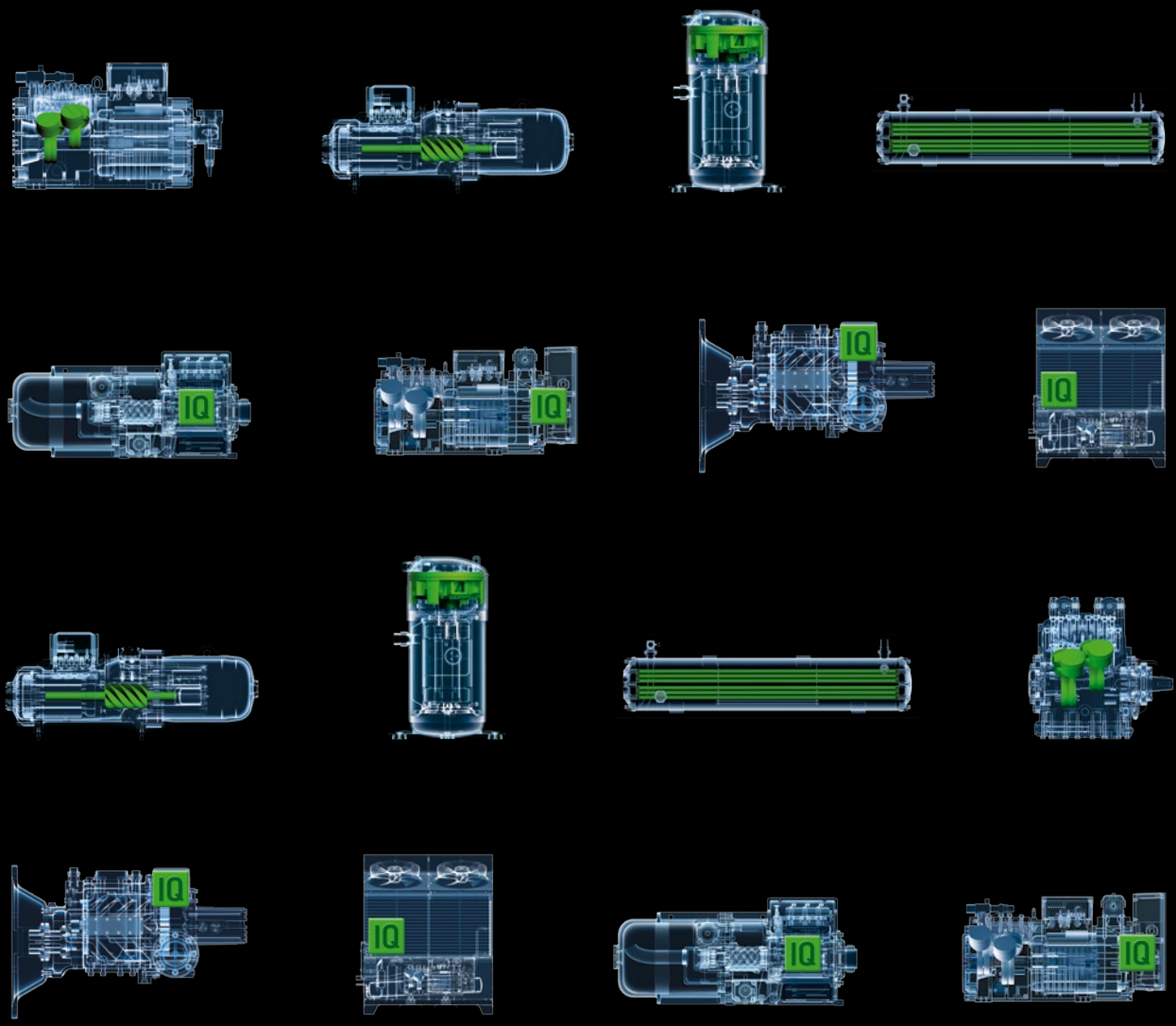
THE HEART OF FRESHNESS

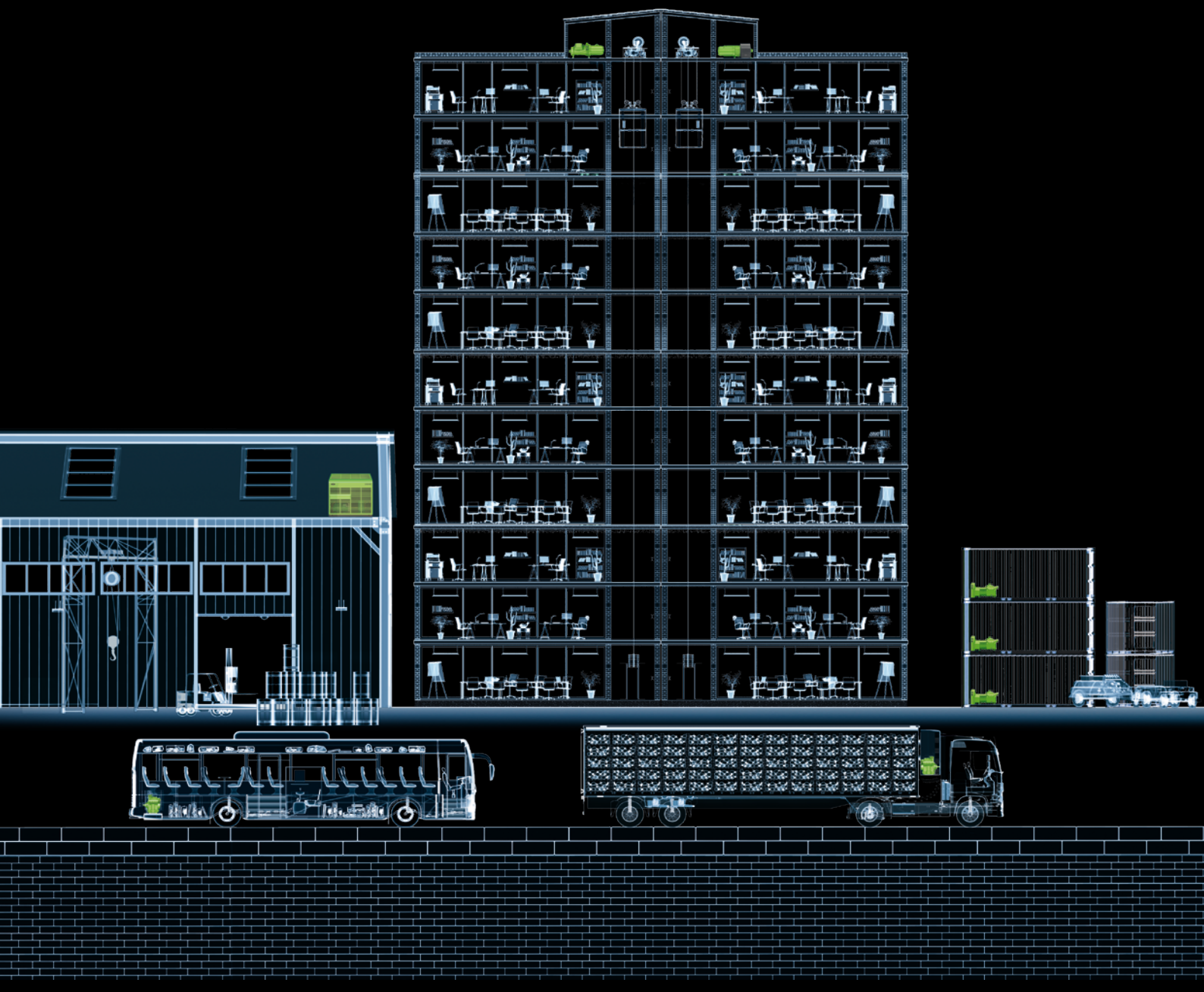
PRODUCT RANGE



A-201-6 EN

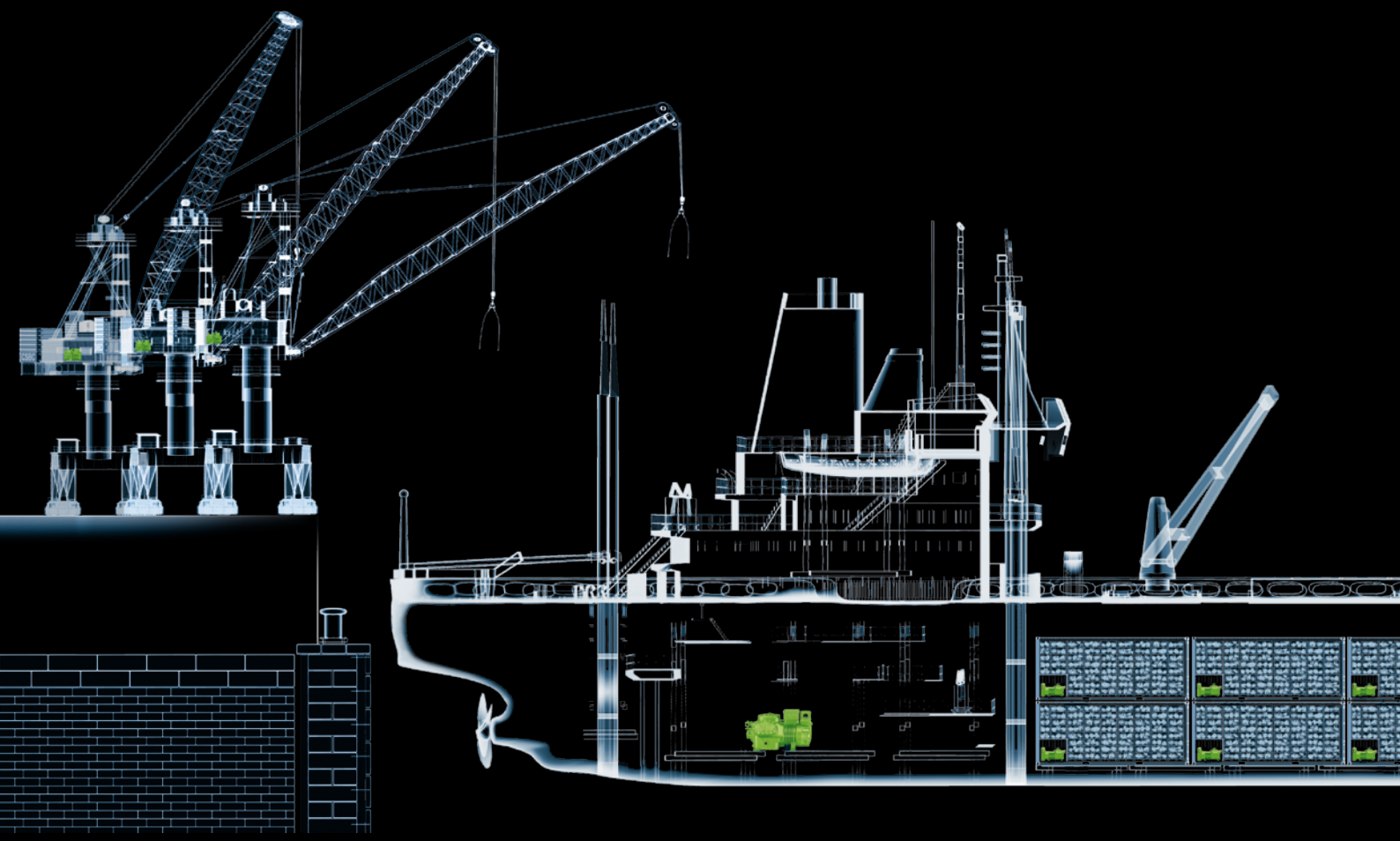
THE HEART OF FRESHNESS

You can't see our products anywhere. But you can feel them everywhere. That's because BITZER compressors are the central element of countless refrigeration and air conditioning systems worldwide – THE HEART OF FRESHNESS. It beats in refrigeration systems around the world, including building air conditioning and transport cooling. As market leader, we offer our customers a complete range of pioneering compressor technology. As a driver of innovation, we set market-defining standards. In this way, we ensure the perfect temperatures and optimal climate for all applications and in every environment.



Bitzer

THE HEART OF FRESHNESS



ALWAYS LOOKING AHEAD. **EQUIPPED FOR THE FUTURE WITH CLEVER IDEAS AND INNOVATIONS.**

Our products must continually prove themselves in a highly dynamic and complex market. Systems are becoming more and more networked, increasing the demand for INTELLIGENT COMPRESSORS. In a globalised world, users are facing increasing competition. This requires products with innovative power. For energy consumption, this entails using all options in order to become even more efficient. However, our most important driving force is you – our customers. When it comes to compressor technology, we provide you with many innovative solutions. You can be assured that THE HEART OF FRESHNESS is always beating in time with the market and according to your individual requirements.

Bitzer

THE HEART OF FRESHNESS

OPTIMALLY PREPARED

REGARDLESS OF YOUR PREFERRED REFRIGERANT: WE HAVE THE OPTIMAL PRODUCT.

BITZER supports you in selecting the refrigerant and optimal compressor for your application. This task doesn't leave us cold, as we aim to achieve the highest possible sustainability with maximum capacity. We will help you find a suitable combination for your system, as we are committed to helping you obtain the best solution.

INTELLIGENTLY MONITORED

EXPERIENCE FORMS THE BASIS FOR OUR COMPRESSORS. INTELLIGENCE GIVES THEM THE EDGE.

These days, refrigeration and air conditioning are largely monitored online. Our INTELLIGENT COMPRESSORS can be readily networked. They perform a variety of tasks for self-monitoring – from protection and monitoring to recording, communication and reaction. At BITZER, user friendliness is always the focus of electronics development. With the BEST SOFTWARE (BITZER Electronics Service Tool), we offer our customers a software tool with which all BITZER IQ products can be operated. In addition to the simple configuration of the devices, BEST SOFTWARE offers support for commissioning and troubleshooting.

EXTREMELY EFFICIENT

WITH OUR FUTURE-ORIENTED SOLUTIONS, YOU ARE WELL PREPARED FOR THE CHALLENGES OF TOMORROW.

Energy efficiency is a decisive factor for the environment and business. With BITZER as a partner, you can set up refrigeration and air conditioning systems today that will meet the energy efficiency standards of tomorrow. As the world's leading compressor specialist and innovator, we combat rising costs with developments that repeatedly set milestones in energy efficiency. BITZER offers compressors with impressive full and part-load efficiency as well as the best seasonal performance factors. You benefit from greater economic efficiency and environmental compatibility.

FITS PERFECTLY! **THE RIGHT SOLUTION FOR YOUR APPLICATION.**

HFO ready

Compressors with the “HFO ready” icon are qualified for operation with HFO (hydrofluoroolefins) refrigerants. These can be implemented as pure substances, including R1234ze(E) and R1234yf, as well as an HFO/HFC blend such as R513A, R450A, R449A and R448A. Some of these refrigerants are classified as flammable. All HFO refrigerants and mixtures feature a high oil solubility. Further information can be found in the safety and operating instructions in the BITZER SOFTWARE and documentation.

Ecodesign conform

Products with the “Ecodesign conform” icon are in accordance with EU Ecodesign Regulation 2015/1095. On 1 July 2016, the minimum efficiency values defined in the regulation took effect, for instance for air cooled condensing units as they are manufactured by BITZER. In accordance with Regulation 2015/1095, only products that correspond to the defined minimum requirements for energy efficiency may be sold in the EU. Compliance with the Minimum Energy Performance Standards (MEPS) must be confirmed by the manufacturer via a Declaration of Conformity (CE marking). The actual performance data must be declared in a supplementary data sheet (according to Annex V of the regulation). Additional information can be found in the BITZER SOFTWARE and documentation.

IQ INTELLIGENT COMPRESSORS

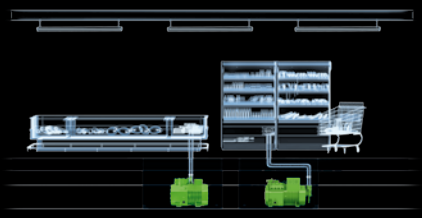
IQ – INTELLIGENT COMPRESSORS are a new generation of BITZER products with advanced features such as simple data communication with superordinate system controllers via MODBUS, comprehensive protection features such as the active monitoring of application limits, intelligent monitoring of compressor functions for high-efficiency operation and a datalog function for recording the operating parameters of the compressors for easy maintenance and service. For user-friendly handling, all IQ products can be intuitively operated and parametrised with the BEST SOFTWARE (BITZER Electronics Software Tool) provided by BITZER. BITZER’s INTELLIGENT COMPRESSORS represent protection, monitoring, recording, analysis, visualisation and communication.

CONTENTS

// RANGE OF SERVICES

Refrigeration // Page 08
Air conditioning and transport applications // Page 09
Additional expertise // Pages 10–11

// REFRIGERATION

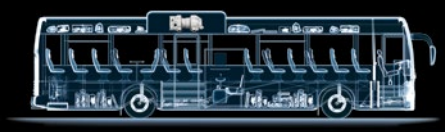


Reciprocating compressors // Pages 13–14
Condensing units // Page 15
Screw compressors // Page 16
Heat exchangers and pressure vessels // Page 17

// AIR CONDITIONING

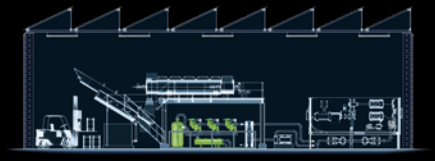
Scroll compressors // Page 19
Screw compressors // Page 20
Reciprocating compressors and condensing units // Page 21
Heat exchangers and pressure vessels // Pages 22–23

// TRANSPORT APPLICATIONS



Reciprocating compressors // Page 25
Scroll compressors // Page 26
Specific solutions // Page 27

// ADDITIONAL EXPERTISE



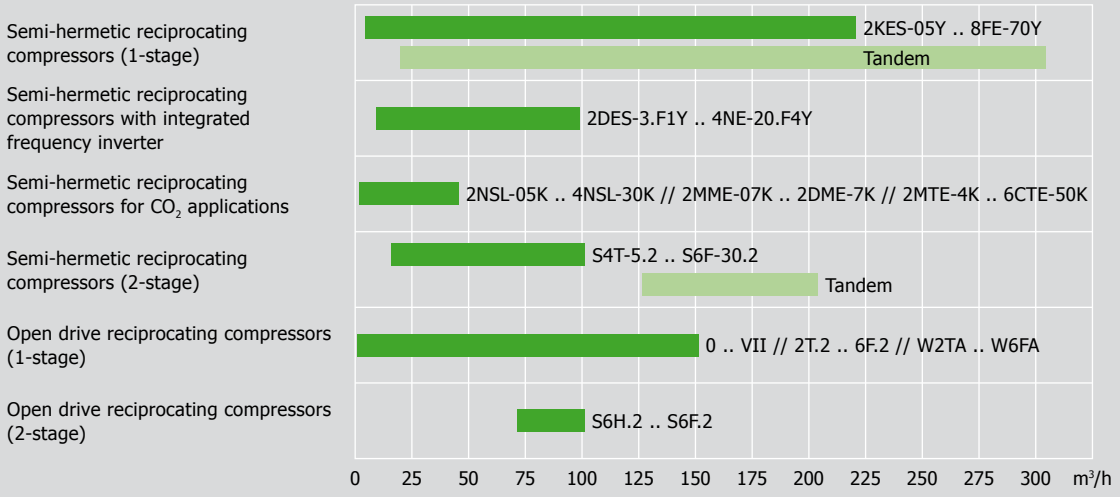
Process applications // Pages 29–30
Heat exchangers and pressure vessels // Page 31
Heat pump applications // Pages 32–35

HIGHLY DIVERSIFIED! **BENEFIT FROM OUR UNIQUE RANGE OF SERVICES FOR REFRIGERATION AND AIR CONDITIONING.**

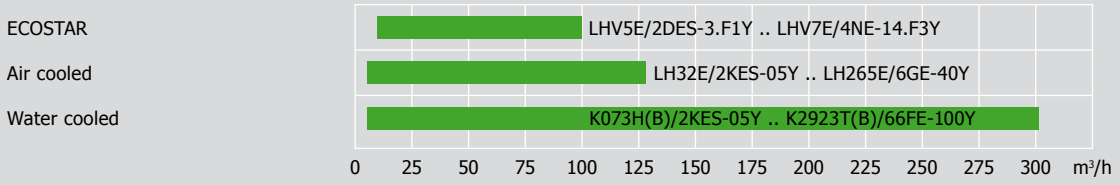
BITZER is the only independent manufacturer to produce the three compressor technologies: reciprocating, screw and scroll. With our wide range of services, we can implement a suitable solution for all of your applications – from low and medium temperature refrigeration to air conditioning and heat pumps. Would you like to provide refrigeration for a petrol station, a bakery or a supermarket? We deliver the drive. We can provide you with exactly the product you need – also for commercial and industrial refrigeration as well as mobile applications such as buses, railway vehicles and ships. Available as single, tandem or trio compressors as well as a complete condensing unit: our compressors ensure the smooth and energy-efficient operation of your system. We also offer pressure vessels, heat exchangers and other products that are crucial for the correct temperature.

// REFRIGERATION

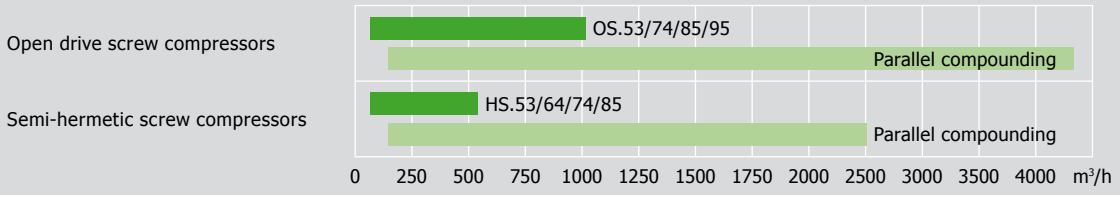
RECIPROCATING COMPRESSORS



CONDENSING UNITS

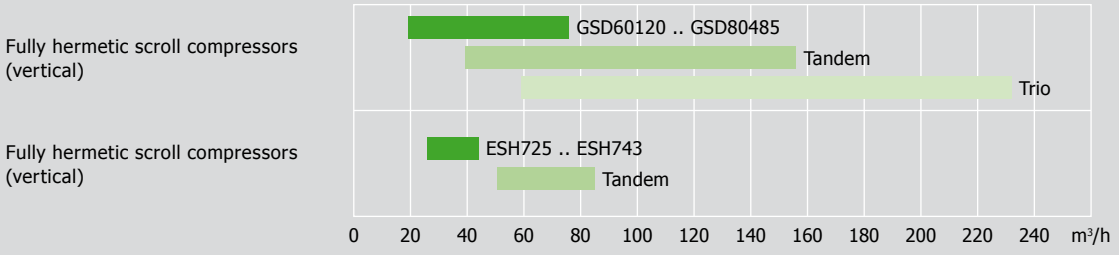


SCREW COMPRESSORS

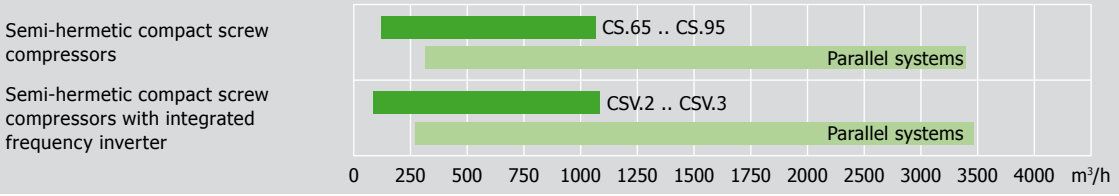


// AIR CONDITIONING

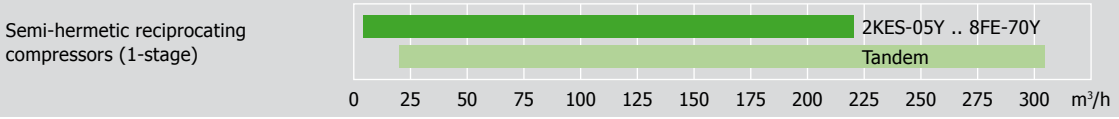
SCROLL COMPRESSORS



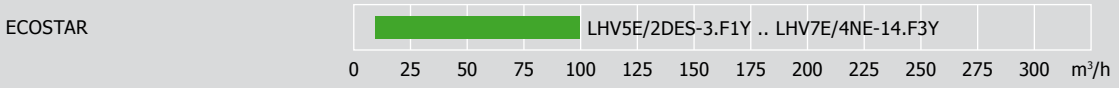
SCREW COMPRESSORS



RECIPROCATING COMPRESSORS

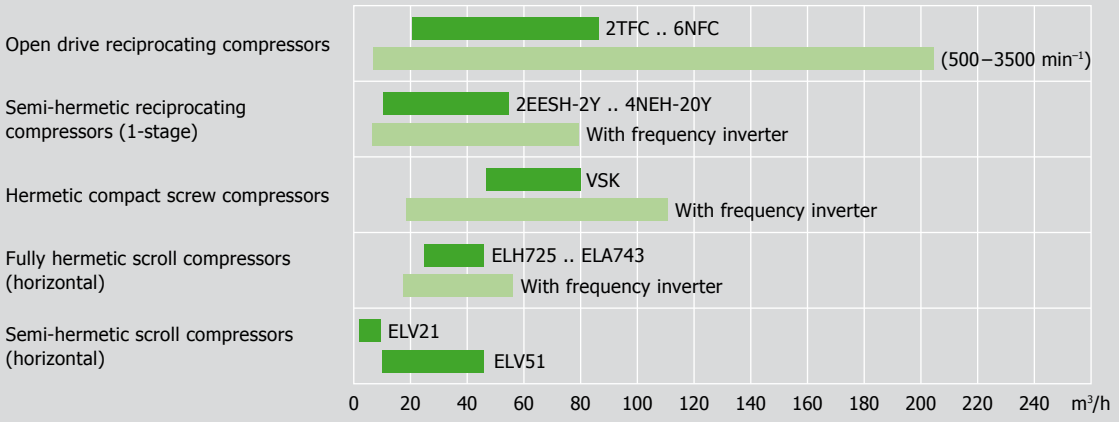


CONDENSING UNITS



// TRANSPORT APPLICATIONS

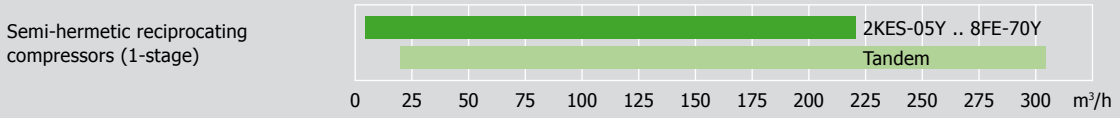
TRANSPORT COMPRESSORS



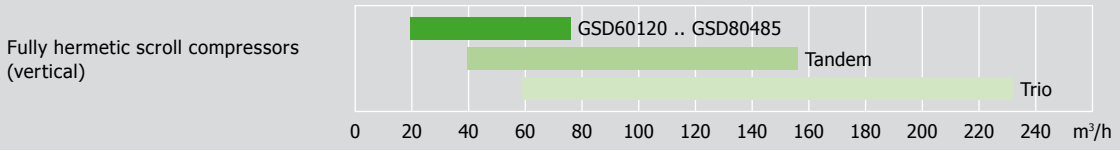
// ADDITIONAL EXPERTISE

PROCESS APPLICATIONS

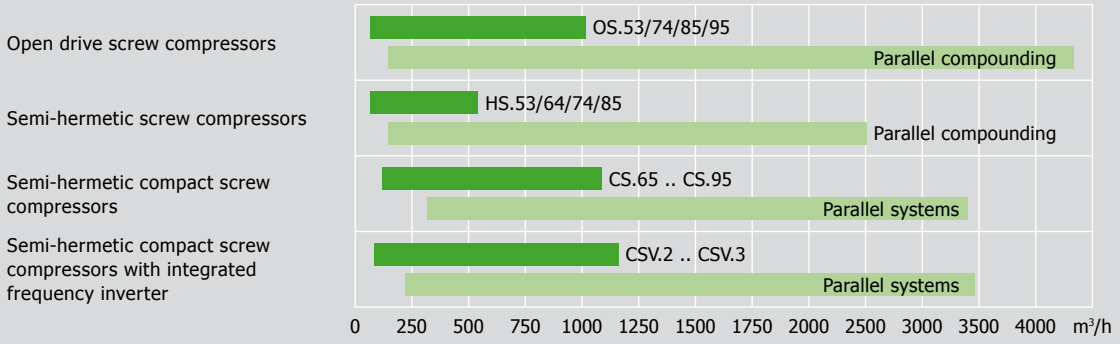
RECIPROCATING COMPRESSORS



SCROLL COMPRESSORS

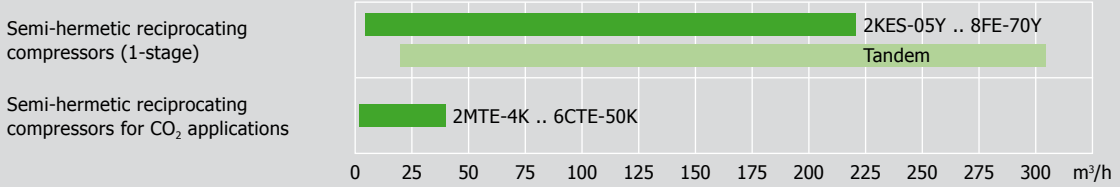


SCREW COMPRESSORS

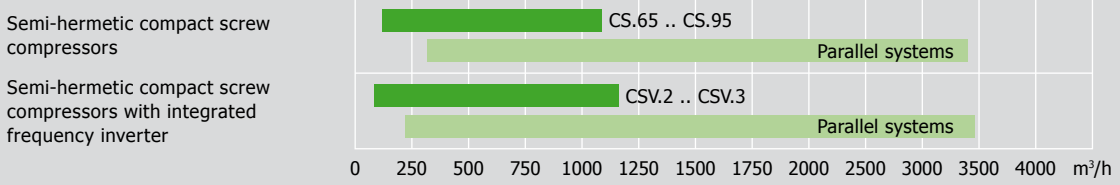


HEAT PUMP APPLICATIONS

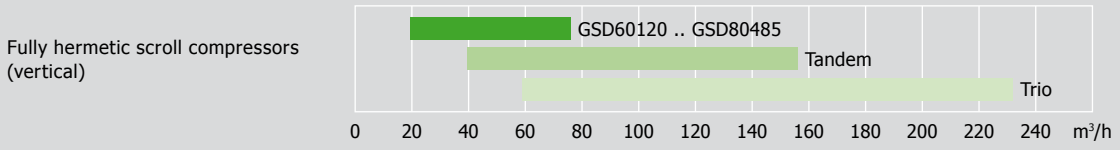
RECIPROCATING COMPRESSORS



SCREW COMPRESSORS

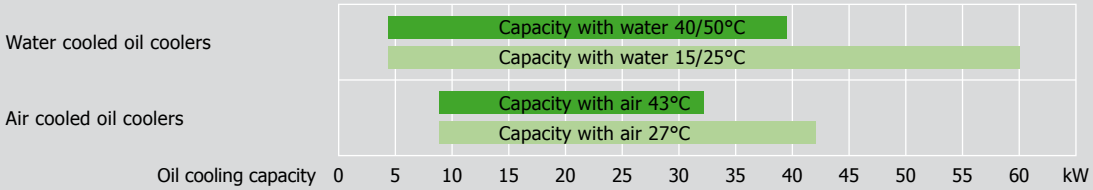


SCROLL COMPRESSORS

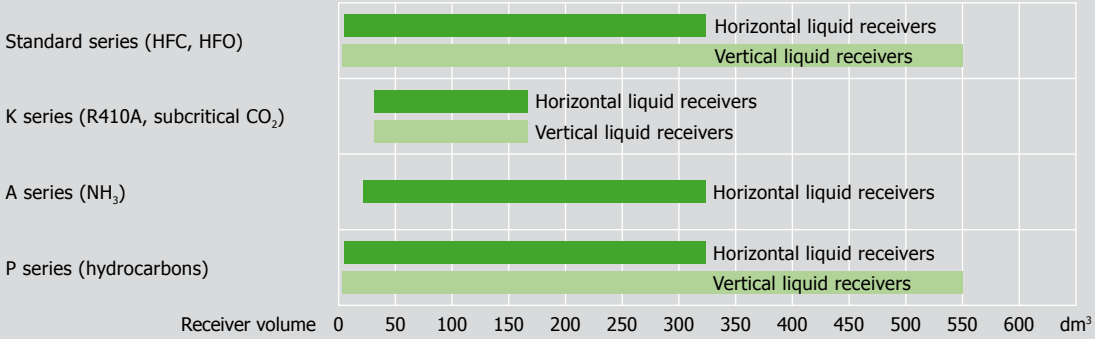


WATER COOLED CONDENSERS

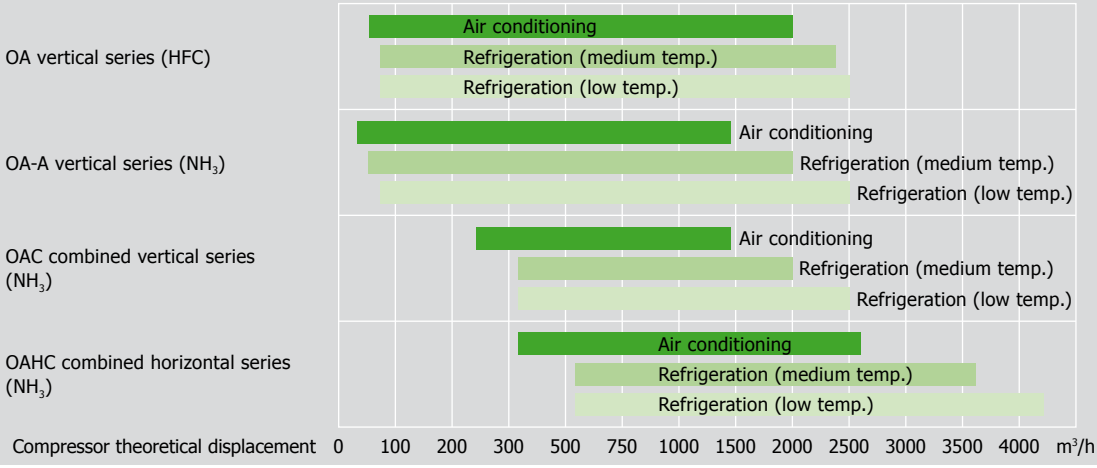
OIL COOLERS



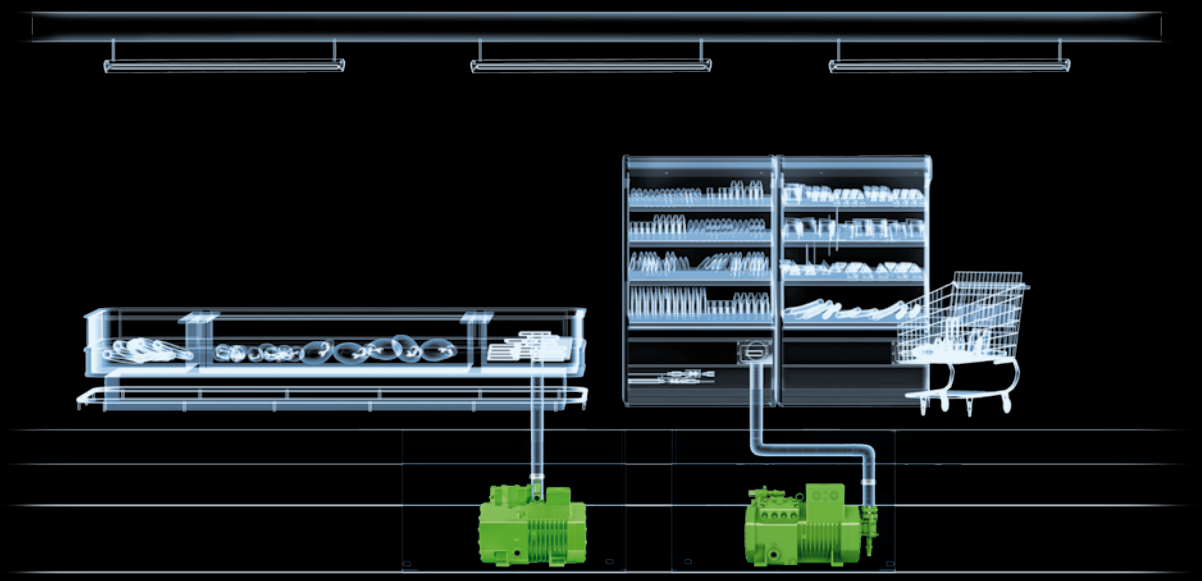
LIQUID RECEIVERS



OIL SEPARATORS

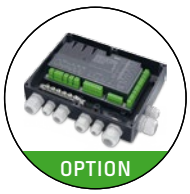


CONSISTENTLY COLD! **GOOD IF YOUR COOLING CHAIN CONSISTS OF ONLY STRONG LINKS.**

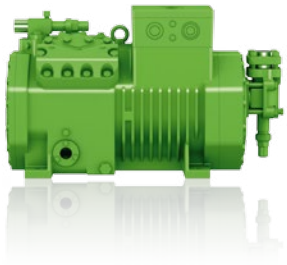


When it comes to refrigeration, BITZER compressors are the best choice: regardless of external conditions, they demonstrate their ability to keep the temperature at a constant level where it counts. For example in commercial refrigeration, where it is crucial to reliably bring the cooling chain to the customer, or in industry in the low temperature storage facilities of retail chains, the blast-freezing of food or the freeze-drying of medicine.

HFO ready



IQ INTELLIGENT COMPRESSORS



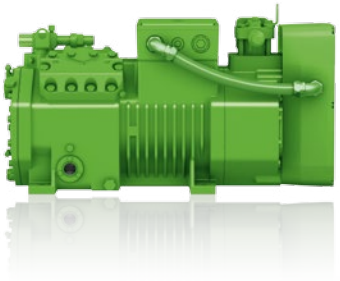
SEMI-HERMETIC DESIGN: ECOLINE WITH OPTIONAL IQ MODULE

Universal and environmentally friendly: in addition to HFC refrigerants, ECOLINE compressors are optimised for low GWP and HFO refrigerants. A modified series is available for hydrocarbons such as Propane. The compressors offer high cooling capacity with minimal energy requirements. The optional CRII mechanical capacity control guarantees high part-load efficiency in the medium and low temperature range. Optional for all compressors from the CE4 series onwards: the IQ MODULE actively monitors and protects the compressor, ensuring maximum operating reliability.

4.1 .. 221 m³/h at 50 Hz

HFO ready

IQ INTELLIGENT COMPRESSORS



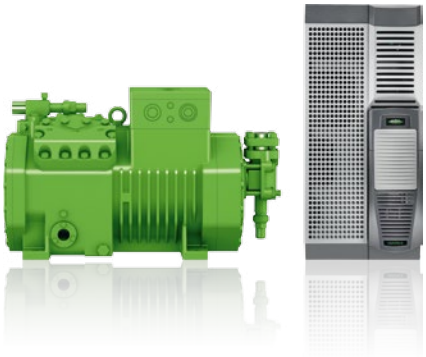
SEMI-HERMETIC DESIGN WITH INTEGRATED FREQUENCY INVERTER: VARISPEED

Refrigeration systems are designed for maximum load conditions. For applications with large load fluctuations, BITZER offers two VARISPEED series matching ECOLINE and compressors for CO_2 applications. Infinitely variable speed control with frequency inverters guarantees maximum part-load efficiency. The integrated frequency inverter makes the VARISPEED compressor the most compact and easiest-to-install frequency inverter solution. Suction gas cooling also eliminates the need to service the inverter.

8.1 .. 99.2 m³/h at variable speed

HFO ready

IQ INTELLIGENT COMPRESSORS

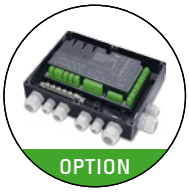


SEMI-HERMETIC DESIGN WITH EXTERNAL FREQUENCY INVERTER: VARIPACK

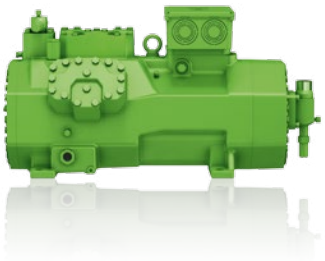
VARIPACK frequency inverters have been specially designed for operation with BITZER compressors. The flexibility in adapting the cooling demand of a system and optimal adjustment of the compressor and inverter save energy. The frequency inverter speaks the language of refrigeration, ensuring simple, reliable handling. The selection is done with BITZER SOFTWARE and the configuration with BEST SOFTWARE. The optional extension kit for pressure control offers added value.

2.5 .. 309 m³/h at variable speed //
0.78 .. 65.7 m³/h at variable speed (CO_2)

HFO ready



IQ INTELLIGENT COMPRESSORS



SEMI-HERMETIC DESIGN: OCTAGON FOR CO_2 APPLICATIONS WITH OPTIONAL IQ MODULE

With the compressors for CO_2 applications, BITZER offers future-oriented solutions with maximum energy efficiency and reliability for numerous applications. There are three series: a series for subcritical applications in the low temperature stage of cascade and booster systems, an extended series for subcritical applications up to 100 bar standstill pressure, and a series for transcritical applications in booster systems and for parallel compression. From the C4 series onwards, the IQ MODULE is optionally available for compressor protection, active monitoring and communication.

3.3 .. 38.1 m³/h at 50 Hz transcritical //
1.3 .. 46.9 m³/h at 50 Hz subcritical

HFO ready

SEMI-HERMETIC 2-STAGE DESIGN

Extreme low temperature applications with evaporation temperatures as low as –70°C are high demanding for the compressor. The 2-stage compressor series is accordingly robust, reliable and flexible for use with various refrigerants. To further increase capacity and efficiency, the compressors are also available with optional liquid subcoolers integrated at the factory.

19.7 .. 101 m³/h at 50 Hz

OPEN DRIVE DESIGN

Open drive compressors are an ideal alternative for numerous applications. Three series are available. Models with two, four and six cylinders have been designed for coupling and belt drive. These compressors have been optimised for HFC, low GWP refrigerants and, in modified design, for operation with ammonia. The 2-stage models are particularly well suited for low temperature applications, while the robust compressors of the 0-VII series are ideal for lower cooling capacities. All open drive compressors enable individual motor allocation and operation in a wide speed range.

0.96 .. 151 m³/h at 1450 min^{-1}

HFO ready

Ecodesign conform

IQ INTELLIGENT COMPRESSORS

AIR COOLED CONDENSING UNITS WITH INTEGRATED FREQUENCY INVERTER: ECOSTAR

The specific unit controller and the variable speed of the frequency-controlled ECOLINE VARISPEED compressor and EC fans fulfil all criteria of the Ecodesign Regulation. Large capacity range, individually adjustable control, sound-reduced operation and robust outdoor housing offer numerous application possibilities in medium and low temperature systems. Thanks to comprehensive equipment, installation is quick and easy and there is no need to install additional components. System control, monitoring, data logging and remote access to the device controller are easier than ever and offer significant benefit thanks to BEST SOFTWARE.

8.1 .. 99.2 m³/h at variable speed

HFO ready

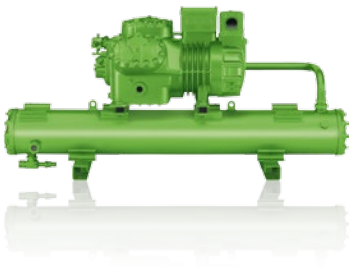
Ecodesign conform

AIR COOLED CONDENSING UNITS 1-STAGE WITH ECOLINE COMPRESSOR OR 2-STAGE

The components of the air cooled condensing units, such as efficient ECOLINE compressors, EC fans and system-optimised condenser heat exchangers (mini channel) are optimally matched and have a compact construction. The design is robust, enabling a whole host of applications with a large range of capacities. Future-proof use is ensured by conformity with the Ecodesign Regulation and optional use with low GWP refrigerants.

4.1 .. 127 m³/h at 1450 min^{-1}

HFO ready



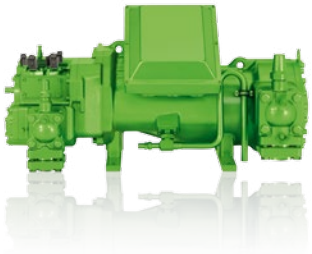
WATER COOLED CONDENSING UNITS 1-STAGE WITH ECOLINE COMPRESSOR OR 2-STAGE

The efficient ECOLINE compressors and the other components of the water cooled condensing units provide a perfectly matched overall concept. This results in a comprehensive range of applications and capacities. Other key features include a robust design, compact dimensions and numerous variants, including versions for seawater. The condensing units are also well equipped for the future. Low GWP refrigerants are intended for use.

4.1 .. 303 m³/h at 1450 min^{-1}

HFO ready

INTELLIGENT COMPRESSORS



SEMI-HERMETIC DESIGN: HS WITH OPTIONAL IQ MODULE

Thanks to the HSK variant for air conditioning/medium temperature application, the HSN variant for medium/low temperature application, and the use of numerous refrigerants, the robust screw compressor with highly efficient suction gas-cooled motor has a wide range of uses. The integrated capacity control is efficient, multistep and, from HS.85 onwards, optionally infinitely adjustable. The capacity control and start unloading via speed control through an external frequency inverter offer an alternative. One option is the simple parallel compounding set-up. Options: Eco operation for more refrigerating capacity/energy efficiency and version with IQ MODULE.

84 .. 535 m³/h at 50 Hz

INTELLIGENT COMPRESSORS

OPEN DRIVE DESIGN: OS // OS.A95 STANDARD WITH IQ MODULE

For the open drive screw compressors for operation with external motors, the refrigerant circuit and motor are separated. The series is extended to ammonia applications for industrial refrigeration and includes the OSK variant for high/medium temperature application and the OSN variant for medium/low temperature application. An efficient, multistep and, starting with the OS.85, optionally infinitely variable capacity control is integrated. OS.A95 with IQ MODULE, including infinitely adjustable capacity and automatic V_i adaptation. The capacity control and start unloading via speed control through an external frequency inverter offer an alternative. One option is the simple parallel compounding set-up.

84 .. 1015 m³/h at 2900 min^{-1}

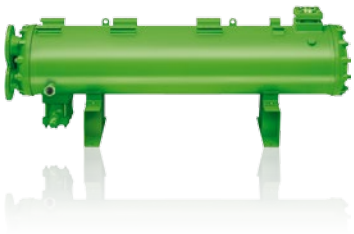
HFO ready

OIL SEPARATORS // OIL COOLERS

Oil separation and oil cooling are essential functions in many refrigeration systems, ensuring perfectly smooth system operation. Primary, secondary and combined separator models are used in NH_3, HFC or HFO applications, with single or multi-compressor arrangements. To reach the most appropriate separation efficiency, centrifugal, gravity and filtration stages can be combined. In particular, the new OAHC horizontal 3-stage separators for ammonia applications can take the final carry-over rate to an impressive < 10 ppm. A complete range of water cooled and air cooled oil coolers ensures additional cooling with low-pressure drop values and reduced energy consumption.

Suction flow 40 .. 4300 m³/h //
Oil cooling capacity 10 .. 60 kW

HFO ready



WATER COOLED CONDENSERS

Highly efficient and reliable, K series condensers represent the best solution whenever water is available as cooling agent. HFC, HFO and Propane can be used as refrigerants. Fresh water models (featuring copper pipes) as well as seawater resistant models (featuring copper-nickel pipes) are equipped with a special, low-fouling inner design on the coolant side, ensuring high-consistency performance during the entire condenser life. The condensers feature highly robust components, tube sheets and – in case of seawater applications – end covers with resistant plastic coating protection. CE, EAC, SELO, BV, GL, RS and LR approvals are available.

Condensing capacity 8 .. 913 kW

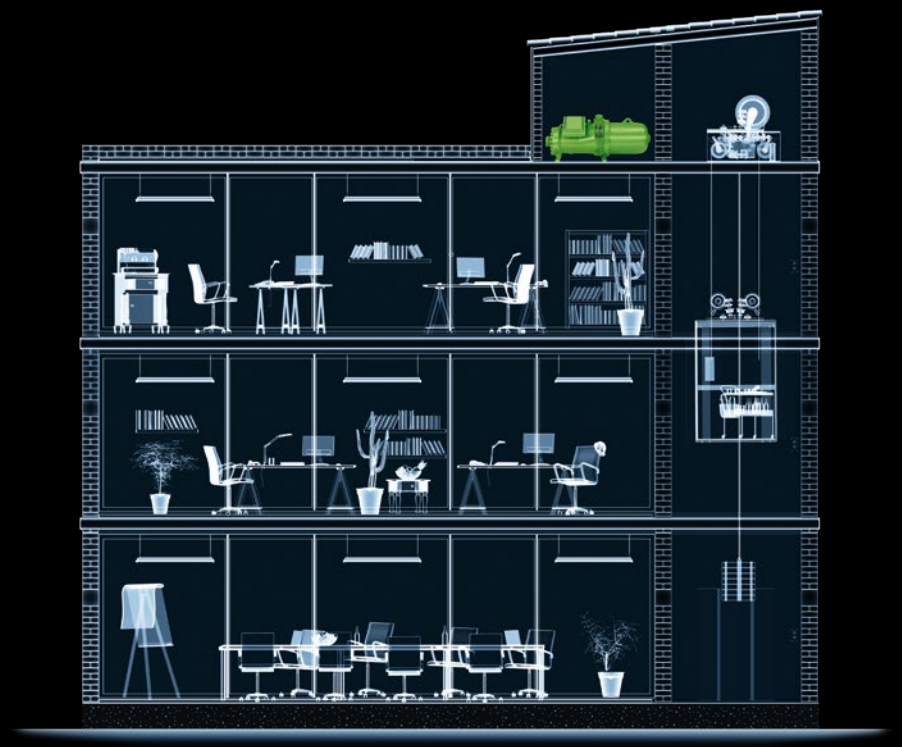
HFO ready

LIQUID RECEIVERS

110 models provide the most complete range of solutions for liquid refrigerant storage. There are several versions available featuring both vertical and horizontal configuration. The standard version for HFC and HFO, as well as the G version designed for high mass flow applications work with 33 bar maximum allowable pressure. The P version works with Propane and Propylene at 33 bar. The K version for R410A and subcritical CO_2 works with 45 bar maximum allowable pressure. Also available is a version for NH_3 working with 28 bar maximum allowable pressure. A comprehensive series of accessories, as well as CE, EAC, SELO, BV, GL, RS and LR approvals, are all available.

Receiver volume 3 .. 550 dm³

QUITE PLEASANT! **IT'S A GOOD THING WHEN WE CAN ENSURE A PLEASANT CLIMATE AROUND THE WORLD.**



BITZER products in air conditioning ensure that people are able to breathe freely everywhere: regardless of season and building type, they provide your customers with comfortable temperatures. We take into account the increasing demands for air conditioning in buildings and guarantee maximum well-being with superior quality – in residential, public and commercial buildings.

HERMETIC DESIGN: ORBIT 6 // ORBIT 8

The series designed for air conditioning and heat pump applications offers high energy efficiency at full and part-load conditions. Accordingly high seasonal efficiencies can be achieved. Thanks to BAHT (BITZER Advanced Header Technology), compressors with different cooling capacity can be operated as tandem or trio assemblies via a common pipe line system without an active oil management system. The scroll compressors can be operated with a fixed speed or variable speed drive with frequency inverter. These series are suitable for the refrigerant R410A and alternative refrigerants. Further advantages are the low oil carry over and the high level of process reliability.

19.8 .. 77.2 m³/h at 50 Hz
(single compressor)

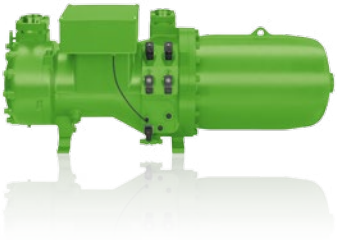
HERMETIC DESIGN: ESH7

The innovative scroll technology offers high performance and energy efficiency. The range of applications includes air conditioning systems and heat pumps using the refrigerants R134a, R407C, R404A and R22. The ESH7 hermetic scroll compressors can also be used in tandem compound operation.

25 .. 43 m³/h at 50 Hz
(single compressor)

HFO ready

IQ INTELLIGENT COMPRESSORS



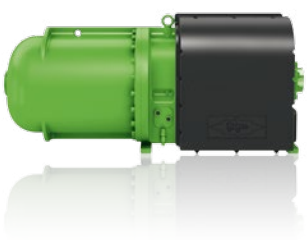
SEMI-HERMETIC COMPACT DESIGN: CS.3 WITH OPTIONAL IQ MODULE

Thanks in part to a highly efficient, suction gas-cooled motor, the screw compressors with optimised energy efficiency can be used with numerous refrigerants. There is a CSH variant for air cooled liquid chillers, heat pumps for space heating, and a CSW variant for water cooled and air cooled liquid chillers for operation at low condensing temperatures. The flanged oil separator enables easy system integration and compact circuits. The optional IQ MODULE for variants CS.65 .. 95 offers new, enhanced protective functions such as application limit monitoring and communication interfaces to higher-level controllers.

137 .. 1120 m³/h at 50 Hz

HFO ready

IQ INTELLIGENT COMPRESSORS

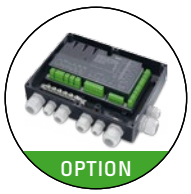


SEMI-HERMETIC COMPACT DESIGN WITH FREQUENCY INVERTER: CSV

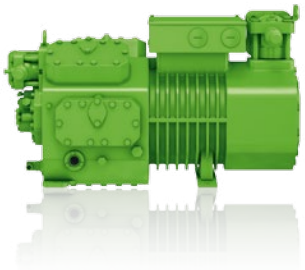
The intelligent, network-compatible screw compressor in full and part-load already complies with future standards for liquid chillers. The integrated refrigerant-cooled frequency inverter ensures stable operation and precise temperature profile for the medium to be cooled. Available in the CSVH variant for air cooled condensing, reversible systems and heat pumps optimised for space heating. The CSVW variant for water cooled and air cooled liquid chillers for operation at low condensing temperatures. Applicable for DX and flooded evaporation.

110 .. 1156 m³/h at variable speed

HFO ready



IQ INTELLIGENT COMPRESSORS



SEMI-HERMETIC DESIGN: ECOLINE WITH OPTIONAL IQ MODULE

The ECOLINE series is universally applicable for all air conditioning applications. In addition to applications with R134a, all ECOLINE models are also optimised for low GWP, including HFO refrigerants and HFO blends. The CRII mechanical capacity control or the use of a frequency inverter ensure high part-load efficiency. The IQ MODULE is optionally available for all compressors from the CE4 series. It protects, actively monitors and communicates with the system controller, thereby ensuring maximum operating reliability.

4.1 .. 221 m³/h at 50 Hz

HFO ready

Ecodesign conform

IQ INTELLIGENT COMPRESSORS

AIR COOLED CONDENSING UNITS WITH INTEGRATED FREQUENCY INVERTER: ECOSTAR

The specific unit controller and the variable speed of the frequency-controlled ECOLINE VARISPEED compressor and EC fans fulfil all criteria of the Ecodesign Regulation. Large capacity range, individually adjustable control, sound-reduced operation and robust outdoor housing offer numerous potential applications for air conditioning systems. Thanks to comprehensive equipment, installation is quick and easy and there is no need to install additional components. System control, monitoring, data logging and remote access to the device controller are easier than ever and offer significant benefit thanks to BEST SOFTWARE.

8.1 .. 99.2 m³/h at variable speed

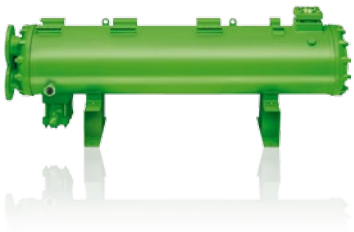
HFO ready

OIL SEPARATORS // LIQUID RECEIVERS

There is a complete range of oil separators as well as liquid receivers available. Oil separators, in vertical and horizontal configuration, are approved for operation with HFC, HFO and NH_3. Thanks to centrifugal, gravity and filtration separation options, the highest degree of efficiency is guaranteed for any air conditioning application. For flooded systems, a specific separator series has been developed. The liquid receiver range includes models for HFC, HFO, subcritical CO_2 and NH_3, as well as a special version for high mass flow rates. With vertical and horizontal solutions, perfect integration into air conditioning systems is ensured.

Suction flow 40 .. 4300 m^3/h //
Receiver volume 3 .. 550 dm^3

HFO ready



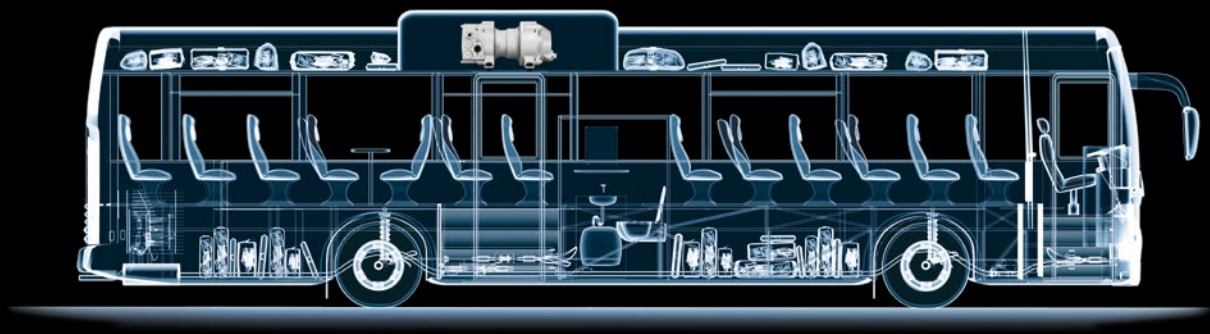
WATER COOLED CONDENSERS // OIL COOLERS

K series condensers guarantee maximum performance and flexibility whenever fresh water or seawater is available for medium and low temperature refrigeration applications. They can be used in HFC or HFO systems, while a special version for Propane and Propylene is also available. K series condensers provide low-pressure drop values and high consistency performance during the entire condenser life – thanks to highly robust materials and corrosion protection treatment, including components such as tube sheets and water boxes. A complete range of water cooled and air cooled oil coolers ensures additional cooling, with low-pressure drop values and reduced energy consumption.

Condensing capacity 8 .. 913 kW //
Oil cooling capacity 10 .. 60 kW

// TRANSPORT APPLICATIONS

RELAXED EN ROUTE! **THIS IS HOW WELL-BEING IS TRANSPORTED AROUND THE WORLD.**



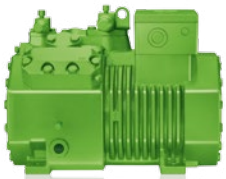
Even when en route or at work, people do not want to give up a pleasant climate. In buses and trains, the versatile BITZER compressors ensure that travellers comfortably reach their destinations. In the cabs of cranes and trucks, they also help operators and drivers to maintain high concentration and performance levels at work.

HFO ready

OPEN DRIVE DESIGN: BITZER ROADSTAR

The extremely reliable BITZER compressors of the ROADSTAR series have been optimised for mobile refrigeration and air conditioning applications. The optional capacity control contributes to the high energy efficiency. Thanks to the oil collection chamber, the easy-to-maintain shaft seal and the additional oil drain plugs, the models are particularly service-friendly. This innovative technology has set standards in bus air conditioning. The BITZER ROADSTAR series is available with two, four or six cylinders.

20.7 .. 84.4 m³/h at 1450 min^{-1}



SEMI-HERMETIC DESIGN: ECOLINE H SERIES

The H series is a further development of the established ECOLINE compressor series. The drive gear was adapted in order to guarantee highest reliability even under difficult operating conditions and thus meet the special requirements of mobile application. The mechanical CRII capacity regulator or the use of a frequency inverter ensure high part-load efficiency.

11.4 .. 56.3 m³/h at 50 Hz

IQ INTELLIGENT COMPRESSORS

SEMI-HERMETIC DESIGN: SPEEDLITE ELV21 // ELV51

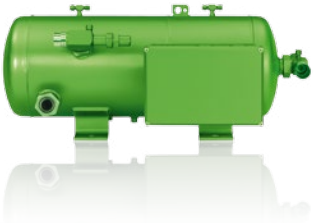
The new SPEEDLITE compressor, which was specially designed for mobile application, offers the ideal solution for the lightest and most compact air conditioning systems for buses, railway vehicles and other vehicles. Both sizes feature a large range of control with which the compressor capacity can be easily adapted to all operating conditions. This ensures optimal full and part-load efficiency. Thanks to its ready integrated frequency inverter, this compressor is no problem to install.

2.7 .. 43 m³/h at variable speed

HORIZONTAL HERMETIC DESIGN: ELH // ELA

Thanks to the horizontal and space-saving design, the scroll compressors are suitable for compact air conditioning systems. The scroll compressor features high efficiency and smooth running thanks to the special cooling of the spirals, as well as low noise and vibration levels.

25 .. 43 m³/h at 50 Hz

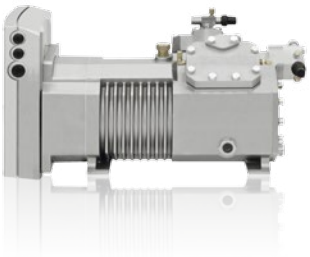


HERMETIC SCREW COMPRESSORS: VSK

The compressors are tailored to the specific needs of mobile air conditioning, for instance in railway vehicles or hybrid buses. The compact design allows for easy installation and quiet operation. The generously dimensioned roller bearings ensure very high reliability and a long service life. Thanks to the wide control range with frequency inverter operation, the compressor capacity can be optimally adapted to any operating condition. A mechanical capacity regulator is used in the VSK31 (optional) and VSK41 (standard) models.

46 .. 80 m³/h at 50 Hz

IQ INTELLIGENT COMPRESSORS



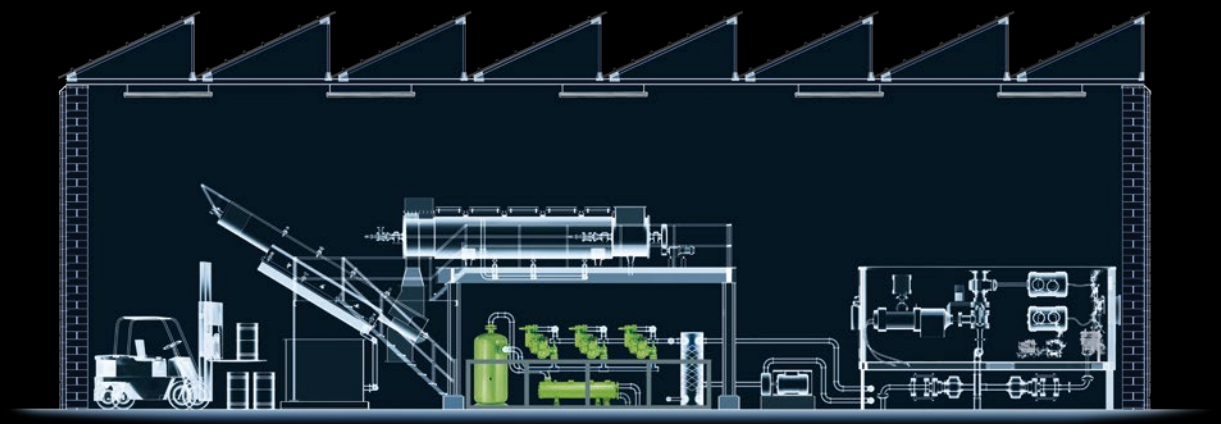
COMPRESSORS FOR CONTAINER REFRIGERATION: S4BCF-5.2(Y)

Always the perfect temperature: StarCool container refrigeration is the result of an intensive cooperation between Maersk Container Industry and BITZER. It is used in containers for the temperature control of perishable goods such as foodstuffs in transit. At the heart of the system is a particularly compact, lightweight, and low-vibration 2-stage aluminium compressor. Equipped with integrated frequency inverter for superior efficiency and operating reliability. An impressive concept: within seven years, the StarCool system has achieved a high market share. And the success story continues. In containers around the world, the perfect temperature prevails.

9.5 .. 41.8 m³/h at variable speed

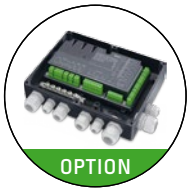
// ADDITIONAL EXPERTISE

WELL TEMPERED! **WE ARE REFRIGERATION EXPERTS AND FEEL RIGHT AT HOME EVEN IN WARM ENVIRONMENTS.**

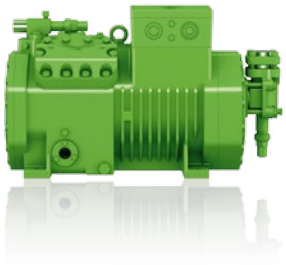


When it comes to process cooling in modern industrial plants, our compressors ensure reliable processes. Data centres can only achieve high performance with proper, consistent cooling. Another application is the cooling of laser cutting machines in metalworking, which ensures optimal results. For many decades, we as an independent manufacturer have been a leader in the area of refrigeration and air conditioning, and offer heat exchangers and pressure vessels of exceptional quality. We also offer products that are crucial for the correct temperature for process and heat pump applications.

HFO ready



IQ INTELLIGENT COMPRESSORS



SEMI-HERMETIC RECIPROCATING COMPRESSORS: ECOLINE WITH OPTIONAL IQ MODULE

Reciprocating compressors are suitable for various applications in the area of process refrigeration and air conditioning. In addition to HFC refrigerants, refrigerants with low GWP such as HFO and HFO blends are used. The mechanical CRII capacity control or operation with the VARIPACK frequency inverter ensure high part-load efficiency of the entire system.

The IQ MODULE is optionally available for all compressors from the CE4 series. It protects, actively monitors and communicates with the system controller, thereby ensuring maximum operating reliability.

4.1 .. 221 m³/h at 50 Hz

HERMETIC SCROLL COMPRESSORS: ORBIT 6 // ORBIT 8

Data centres can only achieve optimal performance with good cooling and at constant temperature. ORBIT compressors operate efficiently at the required high evaporation temperatures of up to +20°C. Accordingly high seasonal efficiencies can be achieved. Thanks to BAHT (BITZER Advanced Header Technology), compressors with different cooling capacity can be operated as tandem or trio assemblies via a common pipe line system without an active oil management system. The scroll compressors can also be operated with variable speed with frequency inverter. These series are suitable for the refrigerant R410A and alternative refrigerants. Further advantages are the low oil carry over and the high level of process reliability.

19.8 .. 77.2 m³/h at 50 Hz
(single compressor)

HFO ready

IQ INTELLIGENT COMPRESSORS

SEMI-HERMETIC COMPACT SCREW COMPRESSORS: CS.3 WITH OPTIONAL IQ MODULE

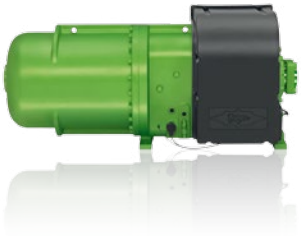
Several optimisations – including the further development of the rotor profile, the reduced oil circulation rate and the suction gas-cooled motor – serve to increase the efficiency. A variety of refrigerants makes the application flexible. The CSH variant has been designed for air cooled liquid chillers, reversible systems and heat pumps, while the CSW variant has been designed for water cooled and air cooled liquid chillers that are operated at lower condensing temperatures.

The optional IQ MODULE for variants CS.65 .. 95 offers enhanced protective functions, including operating limit monitoring and communication interfaces to higher-level controllers.

137 .. 1120 m³/h at 50 Hz

HFO ready

IQ INTELLIGENT COMPRESSORS



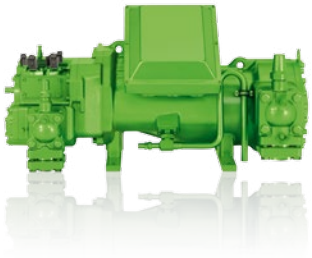
SEMI-HERMETIC COMPACT SCREW COMPRESSORS WITH FREQUENCY INVERTER: CSV

The intelligent, network-compatible screw compressor now allows OEM manufacturers to comply with future standards for liquid chillers. The integrated refrigerant-cooled frequency inverter ensures stable operation and precise temperature profile for the medium to be cooled. Available in the CSVH variant for air cooled condensing, reversible systems and heat pumps optimised for space heating. The CSVW variant for water cooled and air cooled liquid chillers for operation at low condensing temperatures. Applicable for DX and flooded evaporation.

110 .. 1156 m³/h at variable speed

HFO ready

IQ INTELLIGENT COMPRESSORS



SEMI-HERMETIC SCREW COMPRESSORS: HS WITH OPTIONAL IQ MODULE

Thanks to the HSK variant for air conditioning/medium temperature application, the HSN variant for medium/low temperature application, and the use of numerous refrigerants, the robust screw compressor with highly efficient suction gas-cooled motor has a wide range of uses. The integrated capacity control is efficient, multistep and, from HS.85 onwards, optionally infinitely adjustable. The capacity control and start unloading via speed control through an external frequency inverter offer an alternative. One option is the simple parallel compounding set-up. Options: Eco operation for more refrigerating capacity/energy efficiency for applications with high pressure conditions and version with the IQ MODULE.

84 .. 535 m³/h at 50 Hz

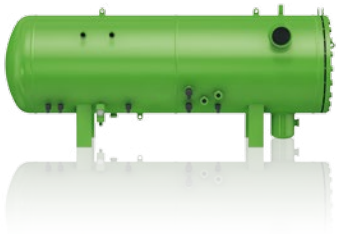
IQ INTELLIGENT COMPRESSORS

OPEN DRIVE SCREW COMPRESSORS: OS // OSA.95 STANDARD WITH IQ MODULE

For the open drive screw compressors for operation with external motors, the refrigerant circuit and motor are separated. The series is extended to ammonia applications for industrial refrigeration and includes the OSK variant for high/medium temperature application and the OSN variant for medium/low temperature application. An efficient, multistep and, starting with the OS.85, optional infinitely variable capacity control is integrated.
OS.A95 with IQ MODULE, including infinitely adjustable capacity and automatic V_i adaptation. The capacity control and start unloading via speed control through an external frequency inverter offer an alternative. One option is the simple parallel compounding set-up.

84 .. 1015 m³/h at 2900 min^{-1}

HFO ready

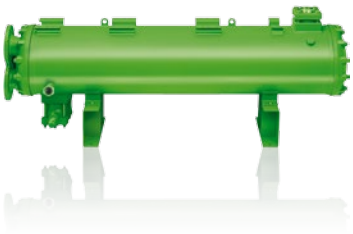


OIL SEPARATORS // LIQUID RECEIVERS

In many cooling systems, oil separators ensure smooth operation for the compressors working at full or partial load 365 days per year. With HFC, HFO or NH_3, best separation results can be obtained and oil can safely return to the compressor in dry-expansion or flooded evaporation applications. With centrifugal and gravity separation combined, separators operate with excellent efficiency following the load variation of the process. The liquid receiver range includes models for HFC, HFO, subcritical CO_2, NH_3, and a special version for high mass flow rates. With vertical and horizontal solutions, the perfect integration into any process cooling system is ensured.

Suction flow 40 .. 4300 m^3/h //
Receiver volume 3 .. 550 dm^3

HFO ready

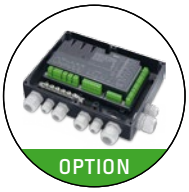


WATER COOLED CONDENSERS // OIL COOLERS

K series condensers reliably work within a wide range of refrigerant and water flow conditions and can be used in HFC or HFO systems, while a special version for Propane and Propylene is also available. With fresh water or seawater versions available, K series condensers provide low-pressure drop values and impressive reliability thanks to highly robust materials, suitable for different cooling media, including components such as tube sheets and water boxes. A complete range of water cooled and air cooled oil coolers ensures additional cooling, with low-pressure drop values and reduced energy consumption.

Condensing capacity 8 .. 913 kW //
Oil cooling capacity 10 .. 60 kW

HFO ready

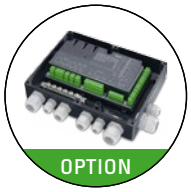


IQ INTELLIGENT COMPRESSORS

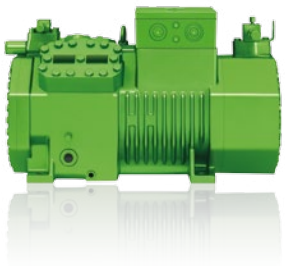
SEMI-HERMETIC RECIPROCATING COMPRESSORS: ECOLINE WITH OPTIONAL IQ MODULE

The ECOLINE models are versatile and universally applicable in heat pumps. In addition to applications with R134a, all ECOLINE models are also optimised for low GWP, HFO refrigerants and HFO blends. All models are also suitable for operation with high-temperature heat pumps, for instance with the R245fa, R227fa, R236fa and R1234ze(E) refrigerants. The CRII mechanical capacity control or the use of a frequency inverter ensure high part-load efficiency.
The optionally available IQ MODULE for the CE4 series and onwards ensures maximum operating reliability.

4.1 .. 221 m³/h at 50 Hz



IQ INTELLIGENT COMPRESSORS



SEMI-HERMETIC RECIPROCATING COMPRESSORS FOR CO_2 APPLICATIONS WITH OPTIONAL IQ MODULE

For use in heating pumps, compressors for transcritical CO_2 applications are an environmentally friendly, efficient and reliable solution. The compressors can be used for a wide range of applications. In addition to conventional applications, the compressors are particularly well suited for heat pumps for hot water up to 90°C. The optionally available IQ MODULE ensures maximum operating reliability.

3.3 .. 38.1 m³/h at 50 Hz

HFO ready

IQ INTELLIGENT COMPRESSORS

SEMI-HERMETIC COMPACT SCREW COMPRESSORS: CS.3 WITH OPTIONAL IQ MODULE

Several optimisations – including the further development of the rotor profile, the reduced oil circulation rate, and the suction gas-cooled motor – serve to increase the efficiency. A variety of refrigerants makes the application flexible. The CSH variant is designed for normal and high-temperature heat pumps, while the CSW variant is designed for low-temperature heat pumps.
The optional IQ MODULE offers advanced protection functions, including application limit monitoring, communication interfaces to higher-level controls and automatic datalog of the operating parameters.

137 .. 1120 m³/h at 50 Hz

HFO ready

IQ INTELLIGENT COMPRESSORS

SEMI-HERMETIC COMPACT SCREW COMPRESSORS WITH INTEGRATED FREQUENCY INVERTER: CSV

The network-compatible screw compressor offers superior energy efficiency at full and part-load. All components are prewired and tested. Integrated application limit monitoring also ensures maximum operating reliability. The CSV technology is well suited for large commercial and industrial heat pumps in the area of process applications and space heating. There is a CSVH variant for reversible systems with combined cooling-heating operation and heat pumps to approximately 60°C medium-supply temperature as well as a CSVW variant for low-temperature heat pumps. The integrated frequency inverter often eliminates the need for buffer tanks.

110 .. 1156 m³/h at variable speed

HERMETIC SCROLL COMPRESSORS: ORBIT 6 // ORBIT 8

Thanks to the high condensing temperature, the scroll compressors of the ORBIT series are particularly well suited for reversible heat pumps with the refrigerant R410A. Accordingly high seasonal efficiencies can be achieved. The wide range of applications allows for the operation of low-temperature systems and thereby ensures comfort and a perfect feel-good atmosphere. The compressor can also be used in the area of sanitary hot water as well as for the heating of water for showers or swimming pools. Further advantages are the low oil carry over and the high level of safety. Scroll compressors with a fixed and variable speed drive can be used.

19.8 .. 77.2 m³/h at 50 Hz
(single compressor)

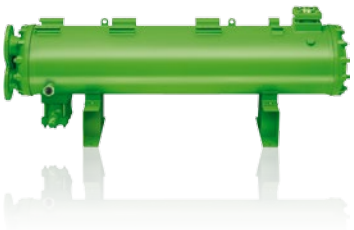
HFO ready

LIQUID RECEIVERS // OIL SEPARATORS

There is a complete range of liquid refrigerant storage and oil separation solutions available. The liquid receiver range includes models for HFC, HFO, subcritical CO_2, NH_3 and a special version for high mass flow rates. In the heat pump system, receivers are crucial for compensating for variations in the refrigerant flows. Vertical and horizontal receivers can be easily integrated into the most compact heat pump unit. For large size heat pump systems, oil separators in vertical and horizontal configuration are approved for operation with HFC, HFO and NH_3. The new OAHC horizontal 3-stage separators for NH_3 applications can take the final carry-over rate to an impressive < 10 ppm.

Receiver volume 3 .. 550 dm^3 //
Suction flow 40 .. 4300 m^3/h

HFO ready



WATER COOLED CONDENSERS // OIL COOLERS

K series shell and tube condensers are suitable to operate both warm and hot-temperature water heat pump systems – optimal performance and pressure drop value can be reached under any conditions. The same condenser model can be used in HFC or HFO systems, while a special version for Propane and Propylene is available. With fresh water or seawater, the use of a special low fouling design for the inside of the pipes prevents the formation of deposits, a common risk when water temperature rises above 30°C. A complete range of water cooled and air cooled oil coolers ensures additional cooling, with low-pressure drop values and reduced energy consumption.

Condensing capacity 8 .. 913 kW //
Oil cooling capacity 10 .. 60 kW

BITZER Kühlmaschinenbau GmbH
Eschenbrünnlestraße 15 // 71065 Sindelfingen // Germany
Tel +49 (0)70 31 932-0 // Fax +49 (0)70 31 932-147
bitzer@bitzer.de // www.bitzer.de

Subject to change // 80001003 // 09.2016