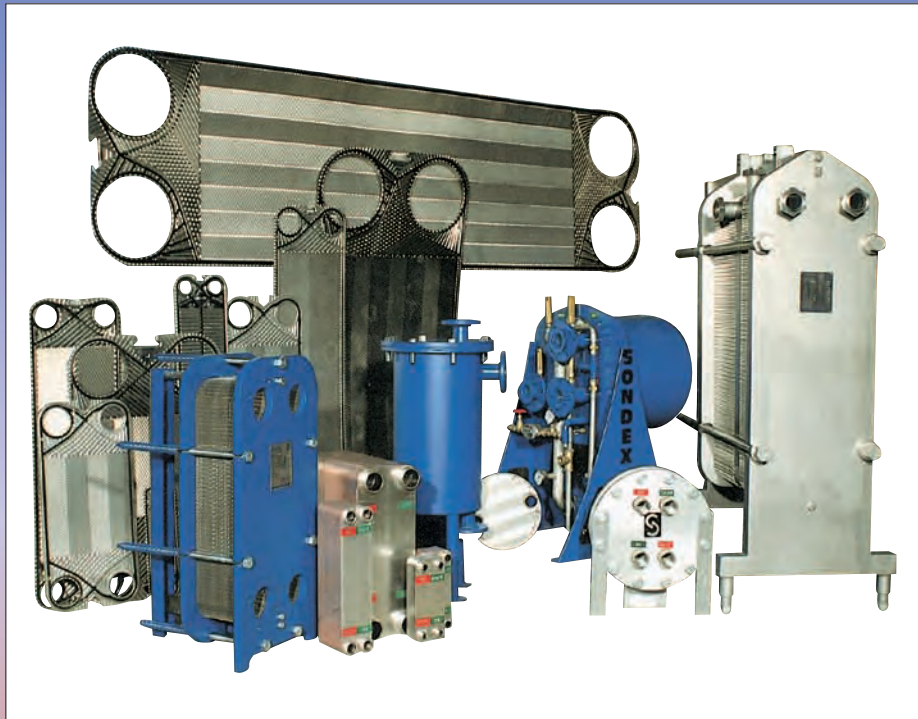


World of Heat Exchangers



Patterson

Mfg. by Sondex for Patterson Pump Co.

SONDEX

SONDEX A/S is a Danish company specialized in development, production and global marketing of plate heat exchangers and freshwater generators. Since the very start in 1984 SONDEX has grown into one of the leading companies on the world market and has developed a big range of plate heat exchangers for any task. Apart from our traditional plate heat exchangers the product range includes copper brazed, semi-welded and all-welded plate heat exchangers as well as freshwater generators based on the plate heat exchanger technology in single- or multistage.

By means of technological innovation SONDEX has developed and designed a new generation of plate heat exchangers and freshwater generators.

With the big range of plate heat exchangers SONDEX has got the optimal technical solution for any possible task, with connection sizes from $\varnothing 15$ mm – $\varnothing 500$ mm covering a liquid flow of 50 l/hour – 2000 m³/hour.

Our product range for freshwater generators covers capacities from 1-100 tons per 24 hours.

Subsidiaries and a global net of highly educated suppliers take care of sale and marketing of our products. The successive product development has made SONDEX a company with a very high growth rate.

SONDEX advantages

PLATE DESIGN

The construction of the inlet part makes a perfect distribution of the liquids across the heating surface. The inlet part is increased and supplied with grooves preventing "dead spots" which may cause the growth of bacteria in the plate heat exchanger. The inlet with grooves secures a strong inlet part with a minimum of contact points.

The inlet parts are constructed with a leakage drained zone fulfilling the 3A specifications.

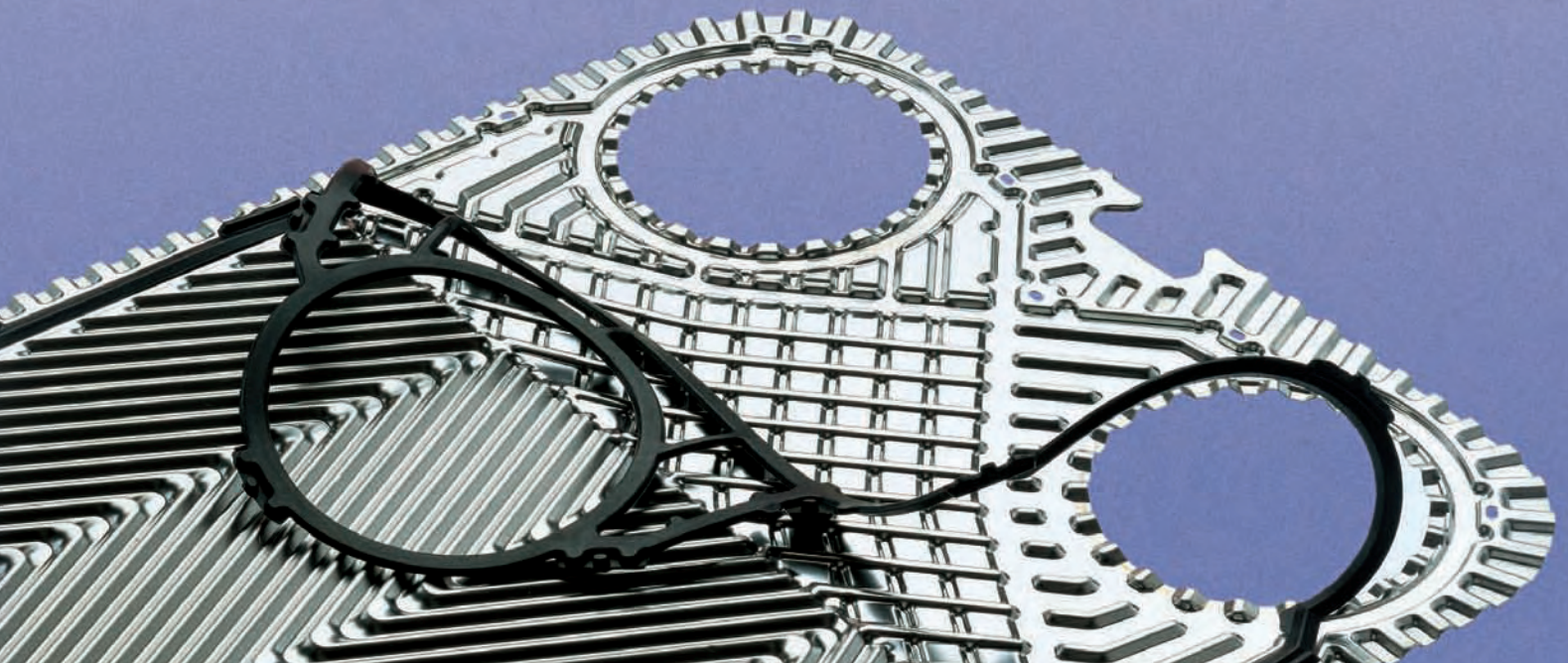
The plate pattern is constructed to obtain a high thermal efficiency. The pattern is available in two designs with different angle sizes giving high respectively low turbulent flow. Combining these in a plate pack an optimal plate composition can be calculated. The angle and fishbone pattern has appeared to make the best heat transmission by a given pressure drop.

EDGE REINFORCEMENT

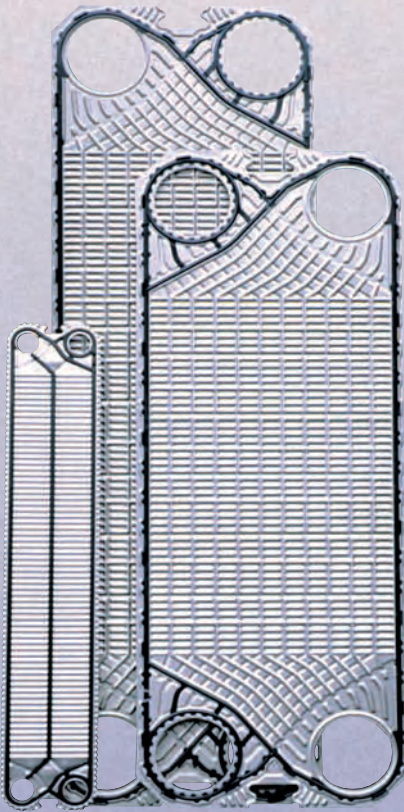
In order to strengthen the gasket groove SONDEX "Sonder Flex Line" is supplied with deep steeped grooves giving a perfect hold of the gasket. This means a long durability for gaskets as well as for plates.

THE GASKET

The gasket is placed in the total protected gasket groove. This construction secures the elasticity of the gasket even after long time of assembling. The new generation of Sondex plate heat exchangers is developed with the glueless "Sonder Lock" gasket. The "Sonder Lock" gasket is fixed by strong rubber buttons which contrary to most glueless gaskets of today really fix the gasket in the groove.



FREE FLOW PLATES



Free Flow plates are designed for liquids containing fibres or other particles which may clog up a traditional plate heat exchanger. Sondex Free Flow plates are designed without metal contact between the plates in the liquid area giving a high turbulence and thus a high heat transmission coefficient and especially a long power time.

Further advantages and Areas of Application

- The plate construction makes a strong and stable plate.
- To be applied in the paper- and cellulose industry.
- To be applied for cooling of mustard, tomato sauces and other viscous products.
- CIP-cleaning is possible.
- The construction of plates and gaskets according to 3A sanitary standards.

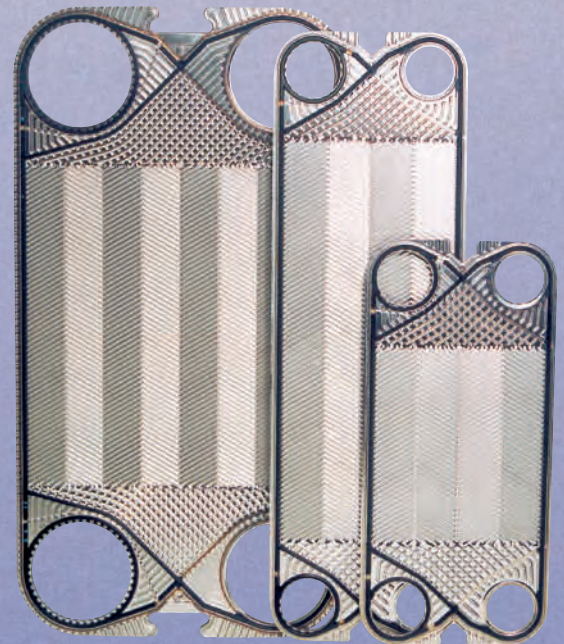
SEMIWELDED PLATES

Semiwelded plates are built up in plate cassettes. A plate cassette is 2 plates welded together by means of laser welding. The advantage by this construction is on the one side a welded plate channel and on the other side a traditional plate channel with gaskets making assembling and cleaning of this side easier. On the welded side there are two specially

produced corner hole gaskets creating the tightening between the two cassettes. Thus the gasket is reduced to a minimum on the weld side.

Further Advantages and Applications

- This type of heat exchanger is specially designed for the refrigerating sector and for tasks where aggressive media are applied.
- The welding of the plate cassettes takes place outside the gasket groove. This practically eliminates the risk of corrosion attack in the gasket groove.
- When the welding takes place outside the gasket groove the disposable heat transmission area is optimum utilized.
- The plate cassettes are supplied with a gasket construction increasing the tightness concurrently with the increase of the working pressure.
- Like the traditional plate heat exchanger plates the plate cassettes fully comply with the US 3A standard making this construction applicable for many sanitary tasks.



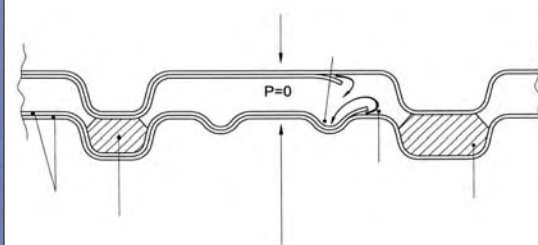
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SONDER SAFE PLATES

The Sondex Sonder Safe system consists of two thin flow plates stamped together. The two plates form a pair of plates which allows possible leaks to be seen from outside between the two plates. This prevents a mixing of the products and warns about internal leaks.

Sketch
SONDEX Sonder Safe
(Inlet/Outlet parts)



APPLICATION AREAS

- Milk and cream pasteurization.
- Sanitary water for food processing.
- Water for medical injection/ultra pure water.
- The nuclear industry for safety reasons.
- District heating/tap water.
- Engine cooling.

BRAZED PLATE HEAT EXCHANGER

High temperature and pressure.

Contrary to the traditional plate heat exchanger the brazed plate heat exchanger does not contain rubber gaskets and can thus operate continuously at the temperatures from minus 180°C up to plus 200°C.

The operating pressure can be as high as 30 bar.

Typical applications are:

- District heating, heating and ventilation.
- Solar heating and airconditioning units.
- Heating pumps and heat recovering units.
- Hydraulic and fuel oil units.



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