APPLICATION

Hydrogen precooling in refuelling stations

The Alfa Laval HyBloc™ range of printed circuit heat exchangers offers a highly efficient, well-proven solution for precooling in hydrogen refuelling stations. These ultra-compact units help minimize filling times and dramatically reduce both space requirements and installation costs. Alfa Laval's team of application experts are ready to support you in designing the optimal solution for your system.

Get a head start on the hydrogen market

The number of hydrogen-powered cars in the world is expected to grow exponentially the coming years, creating a great demand for new, high-capacity fuelling stations. To meet this demand and stay competitive, technology providers and package builders must design systems that offer customers short filling times and zero waiting time between fillings.

There are two key factors in achieving this:

- The operating pressure – the higher, the shorter the filling time.
- Precooler capacity – This needs to be high to avoid customers having to wait between fillings.

The high cooling performance, pressure durability and compact size make Alfa Laval HyBloc™ an ideal hydrogen precooler.

Built to handle high pressures

Alfa Laval HyBloc™ heat exchangers are designed to address these issues and ensure fast filling of all types of hydrogen vehicles, from light passenger to heavy-duty vehicles (HDV) such as trucks and buses.

Thanks to its highly durable, fusion-bonded plates, an Alfa Laval HyBloc™ can withstand pressures of up to 1,250 bars (18,125 psi) and operate at temperatures down to -70°C (-94°F).

This means an Alfa Laval HyBloc™ can be used in all modern H70 systems (operating at 700 bar), and it is ready for future standards with even higher pressures.

High cooling performance

Thanks to the compact, thermally responsive design, and the continuous operation of the cooling loop, an Alfa Laval HyBloc™ offers unlimited back-to-back filling without any waiting time. This is major benefit compared to shell-type heat exchangers, which require time for recharging between fuellings.

Ultra-compact design

Another advantage with an Alfa Laval HyBloc™ is that it is roughly 85% smaller than a comparable shell-type heat exchanger. This makes it easy to integrate the precooler in the dispenser casing, meaning there is no need for extra civil work to install the heat exchanger underground, as with shell-type units.

The small size of the precooler brings extra value when the installation space is scarce, e.g. in urban areas.

Proven reliability

After more than 15 years' use in demanding positions in the oil & gas, marine and power industries, Alfa Laval's printed circuit heat exchangers are a well-proven solution for the toughest gas applications.

Unlike shell-type heat exchangers, there is no risk for pressure pulsations and fluid-induced vibrations that can cause fatigue failures.

A fully customized solution

Each Alfa Laval HyBloc™ heat exchanger is engineered to order, and optimized according to your cooling fluid, capacity requirement, etc. for maximum performance.

The Alfa Laval HyBloc™ range is made up of four different models, catering for all capacity needs.

Take advantage of our experience

Our application experts are glad to support you throughout your development phase with advice on how to optimize your precooling process and get the best out of your system.

You can also rest assured that we, as one of the world's largest manufacturers of heat exchangers, have the capacity to meet your supply demands as you ramp up sales.

Visit our web site at www.alfalaval.com/pche/hrs to learn more, or contact us for a discussion on how you can benefit from integrating Alfa Laval HyBloc™ in your systems.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

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