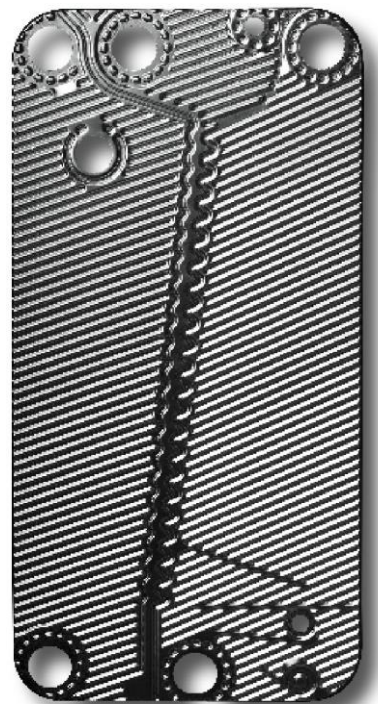


multichannel



EC-SERIES



multichannel

World-wide, there are several manufacturers of brazed plate heat exchangers, which have been trying to cover the various fields of application in the market by offering a largely standardized product line.

Multichannel AB takes a different road

Our aim is to develop and produce compact PHE systems optimized for each type of application. To achieve this goal, we designed a heat exchanger where several fluids are conveyed simultaneously in one channel. This concept was then successfully taken to the stage of series production and has won world-wide patent rights.

The following PHE systems are available

EC Series – Refrigeration Industry

- Evaporator – Condenser – Superheater – Subcooler (3 in 1)
- Heat pumps for H₂O/brine (H₂O)
- Chiller water-cooled

DH Series-District Heating Industry

- Heating water-Distant heat subcooler- Household water-Circulation (3in 1)

DK Series-District Cooling and Industry

- Dew point regulated coolant
- Coolant for e.g. ventilation, fan coil, ec.
- Cold primary cooling water

ER Series- Energy Recycling

- Different energies in the same heat exchanger, for optimal utilization at the right time

Standard Series 29 and 59

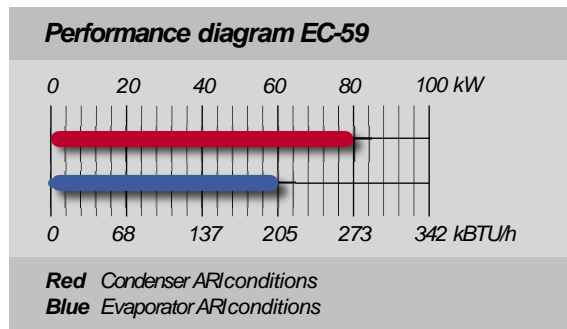
Brazed compact heat exchanger.
Evaporator, condenser or heat exchanger.

welcome

multichannel



The EC series is a revolutionary compact vacuum-brazed plate heat exchanger system for water/brine (H₂O) heat pumps as well as for water-cooled chillers. It combines the following functions in one unit:



Evaporator – Superheater – Condenser – Subcooler

The specially devised superheating section will ensure absolutely stable expansion valve control. Moreover, the system is provided with an aftercooler section. For these reasons no receiver needs to be installed, unlike conventional plants. In fact, a receiver would be counter-productive, as it might lead to the formation of a liquid-gas mixture in the riser channel of the EC, making subcooling doubtful. The operational implications of the new system are truly far-reaching, as the expansion valve is controlled by the superheating section and not, as

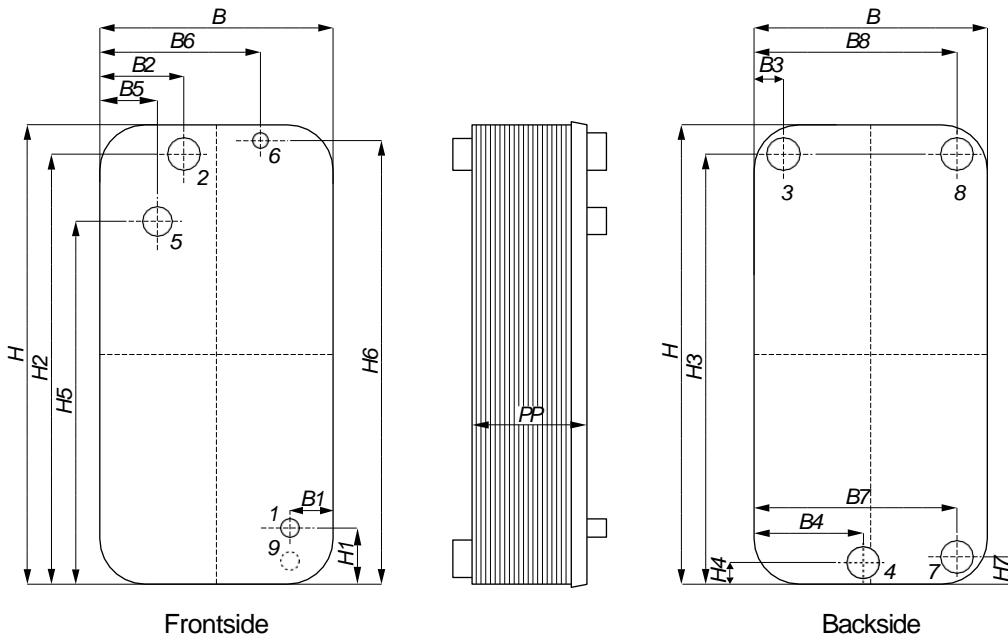
happens frequently in conventional plants, by the water temperature in the evaporator. Once the expansion valve has been selected, no predispatch single performance tests will be required, since all plants have the same degree of stability. The need for an additional oil separator depends largely on the make of the compressor (i.e. if oil is discharged, and how much). For the EC system as such, no oil separator is required. Another major advantage is in the fact that, with the same number of plates as before, an evaporation temperature with a ΔT of only about

3°K (instead of the former 5°K) in respect of the water (brine) outlet temperature is achieved. A reduction of the ΔT by one degree K will translate as an increase of the total thermal output by approx. 5 to 7%, depending on the type of refrigerant. The system has proved particularly efficient in the minus degree range using water-brine mixtures and the new refrigerants with high glide. Here, the EC series shows excellent performance when compared to competitor products in the brazed heat exchanger sector. Furthermore, no segregation occurs thanks to a patented system.



system

multichannel



Data for EC-59

PP plate pack

11 + (NP * 1,8mm)

Net weight

18 + (NP * 0,41kg)

Technical data

Operating pressure
max. 30 bar

Test pressure 39 bar

Operating temperature
max. +204°C, min. -160°C

Material

Plates: W-1.4401/AISI 316

Solder: Copper 99.9%

NP:

max. 200 plates

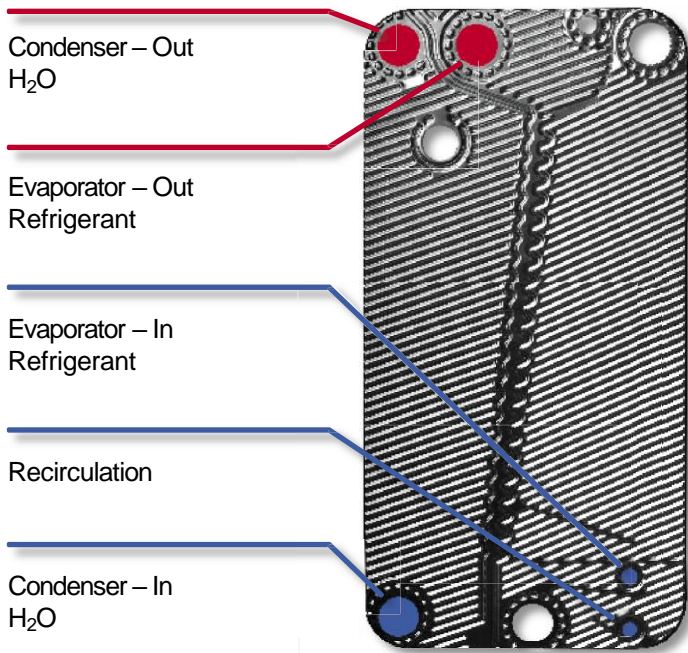
Device		Medium	Type of connection
1. Evaporator	In	Refrigerant	15,88 mm soldered
2. Evaporator	Out	Refrigerant	34,92 mm soldered
3. Evaporator	In	Brine/H ₂ O	1" BSP Threaded
4. Evaporator	Out	Brine/H ₂ O	1" BSP Threaded
5. Condenser	In	Refrigerant	28,57 mm soldered
6. Condenser	Out	Refrigerant	15,88 mm soldered
7. Condenser	In	H ₂ O	1" BSP Threaded
8. Condenser	Out	H ₂ O	1" BSP Threaded
9. Recirculation		Refrigerant	15,88 mm

EC-59 Exchanger dimensions /centre lines (mm)

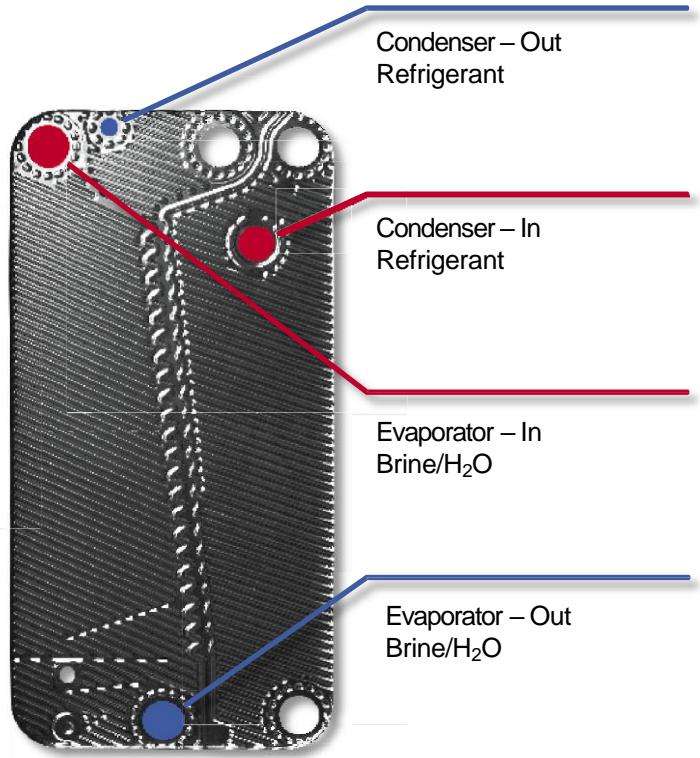
B	267,85	H	529,85
B1	48,61	H1	64,98
B2	96,45	H2	496,93
B3	33,43	H3	497,06
B4	126,59	H4	26,43
B5	68,20	H5	419,68
B6	184,70	H6	512,33
B7	231,99	H7	31,99
B8	234,43	H8	419,68
B9	48,61	B9	20,33

technology

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Frontside



Backside

technology

Cost saving effect of EC System

- No receiver necessary
- No single performance tests necessary
- Saving on the refrigerant – (filling for EC59-20 typically 1,6 kg – in the past up to 5 kg with receiver)
- Less installation material (piping)
- Shorter installation time
- More compact construction
- Higher efficiency
- The heat exchanger has exceptional performance for R290.

Accompanying calculation software

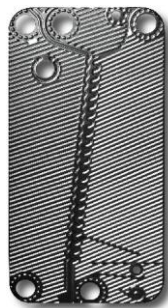
The software program provided by us is characterized by a much higher user-friendliness than those supplied by our competitors. It contains all technical data of the most common compressors. Technical data of new or less current compressor models are constantly added. The user has to input the following details: Compressor model – Refrigerant – Temperature programmes. The software will then calculate automatically all performance data, i.e. the user does not need to determine himself the relevant values on the basis of the data and performance curves supplied by the compressor manufacturer.

The calculation software will supply the following results

- Required EC type
- Effective power consumption of the compressor
- Evaporation and condensation capacity
- Relevant temperature programs and pressure losses for brine/H₂O
- COP cooling/COP heating

costs

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EC-SERIES



DH/DK/ER-SERIES



STANDARD-SERIES



FUTURE

Product range

multichannel

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