Press information

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Creating a leading edge with efficient components and solutions

Nuremberg/Sindelfingen, 11.10.2022. Solutions for maximum efficiency in refrigeration and air conditioning systems are in high demand. Skyrocketing energy prices and a growing number of regulations worldwide are pushing companies to their capacity limits in terms of energy consumption. Refrigeration and air conditioning companies can distinguish themselves with efficient components and solutions. BITZER will be demonstrating the extensive range of possibilities at Chillventa 2022, which will be held at NürnbergMesse from 11 to 13 October. The refrigeration and air conditioning specialist can be found at Stands 7-350 and 7-650.

The refrigeration and air conditioning sector offers plenty of potential when it comes to energy consumption. Due to the growing population, climate change and digitalization with the ever-expanding demand for data centre cooling, the need for refrigeration and air conditioning solutions will continue to increase significantly in the future. Customers will have a preference for much more efficient solutions.

Skyrocketing energy costs and the increasingly stringent energy efficiency requirements of regulations and initiatives are forcing companies in the refrigeration and air conditioning industry around the world to take action. For example, the International Energy Agency (IEA) estimates that global energy intensity needs to improve at a rate that is two to three times higher than before to meet the target of net zero emissions by 2050. The rate of improvement should increase by more than four per cent a year between 2020 and 2030. For comparison, the rate at which energy intensity improved was 1.7 per cent between 2010 and 2020.

Press information

Demand for increasingly efficient components and solutions will surge in the field of refrigeration and air conditioning. Potential can often be found in minor details, but also has a big impact. With modified designs, new technologies, larger capacity ranges and even better capacity control for components, refrigeration and air conditioning systems will be more effectively equipped for various applications worldwide and operate more efficiently in the future. BITZER, the refrigeration and air conditioning specialist, offers innovative products which allow its customers to meet the demand for increased efficiency.

You will find a few examples of that below – details are available in the corresponding product profiles:

Efficient and compact: expanding the range of ECOLITE condensing units

The ECOLITE series with the new LHL7E condensing units offers an even wider capacity range with up to 6.5 kW in low temperature application and up to 25 kW in medium temperature application. The semi-hermetic ECOLINE reciprocating compressors with VARISTEP mechanical capacity control also ensure efficient, flexible and reliable operation of condensing units in part and full load. The ECOLITE LHL7E also offers optional heat recovery for an additional boost in system efficiency.

Optimal use of energy: ejectors for transcritical CO_2 applications

With its new, adjustable ejectors for low and high lift, BITZER offers new options in transcritical CO_2 systems. To generate the pressure lift necessary for a suction mass flow, the ejectors use the potential energy that is usually lost during the throttle process associated with the expansion valve, thus increasing the compressor's suction pressure and the system's energy efficiency.
A selection of seven models, the widest capacity range and the largest absolute capacity with motive mass flows between 800 kg/h and 9,500 kg/h offer flexibility when it comes to choosing the appropriate ejector, including for industrial applications.

Ten per cent higher energy efficiency: 8-cylinder CO_2 reciprocating compressors for transcritical CO_2 applications

Full cooling capacity for large systems and heat pump applications – with fewer compressors than before: the new 8-cylinder CO_2 reciprocating compressors for transcritical CO_2 applications are around ten per cent more energy-efficient than the smaller 6-cylinder compressors currently available on the market. They expand the ECOLINE CO_2 series for even larger capacity ranges with CO_2 as a refrigerant in refrigeration and heat pump applications. The new 8-cylinder CO_2 reciprocating compressors are also equipped with an optimised version of VARISTEP mechanical capacity control.
'With our innovative 8-cylinder CO_2 reciprocating compressors, we are expanding the range of CO_2

applications for higher cooling capacities in commercial and industrial applications,' says Rainer Große-Kracht, Chief Technology Officer of BITZER. 'The larger displacement and the integrated IQ modules make for a more compact system design and simplify integration into system control. User-friendliness and reduced energy consumption were our aims during development.'

Equipped with hybrid falling film evaporators for the EU Ecodesign Directive

The new BITZER hybrid falling film evaporators combine high efficiency in full and part load with a low refrigerant charge. They come in five different housing sizes and are optimised for the R134a, R1234ze and R513A refrigerants. The tested capacities are much better than those of fully flooded evaporators with rated load conditions and, in particular, with part load conditions. The new BITZER hybrid falling film evaporators fulfil the requirements of the EU Ecodesign Directive and achieve the minimum level of efficiency stipulated in the Directive for refrigeration systems with a capacity of over 400 kW. Due to their special design, hybrid falling film evaporators also require at least 35 per cent less refrigerant than flooded evaporators. With a capacity range of 300 to 2,000 kW, they accommodate a whole host of applications – most notably, air conditioning and process cooling.

Open drive screw compressors for ammonia refrigeration systems with increased cooling capacity

With the new OS.A105 open drive screw compressors, BITZER is expanding its portfolio of ammonia screw compressors for industrial ammonia refrigeration systems. Three displacement volumes – 1,400, 1,700 and 2,000 m^3/h at 2,900 rpm – are in the pipeline. Because the compressors are designed for use with external frequency inverters, the displacement – and therefore the refrigerating capacity for each compressor – can be increased by another approximately 40 per cent. The new OS.A105 open drive screw compressors are equipped with the IQ module, which can be used to efficiently operate the double slider for mechanical capacity control and Vi adjustment. The sliders enable stepless adjustment of the cooling capacity between ten and 100 per cent.

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around the world. In 2021, more than 3,900 employees generated sales of €928 million, with €47 million invested in research and development.

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Overview of images

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Image 1: BITZER ECOLITE LHL7E condensing units

Press information

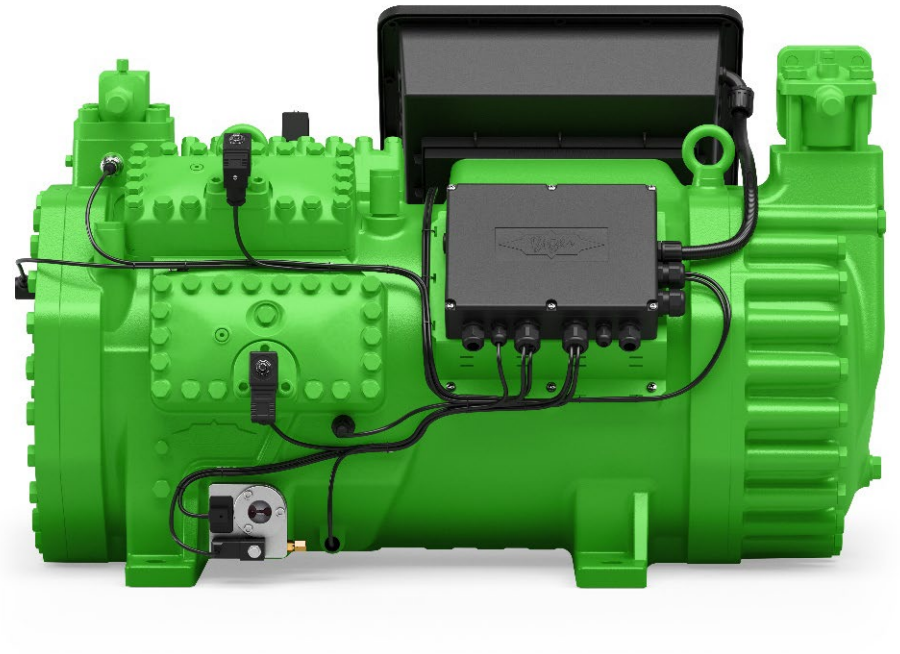

Image 2: BITZER 8-cylinder CO_2 reciprocating compressors

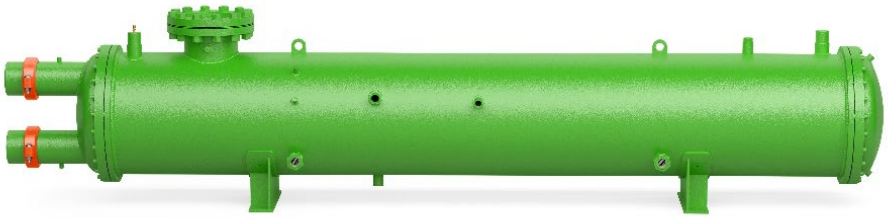

Image 3: BITZER hybrid falling film evaporators