



Alfa Laval Compabloc

High-performance fully welded plate heat exchanger for process duties

Introduction

The Alfa Laval Compabloc is a fully welded compact heat exchanger designed for a wide range of process and utility duties. The Compabloc range provides the most efficient, cost-effective, compact and cleanable heat exchanger solution available today. The Compabloc is the market leader in terms of life-cycle cost and energy savings.

The heart of the Compabloc is a stack of corrugated heat transfer plates in 316L stainless steel, or other high-grade material. The plates are laser welded (models CP30 and above) and form a compact core. This core is then enclosed and supported by four corner girders, top and bottom heads and four side panels. These components are bolted together and can be quickly taken apart for inspection, service and cleaning.

Applications

Thanks to the Compabloc's unique design concept the possibilities for process optimization and flexibility are limitless. The Compabloc can be configured in single or multi-pass arrangements in either co-current or counter-current operation, for liquid-to-liquid or two-phase duties.

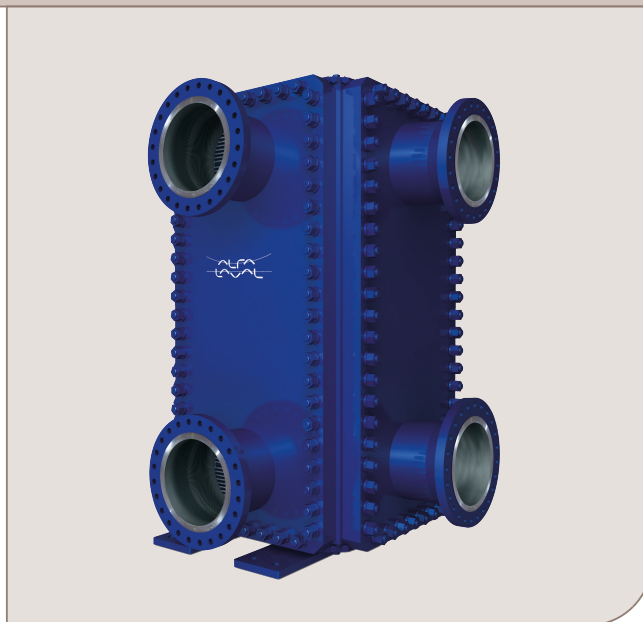
For condensation and reboiling positions, the large cross flow area and short flow path fit low-pressure duties and allow very low pressure drops. For heat recovery duties, a multi-pass configuration allows temperature cross and close temperature approaches (down to 3 °C (5.4 °F)).

The design concept allows a different number of passes on the two circuits thereby enabling large differences in flow rates between the hot side and the cold side. The baffling can easily be re-arranged to suit a new duty should the flow rates or temperatures change.

The Compabloc can be mounted vertically, for normal liquid-to-liquid duties, condensation with sub-cooling and gas cooling duties, or horizontally, for most condensation, reboiling or liquid-to-liquid duties where height is restricted.

Benefits

- reduced size, weight and number of heat exchangers thanks to high thermal performance and compact design
- increased energy savings due to crossing temperatures and close temperature approach in a single unit



- safe handling of aggressive media and high-pressure/high temperature duties
- minimized fouling thanks to high wall shear stress
- easy opening of the unit and access to the heat transfer area for facilitating inspection, mechanical cleaning, maintenance and repair
- very cost competitive design with high alloy material
- reduced risk of crevice corrosion due to unique plate-to-plate joints

Working principle

The two media in the Compabloc heat exchanger flow in alternately welded channels between the corrugated plates. These corrugated plates promote high turbulence which provides high heat transfer efficiency and help minimize fouling. The media flows in a cross-flow arrangement within each pass while the overall flow arrangement is counter-current for a multi-pass unit (if required the unit can also be designed with overall co-current operation). Each pass is separated from the adjacent passes by a pressed baffle which forces the fluid to turn between the plate pack and the panel.

Design



Superior cleaning and extended performance
End-to-end laser weld of the plates guarantees accessibility and protects against corrosion.



Advanced design for higher pressures
A high-pressure, cleanable plate pattern that increases mechanical strength to improve thermal performance.



Fast and efficient flushing of fouling material
Free-flow channel at the plate boundaries secures efficient removal of fouling.



Qualified support at your facility
True onsite service by skilled engineers, anywhere in the world.

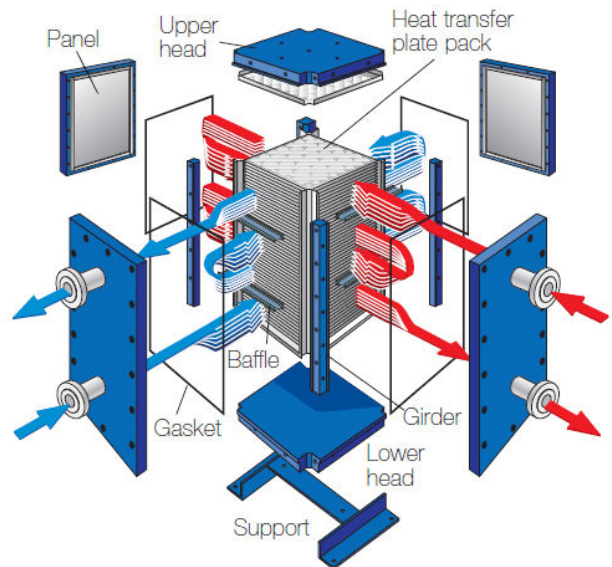
Learn more at www.alfalaval.com/compabloc

Technical data

Standard material for heat transfer plates are 316L, 254SMO, Titanium grade 1, 904L, Alloy C276 and Alloy C22. Other materials may be available on request.

Standard material for panels is carbon steel with lining in the same material as plates. Other materials (like massive stainless steel) may be available on request.

The Compabloc is available in accordance with all major international pressure vessel codes such as ASME, PED, etc...



The table below provides some inputs for our standard range. Other conditions may be available on request.

Model	Standard design pressures**	Standard design temperatures**	Max. width (in vertical position)	Max height (in vertical position)	Max. weight	Max. Heat transfer area
CP15	FV* / 30 bar (435 psi)	-46 °C (-51 °F) / 343°C (649 °F)	280 mm (11")	540 mm (21")	250 kg (551 lbs)	2 m ² (21 ft ²)
CP20	FV* / 30 bar (435 psi)	-46 °C (-51 °F) / 343°C (649 °F)	430 mm (17")	730 mm (29")	550 kg (1,212 lbs)	5 m ² (54 ft ²)
CP30	FV* / 30 bar (435 psi)	-46 °C (-51 °F) / 343°C (649 °F)	500 mm (20")	1070 mm (42")	1160 kg (2,557 lbs)	17 m ² (183 ft ²)
CP40	FV* / 30 bar (435 psi)	-46 °C (-51 °F) / 343°C (649 °F)	600 mm (24")	1400 mm (55")	2330 kg (5,136 lbs)	33 m ² (355 ft ²)
CP50	FV* / 38 bar (551 psi)	-46 °C (-51 °F) / 343°C (649 °F)	840 mm (33")	2050 mm (81")	5940 kg (13,095 lbs)	81 m ² (872 ft ²)
CP75	FV* / 38 bar (551 psi)	-46 °C (-51 °F) / 343°C (649 °F)	1240 mm (49")	3300 mm (130")	17780 kg (39,198 lbs)	320 m ² (3,444 ft ²)
CP120	FV* / 42 bar (609 psi)	-46 °C (-51 °F) / 343°C (649 °F)	2190 mm (86")	3500 mm (138")	60000 kg (132,277 lbs)	840 m ² (9,042 ft ²)

* FV = Full Vacuum

** Standard maximum design conditions for ASME design

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