

Efficiency in food and energy processes

Hybrid solution for heating and cooling extended to series production

The GEA *HeaMo* is now even more economical and versatile

There are many building facilities in which heating and cooling are required at the same time – for example, because the south side becomes hot already in spring, and the north side must still be heated. Or, because server rooms must still be cooled although wintry outdoor temperatures prevail. Most users employ separate systems to provide heat and cooling. But the best equipment cannot prevent the operation of a chiller from producing waste heat. Beneficial use of such heat is the trick with GEA *HeaMo*, the hybrid solution for bivalent heating and cooling of a building complex. *HeaMo* stands for “heat in motion”, since the unit involved can transfer surplus heat from one part of a building facility to another.

HeaMo is optimally designed such that simultaneous heating and cooling can take place as frequently as possible. One profitable solution here is to use these systems as basic-load machines, which can be complemented for additional demands for heating and cooling, for example, by separate chillers and heat pumps.

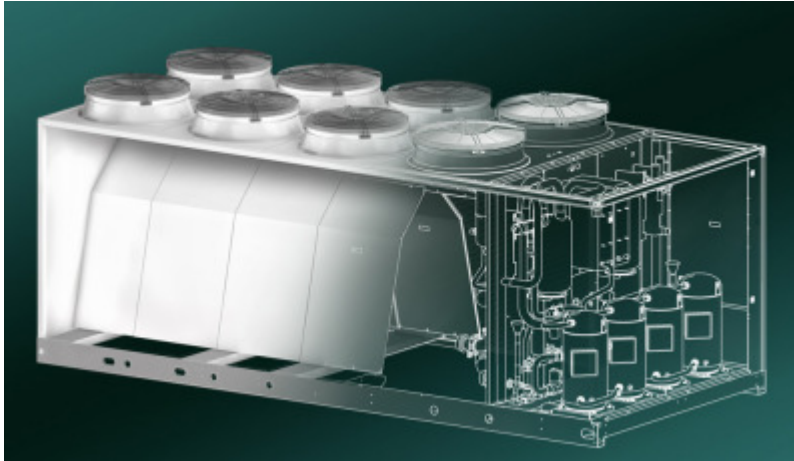
In the GEA *HeaMo*, heat pumps and chillers are combined with respect to their hydraulic and their control systems, and use three heat exchangers in one refrigerant cycle. When heating and cooling are simultaneously required, cooling is produced on one side and transferred via a heat exchanger to the cold-water network. The heat produced there is fed by the system on the other side into the heating network. In this optimal case – if heating and cooling demands are approximately equal – only two heat exchangers are active and the efficiency is far more than 7 (as per ITEE, the index of total energy efficiency). Since, however, heating and cooling demand is not always equal, GEA engineers have provided a third heat exchanger. If cooling demand is greater than heating needs, the surplus energy will be passed out to the environment. If heating requirements are greater than cooling demand, the third heat exchanger is used to remove energy from the environment and to transport it into the building.

GEA developers have now enhanced system design and have reduced its installation size. The result is two complete GEA *HeaMo* ranges with a broad output spectrum: the AIR versions for outdoor installation, which transport surplus energy to the outdoor air, or remove this energy from the outside air. The models in the GEO version are intended for indoor installation and use a water cycle – for example, a geothermal system – for release or capture of heat.

Both of these ranges are available in finely graduated model sizes. The maximum heating duty of the 16 AIR models ranges from approx. 35 to 350 kW, and the cooling duty from about 30 to 310 kW. To achieve a high number of operating hours even in winter months, the AIR version is available for an extended area of operation. It allows

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pure heating operation down to -10 °C outside temperature, while the standard version can be used down to -5 °C. The entire scope of 18 GEO models covers the range from 50 to 550 kW cooling or heating duty.



GEA *HeaMo* – here in an AIR version – a combined heat pump and chiller to provide an efficient hybrid solution.

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About GEA

GEA Group Aktiengesellschaft is one of the largest systems providers in the food and beverages industries and in energy production. Group sales in 2010 were more than 4.4 billion euros. As an internationally active technological enterprise, GEA Group has concentrated on process engineering and components for demanding production processes in a wide range of end-user markets. The Group generates around 70 % of its sales in long-term growth industries for food, beverages, and energy. As of 31 December 2010 the Group internationally employed more than 20,000 staff. In its business areas, GEA Group is among the leading companies on the market and in technological developments. GEA Group is listed on the German MDAX stock index (G1A, WKN 660200).