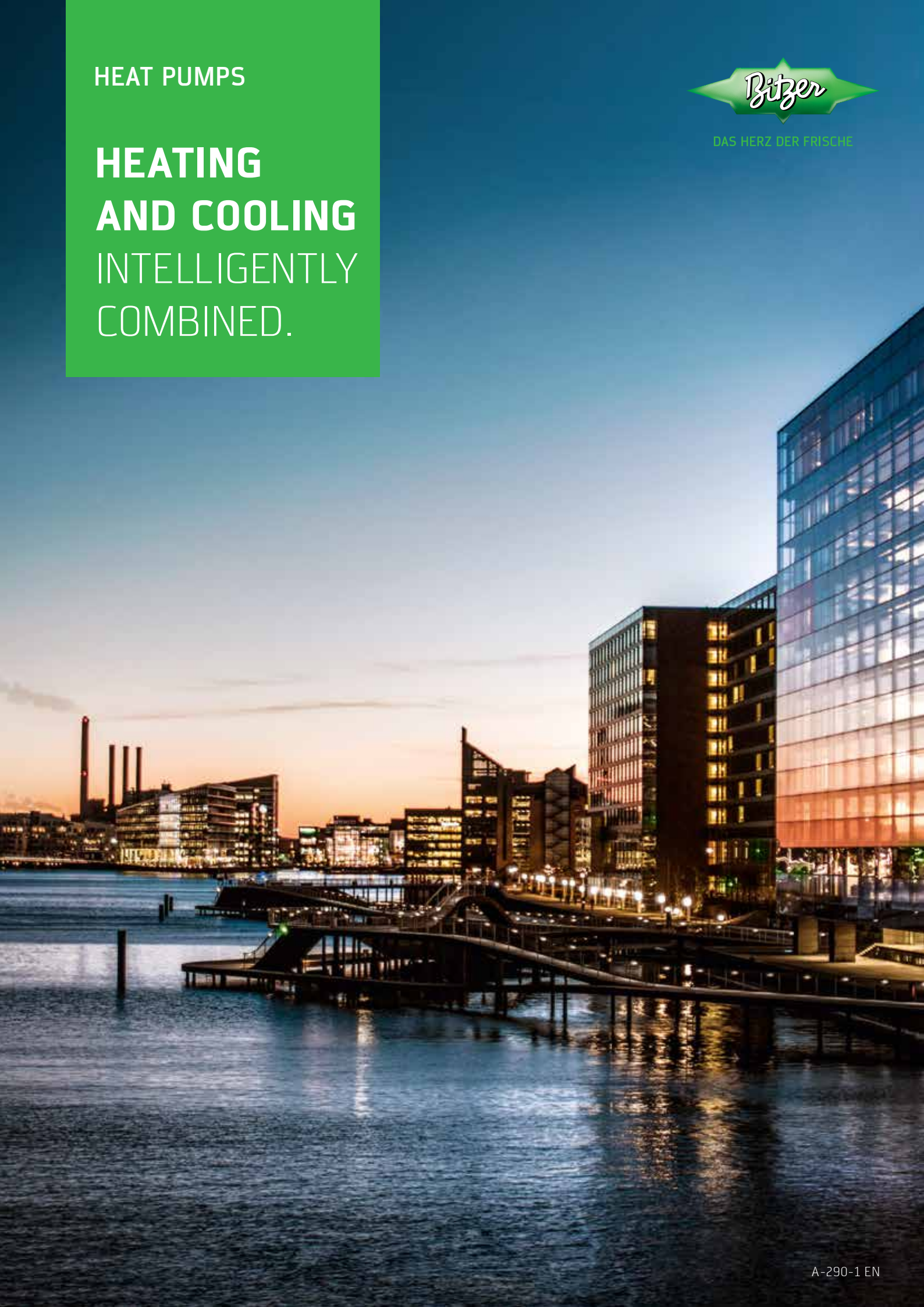


HEAT PUMPS

**HEATING
AND COOLING
INTELLIGENTLY
COMBINED.**



DAS HERZ DER FRISCHE



BITZER. EXPERTISE AND INNOVATION.

+ PROCESS COOLING

+ AIR CONDITIONING

+ REFRIGERATION

+ HEAT PUMPS

+ TRANSPORT

We at BITZER are always striving for the highest possible energy efficiency and quality. As the world's leading independent company active in the field of refrigeration, air conditioning and process cooling as well as transport, we use our collective genius to provide the market with innovative products and intelligent solutions, with the aim of generating value for our partners and the environment worldwide.

Learn more at [bitzer.de](https://www.bitzer.de)

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A CHANGING WORLD. COOLING AND HEATING ARE BECOMING ONE.

The significance of cooling and heating in living and working environments is going to increase significantly due to global megatrends such as globalisation, urbanisation and digitalization. BITZER provides its customers with decisive competitive edges in the form of intelligent and efficient solutions in a growing market that is both economically and technologically interesting.



REFRIGERANTS

Refrigeration and air conditioning systems as well as heat pumps run on refrigerants which make a significant contribution to the greenhouse effect. The Kigali Amendment to the Montreal Protocol defines the international routes to transition to refrigerants with less of an impact on the greenhouse effect. The European Union is leading the world here. BITZER provides products for all key refrigerant technologies. This enables manufacturers of refrigeration and air conditioning systems as well as heat pumps to always use just the right components to comply with the local regulations.

URBANISATION

Around 9.7 billion people will be living on Earth by 2050 and 70 per cent of them will live in cities that have to be heated in winter and cooled in summer. Both functions will be combined in air conditioning and heat pump systems – the market will be enormous. BITZER products enable manufacturers of cooling and heating systems to participate in this new heat pump market. Another driving force in this context will be components that stand out due to their compatibility with various refrigerants and different temperature levels, leading energy efficiency and intelligent connectivity.

HEAT RECOVERY

Numerous refrigeration and air conditioning systems around the world are isolated applications that are not connected to any other cooling or heating networks, such as local and district heating. Integrating a heat recovery system can greatly improve the efficiency of the entire system and reduce its carbon footprint. Conversely, if there is a surplus of renewable energy, the temperature of a cold store can be lowered, or ice can be built up in an ice storage unit as a way of thermally storing the surplus energy. When the integration is need-based with modern control technology and intelligent control systems, it is known as sector coupling and smart grids (heating and electricity). BITZER is an important part of the overall system with products such as compressors, heat exchangers and electronics for heat pump applications.

ZERO EMISSIONS BY 2050

There is international consensus that the warming of the Earth's atmosphere has to be limited to less than 1.5°C, and that we must transition away from fossil fuels and embrace renewable energy in order for this to succeed. According to the European Union, carbon neutrality is set to be accomplished by 2050. Heat pump technology is a key factor. BITZER customers can profit from the accelerated advancement of this technology, not least because the energy revolution is considered the greatest economic growth initiative of all time. The installation of heat pumps is expected to increase tenfold by 2050.

IMPROVED ENERGY EFFICIENCY

Electricity must be used more efficiently in order to accomplish international climate targets. BITZER continually improves the energy efficiency of its machines in order to provide its customers with technically reliable technology of unparalleled efficiency. This enables manufacturers of refrigeration and air conditioning systems and heat pumps to build highly efficient cooling and heating systems that comply with all regional energy efficiency standards and laws.

THE CIRCULAR ECONOMY

The circular economy aims to avoid waste before it is created, recycle products (i.e. 2nd life) and return raw materials to the loop. BITZER is a pioneer because many of its products are already repairable when sold. Thanks to our global GREEN POINT service network, customers can have compressors repaired or overhauled to the quality standards of the manufacturer. Additionally, BITZER experts on-site analyse heating and cooling systems professionally and offer suggestions as to how to optimise efficiency.

SETTING THE RIGHT TEMPERATURE: EFFICIENT SOLUTIONS FOR BUILDINGS AND INDUSTRY.



Whether low temperature range (approx. 35°C), medium-temperature application (65°C) or high-temperature system (over 80°C), heat pumps with BITZER components always deliver outstanding efficiency and capacity.

LOW TEMPERATURE

Low-temperature heat pumps with BITZER products achieve outlet temperatures of 35°C for comfort and a pleasant atmosphere, especially in underfloor heating and concrete core activation. They are distinguished by their high energy efficiency and low operating costs.

MEDIUM TEMPERATURE

Medium-temperature heat pumps with BITZER compressors and components deliver constant outlet temperatures of around 65°C and the highest possible energy efficiency. They provide a reliable supply of hot water, such as for showers, bathrooms and swimming pools.

HIGH/MAXIMUM TEMPERATURE

High-temperature heat pumps (over 80°C) are used in industrial processes, such as the paper, food, chemical and textile industries. The maximum temperature range (over 100°C) involves other industrial applications such as drying processes and the generation of steam for a number of processes including boiling, sterilisation and pasteurisation.

TECHNICAL HEAT PUMP DESIGNS

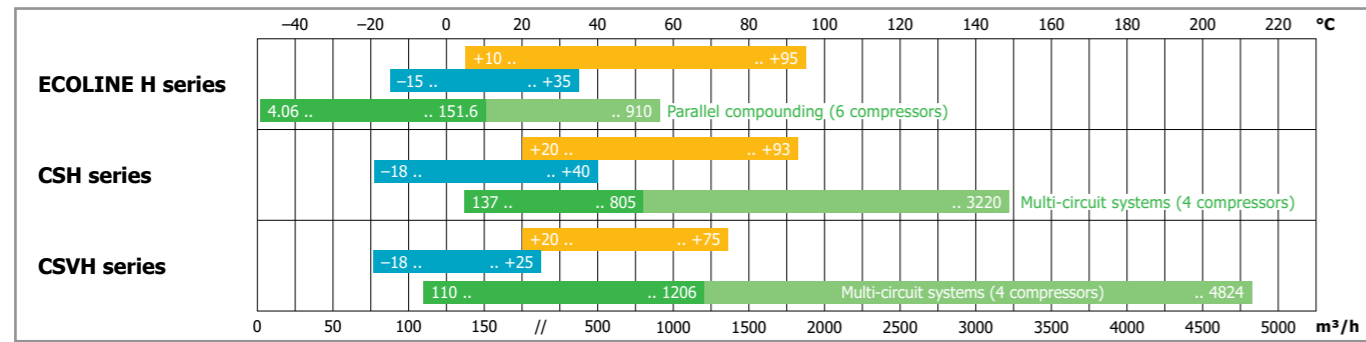
- // Air-to-air heat pump
- // Air-to-water heat pump
- // Water-to-water heat pump
- // Refrigeration system with heat recovery
- // Reversible liquid chiller (cooling or heating)
- // Heat pump with cooling function (4-pipe system)

**WHATEVER THE DESIGN, BITZER CAN SUPPLY
THE RIGHT COMPRESSORS AND COMPONENTS
FOR YOUR HEAT PUMP.**

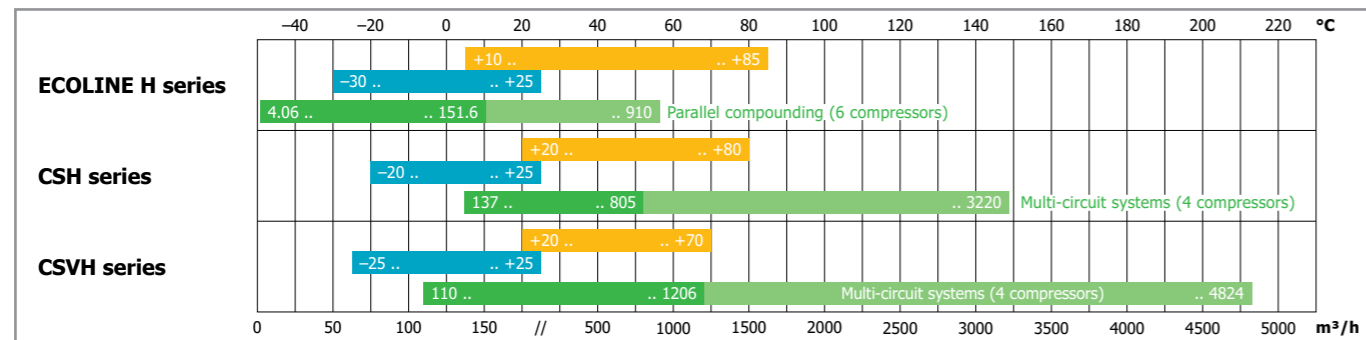
COMPATIBLE PRODUCTS FOR HEAT PUMPS.

COMPRESSORS

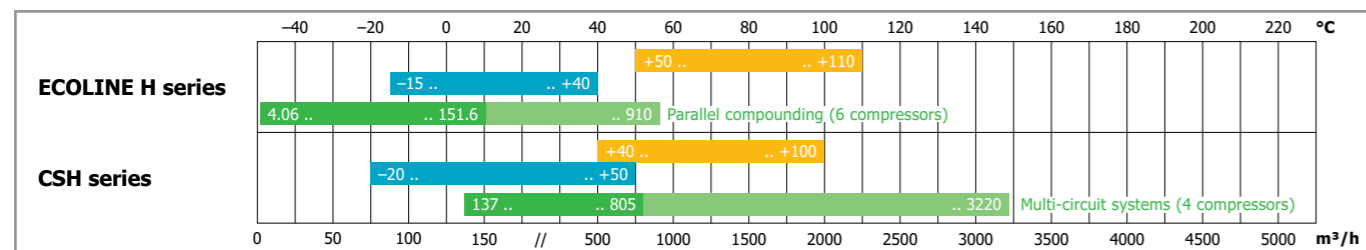
R1234ze(E)¹⁾ // R515B¹⁾



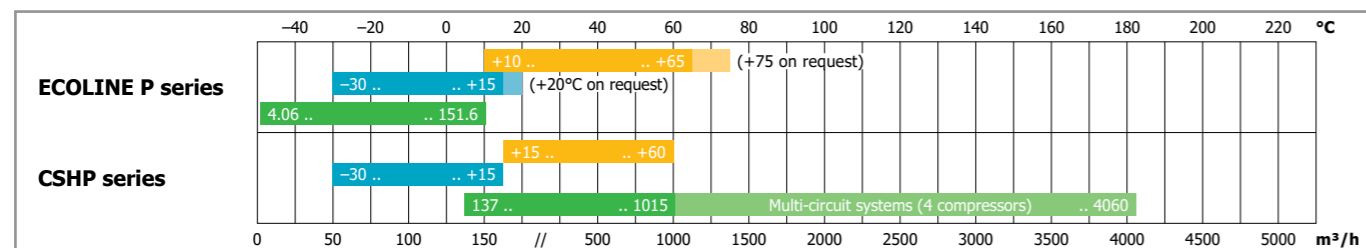
R134a¹⁾ // R1234yf¹⁾ // R450A¹⁾ // R513A¹⁾



R245fa²⁾



R290 (propane)¹⁾

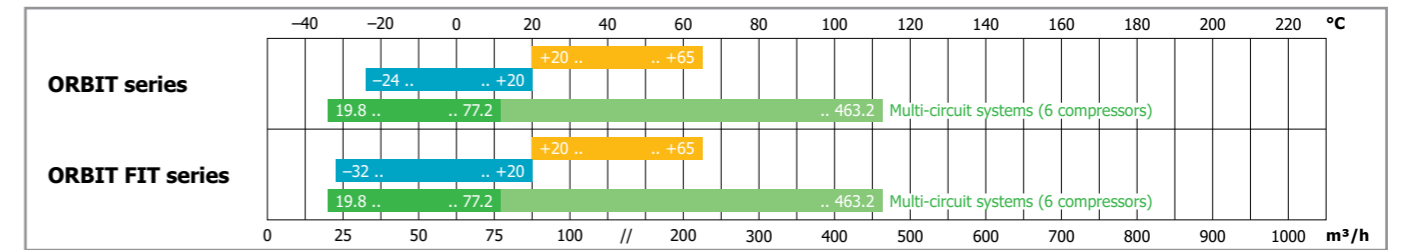


¹⁾ For application limits, see BITZER SOFTWARE.
²⁾ Upon request.

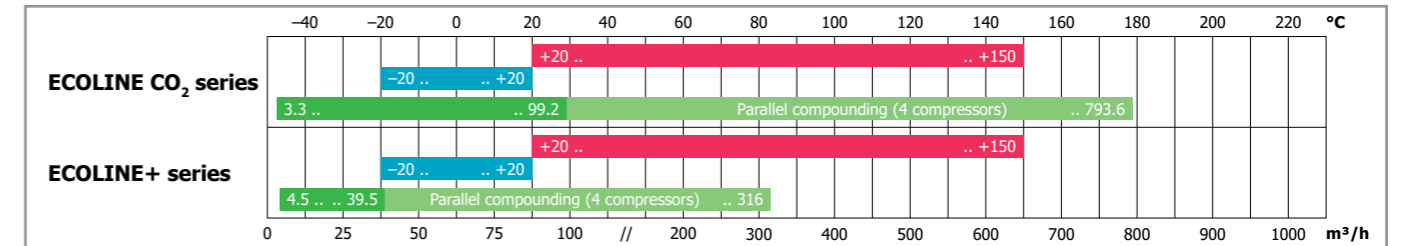
■ Discharge gas temperature ■ Condensing temperature ■ Evaporation temperature ■ Series displacements

For more about component combinations, visit bitzer.de/heatpumps

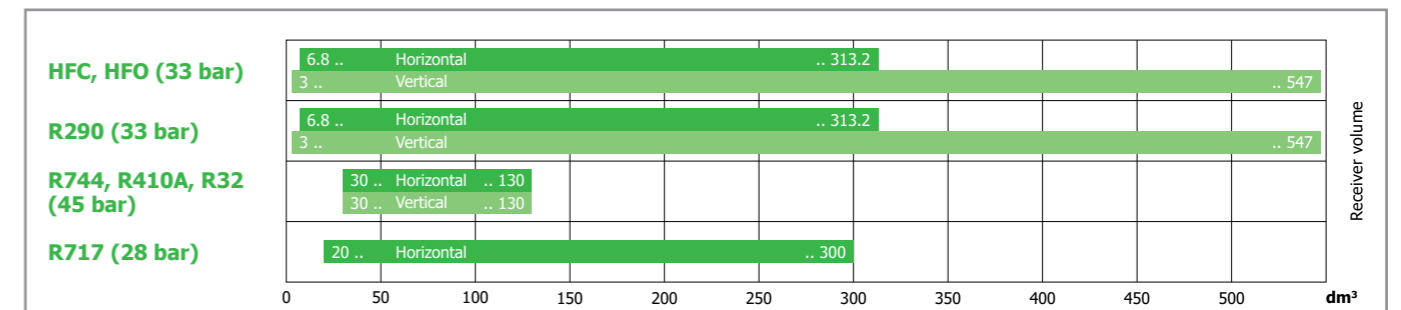
R410A¹⁾ // R452B¹⁾ // R454B¹⁾ // R32¹⁾



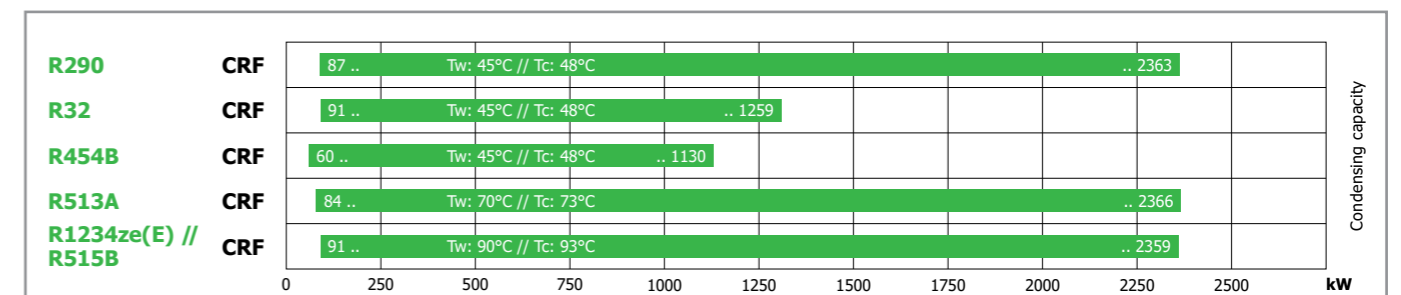
R744 (CO₂)¹⁾



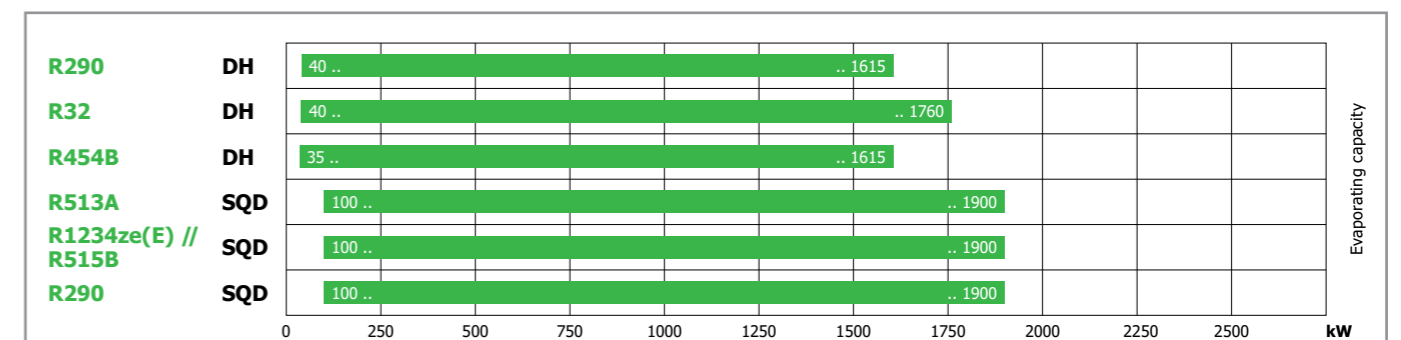
LIQUID RECEIVERS



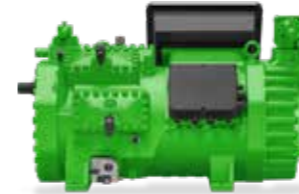
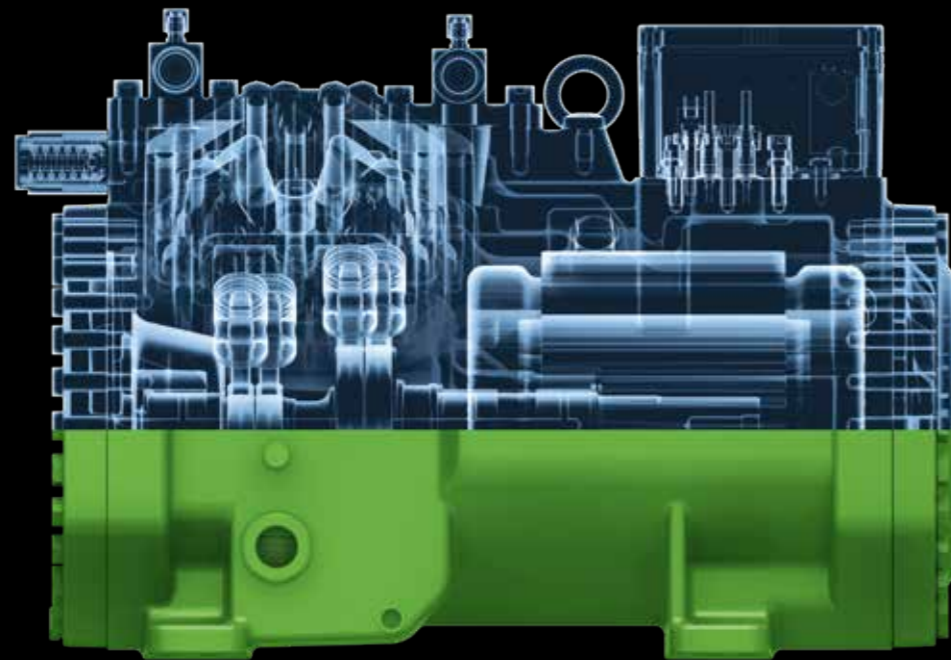
WATER-COOLED CONDENSERS



EVAPORATORS



EFFICIENT, FLEXIBLE, FUTURE-PROOF

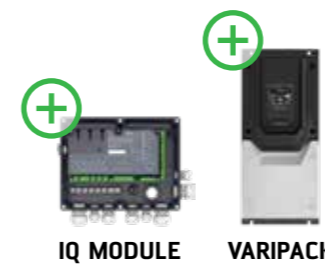


ECOLINE CO₂ AND ECOLINE+: SEMI-HERMETIC RECIPROCATING COMPRESSORS

Both series for the refrigerant CO₂ can be used for a variety of different applications. They deliver high efficiency in refrigeration systems with heat recovery or in heat pumps and liquid chillers. Depending on the system, different temperature levels, heating capacities and annual performance figures can be reached. Outputs of up to 2 MW can be achieved through compound connections.

- // Low operating costs in full or part load
- // Flexibility with a wide range of applications
- // Mechanical capacity control or variable-speed drive
- // Long-lasting product for a long-term solution
- // CO₂ is a natural refrigerant

3.3 .. 99.2 m³/h at 50 Hz, transcritical

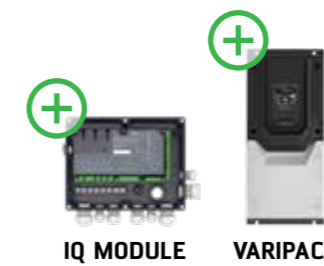


ECOLINE AND ECOLINE P: SEMI-HERMETIC RECIPROCATING COMPRESSORS

This series can be used in a wide range of applications. It boasts excellent efficiency in heat pumps and liquid chillers. Depending on the model, different temperature levels, heating capacities and annual performance figures can be reached. BITZER provides the ECOLINE P series for use with carbon dioxide refrigerants. This makes it possible to reach condensing temperatures of up to 85°C.

- // Low operating costs in full or part load
- // Flexibility thanks to the wide range of applications with various refrigerants
- // Mechanical capacity control or variable-speed drive
- // Long-lasting product for a long-term solution

4.1 .. 221 m³/h at 50 Hz

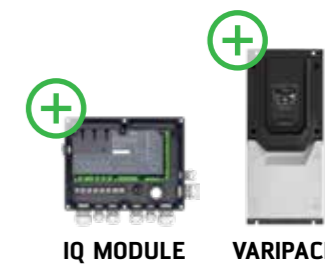


ECOLINE H: SEMI-HERMETIC RECIPROCATING COMPRESSORS

The ECOLINE H series is specially optimised to meet the requirements of high evaporation and condensing temperatures. It can reach condensing temperatures of up to 95°C with the refrigerants R1234ze(E) and R515B.

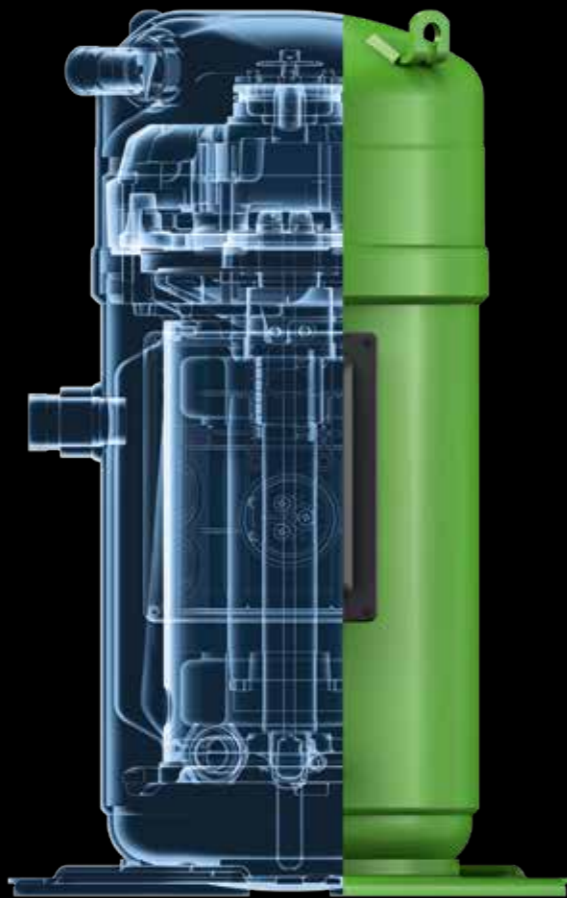
- // Optimised for high-temperature heat pump applications
- // Mechanical capacity control or variable-speed drive
- // Special drive for high-temperature heat pump applications

11.36 .. 221 m³/h at 50 Hz



For more information and documentation, visit bitzer.de/heatpumps

COMPACT, POWERFUL, UNIVERSAL



ORBIT:
HERMETIC SCROLL
COMPRESSORS

These compressors are optimised for operation with A1 (R410A) as well as low-GWP A2L refrigerants. With their compact design, they can reach high heating capacities and condensing temperatures of up to 65°C. Every compressor can be operated with a frequency inverter for precise control.

- // Compatible with A1 and A2L refrigerants
- // Controllable with a frequency inverter
- // Easy to use in tandem and trio compound systems
- // Lowest sound level in its performance class
- // Wide application range

19.8 .. 77.2 m³/h at 50 Hz
(up to 232 m³/h in a combined system)

ORBIT FIT:
HERMETIC SCROLL
COMPRESSORS

Thanks to ECO operation, scroll compressors with Flexible Injection Technology (FIT) can reach new levels of capacity and efficiency – which is especially useful when temperature differentials are high (i.e. air sourced heat pumps). This lowers the annual running costs of the heat pump dramatically. Every ORBIT FIT compressor can be operated at fixed speed or with a frequency inverter.

- // Compatible with A1 and A2L refrigerants
- // Low running costs even when temperature differentials are high, thanks to ECO operation
- // Increased condensing capacity
- // Controllable with a frequency inverter
- // Wider application range

19.8 .. 77.2 m³/h at 50 Hz
(up to 232 m³/h in a combined system)

BITZER ADVANCED HEADER TECHNOLOGY: PROVEN OIL MANAGEMENT SOLUTION

With the BITZER Advanced Header Technology System (BAHT), all ORBIT series can be connected in tandem and trio compound systems – even when the compressors are different sizes. BAHT ensures proper oil distribution. It also achieves a higher heating capacity. With improved part-load efficiency, it becomes simpler to control the heating capacity. Frequency inverters can even be used.

- // Can be combined with any ORBIT series
- // Tandem and trio compound systems are easy to design without active oil management
- // Compressors of different sizes can be combined with one another
- // Can be operated with a frequency inverter

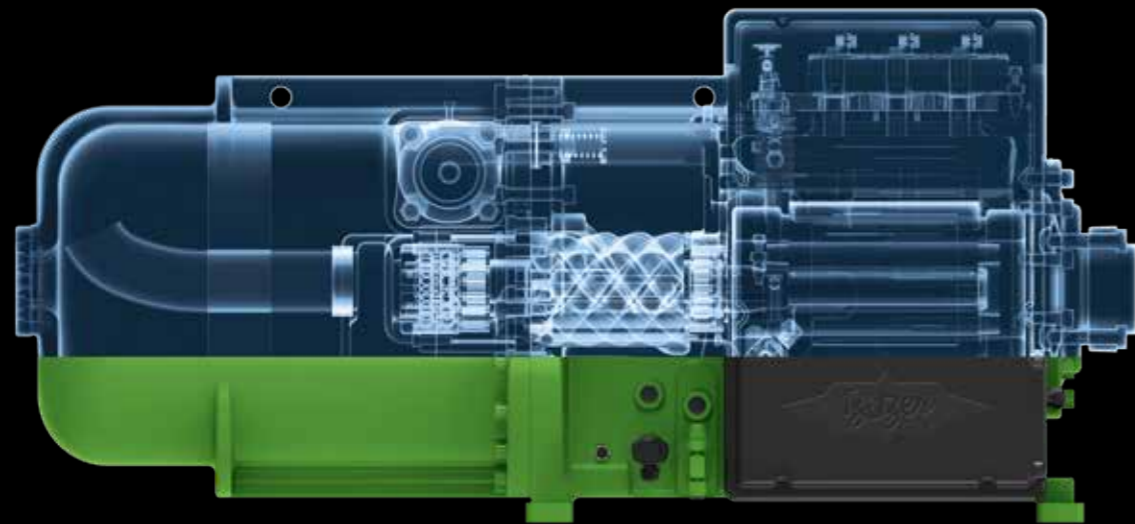
39.6 .. 154.4 m³/h at 50 Hz



For more information and documentation, visit bitzer.de/heatpumps



VARIABLE, COMPACT, DIGITAL



CSH:
COMPACT SCREW
COMPRESSORS

The CSH series – a wide range of applications, leading efficiency in heat pumps and liquid chillers. Depending on the model, different temperature levels, heating capacities and annual performance figures can be reached. The SE-i1 compressor module allows for convenient monitoring and integration into the BITZER DIGITAL NETWORK.

- // Compatible with a variety of refrigerants
- // Compact design for easy system integration
- // Easy capacity control and start unloading
- // Optional: ECO operation for higher heating capacities and improved efficiency

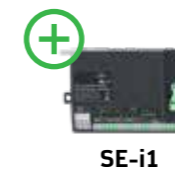
Condensing temperatures of up to 80°C are possible with R134a, R1234yf, R513A, R450A. Condensing temperatures of up to 93°C are possible with R1234ze(E) and R515B.

CSVH:
COMPACT SCREW COMPRESSOR
WITH BUILT-IN FREQUENCY
INVERTER

CSVH stands for unrivalled efficiency in liquid chillers and heat pumps. It has a built-in frequency inverter for wide application and control ranges, plus a precise temperature control system. Its compact design simplifies system integration. It also features complete IQ functionality and can be integrated into the BITZER DIGITAL NETWORK.

- // Compact design for easy system integration
- // Highly efficient speed control
- // Wide modulation range: 15 .. 100 per cent
- // Optional: ECO operation for higher heating capacities and improved efficiency
- // IQ functionality with Modbus interface

Condensing temperatures of up to 70°C are possible with R134a, R1234yf, R513A, R450A. Condensing temperatures of up to 75°C are possible with R1234ze(E) and R515B.



For more information and documentation, visit bitzer.de/heatpumps

ECONOMICAL, VERSATILE, ADAPTABLE



CRF: WATER-COOLED CONDENSERS

The CRF series is ideal for producing water at a temperature of up to 90°C in a heating capacity range from 100 to 2500 kW. CRF condensers are approved for all HFC, HFO, HFC/HFO blends, propane and ammonia. For even higher efficiency, they can work with extremely small temperature differentials between refrigerants and heating media. A range of different tube materials are available for various secondary liquids.

- // Three standard tube lengths
- // Extremely small temperature differentials are possible between refrigerants and heating media
- // Variety of tube materials
- // Water side can be cleaned

Condensing capacity of up to 2500 kW, water temperature of up to 90°C

SQD // DH: EVAPORATORS

SQD is synonymous with maximum capacity on the source side with an evaporator capacity ranging from 100 to 2000 kW. Thanks to its patented refrigerant distribution system and quadratic design, SQD has the lowest possible temperature differential between refrigerants and heating media in its class. The two-pass design of the DH evaporator makes it possible to remove the tube bundle for cleaning and maintenance. DH stands for reliability, extreme robustness and flexibility in terms of adapting the tube material to various different media.

- // Maximum heat pump efficiency
- // Variety of tube materials
- // Removable tube bundle package
- // Exchangeable tube bundle
- // Compatible with HFC, HFO, HFC/HFO blends and propane

Evaporator capacity of up to 2000 kW, water temperature of up to 90°C (DH)

F/FS: LIQUID RECEIVERS

F/FS liquid receivers are used in heat pumps with large refrigerant masses and current fluctuations. They are approved for HFC, HFO, HFC/HFO blends, propane, ammonia and carbon dioxide. They can be integrated into the heating system vertically (up to 320 dm³) or horizontally (up to 550 dm³). Designs with pressure stages of 28, 33 and 45 bar are available.

- // Approved for a variety of refrigerants
- // Includes sight glass and shut-off valve on the refrigerant outlet
- // Designs with a range of different pressures are available

Vessel volume up to 550 dm³, maximum allowable pressure up to 45 bar

SAFE OPERATION! WITH THE RIGHT COMPONENTS.

BITZER provides the right components for capacity control, operating reliability and activation. This makes it possible to reduce start/stop sequences and lower costs. The free BEST SOFTWARE is available to provide optimal support with commissioning and data analysis. The software has a similar structure for all products and is both simple and intuitive to use. Connect it to the BITZER DIGITAL NETWORK (BDN) for a wide range of additional options.

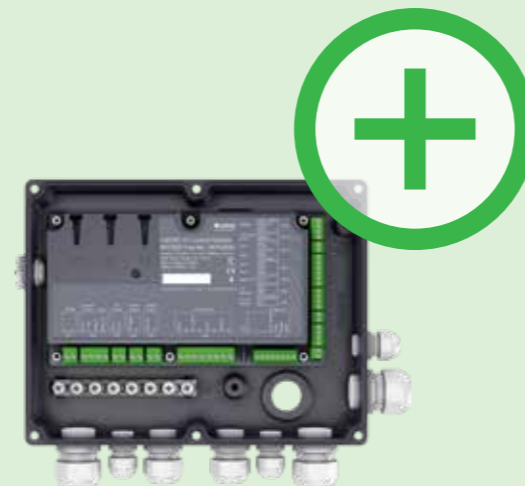


VARIPACK

The VARIPACK series from BITZER is specially optimised for operation with our compressors. They are intuitive to use and easy to commission. The BITZER SOFTWARE makes selection and design in combination with the compressor easy. BEST SOFTWARE is used as practical tool for configuration and reliable operation.

IQ MODULE

The IQ MODULE from BITZER is optimally tailored to our products and turns our compressors into intelligent solutions. It supports our semi-hermetic reciprocating compressors as well as our CSW105, HS.95 and OS.95 screw compressors. The module can activate the compressors, monitor the functions and even provide optional mechanical capacity control. Combined with BEST SOFTWARE, every customer is guaranteed a custom solution.



PROTECTION AND MONITORING MODULE

SE-11 is an intelligent protection and monitoring module designed to monitor the CS and HS series of screw compressors from BITZER. It monitors motor and discharge gas temperatures as well as system pressure, phases and rotation direction. The module sends the data it collects to the system controller via Modbus. In doing so, the module protects the compressor perfectly and keeps it operating smoothly.

BITZER ELECTRONIC CONTROL SOLUTION

The configurable, preprogrammed heat pump controllers make it possible to control various heat pump applications. They are developed for residential and commercial heat pumps in order to maintain an optimal indoor climate and optimise the heat pump operation to save time, cost and energy. In addition, BITZER provides a control platform with intuitive touch displays, apps, cloud solutions, sensors and accessories. Electronic products from BITZER are easy and intuitive to integrate for reliable operation, fast installation and better system reliability.



For more information and documentation, visit bitzer.de/heatpumps





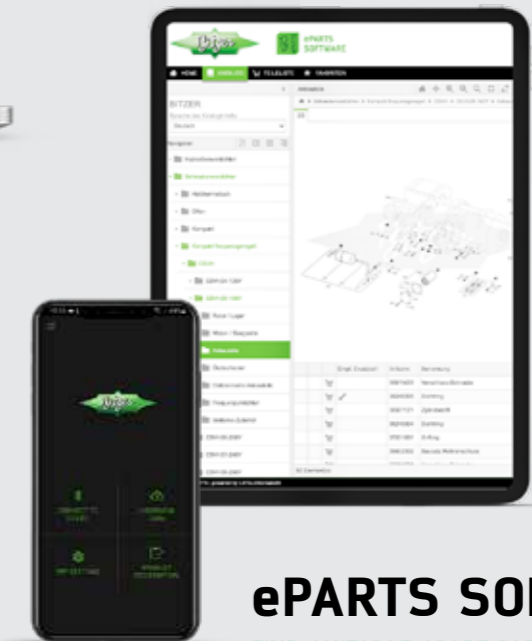
DIRECT AND SIMPLE: DIGITAL SUPPORT FOR YOUR HEAT PUMP.



BITZER SOFTWARE

CHOOSE THE RIGHT PRODUCTS AND FIND MORE DETAILED TECHNICAL DATA.

Available online and as a downloadable version, BITZER SOFTWARE will help you select the appropriate BITZER product from our extensive and flexible product range.



ePARTS SOFTWARE

FIND SUITABLE SPARE PARTS EASILY.

Our free tool makes finding the appropriate spare parts for our products fast and easy. The parts are listed according to the model range and appear as a simple enlargeable exploded-view drawing.

BEST APP AND BEST SOFTWARE

OPERATE YOUR BITZER IQ PRODUCTS WITH ONLY ONE SOFTWARE TOOL.

BEST provides comprehensive access to all operating data and parameters. The intuitive user interface provides a complete overview of the operating status including data log for easy maintenance and service.



BITZER DIGITAL NETWORK

CONNECTED TO YOUR BITZER PRODUCTS.

BITZER Digital Network (BDN) offers you easy access to valuable digital services relating to BITZER compressors for refrigeration and air conditioning. This provides you with important product- and application-related information on all the BITZER products you're using, including, among others, data analyses and compressor operation reports. And with it, usable findings with which you can optimise the most important aspects of the cooling systems.

- // 360° product information
- // Tracking of service activities
- // Operation reports
- // Real-time data
- // Notifications
- // Flexible access rights

For more information and documentation, visit bitzer.de/heatpumps



GLOBAL SERVICE

NEVER FAR FROM WHERE WE NEED TO BE.

B-SAFE AND B-READY

With B-SAFE, we already support you in the early phase of commissioning. In addition, we offer various options to extend the warranty period. With B-READY, we accompany you during the entire product life cycle if desired. This helps you to avoid downtimes, to extend the service life, to protect investments and adjust systems to new environmental and efficiency requirements.



B-SAFE

- // Warranty extension for up to five years
- // Free one-year warranty extension for BITZER IQ products
- // Commissioning assistance for excellent results



B-READY

- // Assessment services for extended lifetimes
- // Retrofitting solutions for secure investments
- // Refrigerant compliance and strategy consulting



ORIGINAL SPARE PARTS

Tested thoroughly and developed alongside the products, BITZER ORIGINAL SPARE PARTS meet the strictest quality standards. It is easy to select the components you need with the free ePARTS SOFTWARE from BITZER. The authenticity of many of our products can be verified with the SPOT APP.

SERVICE NETWORK

The global service network comprises more than 50 locations. Everywhere, our specialists maintain, overhaul and repair BITZER compressors, replace wear and safety-relevant parts and stock BITZER ORIGINAL SPARE PARTS AND OIL. Highly skilled engineers ensure that the service cycle is always precisely and perfectly executed.

More than 70 authorised service centres (ASC) and several ORIGINAL SPARE PARTS AND OIL dealers complement the GREEN POINT Network, ensuring that BITZER is close to you – worldwide.



Green Point®
A SERVICE BY BITZER GROUP

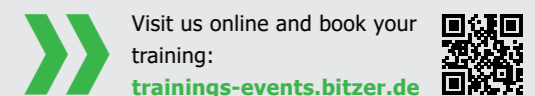


VALUABLE HEAT PUMP KNOWLEDGE

WELCOME TO THE SCHAUFLER ACADEMY!

The SCHAUFLER Academy, the international seminar and training centre of BITZER, provides seminars and training on topics such as heat pumps, refrigeration, air conditioning and alternative refrigerants. Our training courses are intended for project engineers and specialist planners as well as service and installation specialists.

The SCHAUFLER Academy offers you training courses in small groups with theoretical contents and practical exercises on real training systems. Motivated and experienced teaching staff are available to answer questions and respond to your needs. This and the pleasant and professional environment lead to fast learning success. We are looking forward to your visit.



CLOSER TO YOU. BITZER WORLDWIDE SALES
AND SERVICE EXCELLENCE.



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