

Product profile



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BITZER ECOLINE PRO series: reciprocating compressors with expanded application range for hydrocarbons

As a natural refrigerant with very low global warming potential, hydrocarbons are ideal for future-proof refrigeration and heat pump systems in Europe. BITZER ECOLINE PRO reciprocating compressors are optimised for these refrigerants. For R290 (propane), the compressors are now available for expanded application ranges with a condensing temperature of up to +75°C.

For the further development of the ECOLINE PRO series, the main development goals included reliability, efficiency, flexibility and safe and simple use with hydrocarbon refrigerants. The compressor series was expanded to include another motor version for increased application limits and higher efficiency. This series boast even more extraordinary features such as capacity control with CRII or an external frequency inverter (optional), improved oil management and emergency running characteristics, and the IQ MODULE in the terminal box for higher availability and virtually stepless capacity adjustment. The increased tightness for simplified risk assessment and the avoidance of an ATEX zone enable safe entry into hydrocarbon applications.

ECOLINE PRO reciprocating compressors are versatile and can be used in a variety of applications such as low temperature application, air conditioning, process cooling and heat pump operation with propane (R290), propene (R1270) and isobutane (R600a).

The compressors are available in a 4- and 6-cylinder design with a total of twelve displacements as well as cooling capacities (propane) of 25 to 113 kW* (*operating conditions: $t_0 = +5^\circ\text{C}$, $t_c = +50^\circ\text{C}$ at 50 Hz). Depending on the motor version, evaporation temperatures between -40°C and $+35^\circ\text{C}$ and condensing temperatures between $+10^\circ\text{C}$ and $+75^\circ\text{C}$ are possible with propane. Three motor versions

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and the optional VARISTEP capacity control with part load from 10 to 100 per cent offer maximum efficiency and flexibility in terms of system design and load profile. Operation with an external frequency inverter such as VARIPACK up to 70 Hz is also possible. In addition, ECOLINE PRO reciprocating compressors are fitted with the CM-RC-02 IQ MODULE as standard, which simplifies and optimises installation, commissioning and compressor and system maintenance, and boasts important compressor operation and protection features for increased efficiency. The IQ MODULE also ensures high compressor availability.

Increased tightness for BITZER compressors

Thanks to the design and testing of their seal systems, semi-hermetic and hermetic BITZER compressors achieve an increased level of tightness in accordance with EN1127-1, as confirmed by a notified body. Increased tightness means that the compressors are specially designed to be technically tight on a permanent basis thanks to production and testing processes at BITZER. Thus, when using hydrocarbon as well as A2 and A2L refrigerants, no ATEX zone is created around the compressor. There is no need to use ATEX components, which is not necessarily the case when it comes to manufacturers without a certified seal system including qualified process control. BITZER compressors are also free of ignition sources in normal operation in accordance with the IEC60335-2-40:2022 standard for these refrigerants, and the IQ MODULE can remain mounted in the terminal box. All that simplifies the risk assessment stipulated by the Machinery Directive, which benefits the system manufacturer.

If there is no way to avoid using the compressors in a potentially explosive atmosphere – for example, the presence of explosive gases in the environment or an increased risk of hydrocarbon refrigerant leakage in the system – different designs are available for each of the ATEX device groups.

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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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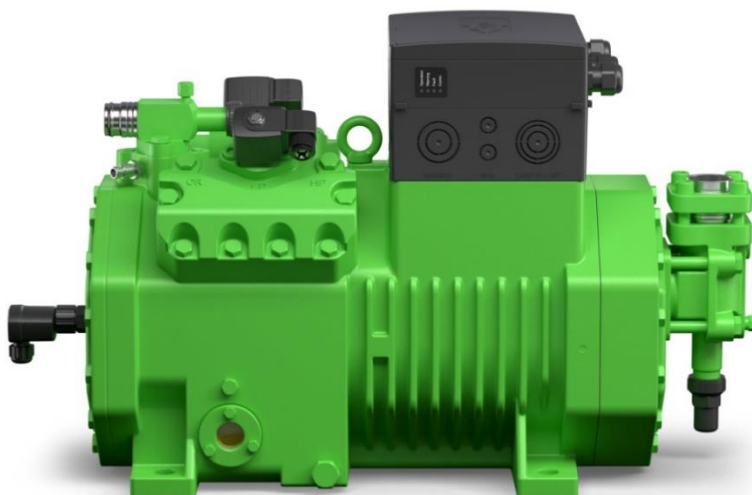


Image: ECOLINE PRO reciprocating compressor with expanded application range for hydrocarbon refrigerant