

Product profile



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BITZER ECOLINE 8-cylinder reciprocating compressors for subcritical and transcritical CO₂ applications

With the new 8-cylinder reciprocating compressors for subcritical CO₂ applications, BITZER is expanding its tried-and-tested ECOLINE series to include even larger capacity ranges. The compressors offer efficiency, high performance and operating reliability in industrial refrigeration systems and heat pump applications – with fewer compressors than before.

The advantage of R744 (CO₂) in large systems: it is a non-toxic, natural refrigerant with low global warming potential, considered to be a future-proof choice in terms of global environmental regulations, and enables compact system dimensions thanks to the large displacements of the compressors.

Versatile in a large capacity range

ECOLINE 8-cylinder reciprocating compressors open up a wide range of applications areas in subcritical and transcritical CO₂ applications, such as large low temperature storage units, industrial blast freezers, the pharmaceutical industry and heat pumps.

ECOLINE 8-cylinder reciprocating compressors for subcritical CO₂ applications were developed for high standstill pressures of up to 80 bar and are available in two motor versions with displacements of 138.6, 160.7 and 199.5 m³/h at 50 Hz. Cooling capacities of up to 360 kW* are possible (*operating conditions: t₀ = -35°C, t_c = 0°C, Δt_{0h} = 10 K at 50 Hz).

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The well-known ECOLINE 8-cylinder reciprocating compressors for transcritical CO₂ applications are also available in two motor versions – with displacements of 69.4, 82.0 and 99.2 m³/h at 50 Hz. Cooling capacities of up to 228 kW* and heating capacities of up to 477 KW** are possible

(*operating conditions: $t_0 = -10^{\circ}\text{C}$, $t_{\text{GK,aus}} = +35^{\circ}\text{C}$, $p_{\text{H}} = 90 \text{ bar}$, $\Delta t_{\text{Oh}} = 10 \text{ K}$ at 50 Hz), (**operating conditions: $t_0 = 0^{\circ}\text{C}$, $t_{\text{GK,aus}} = +32^{\circ}\text{C}$, $p_{\text{H}} = 90 \text{ bar}$, $\Delta t_{\text{Oh}} = 10 \text{ K}$ at 50 Hz).

Efficient and low-maintenance CO₂ compressors

Like all BITZER CO₂ compressors, the 8-cylinder designs also boast low pressure pulsations and vibrations in operation. The compressors' special industrial design enables simple, targeted maintenance, whilst the wear-resistant drive gear design and the suction gas cooled motor ensure high efficiency. Low oil carry over rates reduce the costs associated with the components of active oil management such as the oil separator and oil reservoir.

They can be optimally combined with the external VARIPACK frequency inverter to enable motor speed adjustment in line with dynamic load requirements for even greater efficiency in full and part load, thus reducing energy consumption and increasing system lifetime. The CM-RC-02 IQ MODULE, which comes standard with the ECOLINE 8-cylinder reciprocating compressor, offers an additional boost in efficiency. The IQ MODULE features intelligent functions that simplify compressor installation, commissioning and maintenance. Additional compressor functions like application limit monitoring, OLM-IQ oil management and VARISTEP mechanical capacity control of the 8-cylinder ECOLINE CO₂ transcritical can be easily connected via extension boards and conveniently operated using the IQ MODULE.



As an independent specialist for refrigeration, air conditioning and heat pump technology, BITZER is present all over the world: with products and services for refrigeration, air conditioning and process cooling as well as transport, BITZER ensures optimum temperature conditions for trade in goods, industry processes and indoor climate control – always striving for the highest possible energy efficiency and quality. BITZER is represented all over the world with 75 sites in 40 countries, including its sales companies and production facilities. Trade and service partners included, the BITZER network of manufacturing, development and sales extends to almost all countries in the world. In 2023, more than 4,300 employees generated a turnover of €1.01 billion; expenditure for research and development totalled €61 million.

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Image 1: The new ECOLINE 8-cylinder reciprocating compressor for subcritical CO₂ applications

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Image 2: The tried-and-tested ECOLINE 8-cylinder reciprocating compressor for transcritical CO₂ applications