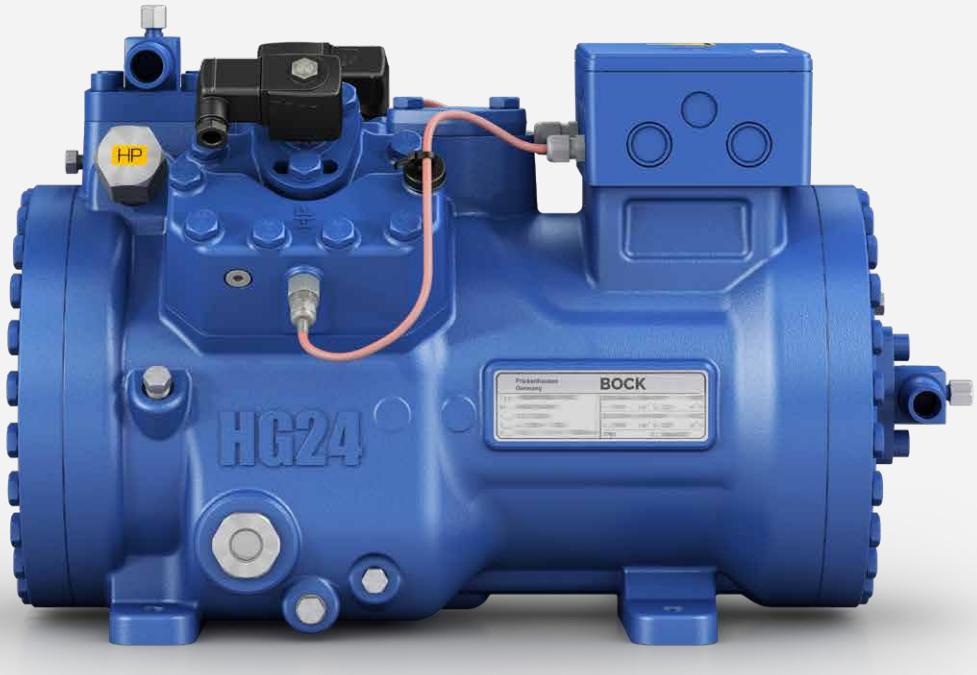
flexxCO$_2$NTROL



BOCK flexxCO$_2$NTROL

New capacity regulator technology
for BOCK CO$_2$ compressors

BOCK

colour the world
of tomorrow

Flexible adaptation to current capacity requirements

˚Clever solved: BOCK flexxCO_2NTROL technology, the compressor capacity regulator for the almost stepless capacity adjustment of transcritical BOCK CO_2 compressors to the current system requirement.

Compressors are usually designed for the maximum required cooling or heating capacity during system planning. In reality, however, the systems run only in the partial load range for a large proportion of their operating time. For this reason, it makes sense to adapt the compressor capacity to the current load, especially in applications with strongly fluctuating capacity requirements, such as many industrial process or supermarket applications.

Great capacity range between 100 % and 25 %

The new development BOCK flexxCO_2NTROL offers a control for this purpose with a great capacity range between 100 percent and 25 percent – depending on the operating conditions. The technical and economical advantages: The start-and-stop operation of the compressors is minimized, this reduces the wear risk and thus increases the operating life time of the compressors and drive motors. In addition, the digital capacity regulator enables almost stepless adjustment for high part load requirements.

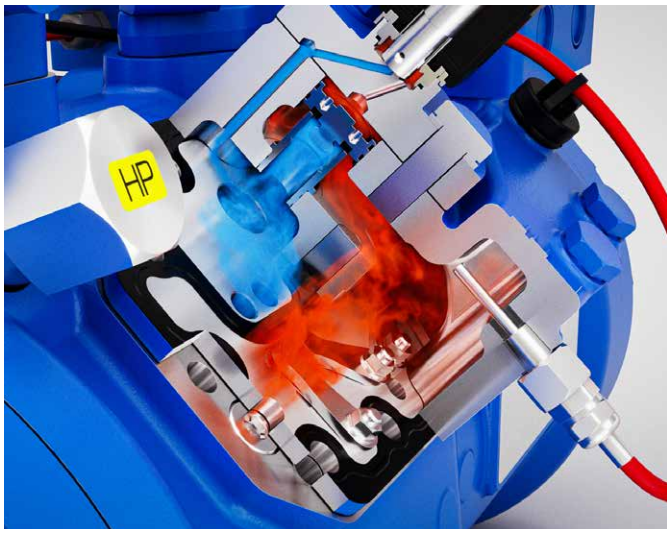
Use of existing controllers possible

Another advantage is that valve control can usually be implemented with existing system controllers. This saves investment and operating costs while ensuring high control quality and operational reliability.

Attractive alternative to frequency inverters

With its high economy and system efficiency, BOCK flexxCO_2NTROL is an attractive alternative to the capacity regulation of BOCK CO_2 compressors with simple start-stop technology or solutions with frequency converters.

DCR22 CO_2: unregulated condition



Capacity regulator inactive (solenoid de-energized): Operation of the cylinder bank at full load

DCR22 CO_2: regulated condition

Capacity regulator active (solenoid energized): Operation of the cylinder bank in partial load (bypass) (digital or conventional).

DCR22 CO_2 – digital and conventional applicable

The capacity regulator DCR22 CO_2 from the system family BOCK flexxCO_2NTROL can be used for the digital and conventional control of all transcritical BOCK CO_2 4- and 6-cylinder compressors.

Capacity regulator – operating parameters

	4-CYLINDER COMPRESSOR		6-CYLINDER COMPRESSOR	
Control principle	digital	conventional	digital	conventional
Number of capacity regulators	2	1	2 (3)	2
Capacity adjustment	stepless	continuous	stepless	continuous
Compressor capacity	25 – 100 %[1]	50 or 100%	33 – 100 %	33, 66 or 100%

1) Taking into account the operating conditions of the application regarding hot gas and motor temperatures and taking into account analysis parameters (such as oil return and system control behavior). BOCK recommends the use of a hot gas temperature sensor (accessory).

Available for the transcritical CO_2 compressor models HGX24 CO_2 T, HGX34 CO_2 T and HGX46 CO_2 T.

BOCK flexxCO_2NTROL – the most important at a glance

- Almost stepless capacity regulation of transcritical BOCK CO_2 compressors.
- Great capacity range between 100% and 25%
- Higher average evaporating temperature
- Minimized compressor start stops: minimized risk of wear, longer motor life time
- Use of existing system controllers possible: Integration into existing system control system (if the digital capacity regulation is available for reciprocating compressors)
- Increased system efficiency, reduced investment and operating costs
- Universally applicable: for digital and conventional capacity control
- Attractive alternative to frequency inverters

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**

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.

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