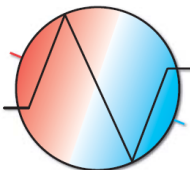


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Sonder Safe System

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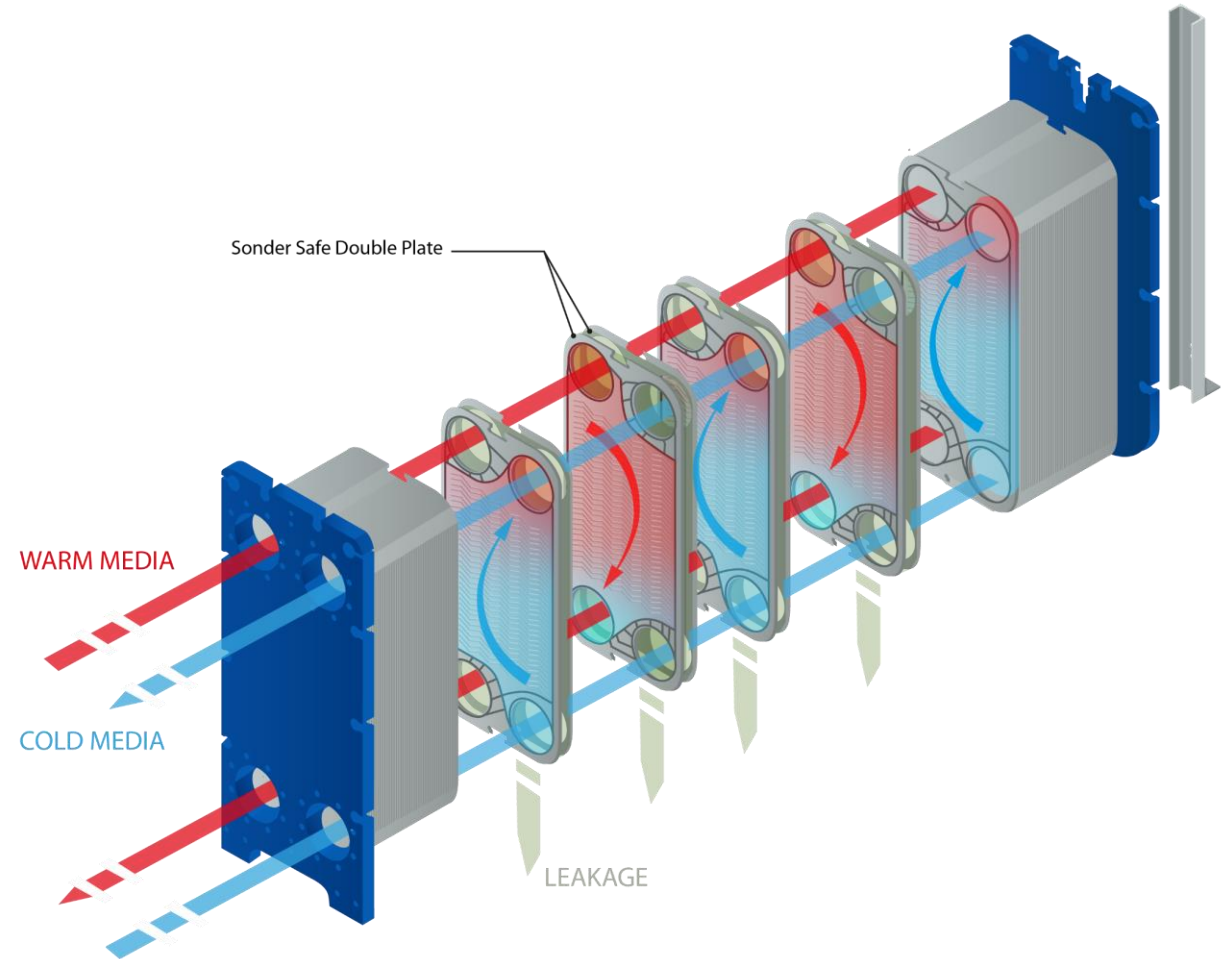
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J. Negre C., S.L.

Sonder Safe plates

Safety measure

- Sonder Safe plates are the ultimate safety measure.
- A Sonder Safe plate is made by pressing two identical plates together and laser welding all four inlet holes in order to form a “double plate”.
- This creates a tiny pocket within each “double plate” that will allow leaking media to escape.
- Due to our optimized design, Sonder Safe plates are able to maintain the high heat transfer efficiency of conventional plates while providing additional safety.

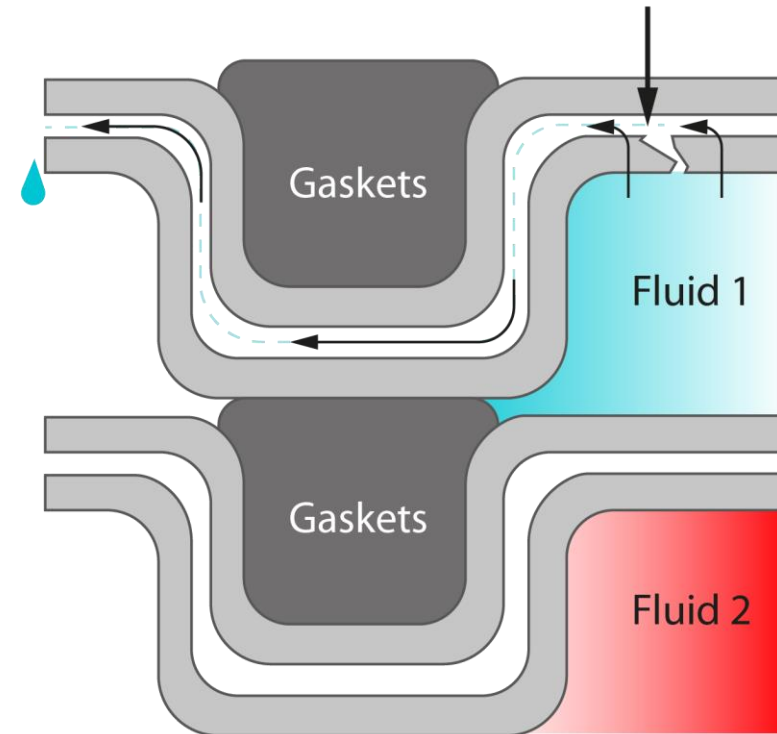


Sonder Safe plates

Premium Protection

- In case that the plates get damaged, the Sonder Safe system prevents contamination of the products in the heat exchanger.
- There can be several reasons why it is crucial that the media do not mix: the media may be ruined, they can be hazardous, or pose an environmental threat. For example, you do not want hot oil and water to come in contact with each other.

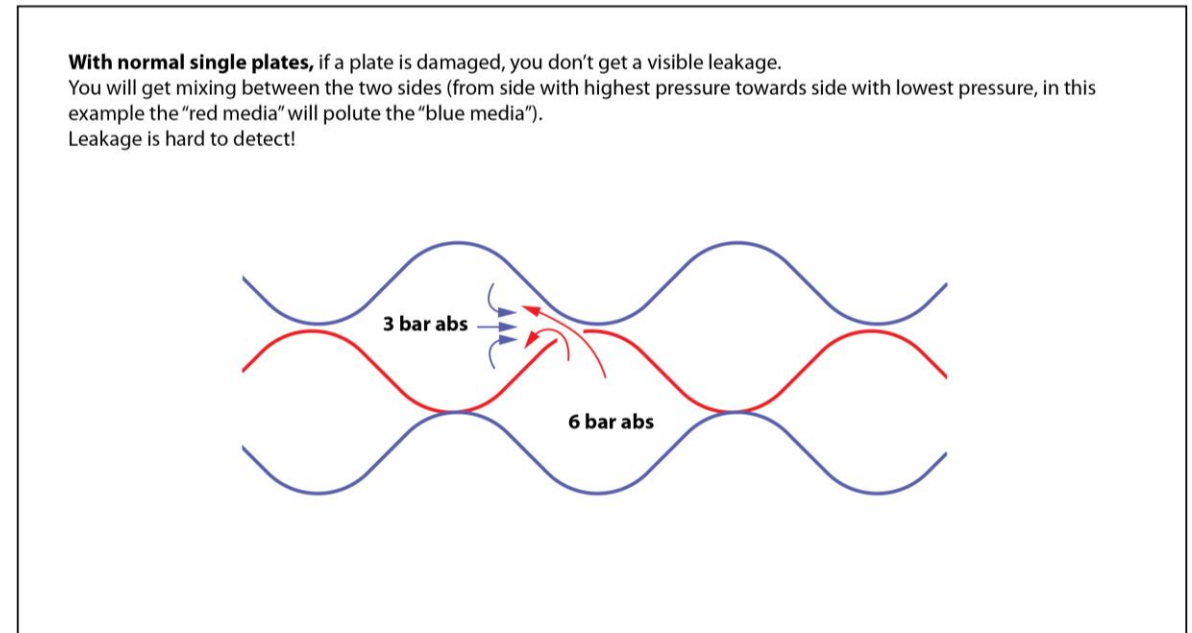
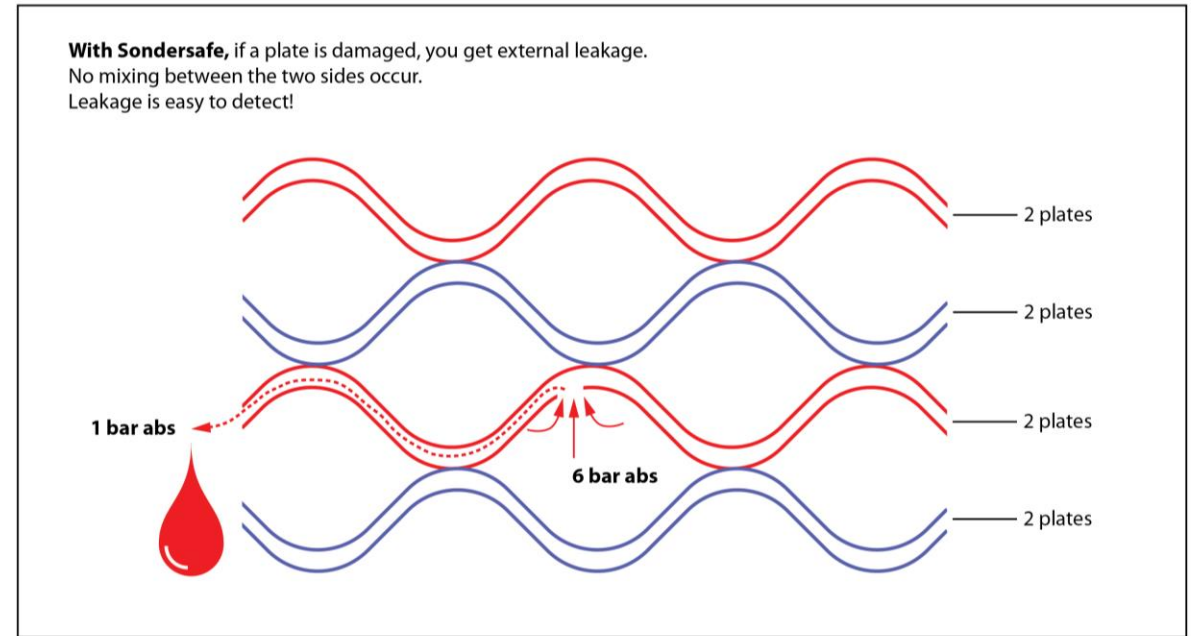
The possibility of intermixing is virtually eliminated by nesting two plates together and welding the port holes



Sonder Safe plates

Leakage Detection

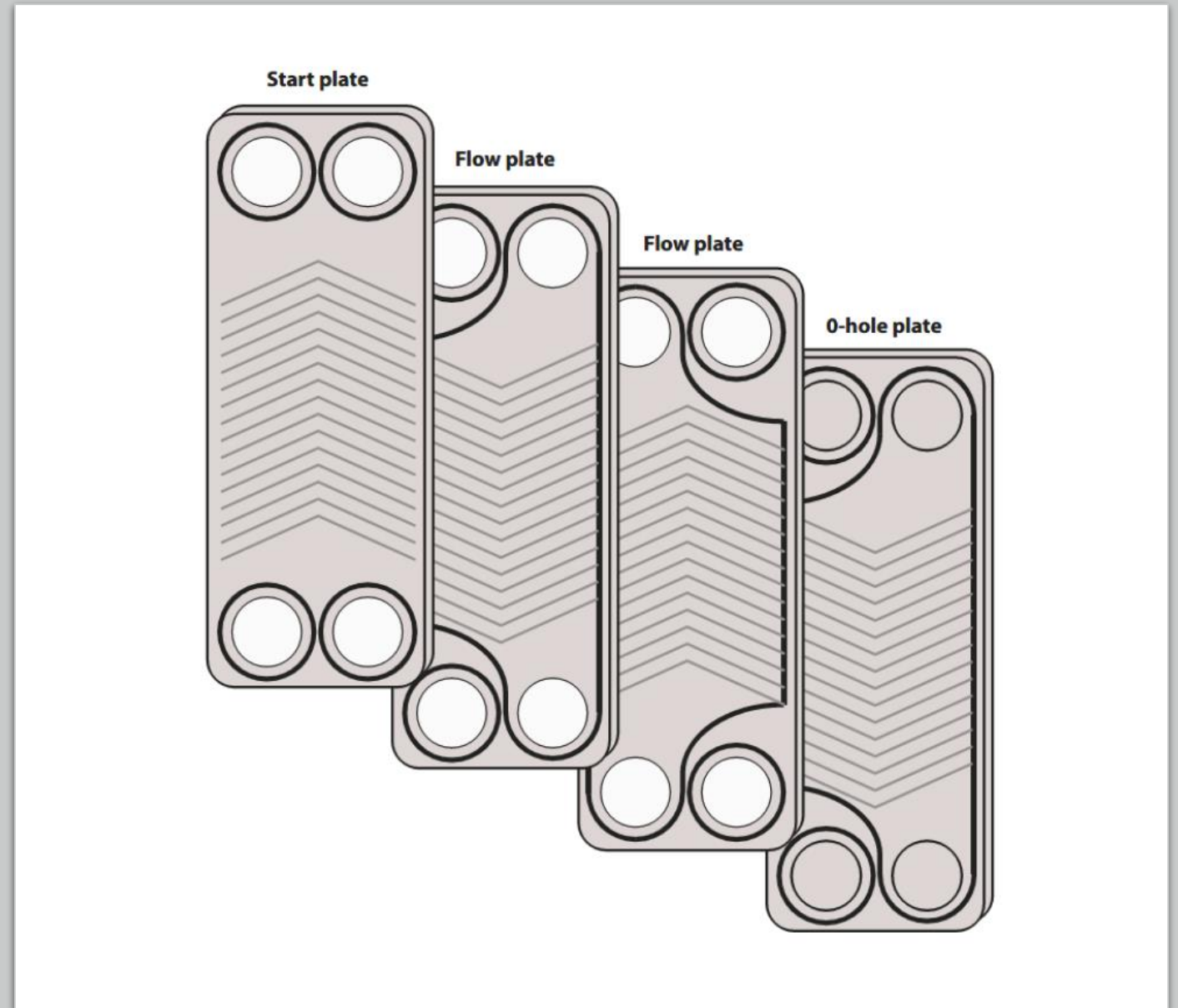
- The “double plate” Sonder Safe system is designed to make any leakage, however unlikely, visible from outside the plate heat exchanger. This means that leaks caused by corrosion damages or cracks in the Sonder Safe plates will identify the malfunctioning plates. Consequently, the heat exchanger can be taken out of service until it has been repaired.
- Because all leaks are external instead of internal, the media will never mix. This makes Sonder Safe plates the ideal solution when the heat exchangers utilize media that must not be allowed to mix at any cost.



Sonder Safe plates

Industrial version

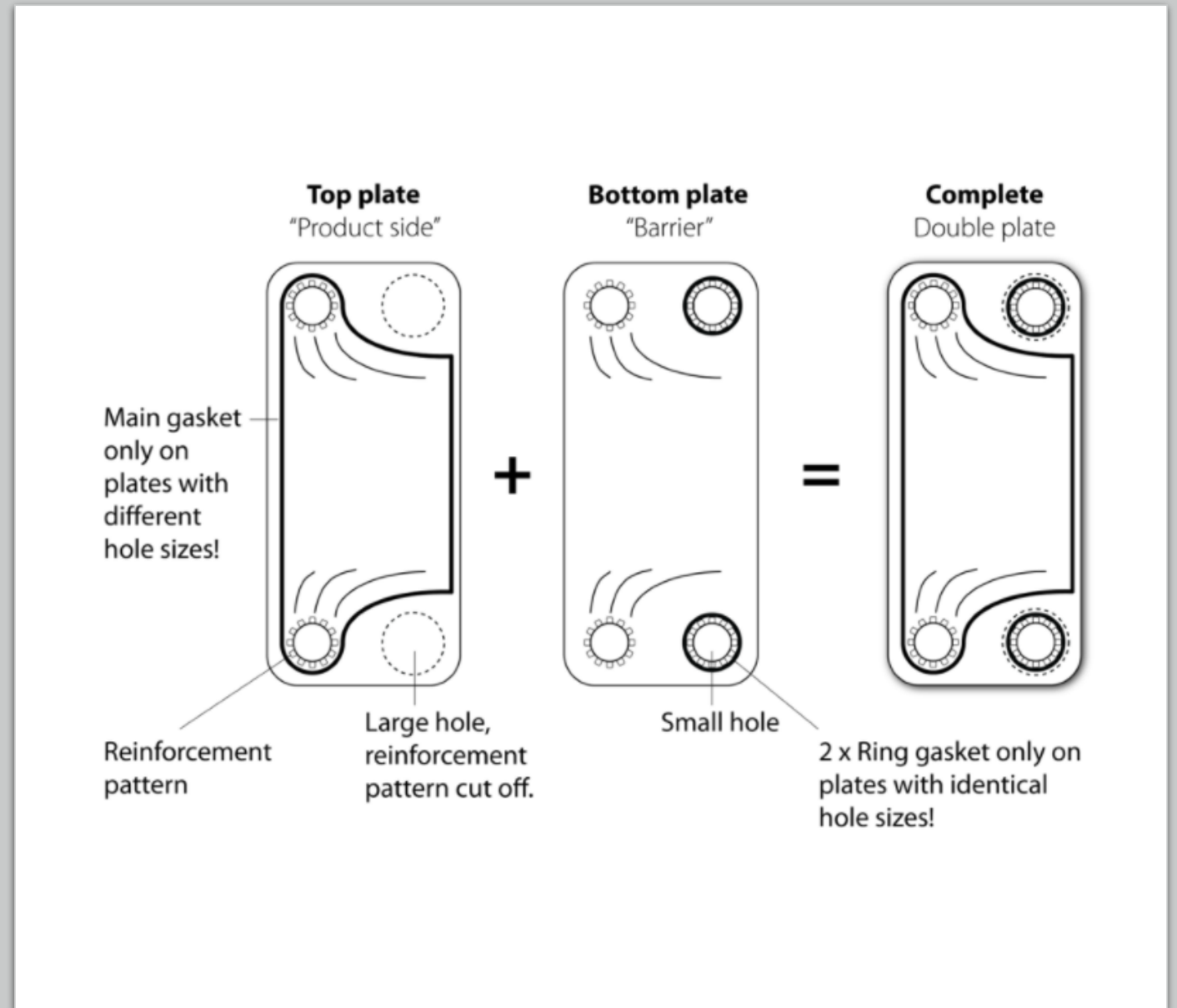
- Two standard plates are stacked and pressed together.
- The plates are then laser welded together in the port hole area.
- This design works great for non-food applications, where the reason for choosing Sonder Safe is to ensure that cross contamination cannot take place.
- Any (unlikely) leakage will be fully external and easy to identify.
- All our Sonder safe PHE use a Double plate for the start- and 0-hole plate.



Sonder Safe plates

Sanitary version

- The Sanitary version of Sonder Safe is targeted at the food industry.
- This design also uses double plates, but the plates are not welded together, instead a special ring gasket is used for every second plate.
- Notice that the port hole area has been trimmed away on every second plate, to create clearance for the extra high ring gasket, that seals against the following plate.
- This design has no stagnant areas or crevices, and is very well suited for the food industry, where bacterial growth can not be tolerated.

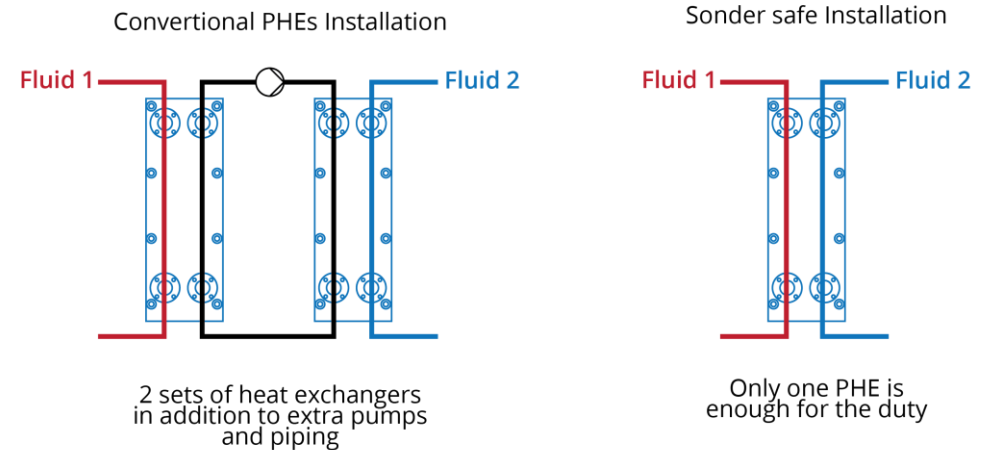


Sonder Safe plates

Applications

- Cooling of transformer oil, which might explode if mixed with the cooling water;
- Cooling of lubrication or hydraulic oil, which can damage the rotator or hydraulic equipment if mixed with the cooling water;
- Heating or cooling of food processing, where there must be no mixing of foreign materials in the product;
- Heating or cooling of fuel oil (marine gas oil), where a fatigue breakdown due to highly frequent pulsation;
- Heating or cooling in bio-process, where the process fluid may cause environmental pollution;
- Heating or cooling between fluids, where mixing can cause a sudden chemical reaction or generate environmental pollutants.

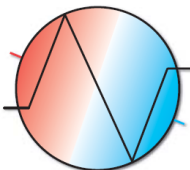
Generally, two heat exchangers should be installed, where there may be a risk of mixing fluid 1 and fluid 2. But with the Sonder Safe plates, only one unit can be used.



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