
- Fully drainable on product side
- Clean-in-place (CIP)
- No dead spots or crevices
- ASME BPE Compliant

## Design Features:

- 316L SS, Hastelloy®, Inconel®, Titanium and other alloys
- NPT, tube stubs, or custom fittings
- Thick walled seamless tube
- Integrated threaded holes for mounting
- Highly resistant to thermal stress
- All welded construction
- Maintenance free

## Typical Applications:

- High temperature, high pressure, low flow
- Multi-phase fluids & slurries
- High thermal stress
- Steam condensing
- Seal cooling
- Liquid/Gas
- Sampling
- WFI

Outer Tube in (mm)	Inner Tube in (mm)	Transfer Area ft <sup>2</sup> (m <sup>2</sup> )	Pressure Rating*	
			Inner Tube psi (bar)	Outer Tube psi (bar)
0.50 OD x .035 Wall (12.7 OD x .9 Wall)	.25 OD x .035 Wall (6.4 OD x .9 Wall)	1.2 (.11)	3100 (214)	1500 (104)
0.75 OD x .049 Wall (19.1 OD x 1.2 Wall)	.38 OD x .049 Wall (9.5 OD x 1.2 Wall)	1.7 (.16)	2900 (200)	1350 (93)
1.00 OD x .065 Wall (25.4 OD x 1.7 Wall)	.50 OD x .065 Wall (12.7 OD x 1.7 Wall)	2.5 (.24)	2900 (200)	1350 (93)
1.25 OD x .065 Wall (31.8 OD x 1.7 Wall)	.75 OD x .065 Wall (19.1 OD x 1.7 Wall)	3.7 (.34)	1850 (128)	1050 (72)

\*Pressure rating may be limited by sanitary flange clamp. Refer to manufacturer's literature.

# WFI/PW DISPENSING SYSTEM

PUREX Point-Of-Use systems dispense instant, temperature controlled WFI or PW, and are designed to meet the high quality requirements and hygienic standards of the pharmaceutical industry. When not in use, a continuous flow of hot water (from the main loop) maintains sanitization. Exergy offers standard and custom models using our compact, high performance heat exchangers for the most demanding conditions. Many features and options can be customized.

## Benefits:

- Instant cold or hot WFI or PW availability at POU
- Continuous flow of hot water keeps it sanitized at all times
- Automated or manual operation
- PLC with touch screen HMI with many operating modes
- Fully drainable on product side, with no dead legs
- Easy to install, operate and maintain
- CIP and SIP capable

## Design Features:

- 304SS Enclosed locking cabinet
- Sanitary double tube sheet heat exchanger eliminates risk of cross contamination between product & working fluid
- All product contact surfaces are passivated, less than 20  $R_a$  and electropolish available, 316L stainless steel
- Full quality documentation provided
- ASME BPE Compliant
- CE & UL Available

**PUREX**  
dispensing systems

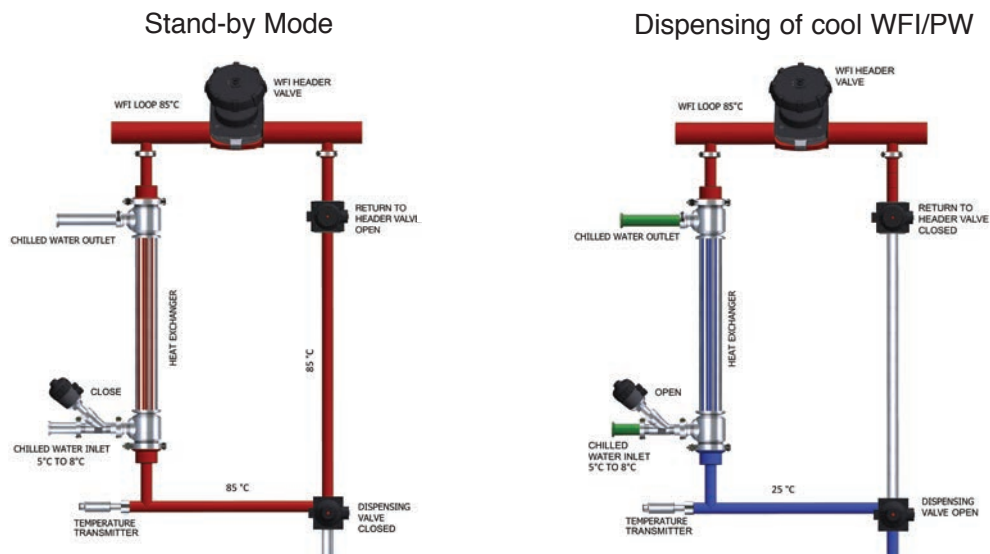


## Typical Applications:

- Cool WFI/PW from 80-85°C to 20-40°C
- Water For Injection (WFI) systems
- Purified Water (PW) systems

## Models:

- Economy: 0.5 to 5 GPM (114 to 1200 LPH)
- Advanced: 0.5 to 15 GPM (114 to 3500 LPH)
- Custom: 0.5 to 25 GPM (114 to 5680 LPH)



**EXERGY**

**HYDROPURE**  
Transforming water

# CUSTOM PRODUCTS

Exergy specializes in providing the highest heat exchanger performance in the most compact, cost effective package. If our standard products do not meet your requirements, we will apply our extensive experience and proprietary methods to create a custom design.

Our capabilities range from minor modifications to completely new designs, regardless of quantity. Contact us to have your requirements evaluated by an Applications Engineer.

## Materials of Construction:

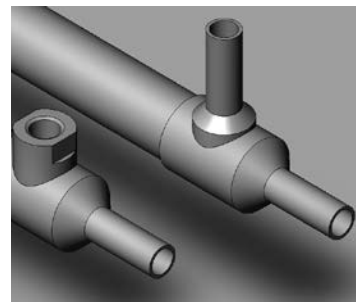
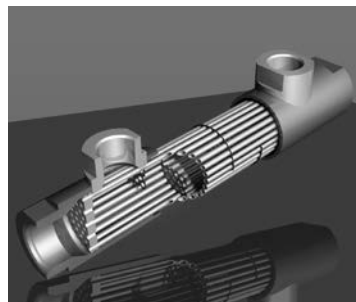
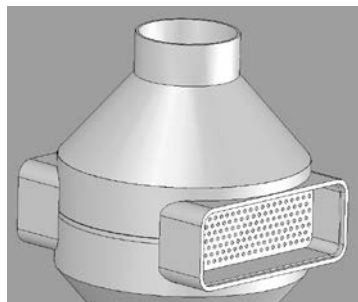
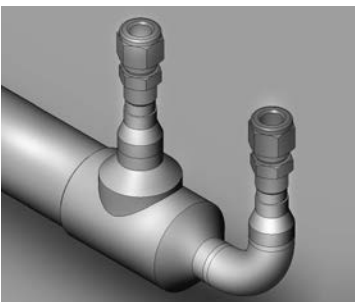
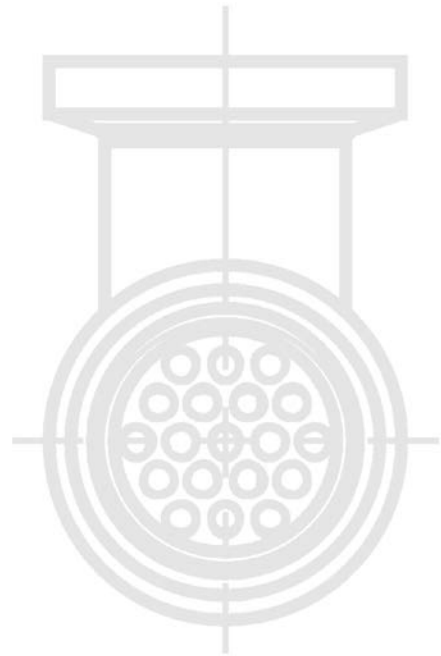
- Stainless Steel
- Hastelloy®
- Inconel®
- Titanium
- Other alloys

## Special Processing:

- Passivation
- Electropolish
- Corrosion resistant coating
- Tantaline treatment
- Specialty cleaning processes

## Design Modifications:

- Increased heat transfer or fluid flow rates
- Expanded pressure or temperature limits
- Assembly or integration of other components
- Integrated custom fittings or thread types
- Special tube size or count
- Special baffle configurations
- Special shell diameter and length
- Additional inlet or outlet ports
- Rotated shell fittings





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ISO 9001:2015 CERTIFIED QUALITY MANAGEMENT SYSTEM