

FÉG-SPIREC™ heat exchangers

Comparison of the FÉG Spirec heat exchanger - presentation of its advantages compared to traditional plate heat exchangers

- **NO,- or IT IS VERY DIFFICULT TO CLOG** - scale deposits absent or insignificant
- designed for forced **CROSS FLOW** with a unique technical solution
- **FIVE TIMES** the lifespan of traditional plate heat exchangers
- Suitable for heat exchange of **WATER, OIL, STEAM, GLYCOL** media
- **-50C° - +150C°** can be used
- **15 Bar** test pressure
- **CLEANABLE** due to the use of acid-resistant stainless steel
- Suitable for underfloor heating systems **WITHOUT CONTROL UNIT**
- **EXCELLENT PRICE/VALUE** ratio
- **COMPACT SIZE** - also suitable for oil cooling of machinery

Structural design

FÉG-SPIREC heat exchangers are made of 0.5-0.8 mm thick polished, corrosion-resistant plate by winding. On the disc approx. Point-like impressions of 2 mm height are placed (see Figure 1). These impressions ensure that a gap is formed between the sheet layers formed by the winding for the flow of liquid.

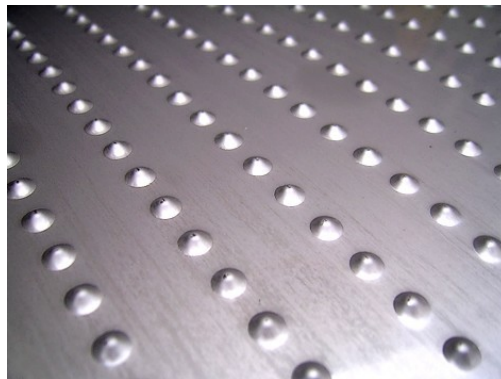


Figure 1

Before winding, the coil plate with impressions is first folded in half, and a seal is placed in between in the longitudinal axis of the plate. The gap seal starts from the fold line and is shorter than the length of the folded sheet (see Figure 2)

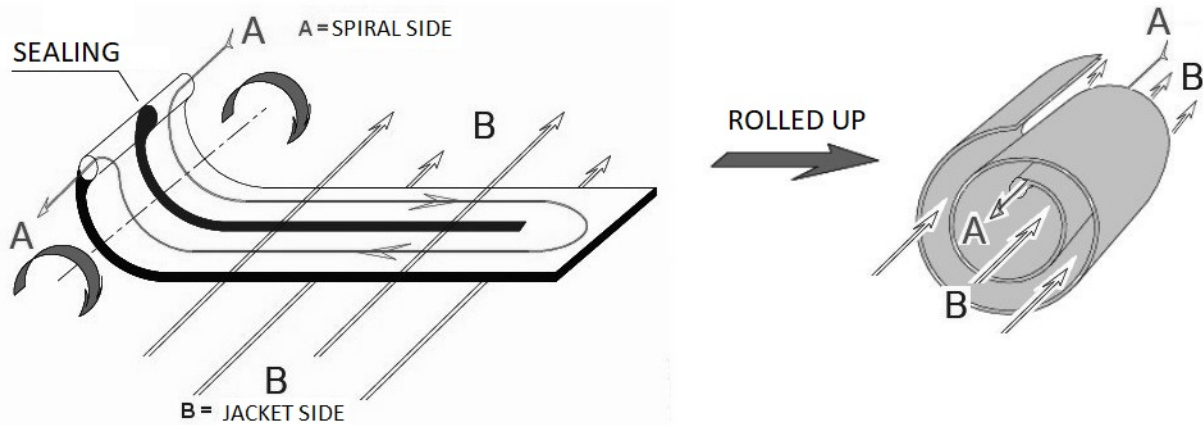


Figure 2.

Before winding, the coil plate with impressions is first folded in half, and a seal is placed in between in the longitudinal axis of the plate. The gap seal starts from the fold line and is shorter than the length of the folded sheet (Figure 2)

The coil plate, which is folded in half and has a seal on the inside, and then is sealed (welded around) is provided by one of the heat exchangers, u.n. "spiral" (A) side. Starting from the fold line, the water seal guides the path of the water along the entire surface of the plate. At the end of the water seal, the water flow takes a 180o turn.

The heat exchanger is another, u.n. The "mantle" (B) side is provided by the outer surface of the "sandwich plate" formed from the folded plate. The gap for water flow on the jacket side is formed after the sandwich plate is rolled up. The water flow direction on the mantle side is perpendicular to the flow direction on the spiral side.

Figure 3 shows the rolled up "sandwich plate" and the cover before welding.

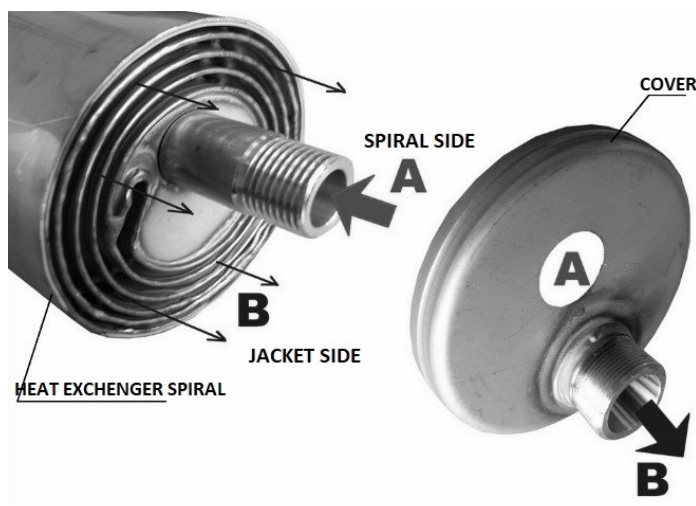


Figure 3.

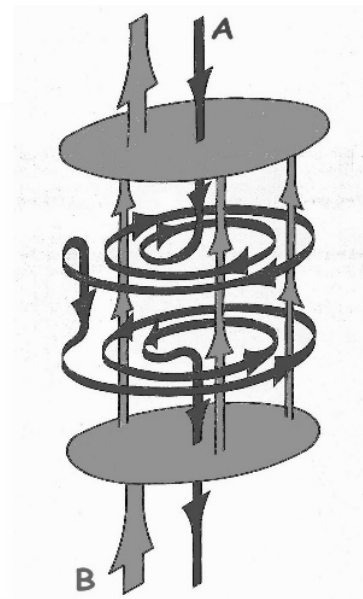


Figure 4.

The FÉG-SPIREC heat exchanger belongs to the group of spiral heat exchangers. The water flows spirally on one side of the flow, while on the other side it flows straight, in a "cross-current" (see Figure 4). Due to the structural design of the heat exchanger, the flowed water travels much longer on the spiral side than on the shell side, therefore the resistance on the spiral side of FÉG-SPIREC heat exchangers – the pressure drop on the spiral side – is approx. an "order of magnitude" larger than on the mantle side.

Main technical characteristics

Due to their structural design, FÉG-SPIREC heat exchangers have such flow conditions that a heat transmission factor of 3 to 6 [kW/m² K] is possible for a water-water medium pair.

In the side of the heat exchanger spiral, the liquid is forced to a constant turbulent flow. This characteristic, as well as the corrosion-resistant design of the heat exchanger, ensures that scale formation does not occur on the spiral side under a surface temperature of 63 [Co] and a water flow rate above 1 [m/sec]. Even if these parameters are exceeded in an unfavorable direction, scale formation is significantly low.



Figure 5.

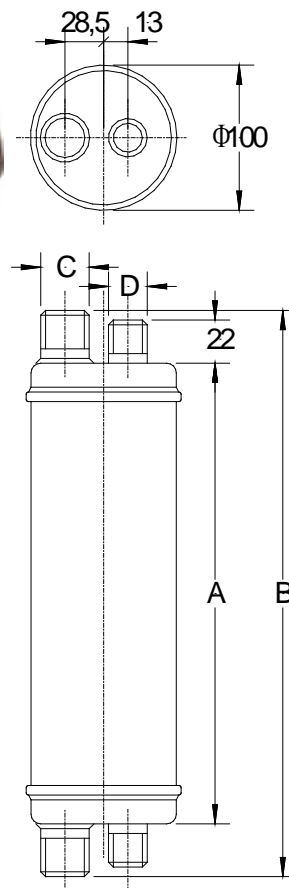


Figure 6.

The FÉG-SPIREC heat exchangers (Figures 5 and 6) despite their high heat transmission capacity, have small structural dimensions, so they are light in weight and require little space:

Type	A (E)	B (F)	Jacket	Spiral	Weight (kg)	
			C	D	Empty	Full
KN-0	153	210	$\frac{3}{4}$ "	$\frac{1}{2}$ "	2,7	3,2
KN-1	278	330	1"	$\frac{3}{4}$ "	4,7	5,5
KN-2	393	450	1"	$\frac{3}{4}$ "	6,7	7,7
KN-3	513	570	1"	$\frac{3}{4}$ "	8,7	10,0

	KN-0	KN-1	KN-2	KN-3
Heating surface [m ²]	0,167	0,351	0,536	0,73
Thermal performance [kW]	30	75	105	130

The main areas of application of FÉG-SPIREC heat exchangers

- Domestic hot water (DHW) production
- In floor heating/wall heating systems
- In thermal water applications
- In solar collector systems
- Between open (mixed fuel) and closed (natural gas) heating systems
- In pool heating systems
- In heat pumps
- in cooling systems

FÉG Industry
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