



DAS HERZ DER FRISCHE

SCROLL COMPRESSORS

ESP-130-10 EN



ORBIT SERIES



SCROLL
COMPRESSORS



HEAT
PUMPS



AIR
CONDITIONING



PROCESS
COOLING



DATA CENTERS

BITZER EXPERTISE AND INNOVATION



AIR CONDITIONING



HEAT PUMPS



REFRIGERATION



PROCESS COOLING



TRANSPORT



We are always striving for the highest possible energy efficiency and quality at BITZER. As an independent global leader in refrigeration, air conditioning and heat pump technology for comfort air conditioning, process technology and mobile applications, we use our extensive experience to provide innovative products and intelligent solutions which create additional value for our partners and the environment all over the world. Learn more at bitzer.de



INNOVATION
DRIVER SINCE
1934

EMPLOYEES
4,500

SITES
74

COUNTRIES
40

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In heat pumps, BITZER compressors demonstrate their strengths reliably. Whether in floor heating, sanitary facilities and swimming pools, or in industrial processes, customers will find suitable products for every application.



READY FOR FUTURE REFRIGERANTS

The accelerated phase down or final phase out of fluorinated refrigerants requires a new way of thinking about the refrigeration, air conditioning and heat pump industry worldwide. In Europe, the F-Gas Regulation 2024/573 is a key factor in this process.

In order to ensure long-term availability, particular attention must be paid to minimising the environmental impact when selecting the refrigerant. The importance of natural refrigerants in particular is increasing.

Future-proof refrigerants include, among others:

- // Carbon dioxide (R744)
- // Hydrocarbons such as propane (R290) and isobutane (R600a)
- // Ammonia (R717)



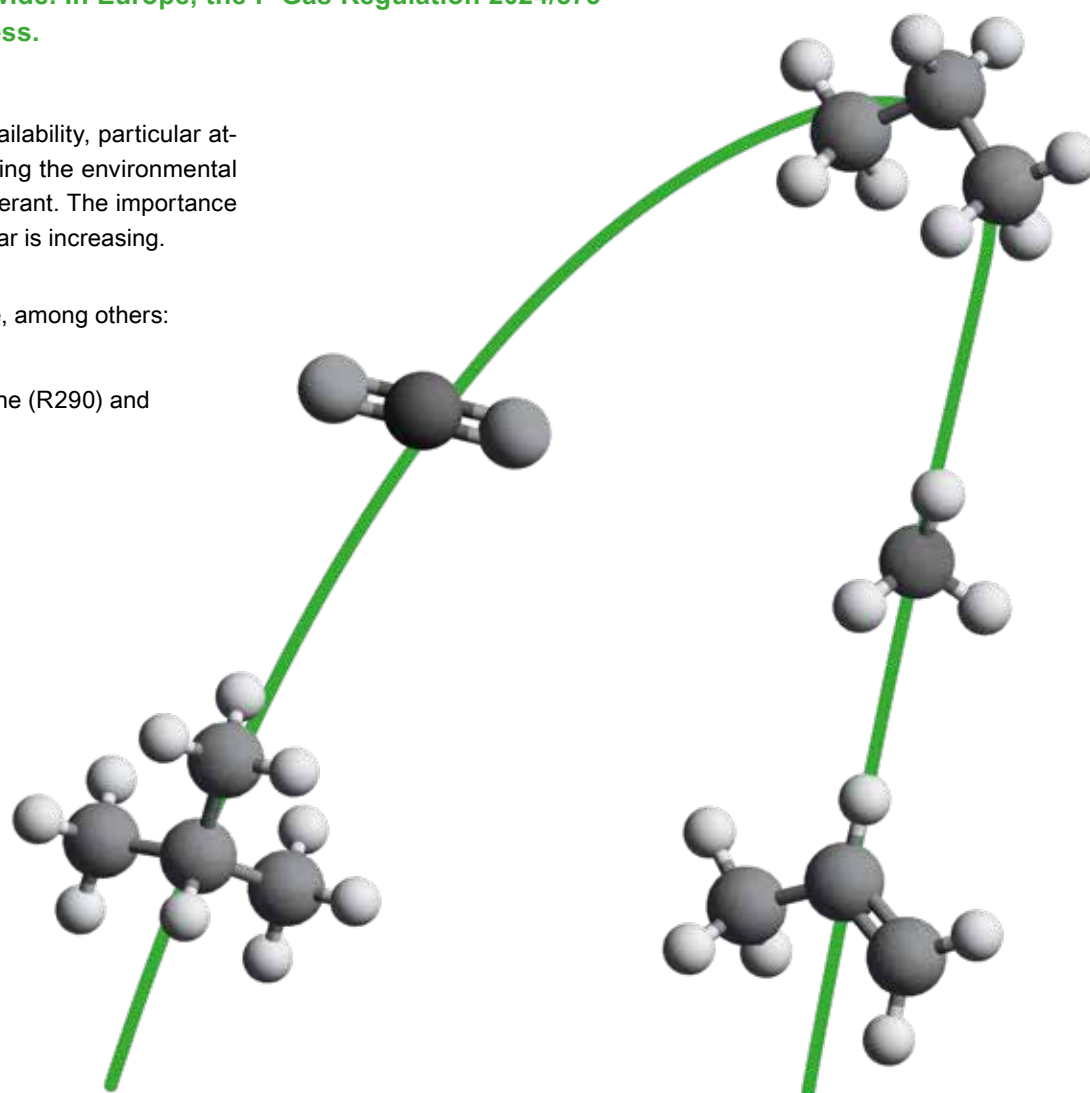
CO₂



HYDROCARBON



NH₃



OPT FOR REFRIGERANTS WITH LONG-TERM AVAILABILITY

For new installations in the EU for all applications, it is strongly recommended to design and construct them in such a way that they can be operated with refrigerants that are available in the long term – preferably natural refrigerants. If the use of natural refrigerants is not possible – for example, for technical reasons – new systems in the EU should ideally resort to a refrigerant with

a GWP of <10. If refrigerants with a higher global warming potential are absolutely necessary, a GWP value below 150 should be the limit, taking into account the phase-down steps after 2030. For existing systems with high maintenance requirements or refrigerant loss, it is advisable from an economic point of view to switch to refrigerants with the lowest possible GWP value.

EXPERTISE FOR PRACTICAL APPLICATIONS

BITZER has many years of experience in the use of natural refrigerants in its products and continues to develop its portfolio in that direction. With practical training courses at the SCHAUFLEER Academy and further sources of information such as the digital Refrigerant Report, BITZER also helps its customers to use natural refrigerants safely.



DIGITAL AND ALWAYS UP TO DATE: BITZER REFRIGERANT REPORT

The BITZER Refrigerant Report has served as a reliable industry reference since 1992 and contains extensive information on various refrigerants, comparisons of their substance property data, and concrete recommendations for new and existing systems. The Refrigerant Report is available exclusively online and therefore always up to date in terms of regulations and requirements.

bitzer-refrigerantreport.com



BITZER
Refrigerant Report



LEARN MORE:
REFRIGERANTS ONLINE

SCROLL COMPRESSORS FOR PROPANE

ORBIT PRO

The ORBIT PRO series expands the ORBIT scroll compressor portfolio with a version designed for the future-proof refrigerant propane (R290). Thanks to its extended application limits and broad model selection, the series is the ideal choice for numerous applications.

FLEXIBLE AND HIGH-PERFORMING

With evaporating temperatures from -30°C to $+30^{\circ}\text{C}$ and condensing temperatures from $+10^{\circ}\text{C}$ to $+80^{\circ}\text{C}$, ORBIT PRO scroll compressors offer a wide operating range for diverse applications. Whether used individually or in parallel systems, they deliver consistent and reliable performance. The series includes two housing sizes with nine models, covering displacements from 19.8 to 77.2 m³/h at 50 Hz. Operation with an external frequency inverter is also possible.

THE RIGHT CHOICE FOR THE FUTURE

Propane combines an ultra-low GWP with excellent thermodynamic efficiency, making it a highly future-proof natural refrigerant. With performance characteristics comparable to established refrigerants, propane enables high efficiency across a wide operating range and helps meet increasingly strict environmental regulations.



QUIET AND STABLE PERFORMANCE

Low sound emissions and reduced oil carry-over rate of ORBIT PRO scroll compressors ensure quiet operation and stable system performance.

- SCROLL COMPRESSORS
- PROPANE
- HEAT PUMPS
- AIR CONDITIONING
- DATA CENTERS



HEAT PUMPS

ORBIT PRO scroll compressors provide reliable operation across a wide temperature range. They are suitable for heat pumps and reversible systems used in commercial and residential buildings or in industrial processes. Thanks to extended application limits, the compressors also operate effectively in lower temperature climates.



AIR CONDITIONING

The ORBIT PRO series offers dependable comfort cooling with strong efficiency across a wide range of climate conditions, making it suitable for various building types that require quiet and stable air conditioning performance.

FOR FUTURE-PROOF APPLICATIONS



PROCESS COOLING

The ORBIT PRO series maintains precise and consistent process temperatures, supported by robust engineering and scalable capacity which adapts easily to varying thermal loads. Operating at high evaporating and condensing temperatures enhances the efficiency of today's advanced systems.



DATA CENTER COOLING

ORBIT PRO scroll compressors operate with low noise levels and high part load efficiency. Tandem and trio configurations enable safe and flexible capacity control and scaling. As a result, the cooling capacity can be easily adapted to the requirements of sensitive data center applications.

ORBIT PRO



FUTURE-PROOF

Propane as an efficient natural refrigerant with low environmental impact



FLEXIBLE

Wide application limits, broad model range, and operation with or without frequency inverter



EASILY SCALABLE

BITZER Advanced Header Technology (BAHT) for tandem and trio compressor combinations



QUIET AND STABLE

For low vibration and reduced oil carry-over rate



COMBINE WITH EASE

BAHT simplifies ORBIT PRO tandem and trio configurations.



Backed by BITZER's long-standing expertise with natural refrigerants, the ORBIT PRO series offers wide application limits for propane-based systems.

BITZER ADVANCED HEADER TECHNOLOGY (BAHT)

Thanks to BAHT, ORBIT PRO scroll compressors can be combined easily in tandem or trio configurations. The dedicated piping design ensures stable oil management and reliable capacity control, even at low mass flow rates. Preconfigured piping kits streamline system design. By leveraging specific ORBIT design features, BAHT utilises small pressure differentials between the individual oil sumps to ensure reliable oil equalisation and sufficient oil supply to each compressor. This provides a stable, low vibration compound set-up and supports the system's efficiency at full and part load. Different displacements can be combined without the need for different restrictor washers.

VARIABLE SPEED OPERATION

ORBIT PRO scroll compressors are suitable for variable speed operation, enabling system manufacturers to achieve both full load and rated-point efficiency while improving part load performance. Their over-speed capability allows for reduced compressor size, offering economic benefits in system design. With a speed range from 45 to 75 Hz, ORBIT 6 PRO provides flexible capacity control across low and high evaporating and condensing temperatures in a variety of cooling and heating applications.

DESIGNED FOR PROPANE

Choosing a natural refrigerant such as propane enhances the future viability of modern systems. With ORBIT PRO scroll compressors, system manufacturers and operators benefit from a reliable option.

ORBIT PRO

VERSATILE ACROSS APPLICATIONS

BITZER ADVANCED HEADER TECHNOLOGY (BAHT)

- // Tandem and trio scroll combinations made easy
- // Several combinations possible, even with different displacements and housing sizes
- // Stable oil management and reliable capacity control

MOTOR

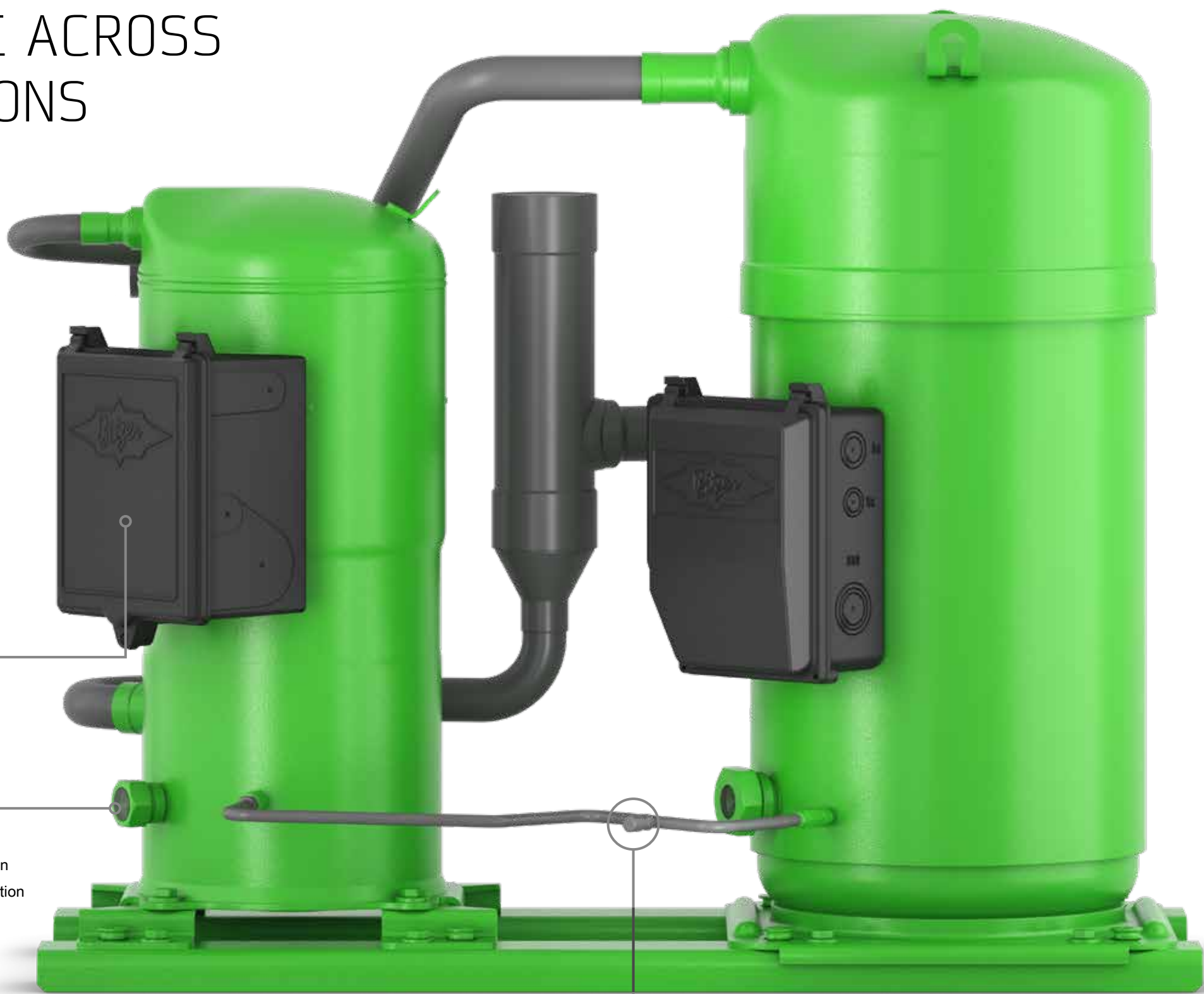
- // Suction gas cooled
- // Hermetically sealed design
- // Suitable for mains and variable speed drive operation

TERMINAL BOX

- // Enclosure class IP54
- // Main connections at the bottom
- // Motor protection devices available

SIGHT GLASS

- // Quick check of oil level
- // Visual control of refrigerant condition
- // Helps detect moisture or contamination



ORBIT PRO TANDEM

OIL SERVICE PORT

- // Oil fill/access
- // Sampling for checks



FREQUENCY INVERTERS

Optimally combined: BITZER offers frequency inverters matched to the motor characteristics of ORBIT scroll compressors and designed for variable speed operation across the full speed range. The solution is complemented by the expertise of OJ Electronics, a BITZER Group company with long-standing experience in drives for scroll compressors, helping to ensure efficient and reliable operation.



VARIOUS ACCESSORIES AVAILABLE

- // **Oil heater:** Prevents refrigerant migration into the oil during standstill, ensuring proper lubrication at compressor start and extending its service life.
- // **Discharge gas temperature sensor:** Monitors the compressor's discharge gas temperature to prevent overheating and ensure safe, reliable operation.
- // **Vibration dampers:** Elastic mounting elements that reduce structure-borne noise and protect the compressor from operational vibration.
- // **Sound insulation hood:** Optional hood for acoustic damping. Suitable for installation on an already mounted compressor and designed to maintain accessibility during service.
 - Reduces operational noise
 - Easy handling
 - All connection points remain accessible

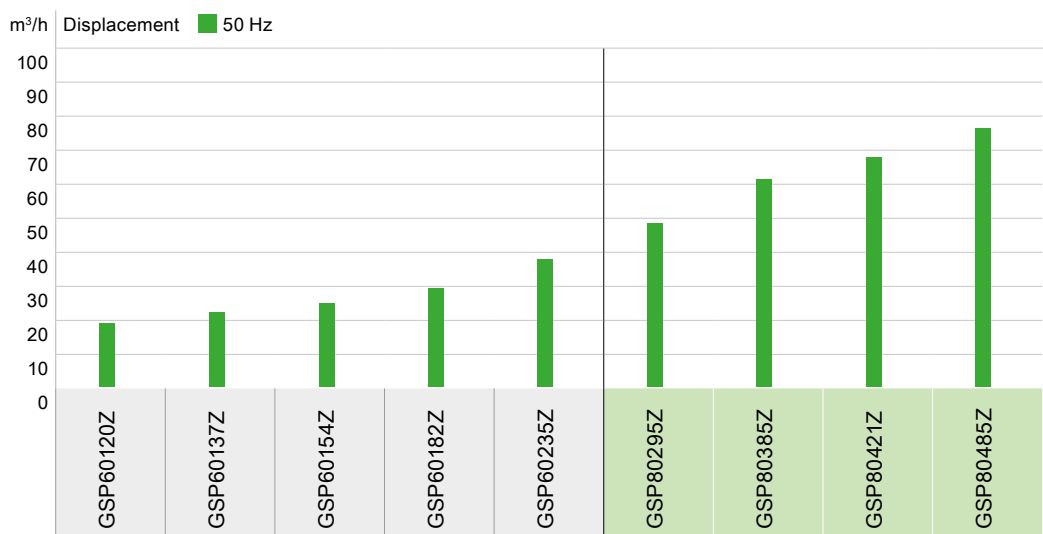
Further accessories can be found in the BITZER SOFTWARE and BITZER ePARTS.

BITZER SOFTWARE Further details can be found in the BITZER SOFTWARE.

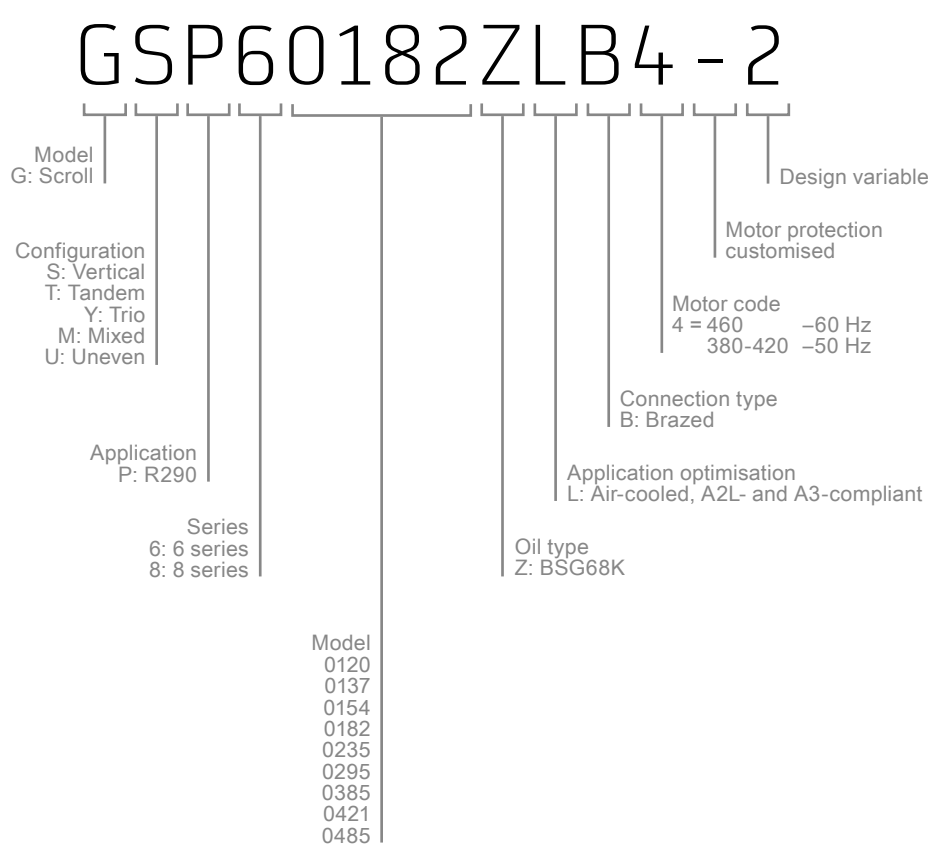


CAPACITY RANGES FOR HEATING AND COOLING

DISPLACEMENT RANGE

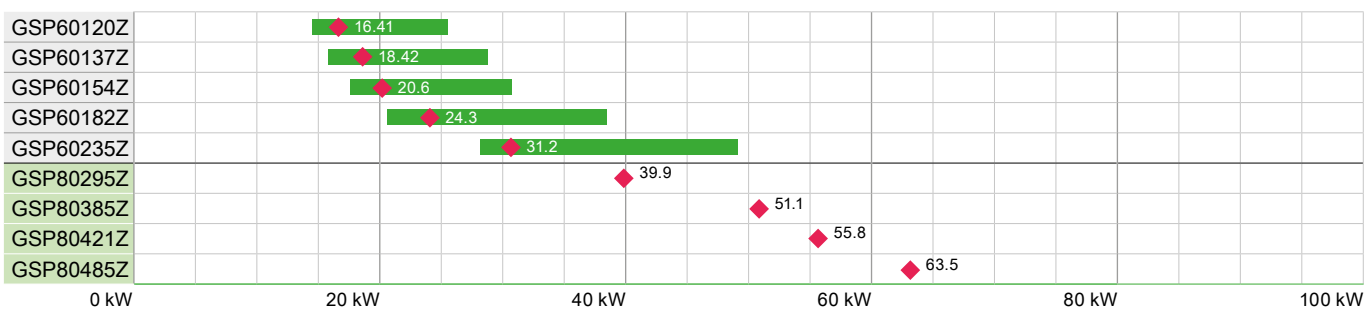


EXPLANATION OF THE MODEL DESIGNATION

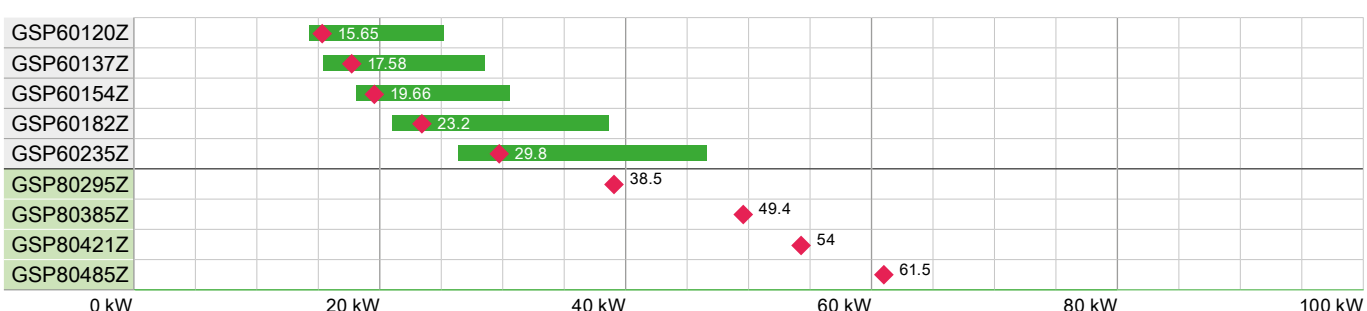


CAPACITY RANGES

Cooling capacity Q_o R290
Operating point: $t_o = +5^\circ\text{C}$, $t_c = +50^\circ\text{C}$, $\Delta t_{oh} = 10\text{ K}$, $\Delta t_{cu} = 0\text{ K}$

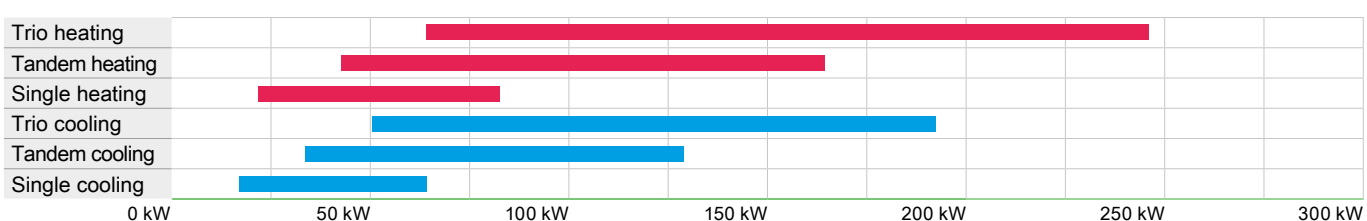


Heating capacity Q_h R290
Operating point: $t_o = -7^\circ\text{C}$, $t_c = +50^\circ\text{C}$, $\Delta t_{oh} = 5\text{ K}$, $\Delta t_{cu} = 5\text{ K}$



TANDEM/TRIO COMPRESSOR OPERATION

Heating and cooling capacity R290
Operating point: $t_o = +5^\circ\text{C}$, $t_c = +50^\circ\text{C}$



Further details can be found in the BITZER SOFTWARE. BITZER SOFTWARE

TECHNICAL DATA AND PERFORMANCE VALUES

Compressor model	Displacement	Speed range	Oil charge	Weight	Cooling capacity R290 Q _o (kW @50Hz)	COP cooling	Heating capacity R290 (kW @50 Hz)	COP heating	Electrical data
	at 50 Hz in m³/h		in dm³	in kg	$t_o/t_c/\Delta t_{oh}/\Delta t_{cu}$ +5°C/+50°C/10 K/0 K		$t_o/t_c/\Delta t_{oh}/\Delta t_{cu}$ -7°C/+50°C/5 K/5 K		Motor connection
GSP60120Z	19.8	45..75 Hz	2.7	82	16.47	3.53	15.68	3.38	380 .. 420 V/3/50 Hz 460 V/3/60 Hz
GSP60137Z	22.2		2.7	82	18.49	3.54	17.61	3.39	
GSP60154Z	24.8		2.7	82	20.07	3.54	19.7	3.39	
GSP60182Z	29.2		2.7	82	24.4	3.54	23.2	3.39	
GSP60235Z	37.6		2.7	82	31.4	3.54	29.9	3.4	
GSP80295Z	48.3	50/60 Hz	5.5	142	40	3.61	38.5	3.4	
GSP80385Z	61.8		5.5	144	51.3	3.57	49.5	3.38	
GSP80421Z	67.6		5.5	143	56	3.57	54.1	3.38	
GSP80485Z	77.2		5.5	160	63.7	3.54	61.6	3.36	

Tentative data



PERFORMANCE DATA

Data based on R290
t_o: Evaporation temperature
t_c: Condensing temperature
Performance data are based on the EN 12900 standard.
Subject to change.

PERFORMANCE DATA

The BITZER SOFTWARE is available in multiple languages, directly in a browser or as a Windows download. It is always up to date and also optimised for mobile devices.

The BITZER SOFTWARE comprises:

- // Performance data for all established refrigerants at freely selectable operating conditions
- // All relevant technical data
- // Calculation results and individually defined performance tables for the compressors
- // Seasonal calculations
- // Parallel compounds
- // Available accessories and their selection
- // All relevant technical documents



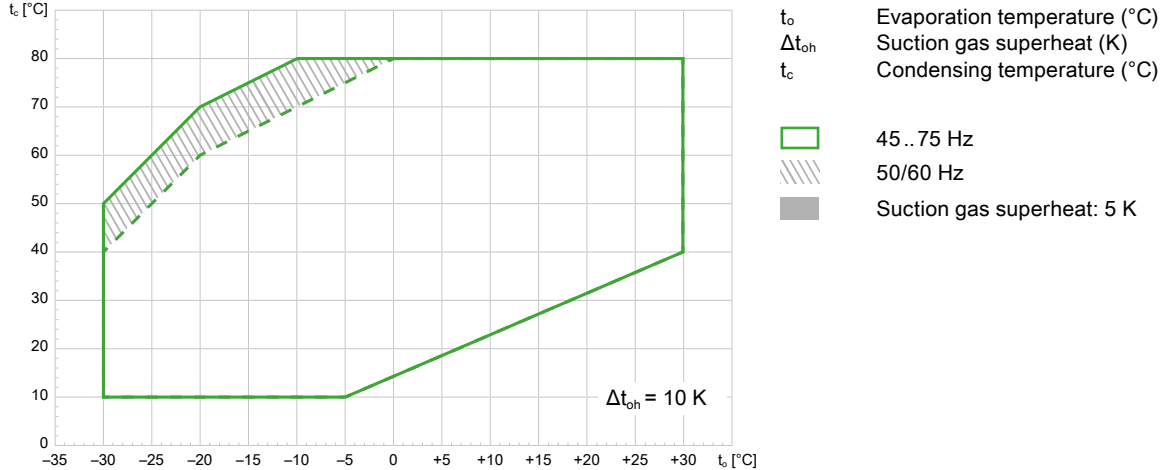
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APPLICATION LIMITS

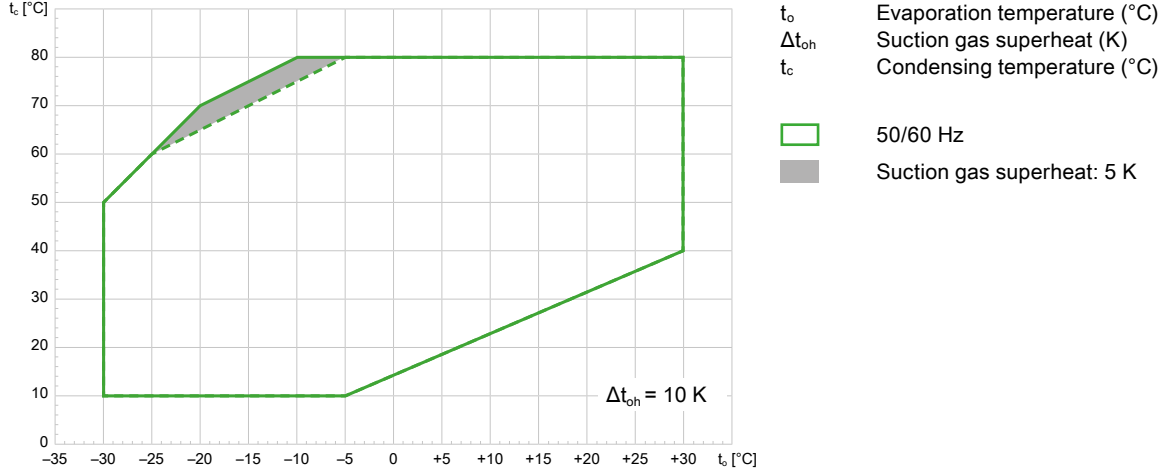
Application limits of the **ORBIT 6 PRO** series: GSP60120Z, GSP60137Z, GSP60154Z, GSP60182Z, GSP60235Z

R290



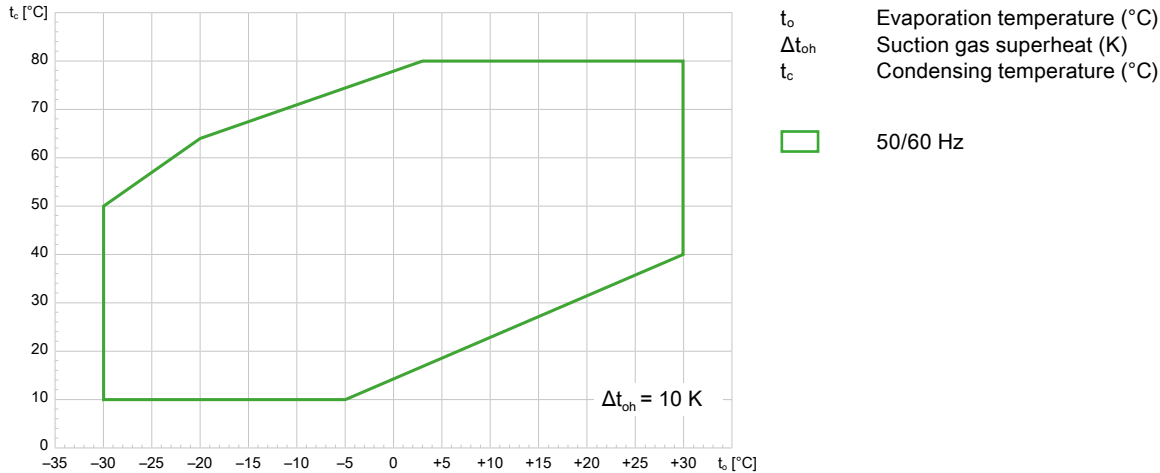
Application limits of the **ORBIT 8 PRO** series: GSP80295Z, GSP80385Z, GSP80421Z

R290



Application limits of the **ORBIT 8 PRO** series: GSP80485Z

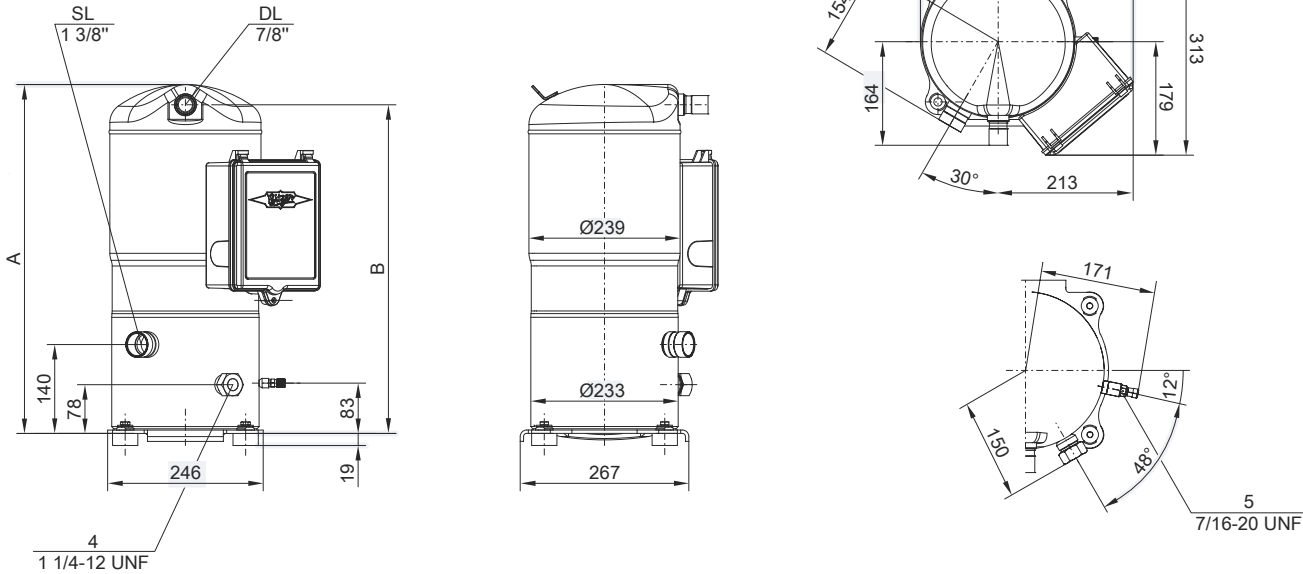
R290



DIMENSIONAL DRAWINGS

ORBIT 6 PRO

Exemplary dimensional drawing; details in the BITZER SOFTWARE.



Compressor model	A		B	
	mm	in.	mm	in.
G.60120 .. G.60182	557	21.91	520	20.47
G.60235	564	22.19	526	20.71

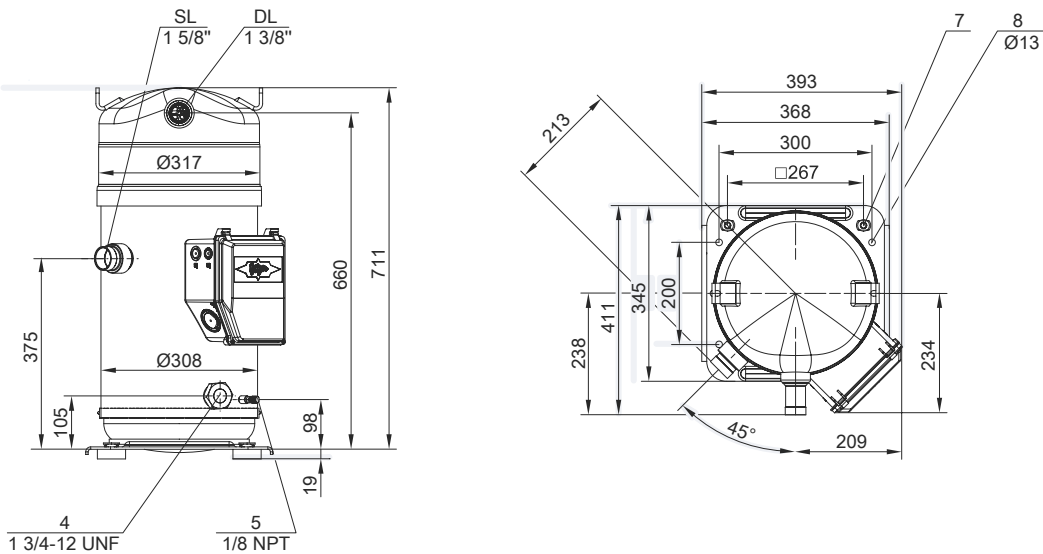
- SL Suction gas line
ORBIT 6 PRO: 1 3/8 inch
ORBIT 8 PRO: 1 5/8 inch
- DL Discharge gas line
ORBIT 6 PRO: 7/8 inch
ORBIT 8 PRO: 1 3/8 inch

CONNECTIONS

- 4 Sight glass
- 5 Oil service connection (Schrader)/
Connection for oil equalisation (parallel operation)
- 7 Mounting position for vibration dampers
- 8 Mounting position for tandem and trio fixing rails

ORBIT 8 PRO

Exemplary dimensional drawing; details in the BITZER SOFTWARE.



In data center cooling, BITZER compressors help ensure dependable operation in demanding environments. With their focus on operational reliability and energy efficiency, they support stable cooling across this critical application area.



SCROLL COMPRESSORS FOR HFC/HFO

ORBIT STANDARD, ORBIT FIT, ORBIT+, ORBIT BOREAL

The ORBIT scroll compressor series with its different versions is designed for a wide range of refrigerants. Thanks to their application flexibility and broad model selection, the series are the ideal choice for numerous applications.

TAILORED PERFORMANCE ACROSS APPLICATIONS

The ORBIT Standard, ORBIT FIT, ORBIT+ and ORBIT Boreal series offer a versatile platform comprising various compressors for a wide range of refrigerants and operating conditions. Each variant is designed to meet specific performance requirements – from standard applications to demanding operating environments. Support for low-GWP refrigerants such as R454B, R452B and R32, as well as established refrigerants such as R410A, enables flexible system integration across diverse applications.

Advanced technologies enable targeted efficiency improvements: ORBIT FIT compressors with economiser extend the application limits and deliver higher cooling capacity and improved efficiency, particularly in heat pump applications. ORBIT+ compressors with line start permanent magnet (LSPM) motor technology increase system efficiency, while ORBIT Boreal compressors with an optimised internal volume ratio ensure high efficiency at low condensing temperatures. The same ORBIT scroll compressor models are suitable for operation with frequency inverters as well as for fixed-speed systems at both 50 and 60 Hz, further increasing application flexibility worldwide.



RELIABLE AND EFFICIENT IN EVERY- DAY OPERATION

ORBIT scroll compressors are designed for smooth and stable operation with low vibration and low noise levels. Optimised efficiency across part load conditions supports energy-efficient system performance in real operating scenarios.



SCROLL
COMPRESSORS



HEAT
PUMPS



AIR
CONDITIONING



PROCESS
COOLING



DATA CENTERS



HEAT PUMPS

ORBIT scroll compressors are designed for heat pump applications and offer reliable performance across a wide temperature range. In particular, ORBIT FIT compressors with economiser extend the application limits to lower temperatures, while increasing cooling capacity and improving system efficiency.



AIR CONDITIONING

The ORBIT scroll compressor series offers dependable comfort cooling with strong efficiency across a wide range of climate conditions, making it suitable for various building types that require quiet and stable air conditioning performance.

FOR VERSATILE APPLICATIONS



PROCESS COOLING

The ORBIT scroll compressor series maintains precise and consistent process temperatures in process cooling applications, supported by robust design and flexible capacity that adapts easily to varying thermal loads and specific temperature requirements. Efficient operation across a broad range of operating conditions enhances the performance of modern process cooling systems.



DATA CENTER COOLING

ORBIT scroll compressors operate with low noise levels and high part load efficiency. In ORBIT+ compressors, LSPM motor technology further enhances system efficiency. Reliable operation and continuous performance ensure stable cooling in sensitive data center environments.

ORBIT



FLEXIBLE

Wide application limits, broad model range and operation with or without frequency inverter



SIMPLIFIED SYSTEM DESIGN

Two housing sizes for a wide temperature range



EASILY SCALABLE

BITZER Advanced Header Technology (BAHT) for tandem and trio compressor combinations



QUIET AND STABLE

For low vibration and reduced oil carry-over rate



COMBINE WITH EASE

BAHT simplifies tandem and trio configurations of ORBIT scroll compressors.



Backed by the BITZER's long-standing expertise that BITZER has in compressor technology, the ORBIT Standard, ORBIT FIT, ORBIT+ and ORBIT Boreal series offer wide application limits for a broad range of refrigerants and applications.

BITZER ADVANCED HEADER TECHNOLOGY (BAHT)

Thanks to BAHT, all ORBIT scroll compressor models can be combined easily in tandem or trio configurations. The dedicated piping design ensures stable oil management and reliable capacity control, even at low mass flow rates. Preconfigured piping kits streamline system design. By using specific ORBIT features such as the isolated oil sump, BAHT prevents small pressure differences from affecting oil balance. This ensures a stable, low vibration compound set-up and supports the system's efficiency at full and part load. Different displacements can be combined without the need for different restrictor washers.

VARIABLE SPEED OPERATION

ORBIT scroll compressors are suitable for variable speed operation, enabling system manufacturers to achieve both full load and rated-point efficiency while improving part load performance. Their over-speed capability allows for reduced compressor size, offering economic benefits in system design. With a speed range from 35 to 75 Hz, ORBIT scroll compressors provide flexible capacity control across low and high evaporating and condensing temperatures in a variety of cooling and heating applications.

DESIGNED FOR FLEXIBLE SYSTEM CONCEPTS

Standardised components and flexible system design options help system manufacturers and operators reduce complexity and inventory requirements. In combination with BAHT, ORBIT scroll compressors support efficient and scalable capacity control concepts for compact and flexible system architectures.



ORBIT

VERSATILE ACROSS APPLICATIONS

BITZER ADVANCED HEADER TECHNOLOGY (BAHT)

- // Tandem and trio scroll combinations made easy
- // Several combinations possible, even with different displacements and housing sizes
- // Stable oil management and reliable capacity control

MOTOR

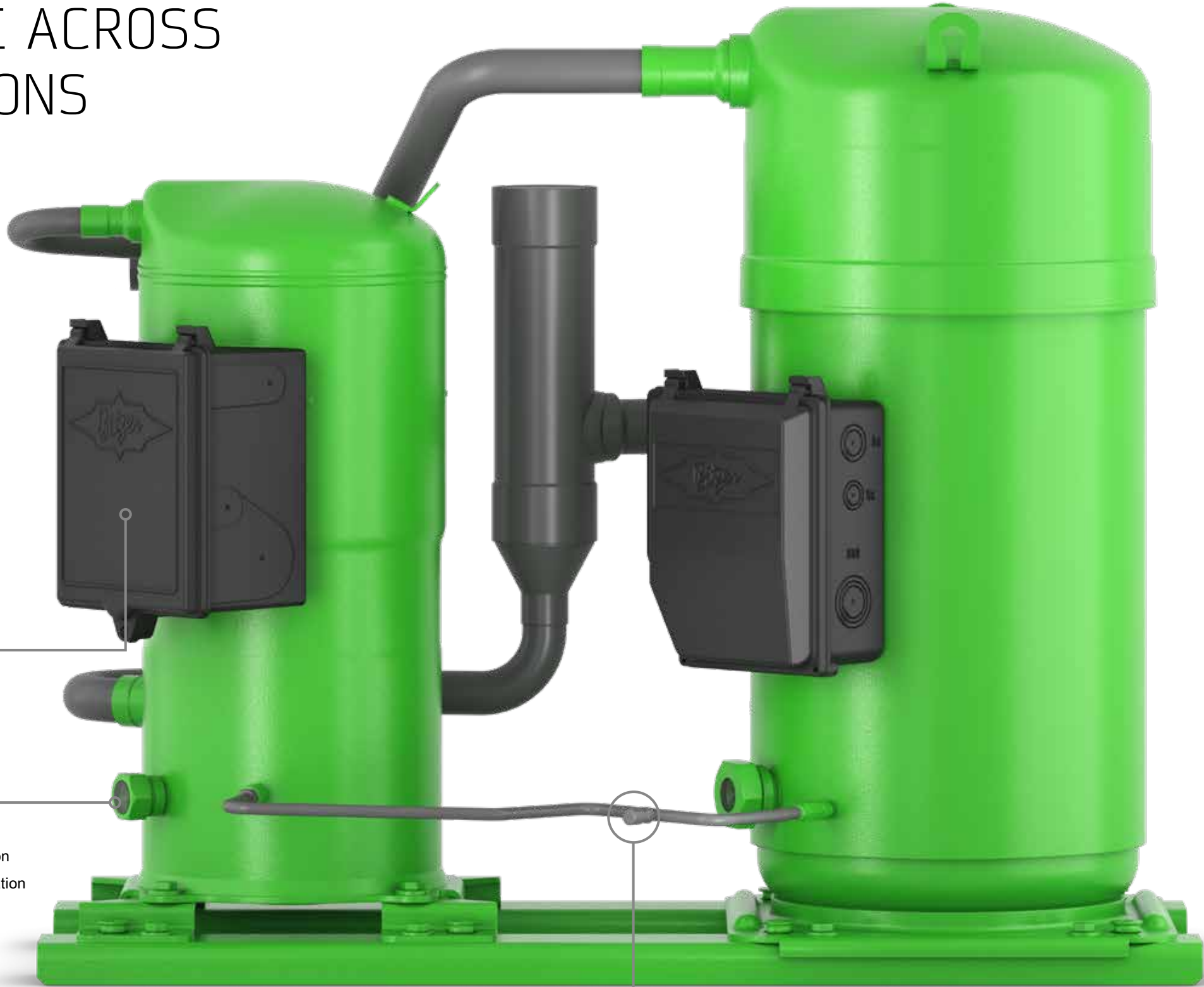
- // Suction gas cooled
- // Hermetically sealed design
- // Suitable for mains and variable speed drive operation

TERMINAL BOX

- // Enclosure class IP54
- // Main connections at the bottom
- // Motor protection devices available

SIGHT GLASS

- // Quick check of oil level
- // Visual control of refrigerant condition
- // Helps detect moisture or contamination



ORBIT TANDEM

OIL SERVICE PORT

- // Oil fill/access
- // Sampling for checks



FREQUENCY INVERTERS

Optimally combined: BITZER offers frequency inverters matched to the motor characteristics of ORBIT scroll compressors and designed for variable speed operation across the full speed range. The solution is complemented by the expertise of OJ Electronics, a BITZER Group company with long-standing experience in drives for scroll compressors, helping to ensure efficient and reliable operation.



VARIOUS ACCESSORIES AVAILABLE

- // **Oil heater:** Prevents refrigerant migration into the oil during standstill, ensuring proper lubrication at compressor start and extending its service life.
- // **Discharge gas temperature sensor:** Monitors the compressor's discharge gas temperature to prevent overheating and ensure safe, reliable operation.
- // **Vibration dampers:** Elastic mounting elements that reduce structure-borne noise and protect the compressor from operational vibration.
- // **Sound insulation hood:** Optional hood for acoustic damping. Suitable for installation on an already mounted compressor and designed to maintain accessibility during service.
 - Reduces operational noise
 - Easy handling
 - All connection points remain accessible

Further accessories can be found in the BITZER SOFTWARE and BITZER ePARTS.

 **BITZER SOFTWARE** Further details can be found in the BITZER SOFTWARE.



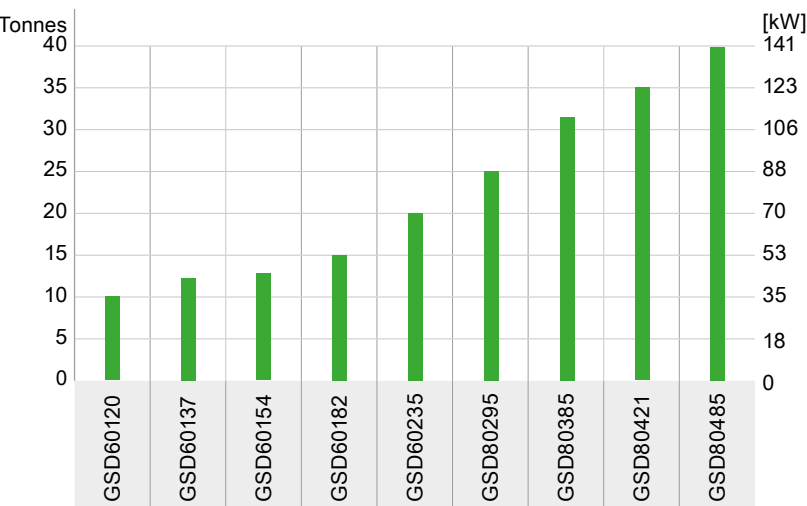
ORBIT SCROLL COMPRESSORS

AT A GLANCE

ORBIT STANDARD

The ORBIT Standard scroll compressors provide a reliable and efficient solution for heat pump and air conditioning applications. With nine models in two housing sizes and a speed range from 35 to 75 Hz, they offer flexible system design options. They are characterised by smooth operation, low noise levels and optimised energy efficiency, particularly under part load conditions.

The ORBIT Standard capacity range*

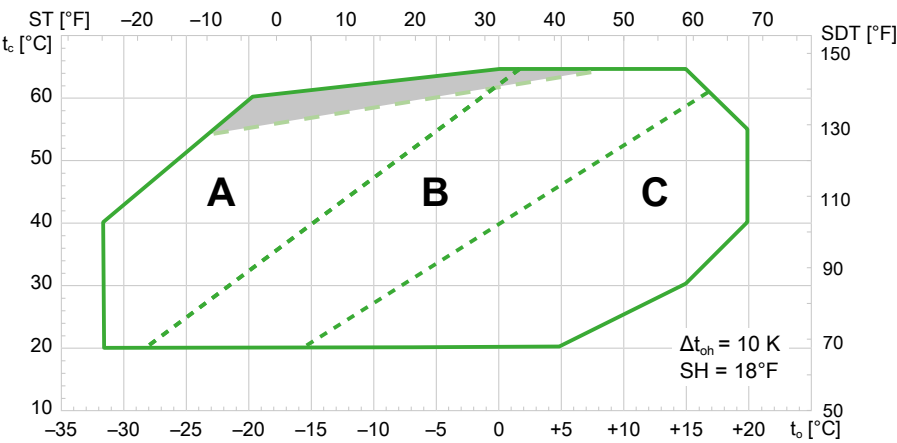


*based on AHRI 540 standard conditions and R410A

ORBIT FIT

ORBIT FIT scroll compressors with Flexible Injection Technology and economiser enable extended application limits and improved system efficiency. They support higher cooling and heating capacity as well as enhanced performance, particularly in heat pump and reversible applications. By enabling economised vapour injection in a new class of compact and efficient HVAC systems, ORBIT FIT allows system designers to achieve additional cooling capacity and higher full load efficiency in cooling-only systems, with even greater benefits in heat pump and reversible applications.

Economiser performance improvement



- t_o Evaporating temperature [°C]
- t_c Condensing temperature [°C]
- Δt_{oh} Suction superheat [K]
- SST Saturated suction temp. (°F)
- SH Suction superheat (°F)
- SDT Saturated discharge temp. (°F)
- Suction gas superheat ≤ 5 K

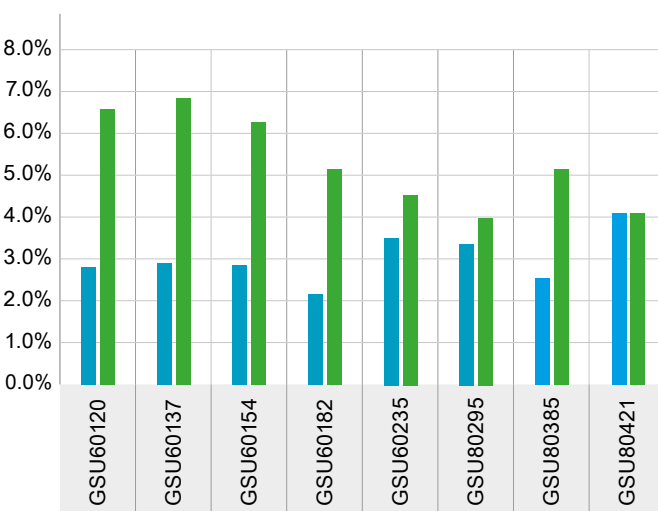
Application	COP	Cooling capacity
A Heat pump applications	6–26%	18–48%
B Air conditioning	1–26%	12–48%
C Process cooling	1–14%	3–29%

ORBIT+

ORBIT+ scroll compressors with LSPM motor technology achieve high system efficiency and improved seasonal performance. They support increased energy efficiency without changes to the existing system design and are suitable for fixed-speed or variable-speed operation.

The LSPM motor takes the compressor efficiency to a new level and increases seasonal performance. The technology combines the efficiency of a permanent magnet motor with the robustness and easy use of an asynchronous (induction) motor. With there being no slip and the rotor of the LSPM motor being synchronised to the net frequency, the operation speed is improved, supporting the efficiency increase of the compressor. The LSPM motor can either be connected directly to the power supply system or it can be operated with a frequency inverter. By using ORBIT+ instead of ORBIT Standard compressors, system efficiency can be increased without further design adjustments.

Increased cooling capacity and SEER/IPLV of ORBIT+ compared to ORBIT Standard



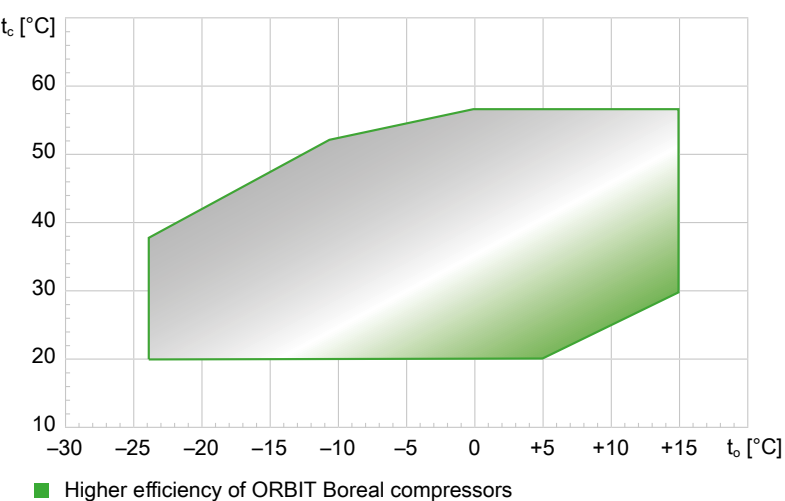
- Cooling capacity
- SEER/IPLV
- SEER:** Seasonal Energy Efficiency Ratio according to the EN 14825 standard
- IPLV:** Integrated Part Load Value according to the AHRI 550/590 standard

ADVANCED MOTOR TECHNOLOGY

HFO BLEND READY

ORBIT BOREAL

ORBIT Boreal scroll compressors are designed for high efficiency at low condensing temperatures. With an optimised internal volume ratio, they ensure reliable and energy-efficient operation, particularly in low-temperature applications such as water-to-water heat pumps.



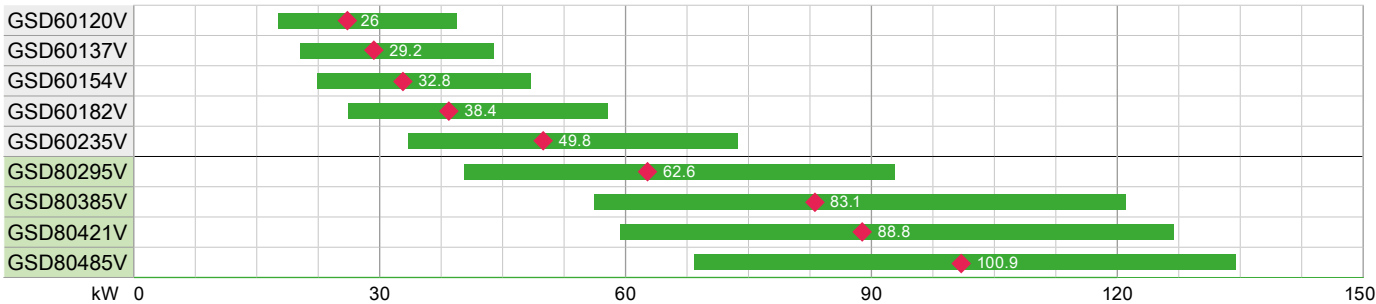
CAPACITY RANGES FOR COOLING

CAPACITY RANGES FOR ORBIT STANDARD

Cooling capacity Q_o R454B

Operating point: $t_o = +5^{\circ}\text{C}$, $t_c = +50^{\circ}\text{C}$, $\Delta t_{oh} = 10\text{ K}$, $\Delta t_{cu} = 0\text{ K}$

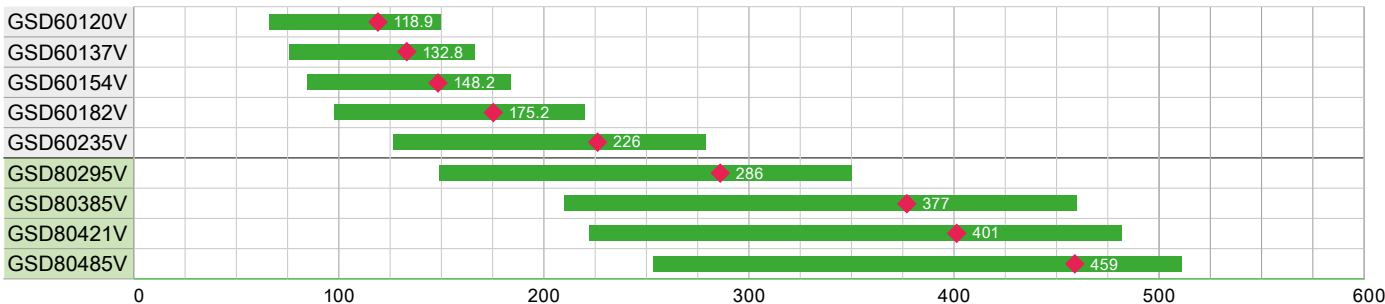
◆ kW @ 50 Hz



Cooling capacity Q_o R454B

Operating point: SST = 45°F, SDT = 130°F, SH = 20 K, SC = 15 K

◆ kBtu/h @ 60 Hz

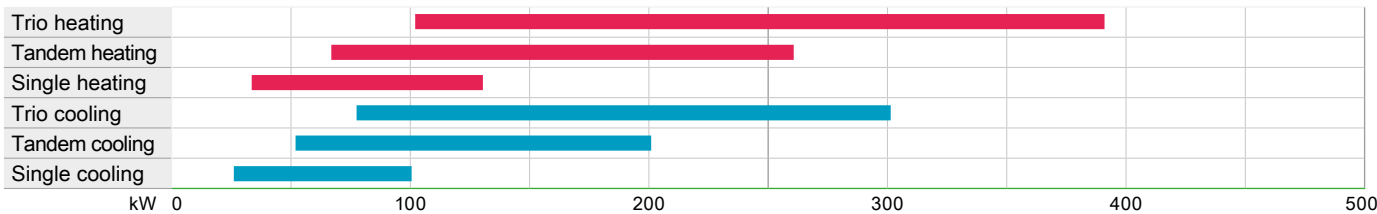


TANDEM/TRIO COMPRESSOR OPERATION

Heating and cooling capacity R454B

Operating point: $t_o = +5^{\circ}\text{C}$, $t_c = +50^{\circ}\text{C}$

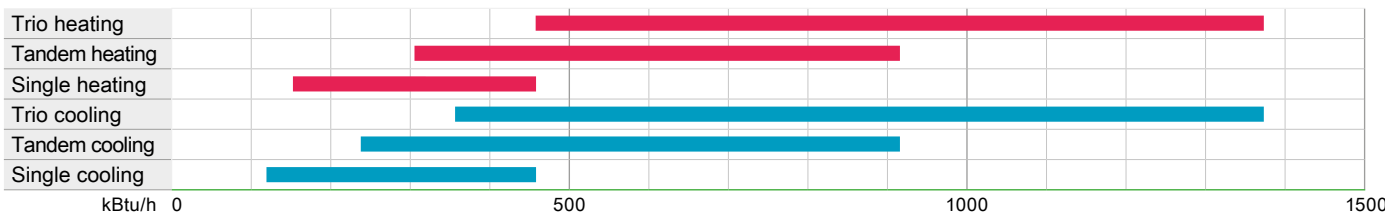
kW @ 50 Hz



Heating and cooling capacity R454B

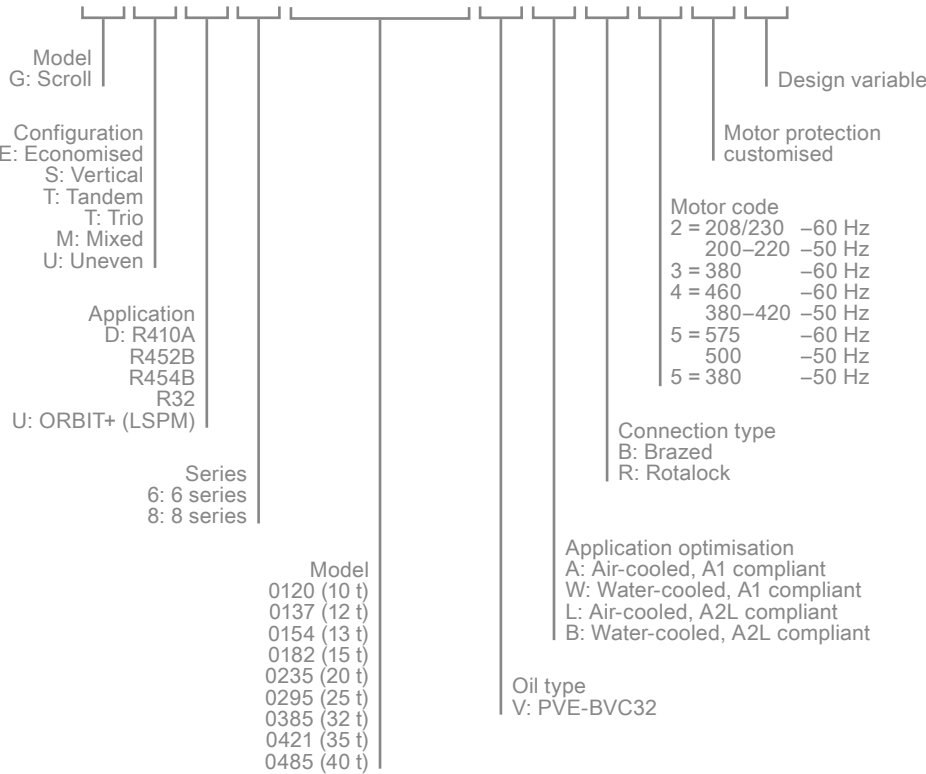
Operating point: SST = 45°F, SDT = 130°F, SH = 20 K, SC = 15 K

kBtu/h @ 60 Hz



EXPLANATION OF THE MODEL DESIGNATION

GSD80295VLB4 - 2



TECHNICAL DATA AND PERFORMANCE VALUES – 50 HZ

Performance data are based on the EN 12900 European standard and 50 Hz operation with 10 K suction gas superheat and a running-in period of 72 hours. All data do not include liquid subcooling. For economiser operation, no subcooling at the

economiser inlet and 5 K temperature difference at the heat exchanger is set. Based on the EN 12900 standard, the rated cooling capacity and efficiency (COP) therefore show lower values in comparison to data based on 5 or 8.3 K subcooling.

ORBIT STANDARD

Compressor model	Dis- place- ment at 50 Hz in m³/h	Speed range	Oil charge in dm³	Weight in kg	Cooling capacity Q _o t _o /t _c +5°C/+50°C kW				COP t _o /t _c +5°C/+50°C W/W				Electrical data			
					R410A	R454B	R452B	R32	R410A	R454B	R452B	R32	Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
GSD60120V	19.8	35..75 Hz	2.7	82	26.7	26.0	26.2	29.2	3.27	3.48	3.39	3.35	380..420 V/3/50 Hz 460 V/3/60 Hz	21.9	14.6	122
GSD60137V	22.2		2.7	82	30.0	29.2	29.8	32.8	3.26	3.55	3.43	3.35		24.3	16.4	137
GSD60154V	24.8		2.7	82	33.7	32.8	33.4	36.8	3.28	3.50	3.45	3.37		26.3	18.3	145
GSD60182V	29.2		2.7	82	39.7	38.4	39.0	43.6	3.32	3.43	3.43	3.38		31.7	21.5	180
GSD60235V	37.6		2.7	82	51.3	49.8	50.4	56.3	3.23	3.29	3.29	3.24		40.7	28.2	211
GSD80295V	48.3		5.5	142	64.9	62.6	63.6	70.5	3.17	3.28	3.30	3.24		54.0	37.0	212
GSD80385V	61.8		5.5	144	85.6	83.1	83.5	93.2	3.18	3.34	3.31	3.26		66.0	45.0	316
GSD80421V	67.6		5.5	143	91.4	88.8	89.5	100.6	3.16	3.29	3.30	3.25		75.0	50.0	316
GSD80485V	77.2		5.5	160	104.4	100.9	101.1	113.4	3.19	3.37	3.29	3.23		85.0	57.0	298

ORBIT FIT

Compressor model	Dis- place- ment at 50 Hz in m³/h	Speed range	Oil charge in dm³	Weight in kg	Cooling capacity Q _o t _o /t _c +5°C/+50°C kW				COP t _o /t _c +5°C/+50°C W/W				Electrical data			
					R410A	R454B	R452B	R32	R410A	R454B	R452B	R32	Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
GED80295V	48.3	35..75 Hz	5.5	144	36.4	34.1	34.2	36.3	1.55	1.56	1.55	1.47	380..420 V/3/50 Hz 460 V/3/60 Hz	57.4	32.0	326
GED80385V	61.8		5.5	159	48.5	45.3	45.8	48.6	1.61	1.64	1.63	1.53		74.3	39.0	295
GED80421V	67.6		5.5	159	49.9	47.7	47.9	50.5	1.55	1.58	1.58	1.48		80.6	44.0	295
GED80485V	77.2		5.5	164	58.0	53.2	54.2	55.1	1.60	1.61	1.59	1.45		87.0	53.1	385

PERFORMANCE DATA

t_o: Evaporation temperature
t_c: Condensing temperature
Performance data are based on the EN 12900 standard.
Subject to change.

TECHNICAL DATA AND PERFORMANCE VALUES

ORBIT+

Compressor model	Dis- place- ment at 50 Hz in m³/h	Speed range	Oil charge in dm³	Weight in kg	Cooling capacity Q _o t _o /t _c +5°C/+50°C kW				COP t _o /t _c +5°C/+50°C W/W				Electrical data			
					R410A	R454B	R452B	R32	R410A	R454B	R452B	R32	Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
GSU60120V	20.5	35..75 Hz	2.7	82.7	27.5	26.7	26.9	30.2	3.45	3.62	3.54	3.51	380..420 V/3/50 Hz 460 V/3/60 Hz	16.9	11.8	95
GSU60137V	23.0		2.7	82.7	30.8	30.0	30.3	33.9	3.50	3.66	3.51	3.48		19.7	13.1	101
GSU60154V	25.7		2.7	82.7	34.6	33.7	34.0	38.1	3.48	3.65	3.57	3.54		23.2	14.6	109
GSU60182V	30.2		2.7	82.7	40.8	39.6	40.2	45.2	3.44	3.58	3.59	3.57		27.3	16.7	123
GSU60235V	38.9		2.7	83.7	53.1	51.6	52.2	58.7	3.34	3.49	3.49	3.45		40.2	23.3	153
GSU80295V	50.0		5.5	143.5	67.0	64.9	66.0	73.7	3.33	3.48	3.52	3.47		46.0	29.0	192
GSU80385V	63.9		5.5	145.5	87.9	86.2	86.1	96.8	3.34	3.53	3.49	3.45		65.0	37.3	245
GSU80421V	69.9		5.5	144.5	94.9	92.0	92.9	105.0	3.34	3.48	3.50	3.48		71.0	40.6	245

ORBIT BOREAL

Tentative data	Compressor model	Dis- place- ment	Speed range	Oil charge	Weight	Cooling capacity Q _o t _o /t _c +5°C/+50°C kW	COP t _o /t _c +5°C/+50°C W/W	Electrical data			
		at 50 Hz in m³/h		in dm³	in kg	R410A	R410A	Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
	GSD80235V	38.6	35..75 Hz	5.5	140	63.1	4.96	380..420 V/3/50 Hz 440..480 V/3/60 Hz	39.0	27.0	213
	GSD80295V	48.3		5.5	142	76.2	4.97		47.0	32.0	212
	GSD80385V	61.8		5.5	144	97.4	4.95		60.0	41.0	277
	GSD80421V	67.6		5.5	143	107.6	4.87		66.0	45.0	316
	GSD80485V	77.2		5.5	160	122.9	4.87		74.0	51.0	316

PERFORMANCE DATA

t_o: Evaporation temperature
t_c: Condensing temperature
Performance data are based on the EN 12900 standard.
Subject to change.

PERFORMANCE DATA

The BITZER SOFTWARE is available in multiple languages, directly in a browser or as a Windows download. It is always up to date and also optimised for mobile devices.
The BITZER SOFTWARE comprises:
// Performance data for all established refrigerants at freely selectable operating conditions
// All relevant technical data
// Calculation results and individually defined performance tables for the compressors
// Seasonal calculations
// Parallel compounds
// Available accessories and their selection
// All relevant technical documents





TECHNICAL DATA AND PERFORMANCE VALUES – 60 HZ

Performance data are based on the AHRI 540 standard and 60 Hz operation with 20°F suction gas superheat and 15°F sub-cooling – at a running-in period of 72 hours. Saturated suction and discharge temperatures correspond to ‘dew point’ conditions (saturated vapour). For economiser operation, data are based on 18°F temperature difference at the heat exchanger and 15°F subcooling in the condenser.

ORBIT STANDARD

Compressor model	Dis-place-ment	Speed range	Oil charge	Weight	Cooling capacity Q _o SST/SDT 45°F/130°F kBtu/h				EER SST/SDT 45°F/130°F Btu/W				Electrical data			
	at 60 Hz CFM		fl. oz	lbs	R410A	R454B	R452B	R32	R410A	R454B	R452B	R32	Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
GSD60120V	14.1	35..75 Hz	91	181	124.0	118.9	119.0	134.3	11.42	12.01	11.68	11.77	380..420 V/3/50 Hz 460 V/3/60 Hz	21.9	14.6	122
GSD60137V	15.8		91	181	138.0	132.8	133.1	149.7	11.32	12.13	11.70	11.75		24.3	16.4	137
GSD60154V	17.6		91	181	154.7	148.2	149.3	167.8	11.36	11.87	11.70	11.82		26.3	18.3	145
GSD60182V	20.7		91	181	183.6	175.2	177.5	199.8	11.40	11.61	11.82	11.86		31.7	21.5	180
GSD60235V	26.7		91	183	236.0	226.0	228.0	257.0	11.26	11.31	11.36	11.44		40.7	28.2	211
GSD80295V	34.0		185	313	304.0	286.0	288.0	325.0	11.05	11.12	11.24	11.34		54.0	37.0	212
GSD80385V	44.0		185	317	395.0	377.0	376.0	423.0	11.04	11.27	11.33	11.42		66.0	45.0	316
GSD80421V	48.1		185	316	425.0	401.0	402.0	455.0	10.99	11.16	11.18	11.25		75.0	50.0	316
GSD80485V	55.0		185	352	482.0	459.0	455.0	515.0	10.99	11.47	11.14	11.25		85.0	57.0	298

Tentative data

ORBIT FIT

Compressor model	Dis-place-ment	Speed range	Oil charge	Weight	Cooling capacity Q _o SST/SDT 45°F/130°F kBtu/h				EER SST/SDT 45°F/130°F Btu/W				Electrical data			
	at 60 Hz CFM		fl. oz	lbs	R410A	R454B	R452B	R32	R410A	R454B	R452B	R32	Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
GED80295V	34.0	35..75 Hz	194	318	192.5	178.5	179.0	198.4	10.23	10.25	10.25	10.29	380..420 V/3/50 Hz 460 V/3/60 Hz	57.8	37.0	316
GED80385V	44.0		194	351	249.0	234.0	232.0	259.0	10.16	10.26	10.28	10.35		74.1	45.0	298
GED80421V	48.0		194	351	266.0	247.0	248.0	274.0	10.09	10.06	10.11	10.12		81.5	50.0	298
GED80485V	55.0		194	362	307.0	284.0	283.0	314.0	10.36	10.54	10.24	10.26		85.0	60.5	387

Tentative data

PERFORMANCE DATA

t_o: Evaporation temperature
t_c: Condensing temperature
Performance data are based on the EN 12900 standard.
Subject to change.



BITZER
SOFTWARE

Further details can be found
in the BITZER SOFTWARE.



TECHNICAL DATA AND PERFORMANCE VALUES

ORBIT+

Compressor model	Dis-place-ment	Speed range	Oil charge	Weight	Cooling capacity Q _o SST/SDT 45°F/130°F kBtu/h				EER SST/SDT 45°F/130°F Btu/W				Electrical data			
	at 60 Hz CFM		fl. oz	lbs	R410A	R454B	R452B	R32	R410A	R454B	R452B	R32	Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
GSU60120V	14.6	35..75 Hz	91	182.5	127.30	121.90	122.1	138.40	11.91	12.27	12.00	12.12	380..420 V/3/50 Hz 460 V/3/60 Hz	17.8	14.1	95
GSU60137V	16.4		91	182.5	141.90	136.10	136.6	154.30	12.02	12.36	12.00	12.08		20.6	15.4	109
GSU60154V	18.2		91	182.5	159.10	152.40	153.6	173.50	11.94	12.30	12.26	12.34		24.6	17.0	108
GSU60182V	21.5		91	182.5	189.50	181.10	183.5	207.80	11.94	12.22	12.51	12.63		27.9	19.9	124
GSU60235V	27.7		91	184.5	244.50	234.40	236.0	266.60	11.65	11.97	12.09	12.15		40.4	27.2	152
GSU80295V	35.5		194	316.3	311.10	297.40	299.0	341.30	11.46	11.79	11.96	12.20		49.0	34.8	207
GSU80385V	45.5		194	320.3	401.70	388.80	387.0	438.70	11.45	11.84	11.95	12.15		66.0	44.5	271
GSU80421V	49.7		194	319.3	434.70	414.80	415.0	473.50	11.47	11.81	11.88	12.09		72.0	48.4	271

Tentative data

ORBIT BOREAL

Compressor model	Dis- place- ment	Speed range	Oil charge	Weight	Cooling capacity Q _o SST/SDT 45°F / 130°F kBtu/h	EER SST/SDT 45°F / 130°F Btu/W	Electrical data			
	at 60 Hz CFM						Motor connection	Max. operating amps (MOA)	Max. power consumption kW	Starting current LRA amp.
			fl. oz	lbs	R410A	R410A				
GSD80235V	28.0	35..75 Hz	185	309	277.0	17.92	380 .. 420 V/3/50 Hz 460 V/3/60 Hz	39.0	27.0	213
GSD80295V	34.0		185	313	332.0	17.90		47.0	32.0	212
GSD80385V	44.0		185	317	426.0	17.98		60.0	41.0	277
GSD80421V	48.1		185	316	496.0	17.93		66.0	45.0	316
GSD80485V	55.0		185	352	525.0	17.80		74.0	51.0	316

Tentative data

PERFORMANCE DATA

t_o: Evaporation temperature
t_c: Condensing temperature
Performance data are based on the EN 12900 standard.
Subject to change.

PERFORMANCE DATA

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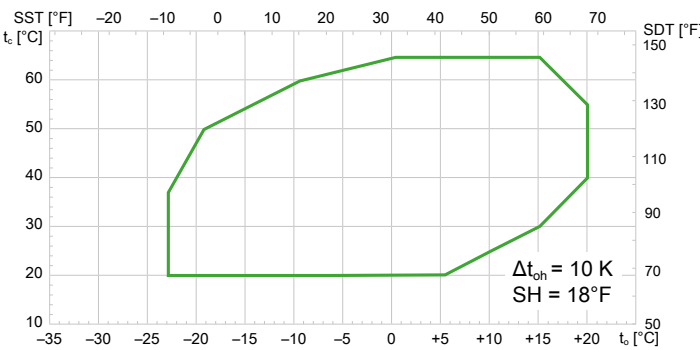
The BITZER SOFTWARE comprises:

- // Performance data for all established refrigerants at freely selectable operating conditions
- // All relevant technical data
- // Calculation results and individually defined performance tables for the compressors
- // Seasonal calculations
- // Parallel compounds
- // Available accessories and their selection
- // All relevant technical documents

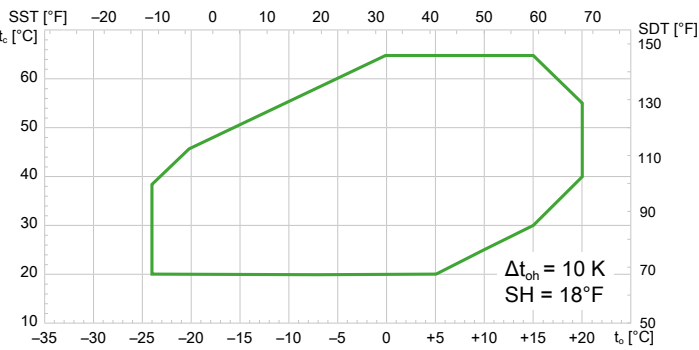
APPLICATION LIMITS

ORBIT Standard
for systems with low condensing temperatures

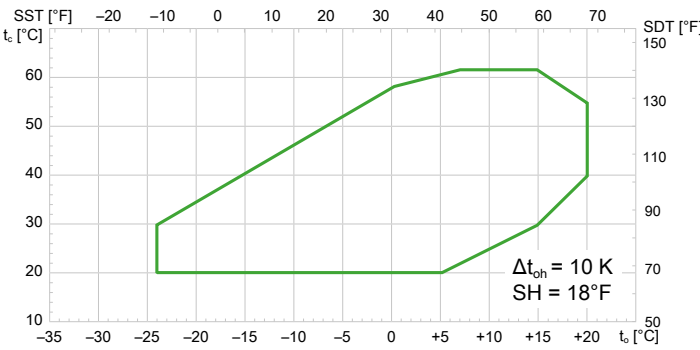
R410A



R452B, R454B



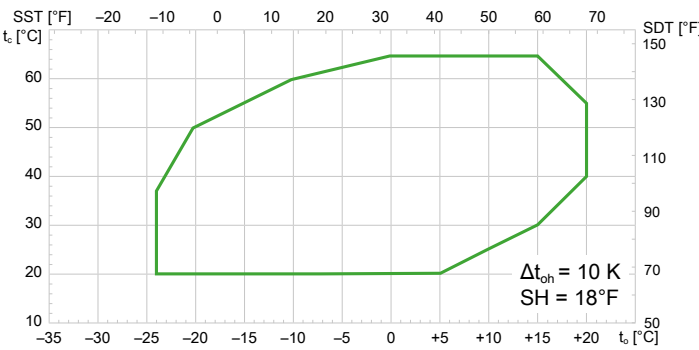
R32



t_e Evaporation temperature (°C)
 Δt_{oh} Suction gas superheat (K)
 t_c Condensing temperature (°C)
 t_{amb} Ambient temperature (°C)

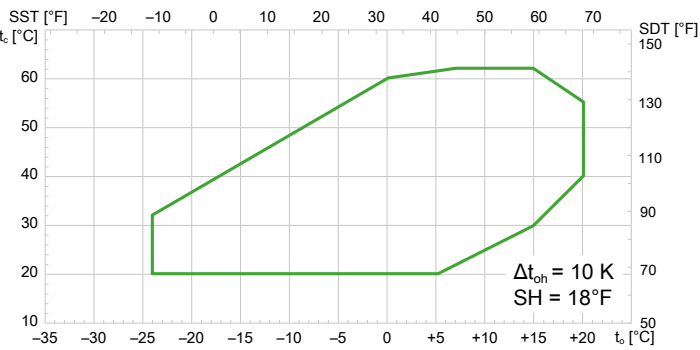
ORBIT+

R410A, R452B, R454B



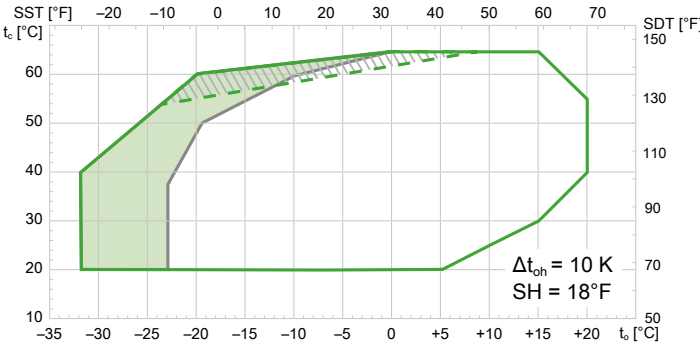
t_e Evaporation temperature (°C)
 Δt_{oh} Suction gas superheat (K)
 t_c Condensing temperature (°C)
 t_{amb} Ambient temperature (°C)

R32

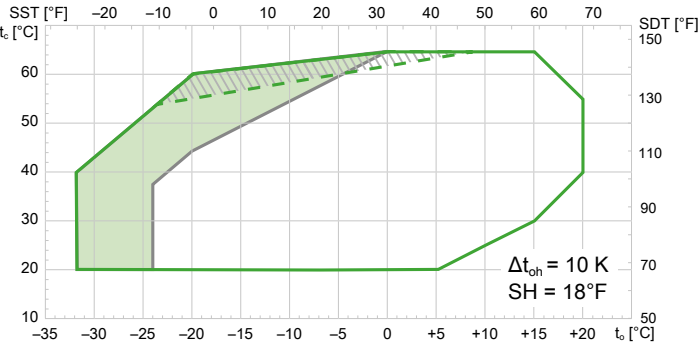


ORBIT FIT

R410A

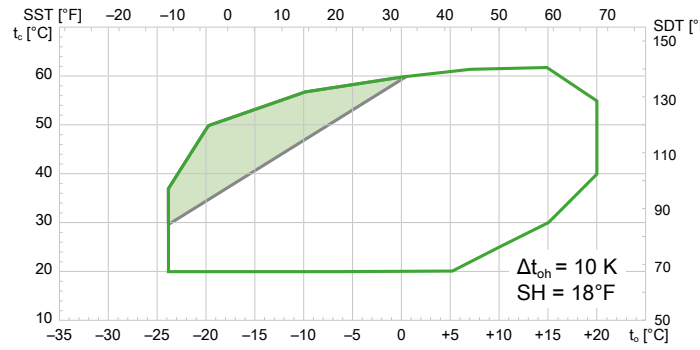


R452B, R454B



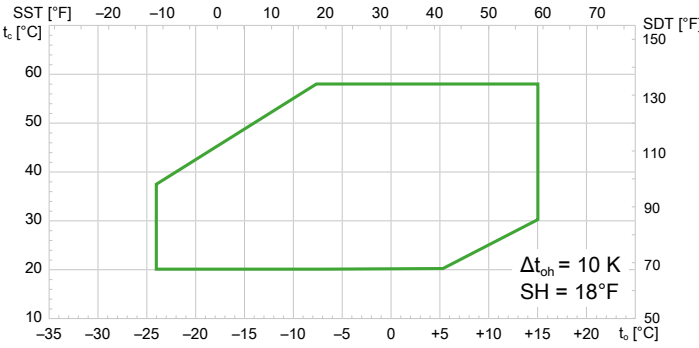
t_e Evaporation temperature (°C)
 Δt_{oh} Suction gas superheat (K)
 t_c Condensing temperature (°C)
 t_{amb} Ambient temperature (°C)
 Extension of application limits through the economiser

R32



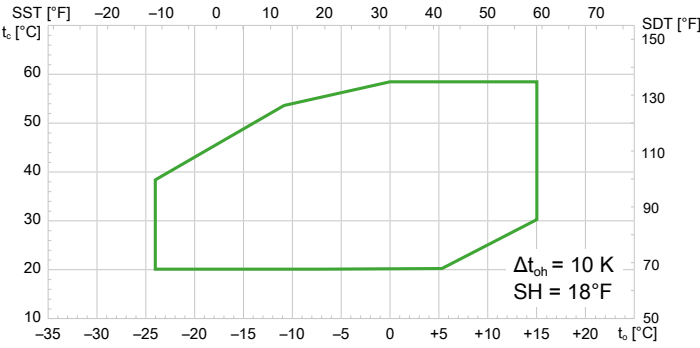
ORBIT 8 Boreal
for systems with low condensing temperatures

R410A



t_e Evaporation temperature (°C)
 Δt_{oh} Suction gas superheat (K)
 t_c Condensing temperature (°C)
 t_{amb} Ambient temperature (°C)

R454B



Further details can be found
in the BITZER SOFTWARE.

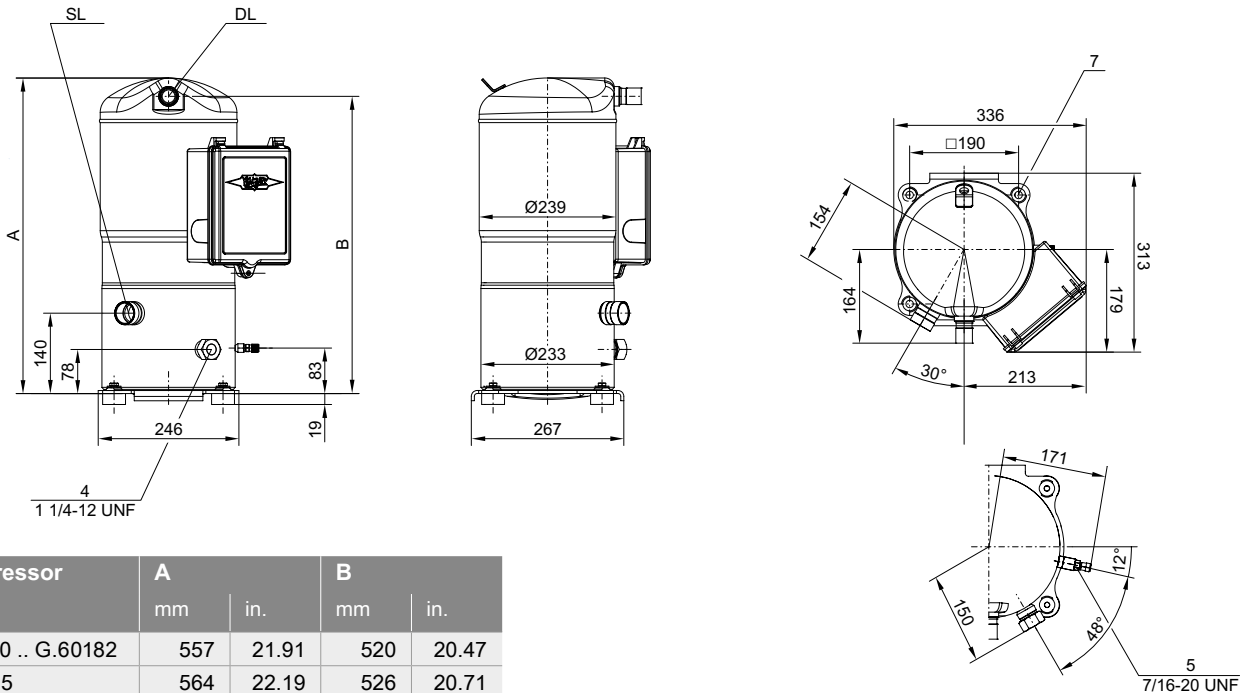


DIMENSIONAL DRAWINGS

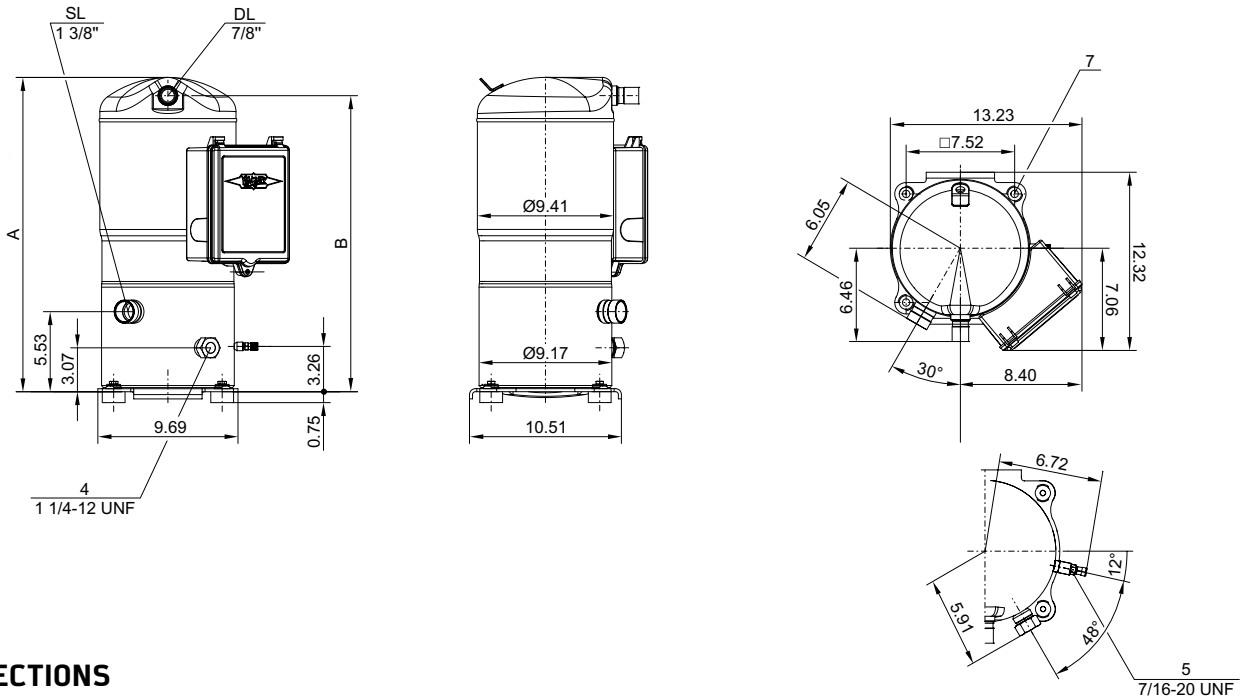
ORBIT 6

Exemplary dimensional drawing; details in the BITZER SOFTWARE.

SI units



IP units



CONNECTIONS

- 4 Sight glass
- 5 Oil service connection (Schrader)/
Connection for oil equalisation (parallel operation)
- 7 Mounting position for vibration dampers
- 8 Mounting position for tandem and trio fixing rails

ORBIT 6: 7/16-20 UNF, 1/4 (3/8 outer diameter)
ORBIT 8: 9/16-18 UNF, 3/8 (1/2 outer diameter)

Contact BITZER for information on Rotalock connections.

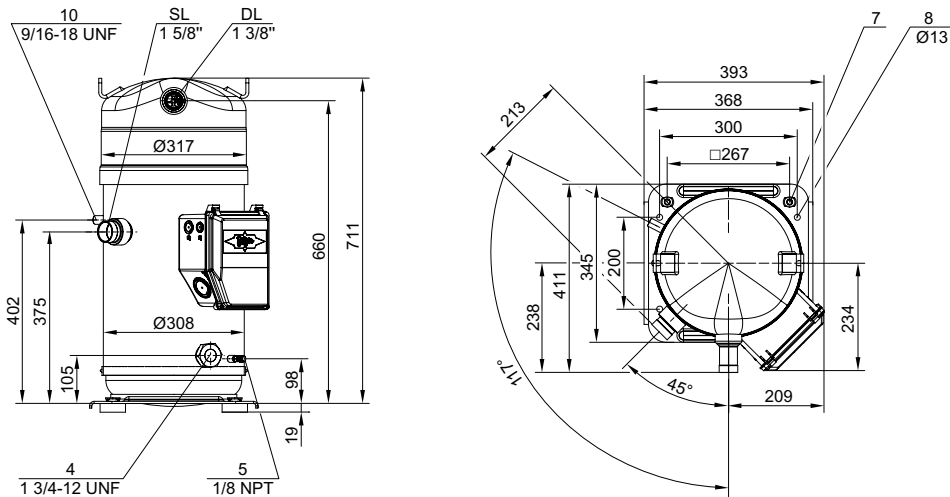
SL Suction gas line
ORBIT 6: 1 3/8 inch
ORBIT 8: 1 5/8 inch
DL Discharge gas line
ORBIT 6: 7/8 inch
ORBIT 8: 1 3/8 inch

DIMENSIONAL DRAWINGS

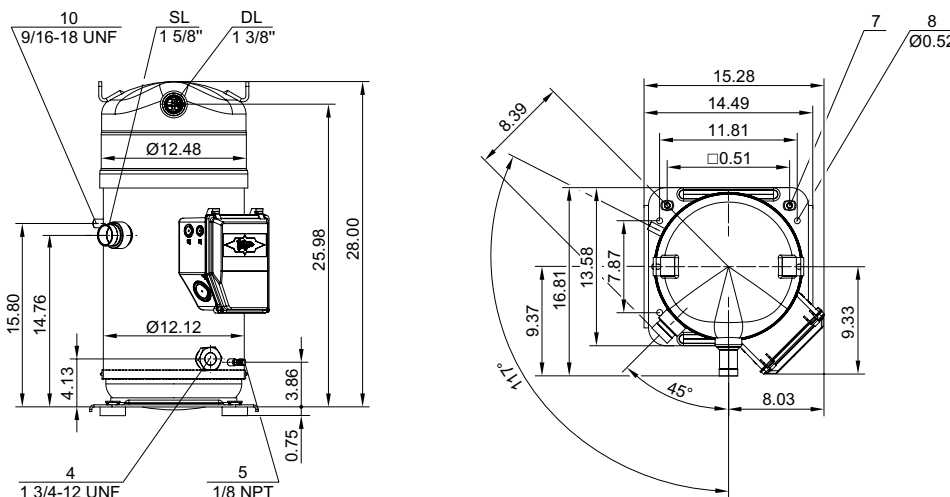
ORBIT 8

Exemplary dimensional drawing; details in the BITZER SOFTWARE.

SI units



IP units



Further details can be found
in the BITZER SOFTWARE.



GREEN COMPETENCE

BITZER expertise goes beyond just the products: we focus on our customers and their challenges. We aim to pass on our knowledge and provide guidance and instruction – to secure investments and equip our customers and partners in industry for the future. In addition to various digital solutions, we also offer in-person consultations and training.

LOCAL ROOTS – GLOBAL PRESENCE



Find your nearest BITZER location and get in touch.

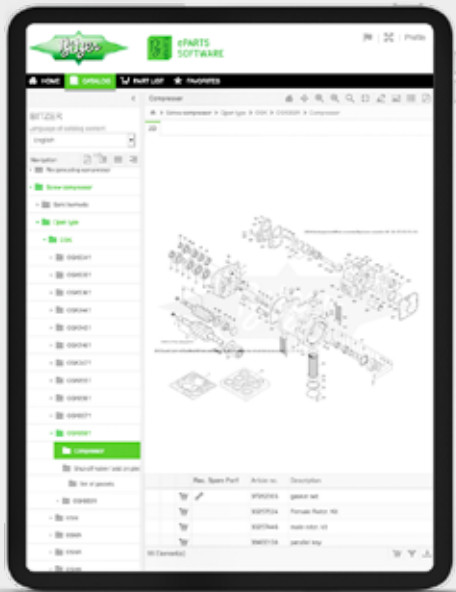
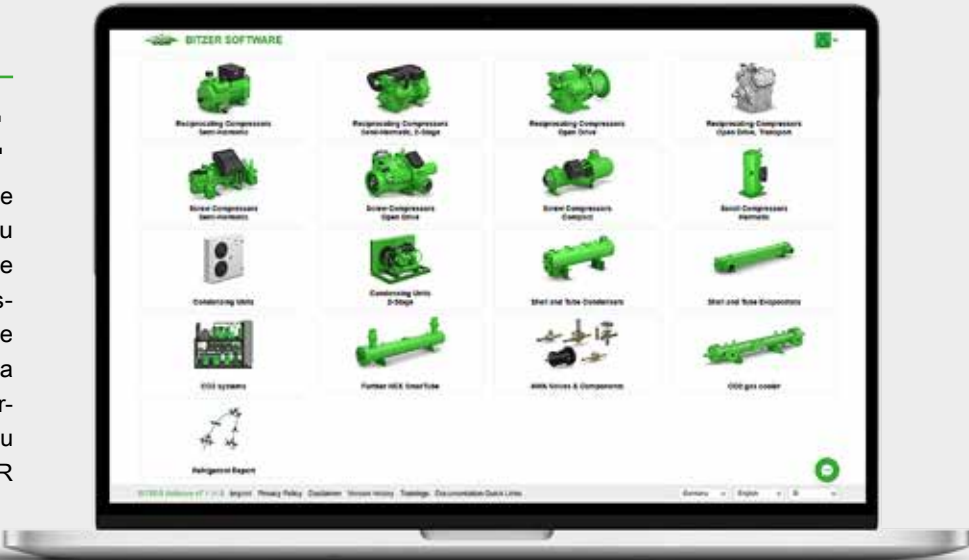


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BITZER TOOLS

BITZER SOFTWARE

Wherever you are and no matter what device you use, BITZER SOFTWARE helps you make the right selection from our extensive and flexible range of products and accessories. You can also find technical data here and quickly calculate the performance data for compressors and components. Furthermore, the AI agent HERMANN supports you with all questions about the BITZER portfolio.



ePARTS SOFTWARE

Our free tool makes finding the appropriate spare parts for our products fast and easy. They are listed by series and displayed as simple, enlargeable exploded drawings.

BEST APP AND BEST SOFTWARE

BEST provides complete access to all operating data and parameters. Its intuitive user interface shows a complete overview of the operating status, including a data log for easy commissioning and maintenance.



FIND ADDED VALUE:



DIGITAL TOOLS IN ONE PLACE



The central customer platform for product and technical information

- // Access to all BITZER software tools via single sign-on (SSO)
- // Delivery times and spare parts data at a glance
- // Advanced system management and real-time monitoring
- // Secure and flexible user management



Easy access to valuable digital services

- // Complete product information
- // Maintenance tracking
- // Operation report
- // Real-time data
- // Notifications
- // Flexible access rights

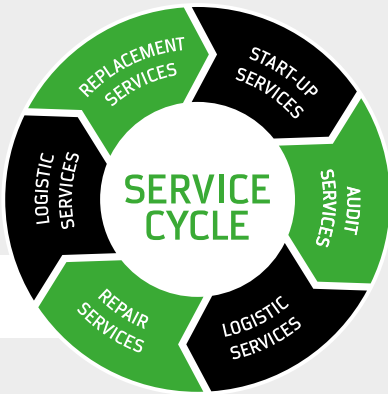


BITZER GLOBAL SERVICE NETWORK

Local support to global standards: GREEN POINT offers services at 54 locations, covering the entire life cycle of our components.

In addition, 40 AUTHORISED SERVICE CENTRES ensure that you receive qualified support worldwide.

With eight sites, the MARINE SERVICE NETWORK guarantees fast and reliable support near major ports, whilst authorised spare parts and oil dealers supply you with original spare parts and oils quickly all over the world.



Green Point
A SERVICE BY BITZER GROUP



ORIGINAL IS KEY



BITZER ORIGINAL SPARE PARTS

- // Ensure that the compressor remains operational and, above all, runs as intended – stably, reliably, efficiently and with minimal wear
- // Guarantee precise fits, high-quality materials and correct tolerances
- // Maintain energy efficiency
- // Prevent premature wear and consequential damage

BITZER ORIGINAL OILS

- // Are precisely tailored to the compressor, refrigerant and operating conditions
- // Contain specially developed additives for optimum lubrication
- // Provide reliable protection against wear – even under varying loads
- // Ensure long-term performance with minimal energy consumption

SCHAUFLEER ACADEMY

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



At the SCHAUFLEER Academy, small groups study theoretical scenarios and carry out practical exercises on realistic systems. Through it all, experienced trainers from our Application Engineering team are on hand to answer any questions you might have. We look forward to seeing you there!



Training and knowledge exchange take centre stage here, and it is our mission to supply you with information about the applications and our products, as well as provide useful tools and basic knowledge. In situations where we cannot offer in-person training, we bring some of our content to your home or office in the form of webinars.



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AND BOOK YOUR TRAINING.**

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