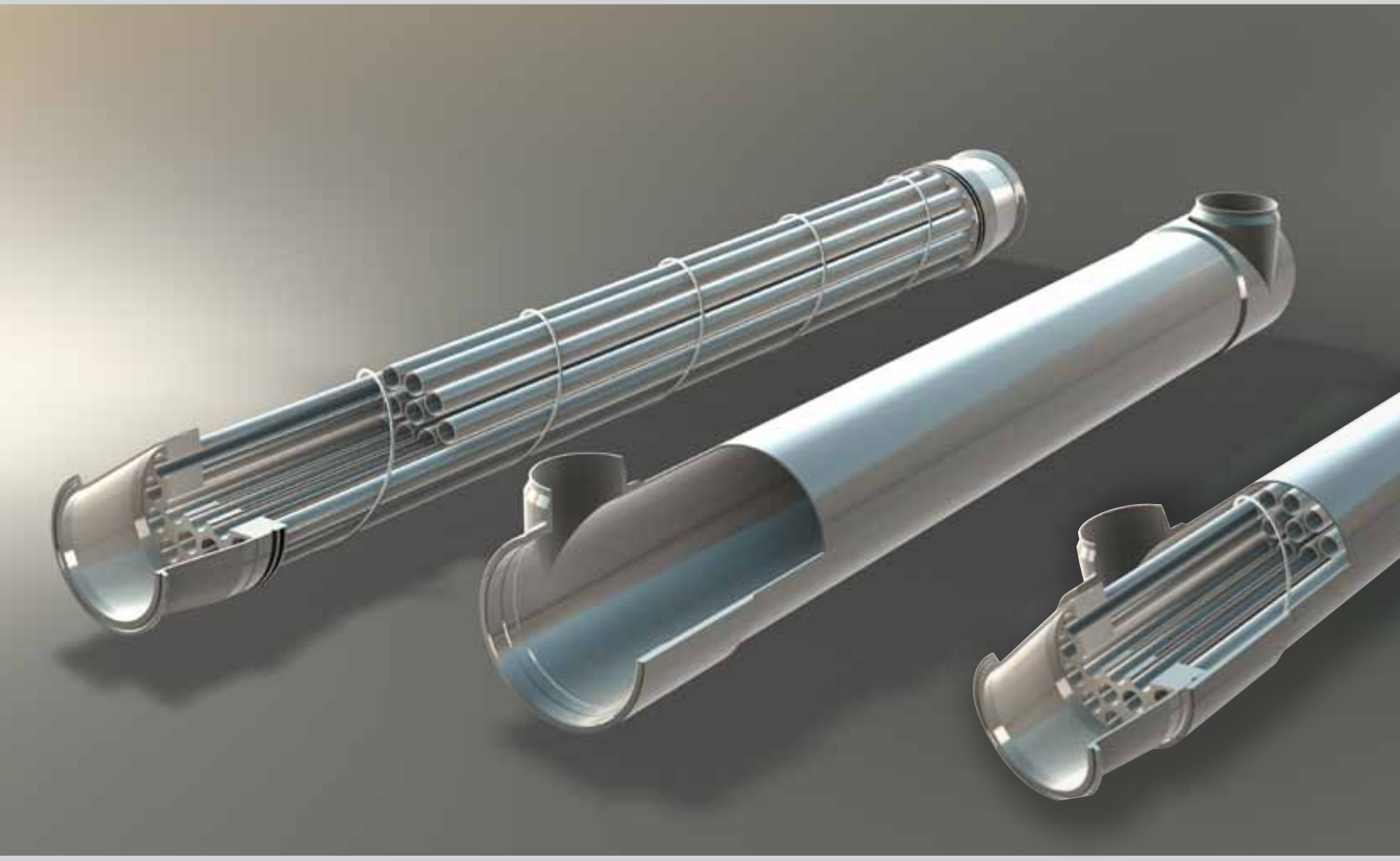
SPX®

HEAT EXCHANGERS

SPX Product-to-Product (P2P)

TUBULAR HEAT EXCHANGER



APV®

SPX Tubular Heat Exchangers (THE) have been a popular choice in aseptic UHT systems worldwide for over two decades. With an extremely high sterility rate, SPX aseptic systems have been shown to maximize yield and deliver proven reliability for low viscous dairy and beverage production.

In response to an ongoing drive in the dairy and beverage industries to improve energy efficiency and food safety; SPX has developed a new, patented direct product regenerative Product-to-Product (P2P) type of THE. This latest heat transfer solution has the highest hygienic standards and offers increased heat transfer efficiency over a traditional THE; reducing energy consumption, size and capital investment.

The new unit brings a step-change in hygienic aseptic design and sterility safety for this type of technology.

DESIGNED TO DELIVER CLEAR CUSTOMER BENEFITS

- Greater energy efficiency
- Increased food safety
- Reduced capital costs
- More compact process solution
- Easy maintenance

LESS ENERGY CONSUMPTION

The design of the new module does not require a secondary heating/cooling water circuit loop, reducing associated heat transfer and pump energy losses. It also produces a better flow pattern on the secondary side of the THE compared to traditional solutions to improve heat transfer efficiency and lower energy consumption required for the process.

PROVEN 'CLEANABILITY'

The tubes on the SPX P2P are manufactured so the secondary sides are completely smooth. This unique new design ensures complete 'cleanability' for hygienic use on both, the primary and the secondary side of the THE. With absolutely no crevices on the secondary side of the unit, the risk of product remaining in the unit after cleaning is eliminated and food safety is maximized. This further assures that, with no product buildup, efficiency remains optimized and production stable. This advanced cleanability has been fully tested and the unit is further designed according to EHEDG guidelines (approval pending).

SPACE SAVING DESIGN

The exceptional heat transfer efficiency of the SPX P2P THE means a smaller footprint is required to achieve the required thermal duty compared to standard THE units. A complete process plant can have a significantly reduced footprint with less THE modules compared with other designs.

LESS PROCESS EQUIPMENT

The unit requires a simple secondary circuit. As such, the amount of supporting equipment, including pumps, valves, pipework etc., that requires additional investment and maintenance is reduced.

RAPID MAINTENANCE

To ensure reduced maintenance overhead, the inner tube bundle on the P2P THE can be easily dismantled for visual inspection of cleaning results. Assured cleaning and prevention of product buildup further optimize required service intervals.

TECHNICAL HIGHLIGHTS

Advanced manufacturing methods have been used to give this leading edge P2P THE technology a unique design according to EHEDG guidelines.

NO CREVICES – NO PLACE TO HIDE!

Crevices offer bacteria places to hide during sterilization and cleaning cycles, meaning the sterility of UHT products cannot be guaranteed. The SPX P2P THE module uses a unique design that has no crevices between the tube sheet and the tubes; eliminating the associated hygiene risk. This enables it to be used in a P2P configuration with assured sterility of product on the secondary side. The new, patented design is manufacturing using advanced techniques to create a smooth, easily cleanable radius between the tubes and the tube sheets.

ENHANCED FLOW PATTERN – BETTER CLEANABILITY & HEAT TRANSFER

Baffle plates used on the secondary side in standard THE designs are placed between the tubes at a 90° angle to create sufficient velocity and turbulence for good heat transfer. This creates a stop–go velocity flow pattern with shadow spots that are not cleanable. A new design on the SPX P2P THE uses a combination of a tangential inlet/outlet and a coil winded around the tube bundle to generate a special helix spiral product flow pattern in between the inner tubes and the outer shell.

The flow pattern of the new design has proved to provide high uniform velocity and better turbulence between all tubes without any shadow spots. It also avoids the stop-go pattern on the secondary side at similar pressure drops; greatly improving its cleanability compared to traditional THE units.

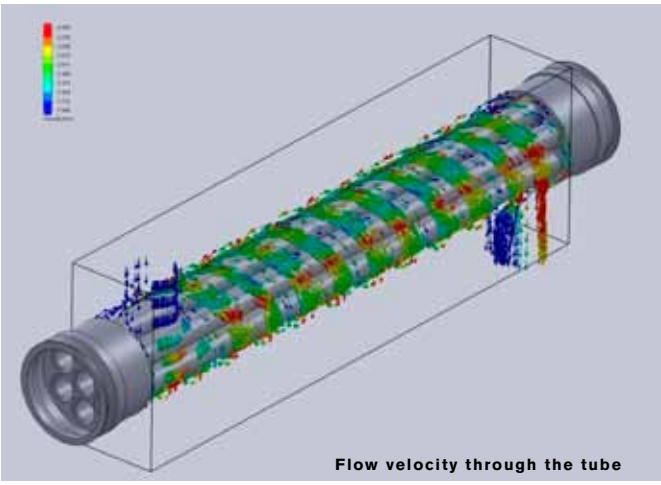
HEX Selection guide

	PHE	P2P THE	STANDARD THE
High Acid, Long-life, with-out fibers	1	1	2
Low Acid, Long-life, with-out fibers	2	1	1
Products w/ fibers and pulp	5	2*	2
Low acid, Fresh, with-out fibers	1	2	2
Maintenance	4	1	2
Investment	1	2	2
Operating cost	1	1	2

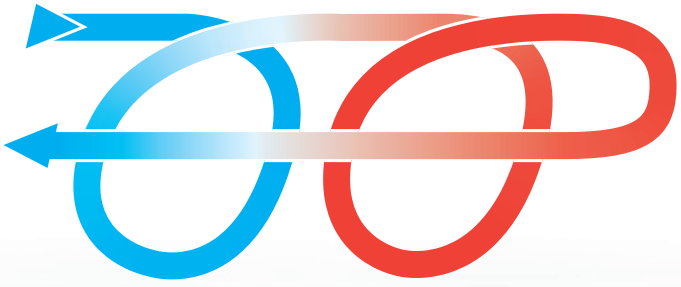
1 = Excellent, 2 = Good, 3 = Acceptable, 4 = Possible, 5 = Further design evaluation for optionals

**Possibility for Special edition of P2P module*

TECHNICAL SPECIFICATION	
Flow rate:	1000– 30.000 L/h
Max temperature:	160°C
Max pressure both sides:	30 Bar
Standard materials:	EN.1.4404 (AISI 316L)
Optional materials:	EN.1.4462 (SAF 2205) or on demand even more corrosion resistance alloys
Gaskets:	EPDM – FPM (Viton) – Q (Silicone)
Connections:	Tri-Clamps
Length:	1 - 1,5 - 2 - 3 – 6 Meters
Options:	Corrugated tubes
	Insulation
Approvals:	PED (CE marked pressure vessels)
	EHEDG (Global certification pending)



Flow velocity through the tube



SPX P2P Tubular Heat Exchanger

SPX

ABOUT SPX

Based in Charlotte, North Carolina, SPX Corporation (NYSE: SPW) is a global multi-industry manufacturing leader. For more information, please visit www.spx.com.

SPX FLOW TECHNOLOGY

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