Efficiency

CO_2

BOCK transcritical CO_2 compressors with LSPM motors

Higher efficiency, lower operating costs

BOCK

colour the world
of tomorrow

LSPM compressors for refrigeration and heat pump systems

New transcritical BOCK CO_2 compressor series, equipped with LSPM motor technology (Line Start Permanent Magnet). The advantages for users: Economical system solutions with higher efficiency and a plus in capacity – with lower operating costs at the same time.

The new BOCK CO_2 compressors with LSPM motors combine the strengths of robust asynchronous motors with squirrel cage rotors and those of low-loss synchronous running permanent magnet motors – ideal for use in refrigeration and heat pump systems.

More power, higher efficiency

The motor synchronizes to the operating frequency after asynchronous starting and then runs without slip at optimized speed in synchronous mode. This simultaneous motor operation ensures a higher refrigerant mass flow rate and thus for more cooling or heating capacity. Since there are no power losses in the rotor, the efficiency of the compressor is increased – by an average of around six percent compared to a standard asynchronous motor.

Flexible use, economical operation

The motor can be operated directly from the mains or via a frequency inverter. Integration into existing concepts is simple and possible with almost the same control effort and system design.

Thus, the transcritical BOCK CO_2 compressor series with LSPM motors enables flexible system solutions with higher efficiency and cost-optimized operation – combined with the well-known durability and reliability of BOCK compressors.

Sustainable and future-proof

Designed for use with the natural refrigerant R744 (CO_2), the LSPM compressors offer users sustainable and future-proof operation. The units support compliance with important energy and environmental protection requirements such as the European F-Gas Regulation or the global Kigali Agreement and meet strict requirements of European standards and ASERCOM guidelines.

Advantages and benefits at a glance

- Combined advantages of robust asynchronous motors and low-loss synchronous motors
- Optimized motor and overall efficiency by 6 % on average
- No rotor and induction/excitation losses
- More cooling/heating capacity due to optimized synchronous motor speed
- Flexible operation: directly from mains or via frequency inverter
- Lower operating costs of the compressor
- Can be combined with compressors with asynchronous motors on single rack system
- Compliance of important energy and environmental protection requirements

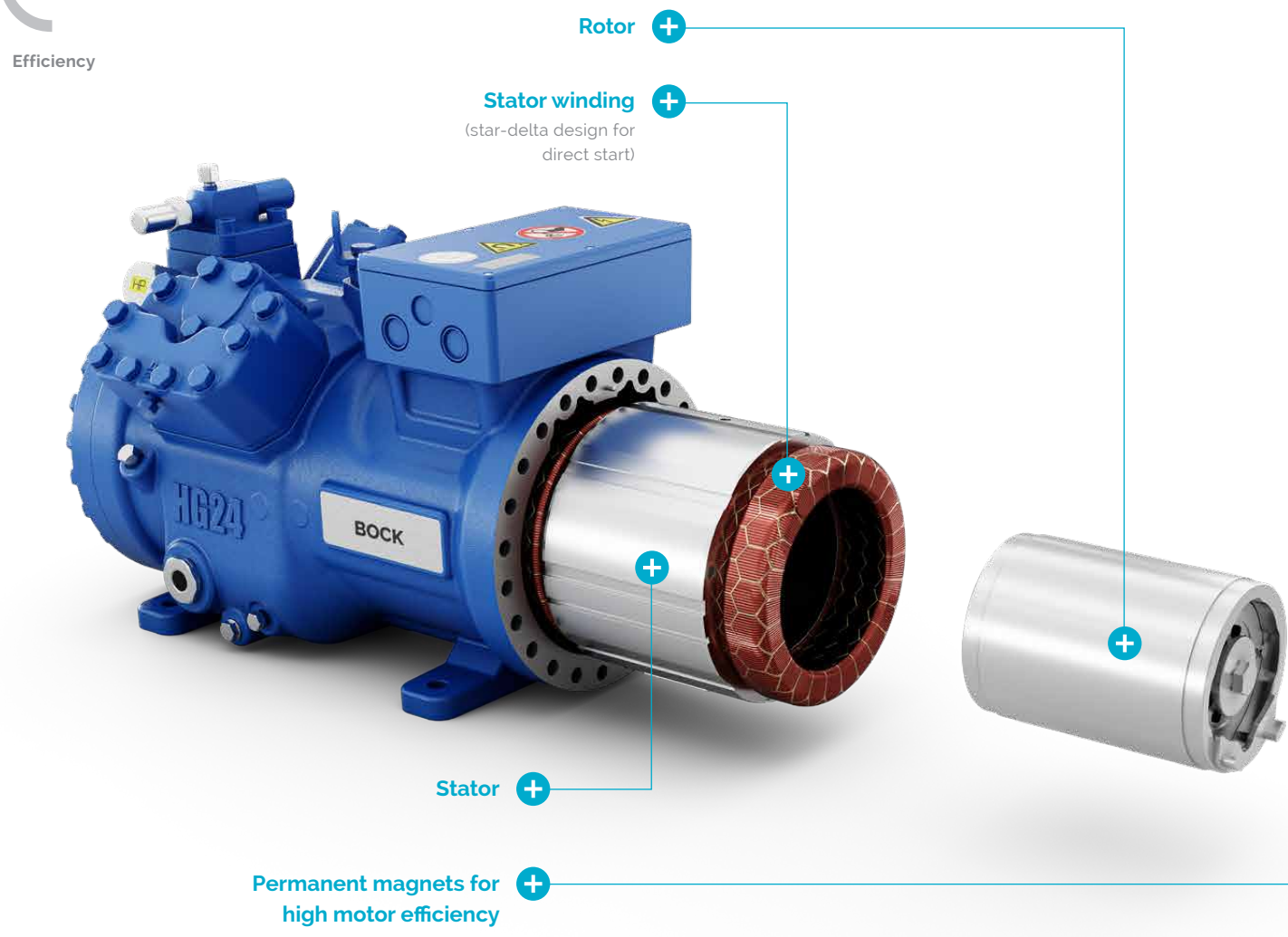
Three model sizes – wide capacity range

Natural Refrigerant

CO_2

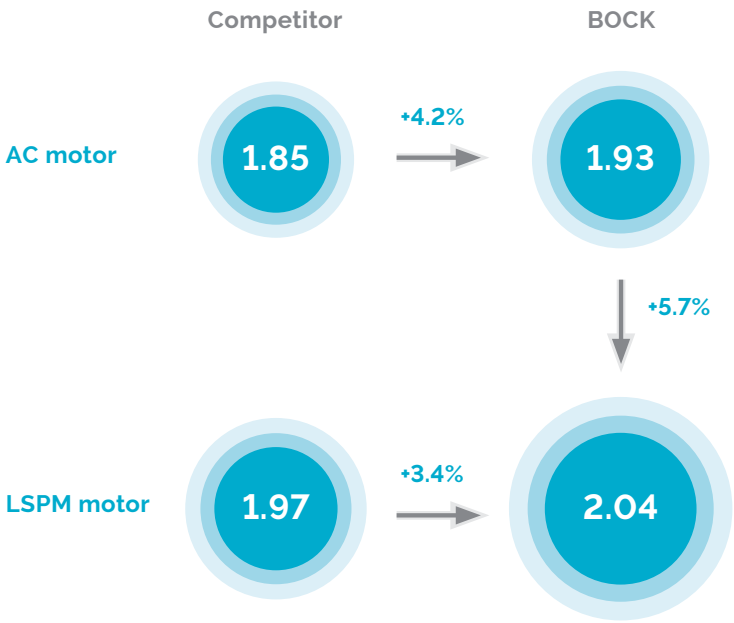
Efficiency

BOCK offers the new transcritical product range with LSPM motors in three compressor sizes with a total of 16 displacements from 4.8 to 39.5 m^3/h (50 Hz/1,500 rpm). This covers a broad capacity range, which can be achieved with one compressor in midium temperatur cooling from 9 to 89 kW and in heating from 27 to 188 kW. This opens up tailor-made application possibilities for a wide range of applications in supermarkets, commercial and industrial refrigeration systems and heat pumps.



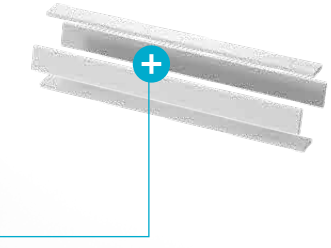
BOCK efficiency in competitive comparison (MT efficiency – EER[1])

HGX34/210-4 S CO_2 T (AC motor) vs.
HGX34/210 SP 31 CO_2 T (LSPM motor) vs.
competitor



1) EER = Energy Efficiency Ratio = Refrigeration capacity/power consumption

Evaporating temperature at 50 Hz (1.500 rpm): –10 °C,
Gas cooler outlet temperature: +35 °C/90 bar, suction gas superheat: 10 K



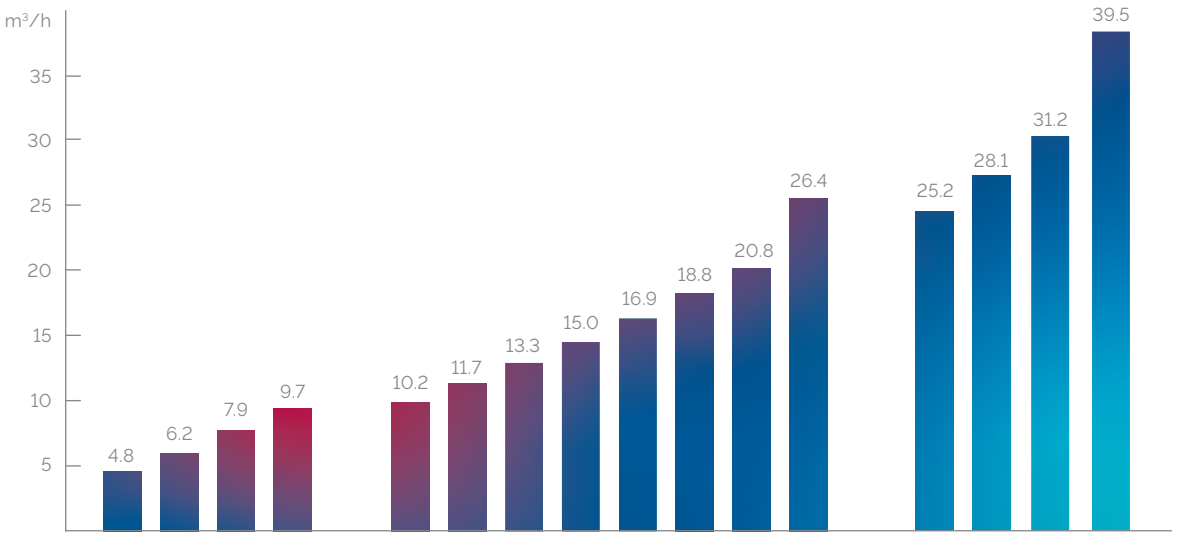
BOCK VAP

COMPRESSOR SELECTION PROGRAM

Current information on technical data, performance data, operating limits and much more can be done online via the BOCK compressor selection program (VAP): **vap.bock.de**

Transcritical CO_2 compressors with LSPM motors

3 model sizes with 16 capacity stages from 4.8 to 39.5 m³/h (50 Hz / 1,500 rpm)

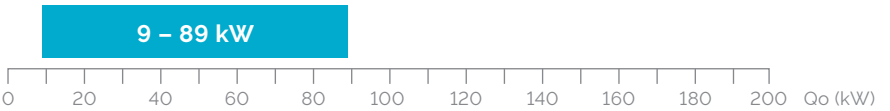


HGX24 P CO_2 T
4 cylinders

HGX34 P CO_2 T
4 cylinders

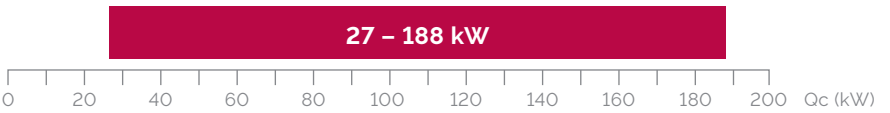
HGX46 P CO_2 T
6 cylinders

Cooling capacity



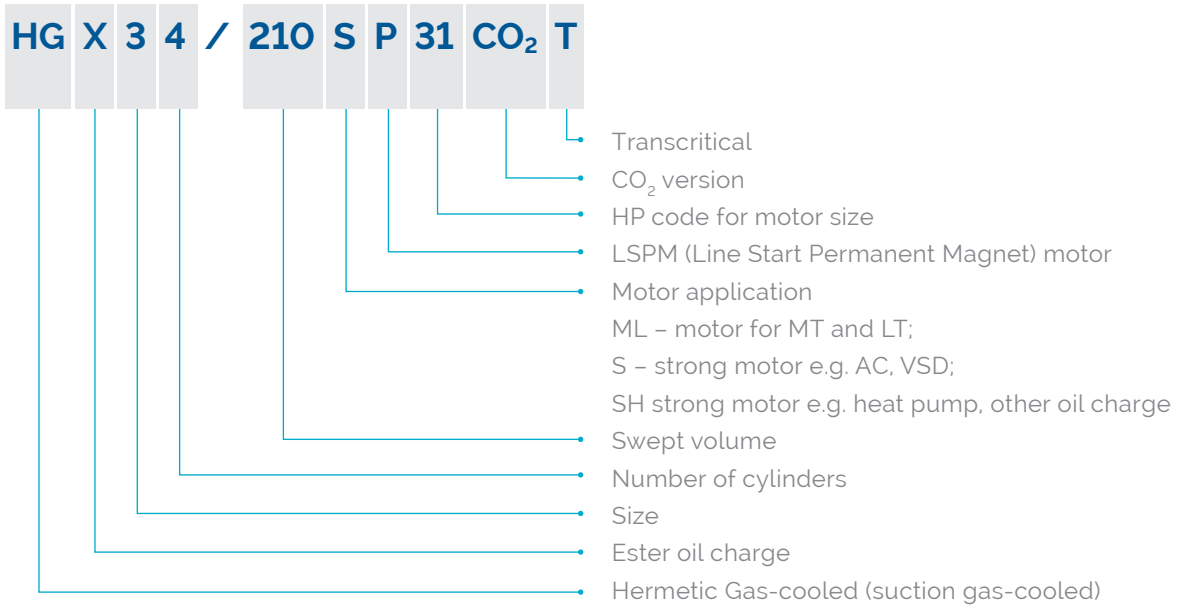
Evaporating temperature at 50 Hz: –10 °C,
Gas cooler outlet temperature: +35 °C/90 bar, suction gas superheat: 10 K

Heating capacity



Evaporating temperature at 50 Hz: 5°C
Gas cooler outlet temperature: +25°C/100 bar, suction gas superheat: 10 K

Type key – adapted to worldwide requirements



BOCK is one of the world's technology and innovation leaders in the development of environmentally friendly, economical solutions in the field of refrigeration and air-conditioning technology, including heat pumps and heat recovery – with one of the world's largest portfolios of compressors for natural refrigerants such as CO_2 (R744), hydrocarbons and other low-GWP refrigerants.

BOCK

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