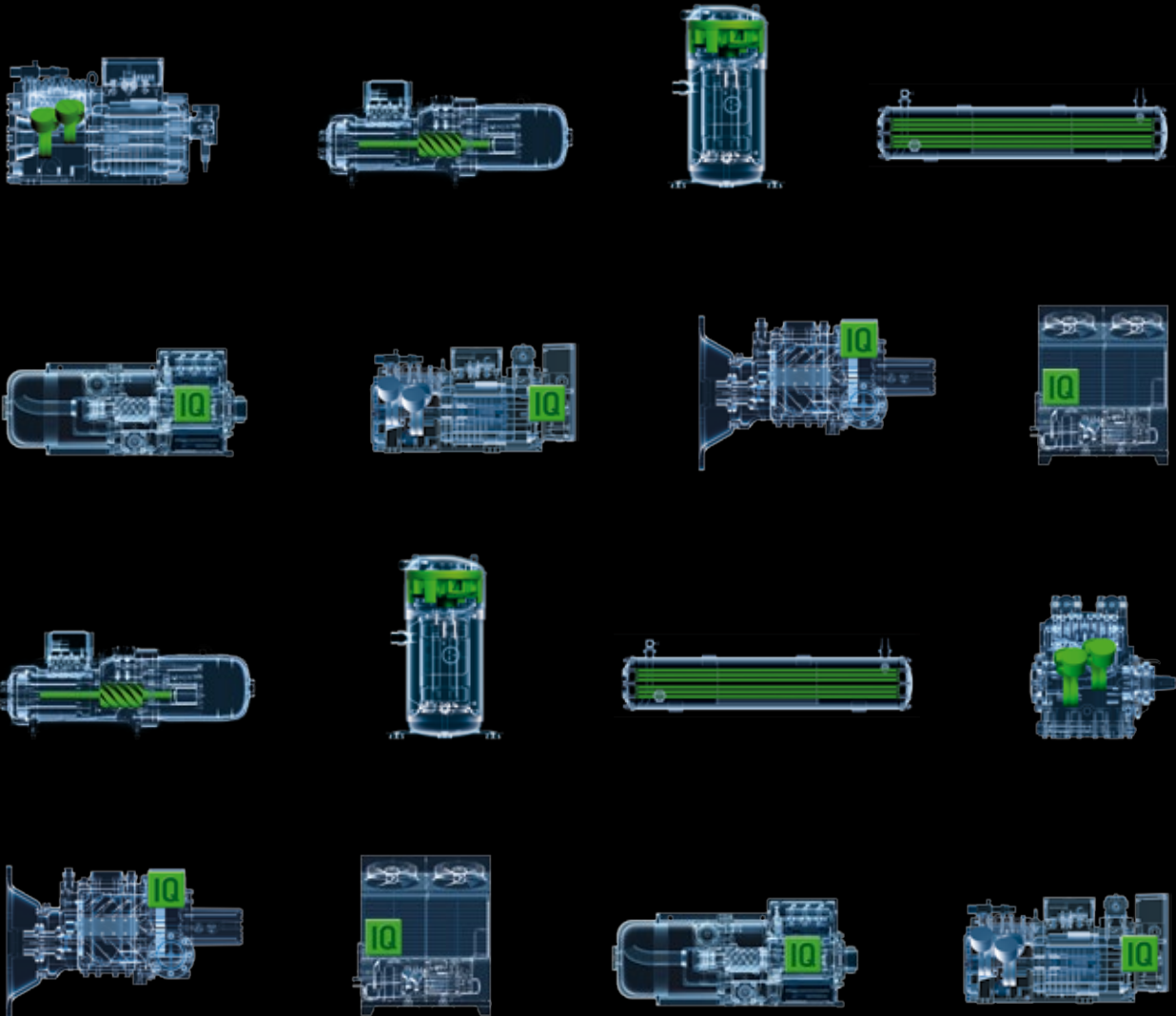




THE HEART OF FRESHNESS

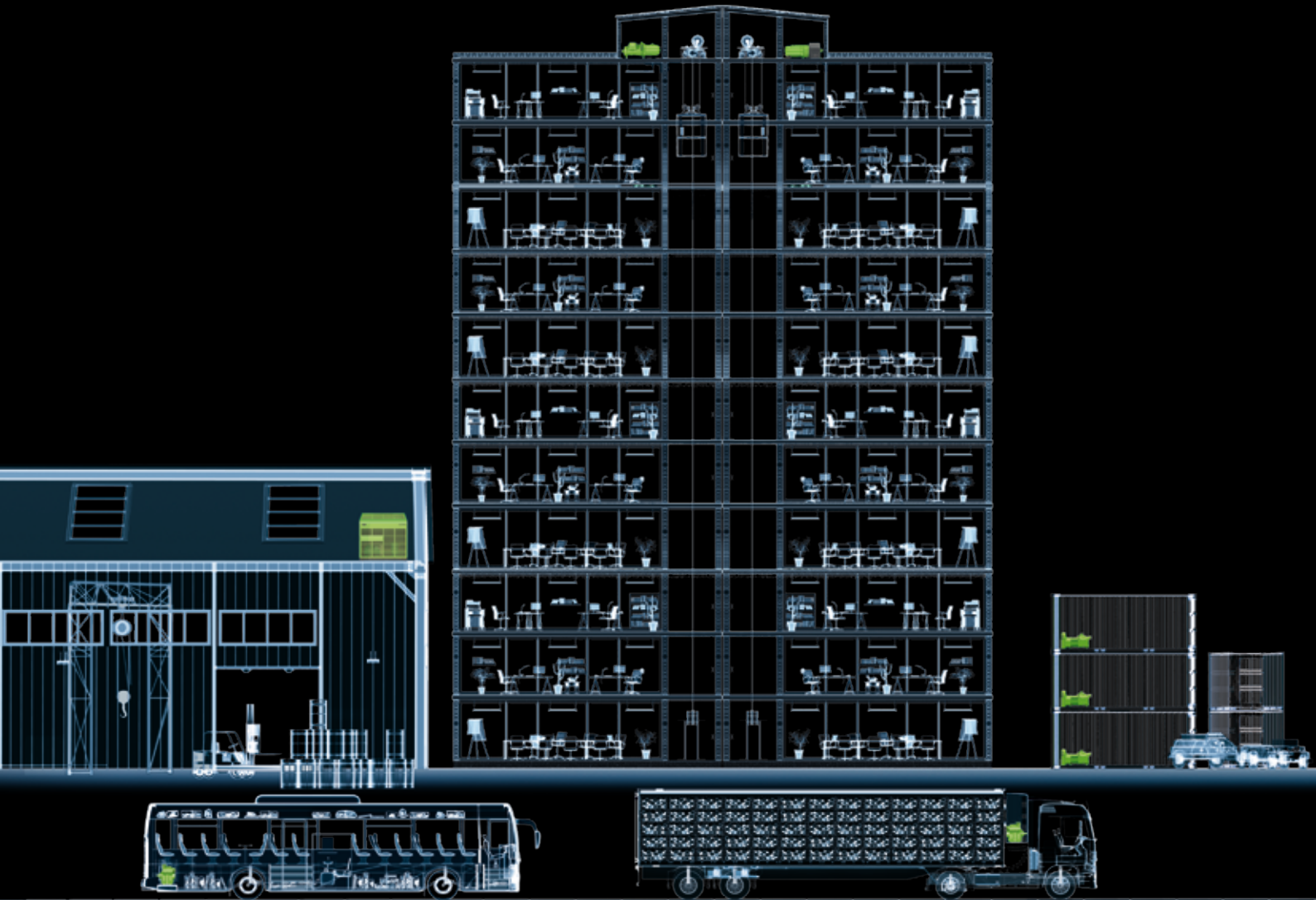
# PRODUCT RANGE



# 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.

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*Bitzer*

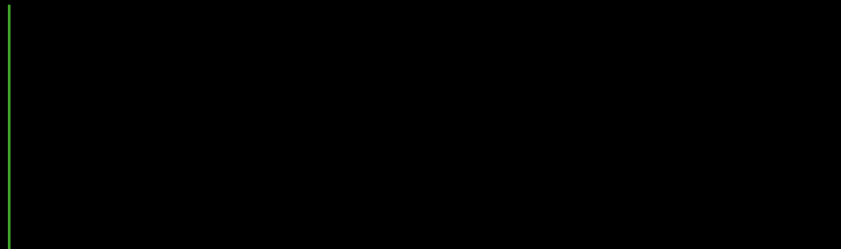
THE HEART OF FRESHNESS

# 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 globalized 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.



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, since 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 Software 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.



## 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 data log 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 parameterized with the BEST SOFTWARE (BITZER Electronics Software Tool) provided by BITZER. BITZER's INTELLIGENT COMPRESSORS represent protection, monitoring, recording, analysis, visualization, and communication.

### HFO ready

Compressors with the “HFO ready” icon are qualified for operation with HFO (hydro-fluoroolefins) 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.

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## // AIR CONDITIONING

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## // ADDITIONAL EXPERTISE

Process applications // Pages 29–30

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Heat pump applications // Pages 32–35

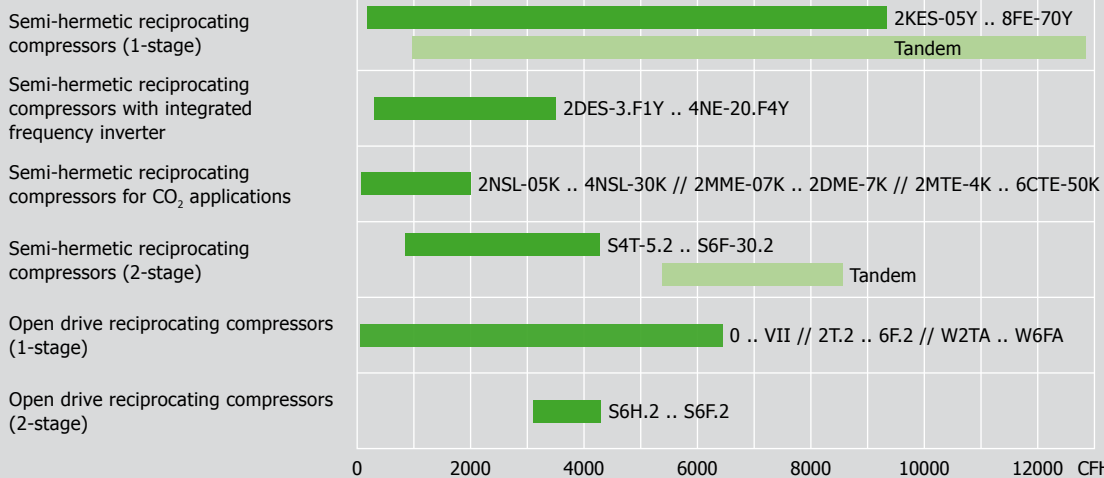


# HIGHLY DIVERSIFIED! BENEFIT FROM OUR UNIQUE RANGE OF SERVICES FOR REFRIGERATION AND AIR CONDITIONING.

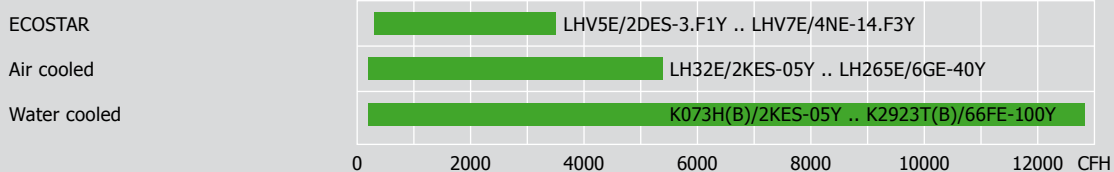
BITZER is the only independent manufacturer to produce the three compressor technologies: reciprocating, screw, and scroll. With our wide range of services, we can implement a suitable solution for all of your applications – from low and medium temperature refrigeration to air conditioning and heat pumps. Would you like to provide refrigeration for a gas 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

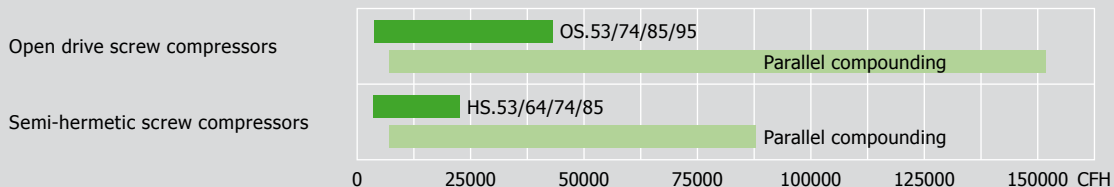
### RECIPROCATING COMPRESSORS



### CONDENSING UNITS



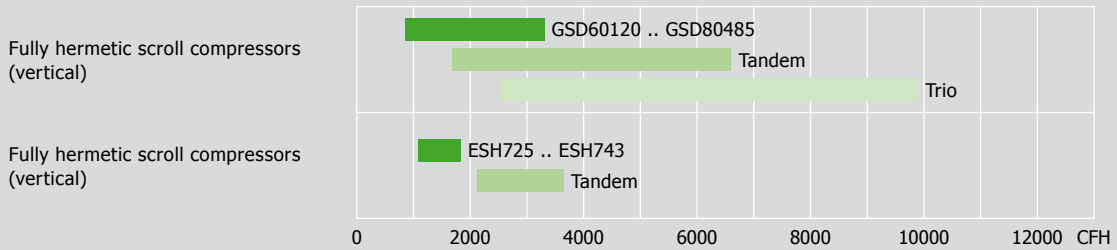
### SCREW COMPRESSORS



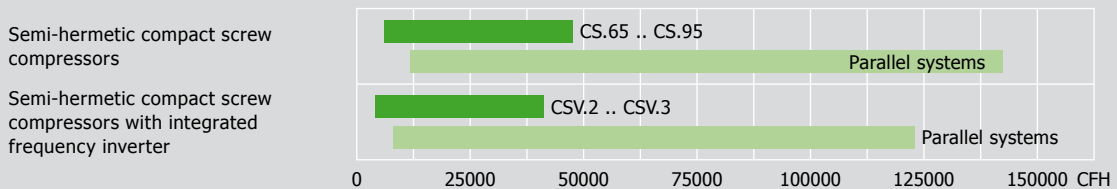


## // AIR CONDITIONING

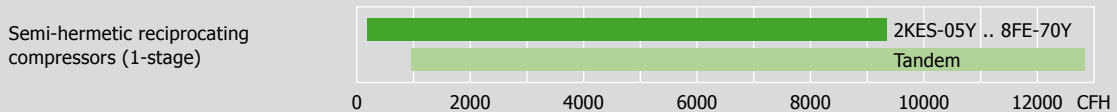
### SCROLL COMPRESSORS



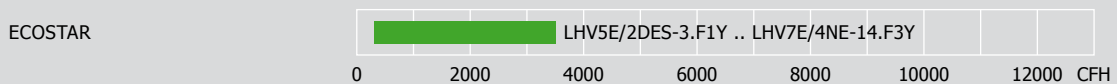
### SCREW COMPRESSORS



### RECIPROCATING COMPRESSORS

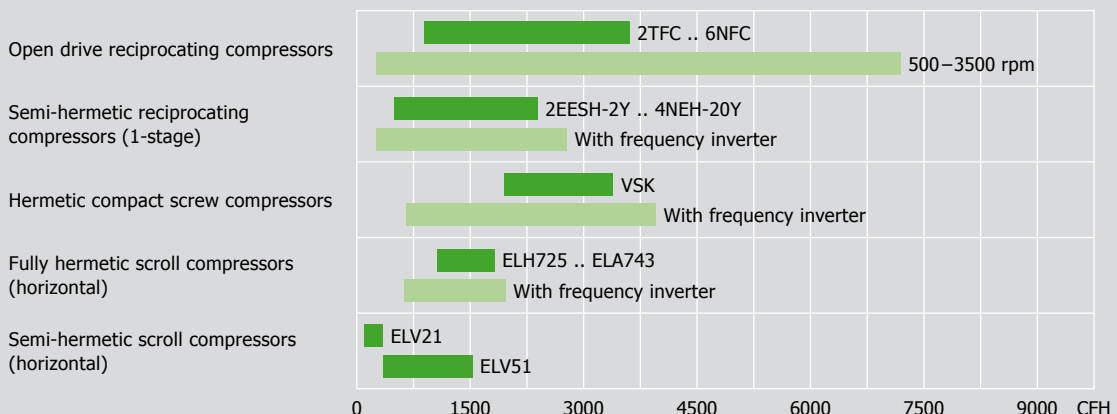


### CONDENSING UNITS



## // TRANSPORT APPLICATIONS

### TRANSPORT COMPRESSORS

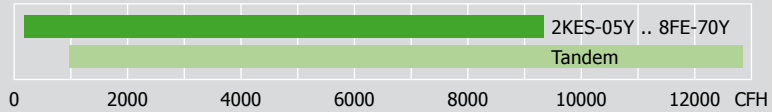


# // ADDITIONAL EXPERTISE

## PROCESS APPLICATIONS

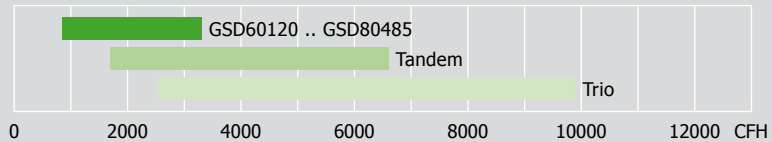
### RECIPROCATING COMPRESSORS

Semi-hermetic reciprocating compressors (1-stage)



### SCROLL COMPRESSORS

Fully hermetic scroll compressors (vertical)

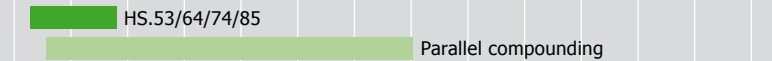


### SCREW COMPRESSORS

Open drive screw compressors



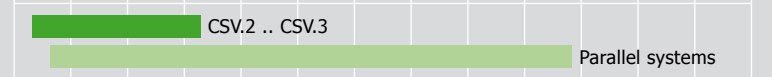
Semi-hermetic screw compressors



Semi-hermetic compact screw compressors



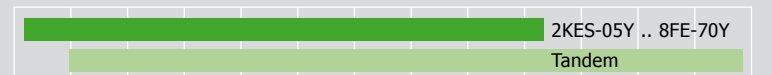
Semi-hermetic compact screw compressors with integrated frequency inverter



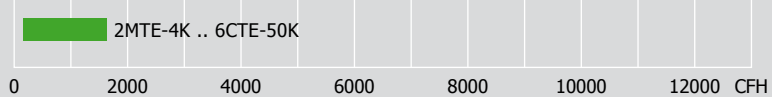
## HEAT PUMP APPLICATIONS

### RECIPROCATING COMPRESSORS

Semi-hermetic reciprocating compressors (1-stage)



Semi-hermetic reciprocating compressors for CO<sub>2</sub> applications

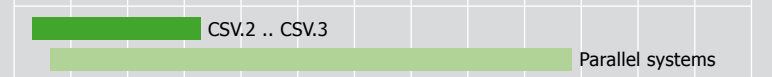


### SCREW COMPRESSORS

Semi-hermetic compact screw compressors

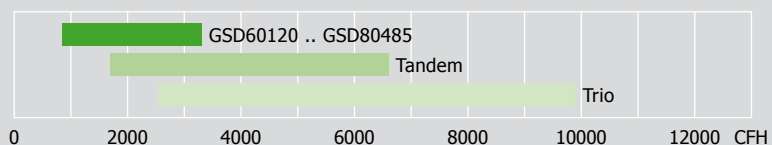


Semi-hermetic compact screw compressors with integrated frequency inverter



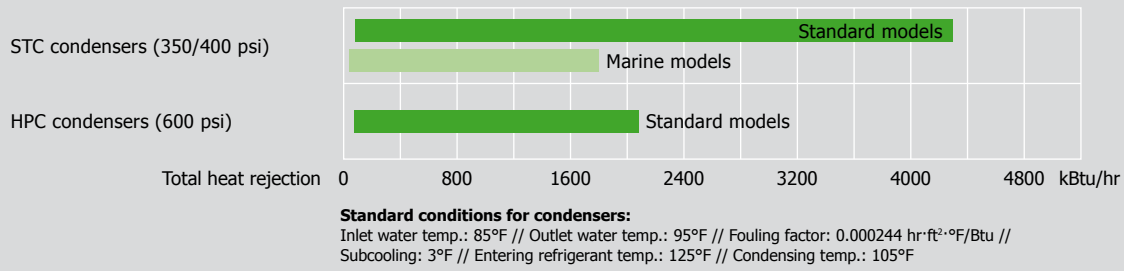
### SCROLL COMPRESSORS

Fully hermetic scroll compressors (vertical)

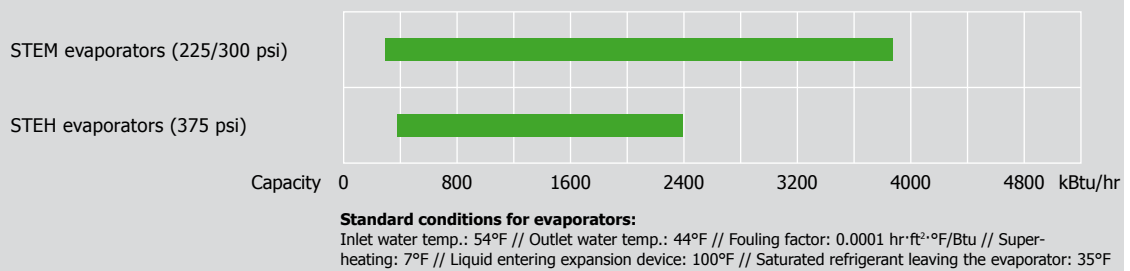


## HEAT EXCHANGERS // PRESSURE VESSELS

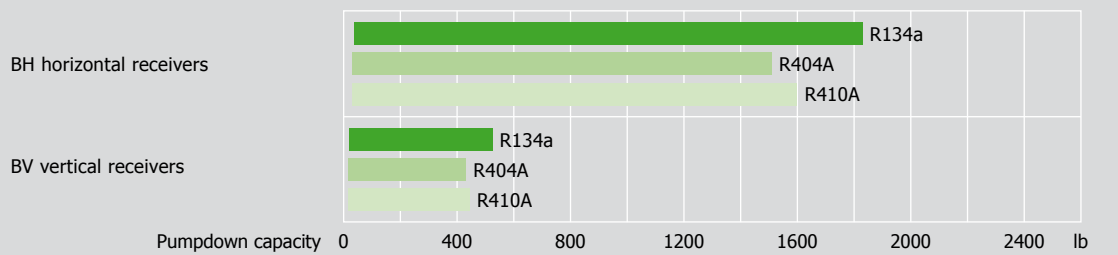
### WATER COOLED CONDENSERS



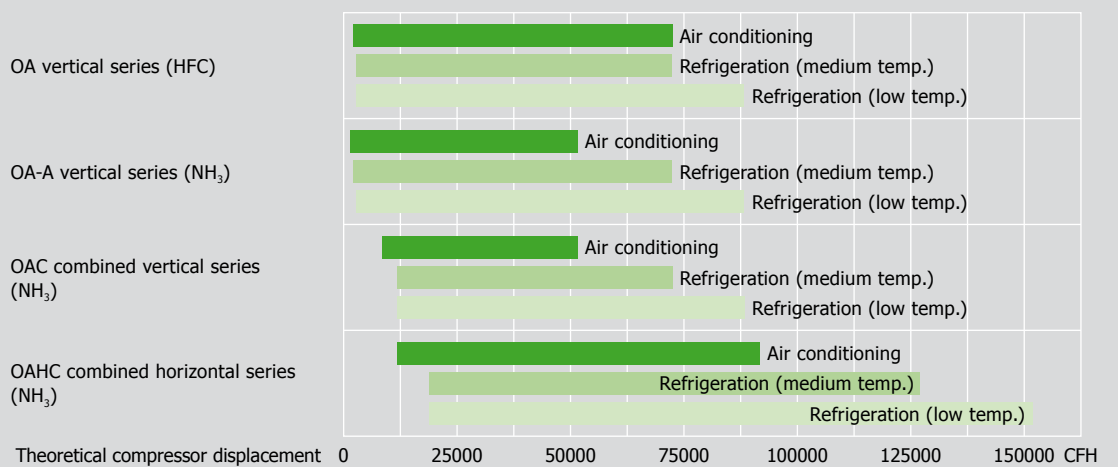
### EVAPORATORS



### LIQUID RECEIVERS

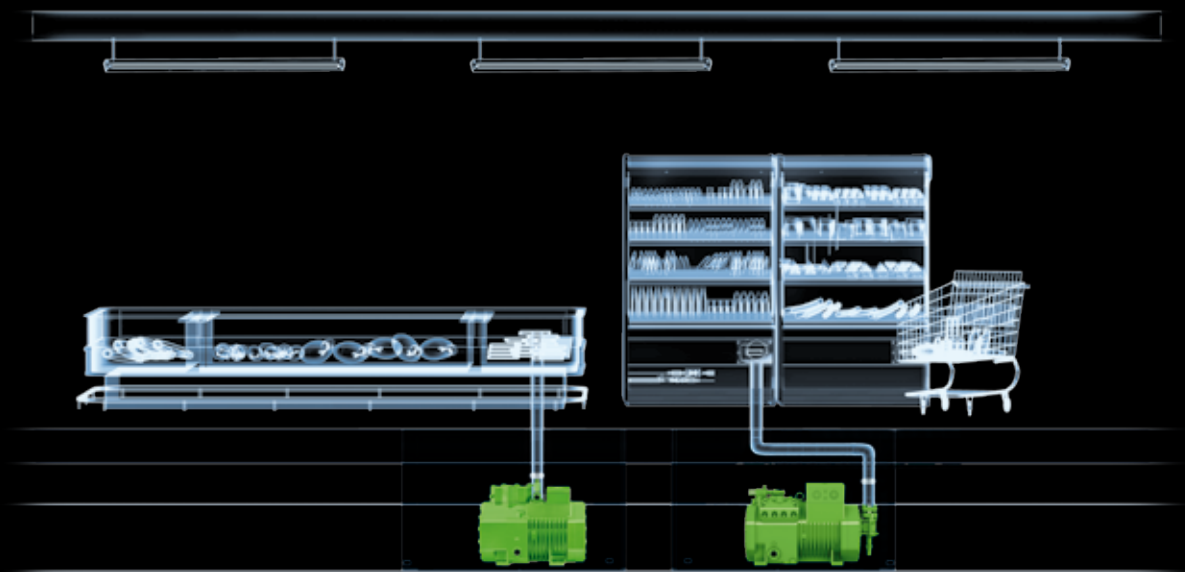


### OIL SEPARATORS



## // REFRIGERATION

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



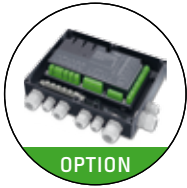
When it comes to refrigeration, BITZER compressors are the best choice: regardless of external conditions, they demonstrate their ability to keep the temperature at a constant level where it counts. For example in commercial refrigeration, where it is crucial to reliably bring the cooling chain to the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



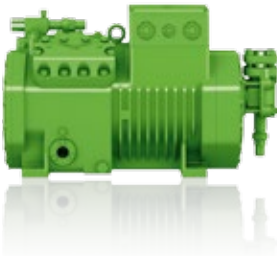
HFO ready

HFO ready

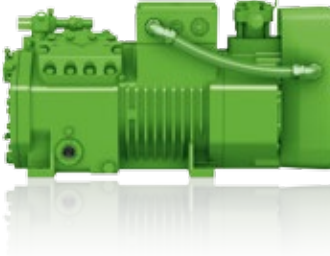
HFO ready



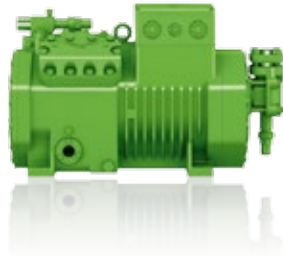
**IQ** INTELLIGENT COMPRESSORS



**IQ** INTELLIGENT COMPRESSORS



**IQ** INTELLIGENT COMPRESSORS



SEMI-HERMETIC DESIGN: ECOLINE WITH OPTIONAL IQ MODULE

Universal and environmentally friendly: in addition to HFC refrigerants, ECOLINE compressors are optimized 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.

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<sub>2</sub> 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.

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.



174 .. 9370 CFH at 60 Hz



286 .. 3500 CFH at variable speed

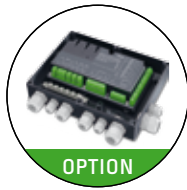


88 .. 10900 CFH at variable speed // 28 .. 2320 CFH at variable speed (CO<sub>2</sub>)

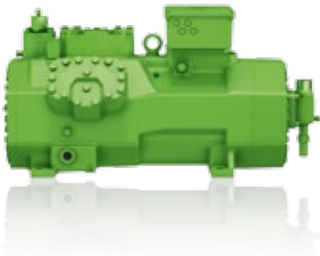
# RECIPROCATING COMPRESSORS

HFO ready

HFO ready



**IQ** INTELLIGENT COMPRESSORS



## SEMI-HERMETIC DESIGN: OCTAGON FOR CO<sub>2</sub> APPLICATIONS WITH OPTIONAL IQ MODULE

With the compressors for CO<sub>2</sub> 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.

## 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.

## 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 optimized 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.



140 .. 1620 CFH at 60 Hz transcritical //  
55 .. 1990 CFH at 60 Hz subcritical



835 .. 4280 CFH at 60 Hz



40 .. 6440 CFH at 1750 rpm



HFO ready

HFO ready

HFO ready

**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 ensure an energy-saving operation in all conditions. 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. Not available for North America.



286 .. 3500 CFH at variable speed

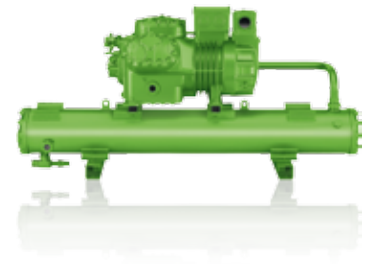


AIR COOLED CONDENSING UNITS 1-STAGE WITH ECOLINE COMPRESSOR OR 2-STAGE

The components of the air cooled condensing units, such as efficient ECOLINE compressors, EC fans, and system-optimized 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 energy-saving operation and optional use with low GWP refrigerants. Not available for North America.



174 .. 5400 CFH at 1750 rpm



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

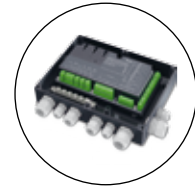
The efficient ECOLINE compressors and the other components of the water cooled condensing units provide a perfectly matched overall concept. This results in a comprehensive range of applications and capacities. Other key features include a robust design, compact dimensions, and numerous variants, including versions for seawater. The condensing units are also well equipped for the future. Low GWP refrigerants are intended for use. Not available for North America.



174 .. 12900 CFH at 1750 rpm

# SCREW COMPRESSORS

HFO ready



**IQ** INTELLIGENT COMPRESSORS



SEMI-HERMETIC DESIGN:  
HS WITH OPTIONAL IQ MODULE

Thanks to the HSK variant for air conditioning/medium temperature applications, the HSN variant for medium/low temperature applications, 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 setup. Options: Eco operation for more refrigerating capacity/energy efficiency and version with IQ MODULE.



3560 .. 22650 CFH at 60 Hz

**IQ** 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 applications and the OSN variant for medium/low temperature applications. An efficient, multi-step, 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 setup.



3580 .. 43250 CFH at 3500 rpm





HFO ready



OIL SEPARATORS

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<sub>3</sub>, 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. Customization in dimensional arrangement and pressure rating based on specific applications and requests are available.



Compressor displacement up to 150000 CFH

HFO ready



WATER COOLED CONDENSERS // EVAPORATORS

Highly efficient and reliable, BITZER condensers represent the best solution whenever water is available as a cooling agent. STC condensers, with maximum operating pressures up to 400 psi are designed for normal HFC and HFO refrigerants, while the 600 psi HPC condensers are suitable for R410A. Fresh water models (featuring copper pipes) as well as seawater resistant models (featuring copper-nickel pipes) can be specified. A complete range of dry-expansion shell-and-tube evaporators for medium and high pressure applications is also available, with "U-tube" design and tube bundle extractable for inspection and maintenance purposes. All models are designed and manufactured according to the ASME Section VIII, Division 1, latest edition. CRN registration is available.



Condenser THR 36 .. 4300 kBtu/hr // Evaporator capacity up to 7000 kBtu/hr

HFO ready



LIQUID RECEIVERS // INDUSTRIAL REFRIGERATION VESSELS

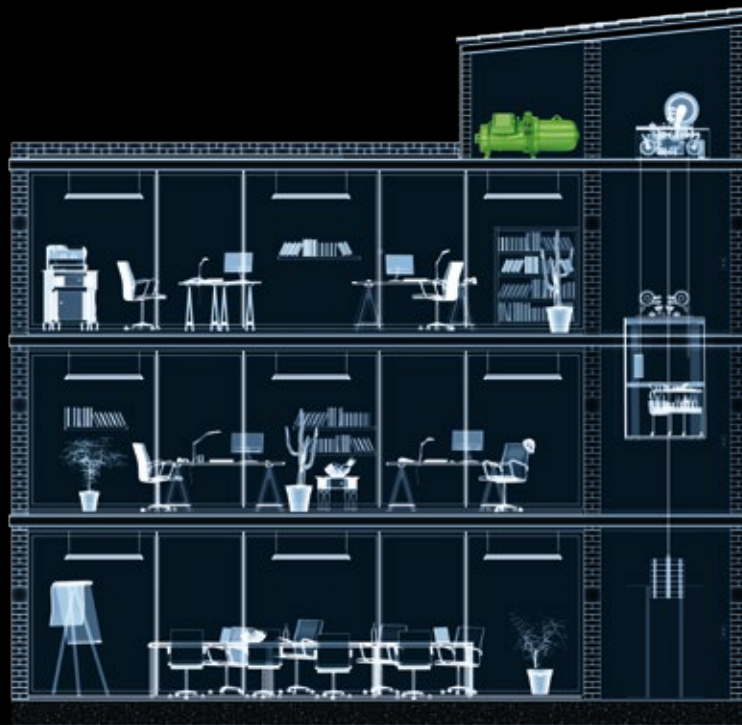
A comprehensive portfolio provides the most complete range of solutions for liquid refrigerant storage. 50 standard receiver sizes feature both vertical (BV series) and horizontal (BH series) configuration. The standard version for HFC and HFO works with 450 psi maximum allowable pressure, while 675 psi models are available for R410A or subcritical CO<sub>2</sub> applications. BITZER also provides customizable receivers and industrial vessel solutions for NH<sub>3</sub> with shell diameters up to 60" as well as CO<sub>2</sub> receiver designs with operation up to 1900 psi. All models are designed and manufactured according to the ASME Section VIII, Division 1, latest edition. CRN registration is available.



Pumpdown capacity 13 .. 1800 lb (standard receivers)

## // AIR CONDITIONING

**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 in full- and part-load conditions. Accordingly high seasonal efficiencies can be achieved. Thanks to BAHT (BITZER Advanced Header Technology), compressors with different cooling capacities 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.



839 .. 3270 CFH at 60 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.



1060 .. 1820 CFH at 60 Hz  
(single compressor)

## SCREW COMPRESSORS

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 optimized 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.



5810 .. 47450 CFH at 60 Hz

HFO ready

**IQ** INTELLIGENT COMPRESSORS



SEMI-HERMETIC COMPACT DESIGN WITH FREQUENCY INVERTER: CSV

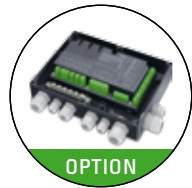
The intelligent, network-compatible screw compressor in full- and part-load already complies with future standards for liquid chillers. The integrated refrigerant-cooled frequency inverter ensures stable operation and precise temperature profile for the medium to be cooled. Available in the CSVH variant for air cooled condensing, reversible systems, and heat pumps optimized 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.



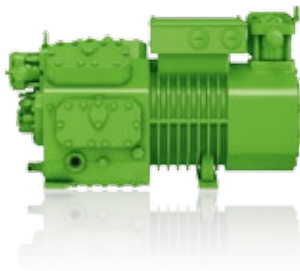
3890 .. 40800 CFH at variable speed



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 optimized 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.



174 .. 9370 CFH at 60 Hz

HFO ready

**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 ensure an energy-saving operation in all conditions. 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 benefits thanks to BEST SOFTWARE. Not available for North America.



286 .. 3500 CFH 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  $\text{NH}_3$ . 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,  $\text{NH}_3$ , subcritical and supercritical  $\text{CO}_2$  up to 1900 psi operating pressure. With vertical and horizontal solutions, perfect integration into air conditioning systems is ensured.



Compressor displ. up to 150000 CFH //  
Pumpdown capacity 13 .. 1800 lb

HFO ready



## WATER COOLED CONDENSERS // EVAPORATORS

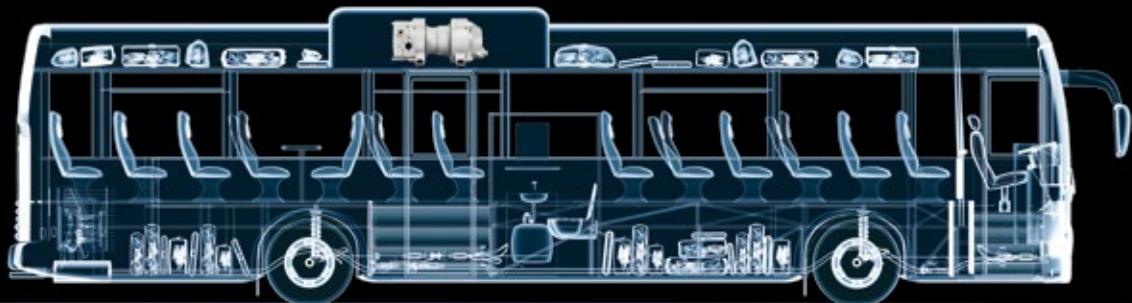
Highly efficient and reliable, BITZER condensers represent the best solution whenever water is available as cooling agent. STC condensers, with maximum operating pressures up to 400 psi are designed for normal HFC and HFO refrigerants, while the 600 psi HPC condensers are suitable for R410A. Fresh water models (featuring copper pipes) as well as seawater resistant models (featuring copper-nickel pipes) can be specified. A complete range of dry-expansion shell-and-tube evaporators for medium and high pressure applications is also available, with "U-tube" design and tube bundle extractable for inspection and maintenance purposes. All models are designed and manufactured according to the ASME Section VIII, Division 1, latest edition. CRN registration is available.



Condenser THR 36 .. 4300 kBtu/hr //  
Evaporator capacity up to 7000 kBtu/hr

## // 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 travelers 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 optimized 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.



882 .. 3600 CFH at 1750 rpm



SEMI-HERMETIC DESIGN:  
ECOLINE H SERIES

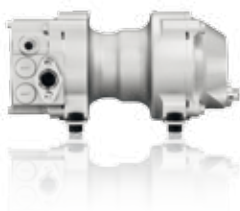
The H series is a further development of the established ECOLINE compressor series. The drive gear was adapted in order to guarantee highest reliability even under difficult operating conditions and thus meet the special requirements of mobile applications. The mechanical CRII capacity regulator or the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



483 .. 2390 CFH at 60 Hz

## SCROLL COMPRESSORS

### **IQ** INTELLIGENT COMPRESSORS



#### SEMI-HERMETIC DESIGN: SPEEDLITE ELV21 // ELV51

The new SPEEDLITE compressor, which was specially designed for mobile applications, 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.



95 .. 1520 CFH at variable speed

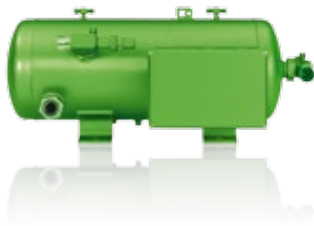


#### HORIZONTAL HERMETIC DESIGN: ELH // ELA

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.



1060 .. 1820 CFH at 60 Hz



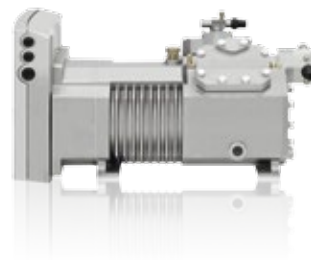
HERMETIC SCREW COMPRESSORS:  
VSK

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 conditions. A mechanical capacity regulator is used in the VSK31 (optional) and VSK41 (standard) models.



1950 .. 3390 CFH at 60 Hz

**IQ** INTELLIGENT  
COMPRESSORS



COMPRESSORS FOR CONTAINER  
REFRIGERATION: S4BCF-5.2{Y}

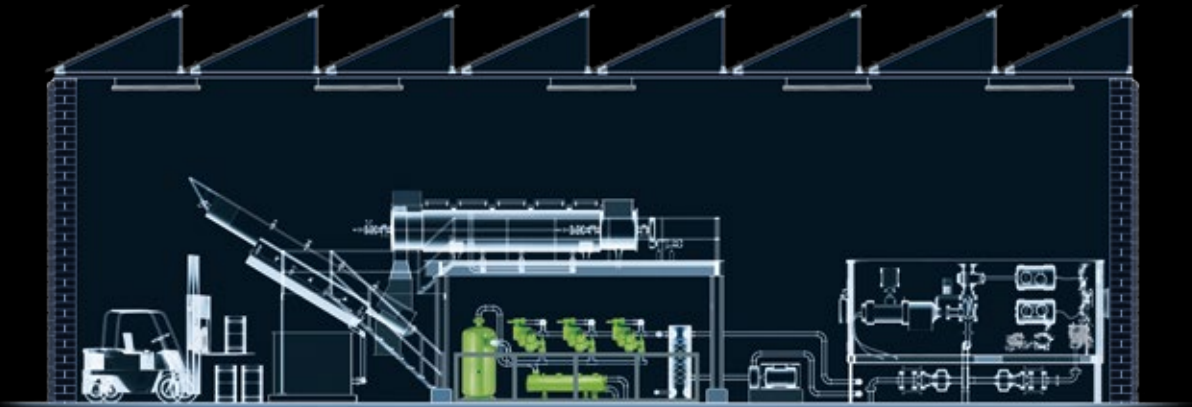
Always the perfect temperature: StarCool container refrigeration is the result of an intensive cooperation between Maersk Container Industry and BITZER. It is used in containers for the temperature control of perishable goods such as foodstuffs in transit. At the heart of the system is a particularly compact, lightweight, and low-vibration 2-stage aluminum 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.



335 .. 1480 CFH at variable speed

// ADDITIONAL EXPERTISE

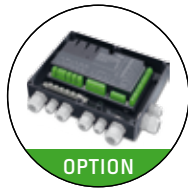
WELL TEMPERED! **WE ARE REFRIGERATION EXPERTS AND FEEL RIGHT AT HOME EVEN IN WARM ENVIRONMENTS.**



When it comes to process cooling in modern industrial plants, our compressors ensure reliable processes. Data centers 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 CRUI 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.

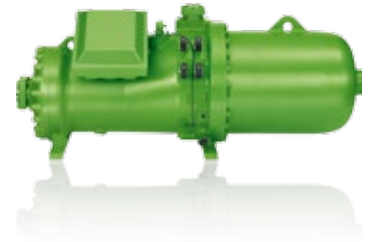


174 .. 9370 CFH at 60 Hz

HFO ready



**IQ** INTELLIGENT COMPRESSORS



HERMETIC SCROLL COMPRESSORS: ORBIT 6 // ORBIT 8

Data centers 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 capacities 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.



839 .. 3270 CFH at 60 Hz (single compressor)

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

Several optimizations – 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.

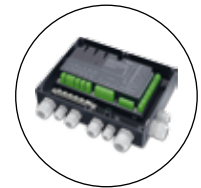


5810 .. 47450 CFH at 60 Hz

## PROCESS APPLICATIONS

HFO ready

HFO ready



### IQ INTELLIGENT COMPRESSORS



### IQ INTELLIGENT COMPRESSORS



### 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 optimized 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.

#### SEMI-HERMETIC SCREW COMPRESSORS: HS WITH OPTIONAL IQ MODULE

Thanks to the HSK variant for air conditioning/medium temperature applications, the HSN variant for medium/low temperature applications, 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 setup. Options: Eco operation for more refrigerating capacity/energy efficiency for applications with high pressure conditions and version with the IQ MODULE.

#### 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 applications and the OSN variant for medium/low temperature applications. 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 setup.



3890 .. 40800 CFH at variable speed



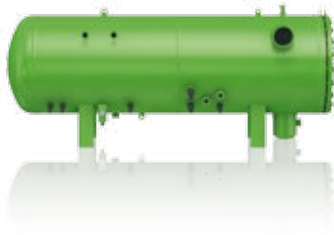
3560 .. 22700 CFH at 60 Hz



3560 .. 43000 CFH at 3500 rpm



HFO ready



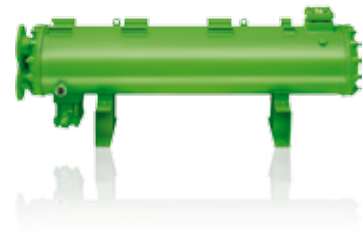
OIL SEPARATORS // LIQUID RECEIVERS

In many cooling systems, oil separators ensure smooth operation for the compressors working at full- or part-load 365 days per year. With HFC, HFO, or NH<sub>3</sub>, 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, NH<sub>3</sub>, subcritical and supercritical CO<sub>2</sub> up to 1900 psi operating pressure. With vertical and horizontal solutions, the perfect integration into any process cooling system is ensured.



Compressor displ. up to 150000 CFH // Pumpdown capacity 13 .. 1800 lb

HFO ready



WATER COOLED CONDENSERS // EVAPORATORS

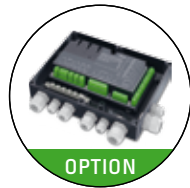
Highly efficient and reliable, BITZER condensers represent the best solution whenever water is available as cooling agent. STC condensers with maximum operating pressures up to 400 psi are designed for normal HFC and HFO refrigerants, while the 600 psi HPC condensers are suitable for R410A. Fresh water models (featuring copper pipes) as well as seawater resistant models (featuring copper-nickel pipes) can be specified. A complete range of dry-expansion shell-and-tube evaporators for medium and high pressure applications is also available, with "U-tube" design and tube bundle extractable for inspection and maintenance purposes. All models are designed and manufactured according to the ASME Section VIII, Division 1, latest edition. CRN registration is available.



Condenser THR 36 .. 4300 kBtu/hr // Evaporator capacity up to 7000 kBtu/hr

## HEAT PUMP APPLICATIONS

HFO ready



**IQ** INTELLIGENT COMPRESSORS



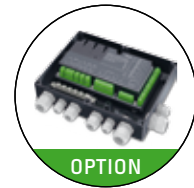
### SEMI-HERMETIC RECIPROCATING COMPRESSORS: ECOLINE WITH OPTIONAL IQ MODULE

The ECOLINE models are versatile and universally applicable in heat pumps. In addition to applications with R134a, all ECOLINE models are also optimized 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 control ensure high part-load efficiency.

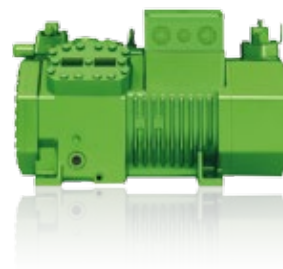
The optionally available IQ MODULE for the CE4 series and onwards ensures maximum operating reliability.



174 .. 9350 CFH at 60 Hz



**IQ** INTELLIGENT COMPRESSORS



### SEMI-HERMETIC RECIPROCATING COMPRESSORS FOR CO<sub>2</sub> APPLICATIONS WITH OPTIONAL IQ MODULE

For use in heating pumps, compressors for transcritical CO<sub>2</sub> 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.



140 .. 1620 CFH at 60 Hz



HFO ready



**IQ** INTELLIGENT COMPRESSORS



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

Several optimizations – 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 data log of the operating parameters.



5800 .. 47450 CFH at 60 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 pre-wired 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.



1890 .. 40800 CFH 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.



839 .. 3270 CFH at 60 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, NH<sub>3</sub>, sub-critical and supercritical CO<sub>2</sub> up to 1900 psi operating pressure. 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<sub>3</sub>. The new OAHC horizontal 3-stage separators for NH<sub>3</sub> applications can take the final carry-over rate to an impressive < 10 ppm.



Pumpdown capacity 13 .. 1800 lb //  
Compressor displ. up to 150000 CFH

HFO ready



### WATER COOLED CONDENSERS // EVAPORATORS

Highly efficient and reliable, BITZER condensers represent the best solution whenever water is available as cooling agent. STC condensers, with maximum operating pressures up to 400 psi are designed for normal HFC and HFO refrigerants, while the 600 psi HPC condensers are suitable for R410A. Fresh water models (featuring copper pipes) as well as seawater resistant models (featuring copper-nickel pipes) can be specified. A complete range of dry-expansion shell-and-tube evaporators for medium and high pressure applications is also available, with "U-tube" design and tube bundle extractable for inspection and maintenance purposes. All models are designed and manufactured according to the ASME Section VIII, Division 1, latest edition. CRN registration is available.



Condenser THR 36 .. 4300 kBtu/hr //  
Evaporator capacity up to 7000 kBtu/hr



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