AC130

The compact heat exchanger with double circuit solution

Brazed Plate DX-Evaporator from Alfa Laval

The AC130 is the new plate designed by Alfa Laval for Air Conditioning and Refrigeration applications.

The AC130, developed specifically for chillers, covers a capacity range from 60 to 200 kW with a real double circuit solution. The advantages of a real double circuit where the liquid channels are always in contact with two independent refrigerant circuits are:

- a well balanced cooling effect with less risk of freezing and less expensive control switches.
- the ability to operate under partial load conditions, resulting in energy savings.
- faster installation time therefore time savings on the chillers' production lines.

The new heat exchanger works as an evaporator, condenser and in heat pump applications and incorporates the latest, patented Alfa Laval innovations:

• Equalancer System: the distribution system that balances the distribution of the refrigerant in the channels by twice remixing the two-phase flow that enters the evaporator. There is no effect on condensation efficiency as the condensate flows through the distribution system with negligible pressure drop. The Equalancer System is pressed together with the plate to guarantee quality and repeatibility of the plate design.

• Dualaced System: the real double circuit design – two independent refrigerant circuits and one liquid circuit – completely integrated into the plate. The pressing of the stainless steel sheets, a technology in which Alfa Laval has decades of experience, is done in order to ensure the plates seal with each other without any need of additional loose parts.

Alfa Laval's unrivalled experience of cold forming steel and concentration on cost reduction resulted in a modularized design for the cover plates that provides material only where needed. The adaptor plates, formed to withstand the design pressure at optimum thickness, are brazed around the port areas. This arrangement meets the highest requirements of pressure and fatigue pressure cycles and also allows the options of using higher pressure refrigerants like R410A.

Special innovations of Alfa Laval

DUALACED SYSTEM™

Dualaced System An advanced dual circuitry integrated in the plate

Equalancer System The integrated refrigerant distribution system that increases performance

Diagonal Refrigerant flow Improves performance in the plate

General Data

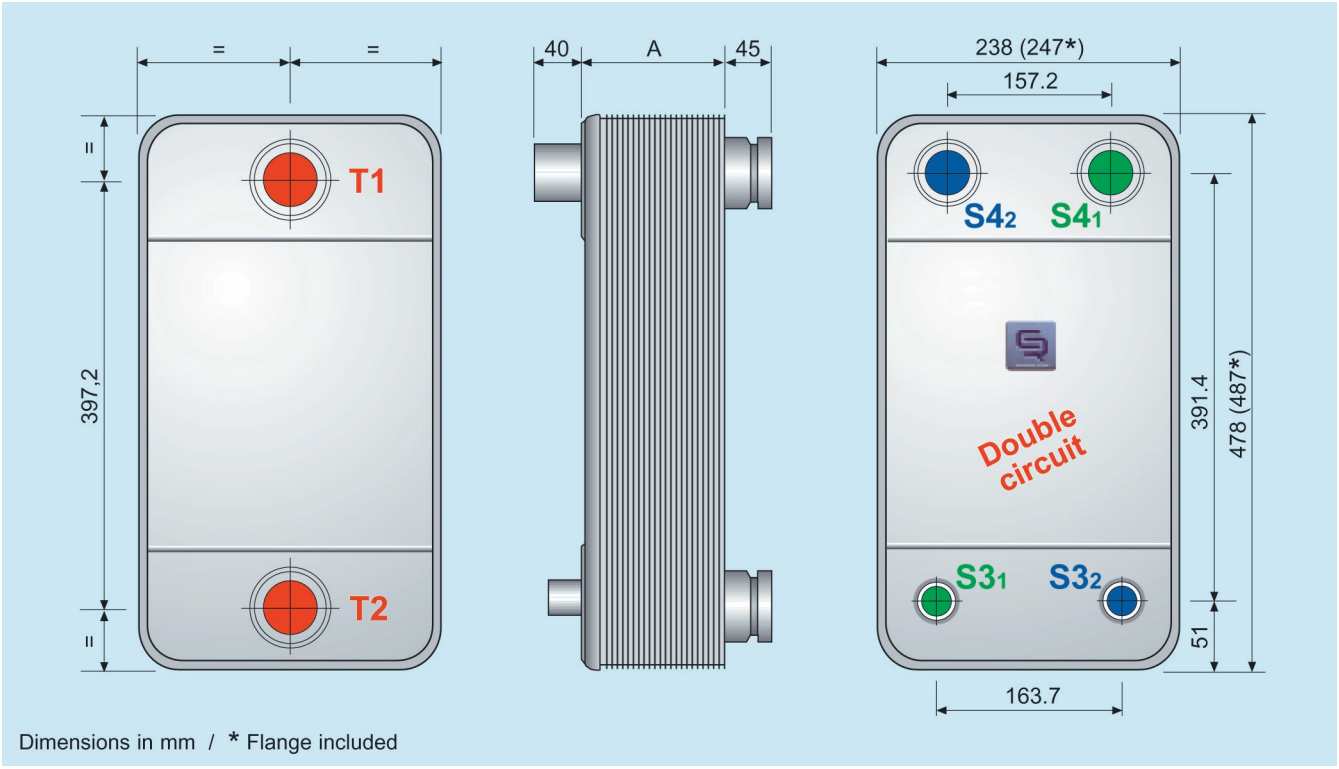
Working Temperature min.	-50°C (-58°F)
Working Temperature max.	+150°C (+302°F)
Working Pressure min.	Vacuum
Working Pressure max. (Ref.)	3.45 MPa (500 psig)
Working Pressure max. (Water)	2.5 MPa (365 psig)
Volume per Channel	0.16 dm^3 (0.042 usg)
Max Flow Rate Water Side	62 m^3/h (16400 usgph)
Distribution System Available	EQ
Dual Circuit System	Dualaced

Standard Connections

Water/Brine side 2”1/2 Victaulic in T1 and T2
Threaded, NPT, Gas, Gas con.
Refrigerant side 1”1/8 in S3 (double circuit) 1”5/8, 2”1/8, 2”1/4
Rotalock in S4

Dimensions

A = 7.6 + n x 2.22 (mm)
Weight = 6.5 + 0.38 x n (kg)
n = number of plates



Dimensions in mm / * Flange included

With the AC130 Alfa Laval has concentrated on reducing the dimensions to provide customers with a more compact heat exchanger. One advantage is immediately apparent: less room needed in the system. This is sometimes an advantage that is underestimated. Reduced space means not only more available room for other equipment, but also less obstruction to the air flow in many air units and a lighter weight to handle in the assembly line.

A reduced volume results in a smaller refrigerant charge. This is more and more a ‘must’ thanks to environmental considerations. In addition, with the increasing cost of the newer HFC refrigerant, it adds up to a not inconsiderable cost saving.

At a fixed design pressure, in almost all cases means a lower category of risk (P x V) and therefore a reduction in certification costs.

Alfa Laval engineers incorporated the largest possible connections in a plate that is less than 500 mm deep. The 2” 1/2 water connections, placed on the rear side to make installation easier, are the largest in this category of plate heat exchanger up to 200 kW. The standard will be Victaulic clamp connections. To enable the unit to be completely dismountable, optional Rotalock connections can be provided up to a 2” 1/4 diameter at the refrigerant outlet.