



PRODUCT SELECTION DATA

AIR-COOLED FIXED-SPEED SCREW CHILLER



- Very economical operation
- Low sound levels
- Simple installation
- Environmentally responsible
- Exceptional reliability

30XB-ZE 200 - 1200
30XBPZE 200 - 400

AQUAFORCE
PUREtec

Nominal cooling capacity 211-1162 kW - 50 Hz

The AquaForce™ 30XB-ZE and 30XBPZE liquid chillers are the economic solution with ultra-low GWP R-1234ze refrigerant for commercial and industrial applications where high reliability and economic operation in all climate conditions are key customer requirements.

The AquaForce™ 30XB-ZE and 30XBPZE liquid chillers are designed to meet current and future regulations for energy efficiency and operating sound levels. They use the latest Carrier technologies:

- Refrigerant R-1234ze
- Carrier 06T twin-rotor fixed-speed screw compressors.
- Low noise 6th generation of Carrier Flying Bird™ fans with variable speed AC motor (30XB-ZE) or variable speed EC motor.
- Carrier flooded shell-and-tube evaporator with new copper tube design for low pressure drops
- 2nd generation of “V” shape Carrier Novation™ microchannel heat exchangers with optional Enviro-Shield coatings.
- Carrier SmartView control with color touch screen user interface that includes 10 languages and new smart energy monitoring function.



CARRIER participates in the ECP programme for LCP/HP
Check ongoing validity of certificate:
www.eurovent-certification.com

AQUAFORCE® VISION WITH PURETEC™ REFRIGERANT

SUSTAINABILITY

PUREtec™: the environmental excellence solution

■ GWP<1

Carrier has selected HFO R-1234ze as the best refrigerant to replace HFC R-134a on screw chillers and heat-pumps.

HFO R-1234ze offers a **Global Warming Potential (GWP) index below 1**, similar to that of natural substances (CO₂ GWP=1).

■ High efficiency

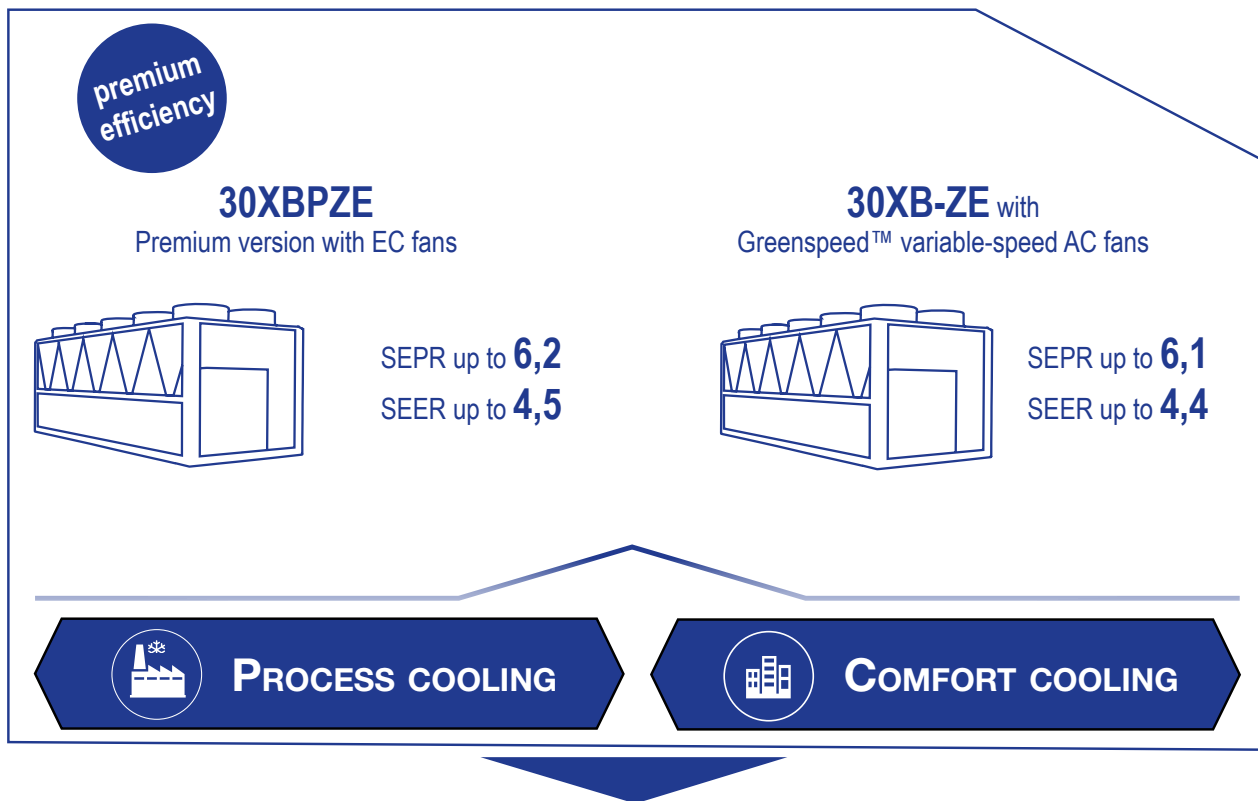
This excellent efficiency performance in turn means a **lower total carbon footprint**, with a reduction of 10% compared to HFC R-134a and HFC/HFO R-513A refrigerants.

■ Regulation compliance

Carrier has made the strategic decision to choose a long-term solution for its new chiller and heat-pump ranges using screw compressors: **HFO R-1234ze, with a GWP<1, is not impacted by the F-gas Regulation.**

AQUAFORCE® VISION THE RIGHT SOLUTION FOR EVERY APPLICATION

Carrier's AquaForce® Vision range is available in three levels of efficiency to perfectly match each customer application and meet the European Ecodesign directive requirements.



The AquaForce® 30XB-ZE is equipped with fixed-speed screw compressor and variable-speed AC fans motors. The 30XB-ZE offers an economical solution whilst providing high full load energy efficiency level for process applications and 12/7°C operation in hot climates. 30XB-ZE is compliant with the 2021 EU Ecodesign SEPR -2/-8°C and 12/7°C requirements for medium and high temperature process chillers.

The AquaForce® 30XPZE with Greenspeed™ intelligence is the premium version EC fans to improve both the full load and part load energy efficiency. The 30XPZE provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology.

AQUAFORCE® VISION CUSTOMER BENEFITS

■ Outstanding performance

Equipped with fixed-speed screw compressors with EC fans and extra condensing surface, Carrier's AquaForce® Vision 30XBPZE chiller with Greenspeed™ intelligence improve both the full load and part load energy efficiency. The 30XBPZE provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology.



SEER
up to 4,5

■ Low sound levels

The new generation of Carrier 06T fixed-speed twin screw compressor with integrated resonator array and the 6th generation of Flying Bird™ fans with new fan blade design inspired by nature help reduce compressor and airflow noise down to as little as 90 dB(A). 30XB-ZE/30XBPZE is 6 dB(A) quieter than the previous AquaForce® 30XAV generation.



90 dB(A)

■ Intelligence and connectivity

The advanced SmartView intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. 30XB-ZE/30XBPZE also features innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling energy output and instantaneous and average seasonal energy efficiency ratios. For further energy savings, 30XB-ZE/30XBPZE can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.



SMART ENERGY
MONITORING

■ Environmentally responsible

Carrier's AquaForce® Vision 30XB-ZE/30XBPZE is a boost for green cities and contributes to a sustainable future. Combining a reduced load refrigerant and exceptional energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions by 25% throughout its life cycle.



UP TO
25% LESS
CO₂ EMISSION

■ Extensive scope of application

Carrier's AquaForce® Vision adapts effortlessly to a wide range of applications. Extended operating temperatures from -20°C to 55°C outdoor air temperatures and negative water temperatures make it ideal for various sectors of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaForce® Vision 30XB-ZE/30XBPZE meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate and wherever the location.



FROM
-20°C
to 55°C

■ Easy installation & maintenance

Built-in variable-speed pumps up to 400kW, automatic nominal water flow adjustment through electronic control, automatic unit energy performance measurement under real conditions, all these new features provide peace of mind for installers and service companies alike.



25%
SMALLER

CUSTOMER BENEFITS

The range is available in 3 efficiency levels.

■ 30XB-ZE standard unit

The AquaForce™ 30XB-ZE is equipped with fixed-speed screw compressors and variable speed fans with AC motors. The 30XB-ZE offers an economical solution whilst providing high full load efficiency for process applications and operation in high ambients.

(Average SEPR of 5.7, average SEER of 4.3, average EER of 3.2)

■ 30XBPZE premium unit

The 30XBPZE premium unit is equipped with variable speed EC fans to improve both the full load and part load energy efficiency. The 30XBPZE provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology. (Average SEPR of 5.9, average SEER of 4.4, average EER of 3.2)

Very economical operation

Exceptionally high full load and part load energy efficiency:

- 30XB-ZE version with Eurovent energy efficiency class A, and SEER 12/7°C up to 4.4 in accordance with EN14825.
- 30XBPZE version with Eurovent energy efficiency class A, and SEER 12/7°C up to 4.5 in accordance with EN14825.
- Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
- Novation™ aluminium condenser with high-efficiency micro-channels.
- Flooded shell-and-tube evaporator with new generation of cooler tubes to reduce exchanger pressure drops, especially in applications with high percentage of glycol.
- Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface (superheat control).
- Economiser system with electronic expansion device for increased cooling capacity.

Low operating sound levels

■ Compressors

- Discharge dampers integrated in the oil separator (Carrier patent).
- Silencer on the economiser return line.
- Compressor and oil separator acoustic enclosure, reducing radiated noise (option).

■ Condenser section

- Condenser coils in wide angle V configuration, allowing quieter air flow across the coil
- Low-noise 6th generation Flying Bird fans, made of a composite material (Carrier patent), are now even quieter and do not generate intrusive low-frequency noise
- Rigid fan mounting preventing start-up noise (Carrier patent).

CUSTOMER BENEFITS

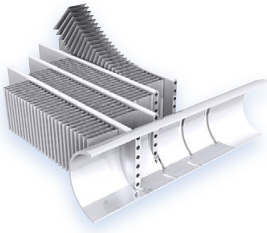
Simple installation

- Integrated hydraulic module (option)
 - Centrifugal low or high-pressure water pump (as required), based on the pressure loss of the hydraulic installation
 - Single or dual pump (as required) with run time balancing and automatic changeover to the back-up pump if a fault develops
 - Water filter to protect pump against circulating debris
 - High-capacity membrane expansion tank ensures pressurisation of the water circuit (option)
 - Thermal insulation and aluminium cladding (option)
 - Pressure sensor to check filter condition and for direct numerical display of the water flow rate with an estimate of the instantaneous cooling capacity at the control interface
- Simplified electrical connections
 - Main disconnect switch with high trip capacity
 - Transformer to supply the integrated control circuit (400/24 V).
- Fast commissioning
 - Systematic factory operation test before shipment
 - Quick-test function for step-by-step verification of the controls, expansion devices, fans and compressors.

Exceptional reliability

- Screw compressors
 - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
 - All compressor components are easily accessible on site minimising down-time.
 - Dedicated electronic compressor protection module.
- Air condenser
 - 2nd generation of "V" shape Carrier Novation™ aluminium microchannel heat exchangers (MCHE) with high corrosion resistance. The all aluminium design eliminates the formation of galvanic currents between aluminium and copper that cause coil corrosion in saline or corrosive environments.
- Evaporator
 - Thermal insulation with aluminium sheet finish (option) for improved resistance to mechanical and UV damage.
- Auto-adaptive control
 - Control algorithm prevents excessive compressor cycling (Carrier patent)
 - Automatic compressor unloading in case of abnormally high condensing pressure. If condenser coil fouling or fan failure occurs, the Aquaforce continues to operate, but at reduced capacity
- Exceptional endurance tests
 - Partnerships with specialised laboratories and use of sophisticated finite element stress analysis for the design of critical components.
 - Transport simulation test in the laboratory on a vibrating table. The test is based on a military standard and equivalent to 4000 km by truck.
 - Salt mist corrosion resistance test in the laboratory for increased corrosion resistance.

30XB-ZE AND 30XBPZE TECHNICAL INSIGHTS

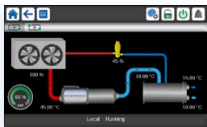


3RD GENERATION OF NOVATION® MICRO CHANNEL HEAT EXCHANGERS

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (-40% vs cu/al coils)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)
- Easy cleaning with high pressure air or water washer

ADVANCED SMARTVIEW WITH 7 INCH COLOR TOUCH SCREEN INTERFACE

- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



POWERFUL SMART ENERGY MONITORING FUNCTION

- Provides smart data based on intelligent algorithms
- Real time energy consumption measurement (kWh)
- Cooling energy output measurement (kWh)
- Instantaneous and average Energy Efficiency Ratio under real operating conditions
- Remote monitoring with Carrier Connect

FLOODED SHELL AND TUBE EVAPORATOR

- Exclusive Carrier design
- Flooded technology for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol



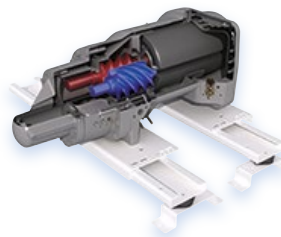
6TH GENERATION OF VARIABLE-SPEED FLYING BIRD™ FANS WITH AC OR EC MOTOR

- Exclusive Carrier design
- Fan blade design inspired by nature
- AC motor technology
- High efficiency version with EC motor technology (option and 30XBPZE).



FIXED-SPEED DUAL PUMPS WITH AC MOTOR (OPTION)

- Low static pressure (~100 kPa) or high static pressure (~180 kPa) available
- Available on all sizes up to 500 kW



CARRIER FIXED-SPEED 06T TWIN SCREW COMPRESSOR WITH AC MOTOR

- Exclusive Carrier design
- Twin screw compressor designed for fixed speed operation
- Sliding valve control (30%-100%)
- Bearing life exceeding 100,000 hours
- 99,7% of units without compressor default

CUSTOMER BENEFITS

Environmental care

- The AquaForce™ with PUREtec refrigerant liquid chillers with Greenspeed™ Intelligence is a boost for green cities and contributes to a sustainable future. Combining a reduced charge of R-1234ze refrigerant and exceptional energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions by 15% throughout its life cycle (compared to previous fixed-speed screw liquid chiller generation).
- The AquaForce™ with PUREtec refrigerant liquid chiller is equipped with an automatic energy meter that provides estimated instantaneous and cumulative cooling energy output, instantaneous and cumulative electric energy consumption, instantaneous and average seasonal energy efficiency ratios (Accuracy: +/- 5% at nominal condition, +/-10% elsewhere) for unit performance monitoring and verification.
- R-1234ze: HFO refrigerant with zero ozone depletion potential and ultra low GWP (<1).
- 40% less refrigerant charge: The micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Leak tight refrigerant circuits:
 - Reduction of leaks as no capillary tubes and flare connections are used
 - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
 - Discharge line shut-off valve and liquid line service valve for simplified maintenance.
- Refrigerant leak alert: The AquaForce™ 30XB-ZE/30XBPZE liquid chiller is equipped with an automatic refrigerant leak detection algorithm that can detect serious refrigerant loss at any point on the system (Sensitivity: 25% refrigerant charge loss per circuit, depending on the conditions). The automatic refrigerant leak detection system can help to achieve recognition within pollution prevention assessment programs, ideal for assisting in the design of sustainable buildings.
- Refrigerant leak detection: Available as an option, this additional dry-contact allows reporting of possible leaks. The leak detector (by others) should be mounted in the most likely leak location.



- R-1234ze long-term refrigerant solution
 - HFO refrigerant with nearly zero global warming potential (GWP < 1) and zero ozone depletion potential (ODP = 0).
 - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
 - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity airconditioning equipment.

Designed to support Green Building Design

A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year 30XB-ZE/30XBPZE units offer a solution to this important challenge.

A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new 30XB-ZE/30XBPZE range helps customers involved in LEED® building certification.

The other benefit of using the AquaForce™ with PUREtec™ refrigerant products is the eligibility for BUILDING labeling programs like BREEAM, HQE in France or Green Building Council labelling, that are recognizing the use of sustainable heating and air-conditioning equipment.

Let's take the example of BREEAM assessment method for the sustainability of buildings.

Two credits can be awarded where the refrigerants used in air-conditioning systems have a Global Warming Potential below 10.

And one additional credit can be awarded where the systems have a low Total Equivalent Warming Impact.

The AquaForce™ with PUREtec™ refrigerant is not only a solution that is reducing the energy bill and the CO₂ footprint. It also helps the green certification of your buildings.

Energy saving certificate

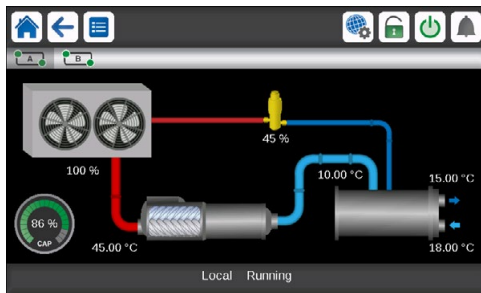
AquaForce™ with with PUREtec refrigerant is eligible to Energy savings certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and its speed)
- Floating Low pressure control
- Variable speed on asynchronous fan motor
- Variable speed on asynchronous pump motor

For more details about financial incentives in France, please refer to "Fiche produit CEE"

TECHNICAL INSIGHTS

SmartView



- New innovative smart control features:
 - An intuitive and user-friendly, coloured, 7" interface
 - 10 languages available on choice: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
 - Screen-shots with concise and clear information in local languages
 - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
 - Setpoint offset based on the outside air temperature
 - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
 - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
 - Night-mode: Cooling capacity management for reduced noise level.
 - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management:
 - Innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling capacity, and instantaneous and average seasonal energy efficiency ratios.
 - Internal time schedule clock controls chiller on/off times and operation at a second set-point
 - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions
 - F-Gas regulation leak check reminder alert
 - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features
 - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
 - Access to multiple unit parameters.

Remote management (standard)

- Units with SmartView control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System Manager or the Plant System Manager (optional).
- The 30XB-ZE/30XBPZE also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).

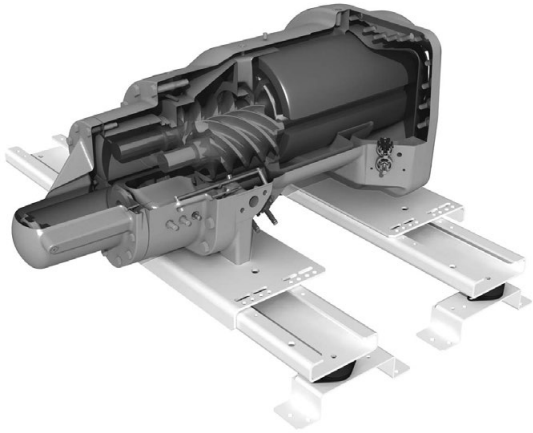
- The following commands/visualisations are possible from remote connection:
 - Start/Stop of the machine
 - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
 - Demand limit setting: To limit the maximum chiller capacity to a predefined value
 - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
 - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
 - Operation visualisation: Indication if the unit is operating or if it is in stand-by (no cooling load)
 - Alarm visualisation.

Remote management (EMM option)

- The Energy Management Module (EMM) offers extended remote control possibilities:
 - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
 - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
 - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
 - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
 - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
 - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
 - Time schedule override: Closing of this contact cancels the programmed time schedule.
 - Out of service: This signal indicates that the chiller is completely out of service.
 - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
 - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
 - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

TECHNICAL INSIGHTS

06T Screw Compressor



99.7%* of units without a compressor failure

* Quality rate measured over a period of 15 years operation

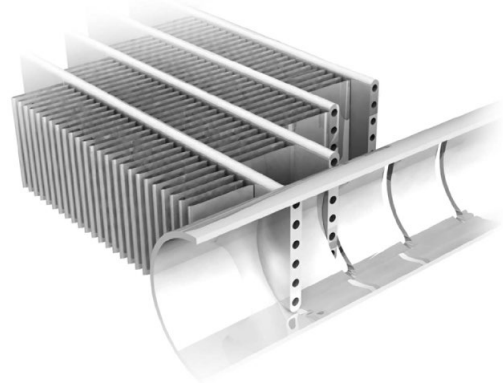
The Carrier 06T screw compressor benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high outside temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The compressor is equipped with a separate oil separator that minimises the amount of oil in circulation in the refrigerant circuit and, with its integrated silencer, considerably reduces discharge gas pulsations for much quieter operation.

Novation® Heat Exchangers with Micro-Channel coil Technology



Already utilised in the automobile and aeronautical industries for many years, the Novation™ MCHE micro-channel heat exchanger used in the Aquaforce is entirely made of aluminium. This one-piece concept significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminium) come into contact in traditional heat exchangers. Unlike traditional heat exchangers the Novation™ MCHE heat exchanger can be used in moderate marine and urban environments (Carrier recommendation).

From an energy efficiency point-of-view the Novation™ MCHE heat exchanger is approximately 10% more efficient than a traditional coil and allows a 40% reduction in the amount of refrigerant used in the chiller. The low thickness of the Novation™ MCHE reduces air pressure losses by 50% and makes it susceptible to very little fouling (e.g. by sand). Cleaning of the Novation™ MCHE heat exchanger is very fast using a high-pressure washer.

Carrier Novation® MCHE with Super Enviro-shield® coating, the ideal customer choice

To further enhance long-term performance, and to protect coils from early deterioration, Carrier offers (as options) dedicated treatments for installations in corrosive environments.

The Novation™ MCHE with Enviro-Shield protection (option 262) are recommended for installations in moderately corrosive environments. The Enviro-Shield protection utilises corrosion inhibitors which actively arrest oxidation in case of mechanical damage.

The Novation™ MCHE with the exclusive Super Enviro-Shield protection (option 263) are recommended for installations in corrosive environments. The Super Enviro-Shield protection consist in an extremely durable and flexible epoxy coating uniformly applied over all coil surfaces for complete isolation from the contaminated environment.

TECHNICAL INSIGHTS

Novation® Heat Exchangers with Micro-Channel coil Technology

After a total of more than 7,000 hours of testing following various test standards in UTC laboratories, the Carrier Novation® MCHE with Super Enviro-shield® coating appears to be the ideal customer choice to minimize the harmful effects of corrosive atmospheres and ensure long equipment life.

- Best corrosion resistance per ASTM B117/D610 test
- Best heat transfer performance per Carrier Marine 1 test
- Proven reliability per ASTM B117 test

Coil Types (ranked by performance)	Visual Corrosion Evaluation	Heat Transfer Performance Degradation	Time to Failure	Test Campaign Conclusions
Super Enviro-shield® Novation™ MCHE	Very good	Very good	No coil leak	Best
Super Enviro-shield® Cu/Al coil	Very good	Good	No coil leak	Very good
Enviro-shield® Novation™ MCHE	Very good	Good	No coil leak	Very good
Al/Al coil	Very good	Good	No coil leak	Very good
Novation™ MCHE	Good	Good	No coil leak	Good
Cu/Cu coil	Good	Good	Leak	Acceptable
Blygold® Cu/Al coil	Good	Good	No coil leak	Acceptable
Precoat Cu/Al coil	Bad	Bad	No coil leak	Bad
Cu/Al coil	Bad	Bad	No coil leak	Bad

New Generation of Flying Bird VI fans



The 30XB-ZE and 30XBPZE utilize Carrier's 6th generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and wide operating range. The fan includes Carrier patented rotating shroud technology and back-swept blades with a unique wave-serration trailing edge inspired from nature.

It was designed and optimized for the 30XB-ZE air management system configuration and heat exchanger technology and is offered with induction and EC motor options. The fan meets the latest European eco-design requirements for fan efficiency. The fan uses Carrier's robust and proven injection molded composite-thermoplastic construction.

OPTIONS

Options	No.	Description	Advantages	Use for 30XB-ZE / 30XBPZE
Medium-temperature brine solution	5	Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -6°C when ethylene glycol is used (0°C with propylene glycol)	Covers specific applications such as ice storage and industrial processes	30XB-ZE200-1200 / 30XBPZE 200-400
Low-temperature brine solution	6	Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -12°C when ethylene glycol is used (-10°C with propylene glycol)	Covers specific applications such as ice storage and industrial processes	30XB-ZE200-1200 / 30XBPZE 200-400
Unit equipped for air discharge ducting	10	Fans equipped with discharge connection flanges - maximum available pressure 60 Pa	Facilitates connections to the discharge ducts	30XB-ZE200-1200 / 30XBPZE 200-400
Low noise level	15	Aesthetic and sound absorbing compressor enclosure	Noise level reduction	30XB-ZE200-1200 / 30XBPZE 200-400
Very low noise level	15LS	Sound absorbing & aesthetic compressor enclosure and oil separator, evaporator and suction line acoustic treatment, combined with low-speed fans	Noise level reduction in sensitive environments	30XB-ZE200-1200 / 30XBPZE 200-400
Ultra low noise level	15LS+	Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources	Noise level reduction for sensible site	30XB-ZE/ 30XBPZE 350-1200
Tropicalisation	22	Unit control box suitable for tropical climates	Reduced relative humidity in the control boxes for operation in tropical climates (warm and humid)	30XB-ZE200-1200 / 30XBPZE 200-400
Grilles and enclosure panels	23	Metallic protection grilles and side enclosure panels	Improves aesthetics, protection against intrusion to the unit interior, coil and piping protection against impacts.	30XB-ZE200-1200 / 30XBPZE 200-400
Enclosure panels	23A	Side enclosure panels	Improves aesthetics and piping protection against impacts.	30XB-ZE200-1200 / 30XBPZE 200-400
Low inrush current	25C	compressor loading and unloading sequence to limit the unit start-up current	Reduced start-up current	30XB-ZE200-1200 / 30XBPZE 200-400
Water exchanger frost protection	41A	Electric resistance heater on the water exchanger and discharge valve	Water exchanger frost protection down to -20°C outside temperature	30XB-ZE200-1200 / 30XBPZE 200-400
Evaporator & hydraulic module frost protection	41B	Electric resistance heater on water exchanger, discharge valve and hydraulic module	Water exchanger and hydraulic module frost protection down to -20°C outside temperature	30XB-ZE/ 30XBPZE 200-400
Total heat recovery	50	Unit equipped with additional heat exchanger in parallel with the condenser coils.	Production of free hot-water simultaneously with chilled water production	30XB-ZE 200-750 / 30XBPZE 200-400
Total heat recovery on one circuit	50C	Unit equipped with additional heat exchanger in parallel with the condenser coils on one circuit only	Production of free hot-water simultaneously with chilled water production	30XB-ZE 900-1200
Master/slave operation	58	Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel	Optimised operation of two units connected in parallel operation with operating time equalisation	30XB-ZE200-1200 / 30XBPZE 200-400
Single power connection point	81	Unit power connection via one main supply connection	Quick and easy installation	30XB-ZE 900-1200
Evap. and pumps with aluminum jacket	88A	Evaporator and pumps covered with an aluminum sheet for thermal insulation protection	Improved resistance to aggressive climate conditions	30XB-ZE 200-400 / 30XBPZE 200-400

OPTIONS

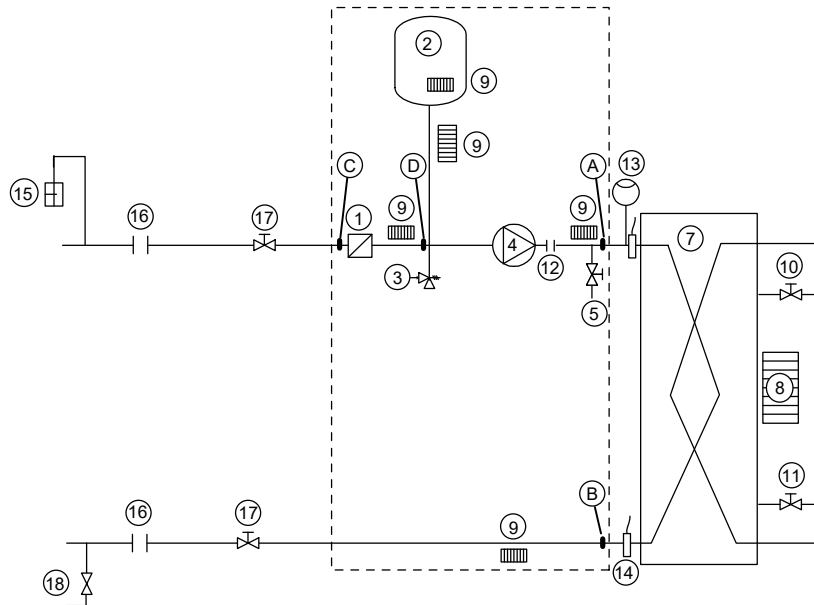
Options	No.	Description	Advantages	Use for 30XB-ZE / 30XBPZE
Service valve set	92	Liquid line valve (evaporator inlet) and compressor suction line valve	Allow isolation of various refrigerant circuit components for simplified service and maintenance	30XB-ZE200-1200 / 30XBPZE 200-400
Compressor discharge valves	93A	Shut-off valve on the compressor discharge piping	Simplified maintenance	30XB-ZE200-1200 / 30XBPZE 200-400
Evaporator with one pass more	100A	Evaporator with one pass more on the water side	Optimise chiller operation when the chilled water circuit is designed with low waterflows (high evaporator delta T)	30XB-ZE200-1200 / 30XBPZE 200-400
21 bar evaporator	104	Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)	Covers applications with a high water column evaporator side (typically high buildings)	30XB-ZE200-1200 / 30XBPZE 200-400
Reversed evaporator water connections	107	Evaporator with reversed water inlet/outlet	Easy installation on sites with specific requirements	30XB-ZE200-1200 / 30XBPZE 200-400
HP dual-pump hydraulic module	116S	Hydraulic module equipped with water filter, two high pressure pumps, drain valve and pressure transducers (expansion tank & aluminum jacket not included).	Easy and fast installation (plug & play).	30XB-ZE/ 30XBPZE 200-400
LP dual-pump hydraulic module	116U	Hydraulic module equipped with water filter, two low pressure pumps, drain valve and pressure transducers (expansion tank & aluminum jacket not included).	Easy and fast installation (plug & play).	30XB-ZE/ 30XBPZE 200-400
Lon gateway	148D	Bi-directional communication board complying with Lon Talk protocol	Connects the unit by communication bus to a building management system	30XB-ZE200-1200 / 30XBPZE 200-400
Bacnet over IP	149	Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)	Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters	30XB-ZE200-1200 / 30XBPZE 200-400
Modbus over IP and RS485	149B	Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)	Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters	30XB-ZE200-1200 / 30XBPZE 200-400
Energy Management Module	156	EMM Control board with additional inputs/outputs. See Energy Management Module option chapter	Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)	30XB-ZE200-1200 / 30XBPZE 200-400
7" user interface	158A	Control supplied with a 7 inch colour touch screen user interface	Enhanced ease of use.	30XB-ZE200-1200 / 30XBPZE 200-400
Refrigerant leak detection	159	0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)	Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions	30XB-ZE200-1200 / 30XBPZE 200-400
Dual relief valves on 3-way valve	194	Three-way valve upstream of dual relief valves on the shell and tubes evaporator	Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4	30XB-ZE 200-1200 / 30XBPZE 200-400
Compliance with Swiss regulations	197	Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications	Conformance with Swiss regulations	30XB-ZE 300-1200/ 30XBPZE 300-400
Compliance with Russian regulations	199	EAC certification	Conformance with Russian regulations	30XB-ZE200-1200 / 30XBPZE 200-400
Compliance with Australian regulations	200	Unit approved to Australian code	Conformance with Australian regulations	30XB-ZE200-1200 / 30XBPZE 200-400
Insulation of the evap. in/out ref. lines	256	Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation	Prevents condensation on the evaporator entering/leaving refrigerant lines	30XB-ZE200-1200 / 30XBPZE 200-400

OPTIONS

Options	No.	Description	Advantages	Use for 30XB-ZE / 30XBPZE
Enviro-Shield anti-corrosion protection	262	Coating by conversion process which modifies the surface of the aluminum producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, tested 4000 hours salt spray per ASTM B117	Improved corrosion resistance, recommended for use in moderately corrosive environments	30XB-ZE200-1200 / 30XBPZE 200-400
Super Enviro-Shield anti-corrosion protection	263	Extremely durable and flexible epoxy polymer coating applied on micro channel heat exchangers by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794	Improved corrosion resistance, recommended for use in extremely corrosive environments	30XB-ZE200-1200 / 30XBPZE 200-400
Welded evaporator connection kit	266	Victaulic piping connections with welded joints	Easy installation	30XB-ZE200-1200 / 30XBPZE 200-400
Compressor enclosure	279a	Compressor enclosure	Improved aesthetic, compressor protection against external elements (dust, sand, water...)	30XB-ZE200-1200 / 30XBPZE 200-400
Evaporator with aluminum jacket	281	Evaporator covered with an aluminum sheet for thermal insulation protection	Improved resistance to aggressive climate conditions	30XB-ZE200-1200 / 30XBPZE 200-400
230V electrical plug	284	230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps)	Permits connection of a laptop or an electrical device during unit commissioning or servicing	30XB-ZE200-1200 / 30XBPZE 200-400
Expansion tank	293	6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option)	Easy and fast installation (plug & play), & Protection of closed water systems from excessive pressure	30XB-ZE 200-400/ 30XBPZE 200-400
US screw compressor	297	Screw compressor made in US		30XB-ZE 900-1200
Variable Water Flow control	299	hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant ΔT , constant outlet pressure and "fixed-speed" control	When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/optimised chiller operation	30XB-ZE200-1200 / 30XBPZE 200-400
Free-cooling dry-cooler control	313	Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box	Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode	30XB-ZE200-1200 / 30XBPZE 200-400

HYDRAULIC MODULE (OPTIONS 116S & U)

Typical water circuit diagram



Legend

Components of unit and hydraulic module

- A Pressure sensor (A-B = Δp evaporator)
- B Pressure sensor
- C Pressure sensor (C-D = Δp water filter)
- D Pressure sensor
- 1 Victaulic screen filter
- 2 Expansion tank
- 3 Relief valve
- 4 Water pump
- 5 Drain valve
- 7 Evaporator
- 8 Evaporator defrost heater (option)
- 9 Hydraulic module defrost heater

- 10 Air vent (evaporator)
- 11 Water purge (evaporator)
- 12 Expansion compensator (flexible connections)
- 13 Flow switch
- 14 Water temperature sensor

System components (field-supplied)

- 15 Air vent
- 16 Flexible connection
- 17 Shut-down valves
- 18 Charge valve
- Hydraulic module (option)

ELECTRICAL DATA (OPTIONS 116S & U)

The pumps that are factory-installed in these units comply with the European Ecodesign directive ErP. The additional electrical data required by regulation 640/2009 is given in the installation, operation and maintenance manual.

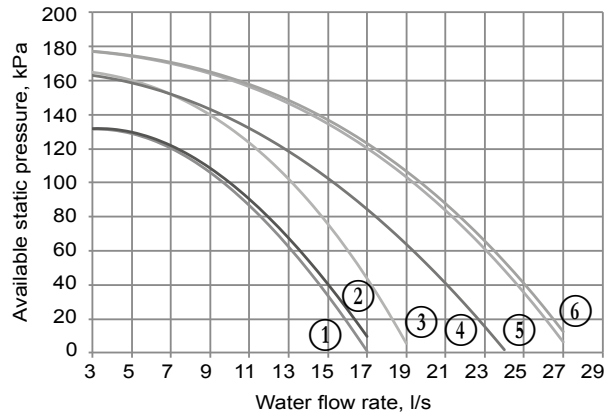
This regulation concerns the application of directive 2009/125/EC on the eco-design requirements for electric motors.

PUMP CURVE (OPTIONS 116S & U)

Conditions and limits of use:

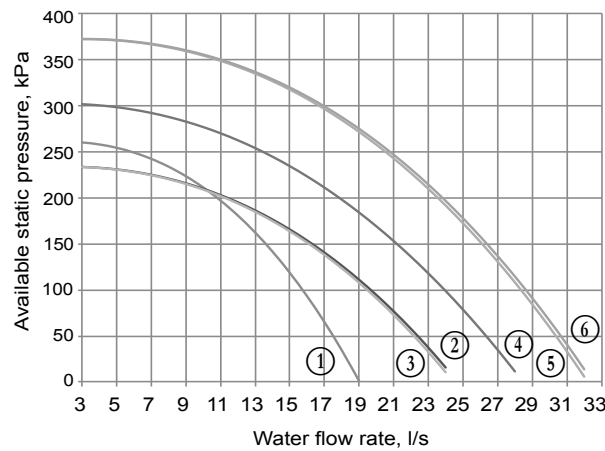
- Fresh water 20°C
- In case of use of the glycol, the maximum water flow is reduced.
- When the glycol is used, it's limited to 40%.

Dual pump low pressure



- 1 30XB-ZE/XBPZE 200
- 2 30XB-ZE/XBPZE 230
- 3 30XB-ZE/XBPZE 250
- 4 30XB-ZE/XBPZE 300
- 5 30XB-ZE/XBPZE 350
- 6 30XB-ZE/XBPZE 400

Dual pump high pressure



- 1 30XB-ZE/XBPZE 200
- 2 30XB-ZE/XBPZE 230
- 3 30XB-ZE/XBPZE 250
- 4 30XB-ZE/XBPZE 300
- 5 30XB-ZE/XBPZE 350
- 6 30XB-ZE/XBPZE 400

LOW TEMPERATURE BRINE SOLUTION (OPTION 6)

This option allows to reach very low brine temperatures according to values below and to maintain delta temperature in case of variable flow.

Variable water allows to adapt chilled water production to the real need and helps to save energy.

Lowest acceptable water flow must be validated with selection software.

MEG 35%: -12°C (@ delta T 4K)

MEG 40%: -12°C (@ delta T 3K)

MPG 35%: -8°C (@ delta T 4K)

MPG 40%: -10°C (@ delta T 3K)

TOTAL HEAT RECLAIM (OPTION 50 AND 50C)

Suitable for heating, domestic hot water production, agriculture and food industry, industrial processes and other hot-water requirements.

With the total heat reclaim option it is possible to reduce the energy consumption bill considerably, when compared to conventional heating equipment such as fossil fuel boilers or electric water tanks.

Operating principle

If hot water production is required, the compressor discharge gases are directed towards the heat reclaim condenser. The refrigerant releases its heat to the hot water that leaves the condenser at a temperature of up to 60°C. In this way 100% of the heat rejected by the liquid chiller can be used to produce hot water. When the demand for heat is satisfied, the hot gas is again directed towards the air condenser where the heat is rejected to the outside air by the fans. Hot water temperature control is ensured by the chiller SmartView control that independently controls the reclaim operation of each refrigerant circuit.

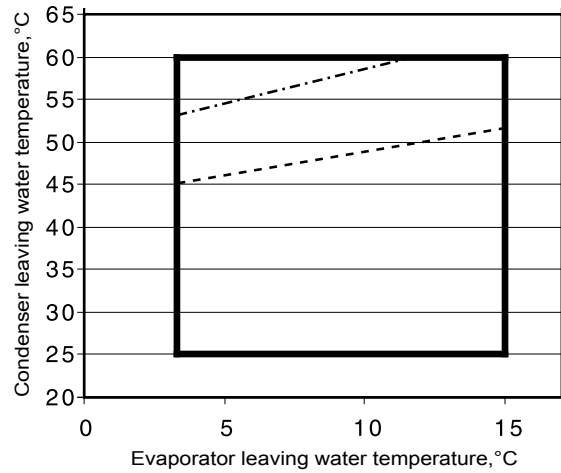
NOTE: Heat reclaim is only possible, possible if the unit is producing cooling at the same time.

Condenser water temperature (°C)	Minimum	Maximum
Entering temperature at start-up	12.5*	55
Entering temperature during operation	20	55
Leaving temperature during operation	25	60
Evaporator water temperature (°C)	Minimum	Maximum
Entering temperature at start-up	-	45
Entering temperature during operation	6.8	21

* The entering water temperature at start-up must not fall below 12.5°C. For installations with a lower temperature a three-way valve must be used.

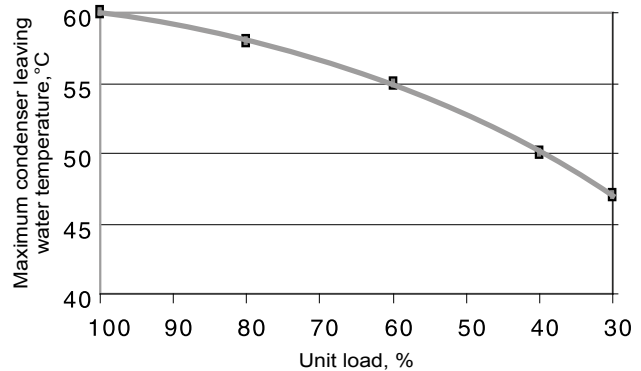
Note: If the evaporator leaving water temperature is below 4°C, a glycol-water solution or the frost protection option must be used.

In part-load operation, the limitation of the condenser leaving water temperature is due to the operating range of the screw compressor. If the condenser leaving water temperature is above the limit value given in the curves below, the unit will automatically change over to air-cooled operating mode:



- Full load
- - - Part load limit, approx. 60%
- - - Minimum load limit, approx. 30%

Part load operating limits (evaporator leaving water temperature = 7°C)



FAN WITH AVAILABLE PRESSURE (OPTION 10)

This option allows a duct connection at the discharge side of the condenser fan. The unit is equipped with a duct connection frame. The chiller can operate at a static discharge pressure of up to 60 Pa with reduced performance. The performance can be estimated using the coefficients below, applicable at the conditions shown in the curve below.

Selection method

To obtain the capacities at the static duct pressure, apply the coefficients shown in the table below.

30XB-ZE option 10

Fan pressure drop	Pa	Correction factors			
		0	20	40	60
Air flow	%	0	-3,5%	-7,5%	-12,1%
Cooling capacity	%	0	-0,5%	-1,0%	-1,5%
EER	%	0	-1,5%	-3,5%	-5,0%
Power input	%	0	+1,0%	+2,5%	+3,5%

Note: All fans must be individually ducted.

Example

30XB-ZE-0600 with 40 Pa pressure drop

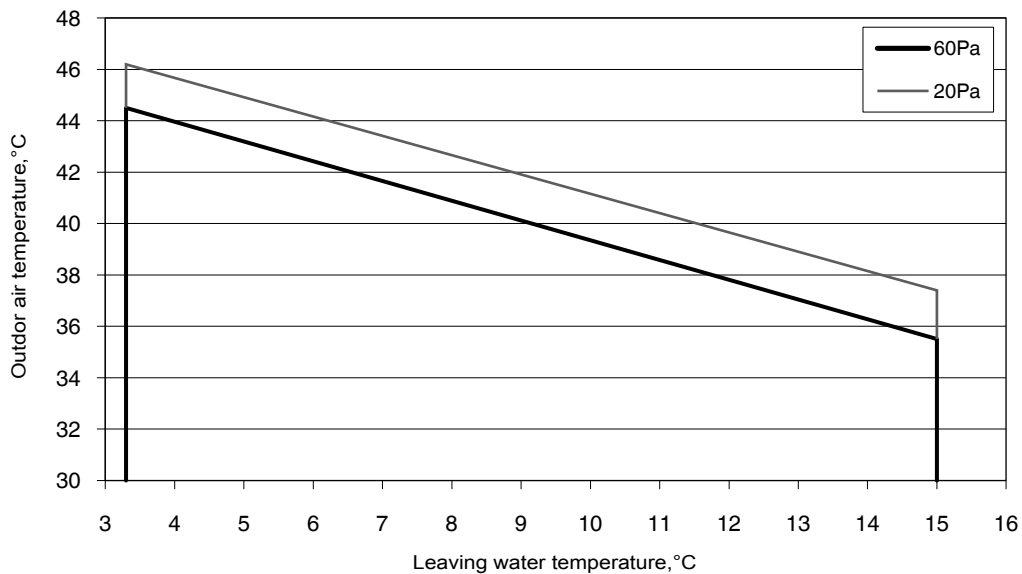
Performance at the following conditions:

- 35°C outside air temperature
- 12/7°C entering/leaving water temperature

30XB-ZE option 10

30XB-ZE0600		0 Pa	Correction factors	40 Pa
Air flow	l/s	57840	-7,5%	53502
Cooling capacity	kW	788	-1,0%	781
EER	kW/kW	3,14	-3,5%	3,03
Power input	kW	251	2,5%	257

Application limits for correction factors for high air temperatures



PHYSICAL DATA, SIZES 30XB-ZE-200 TO 600

30XB-ZE		200	230	250	300	350	400	450	500	550	600	
Cooling												
Standard unit Full load performances* CA1	Nominal capacity	kW	211	228	244	303	342	378	467	511	551	584
	EER	kW/kW	3,28	3,27	3,22	3,36	3,30	3,28	3,36	3,40	3,29	3,25
	Eurovent class		A	A	A	A	A	A	A	A	A	A
Unit with option 15LS (+) Full load performances* CA1	Nominal capacity	kW	205	224	239	297	336	362	454	501	534	560
	EER	kW/kW	3,25	3,26	3,22	3,35	3,29	3,10	3,35	3,39	3,18	3,06
	Eurovent class		A	A	A	A	A	A	A	A	A	B
Standard unit Seasonal energy efficiency **	SEER_{12/7°C} Comfort low temp.	kWh/kWh	4,44	4,38	4,36	4,42	4,39	4,29	4,25	4,41	4,36	4,22
	η_s cool_{12/7°C}	%	175	172	171	174	173	168	167	173	171	166
	SEPR_{12/7°C} Process high temp.	kWh/kWh	6,04	6,16	6,14	5,75	5,98	5,96	6,01	6,03	5,90	5,57
Unit with Option 5 Seasonal energy efficiency **	SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh										
	SEER_{12/7°C} Comfort low temp.	kWh/kWh	4,33	4,37	4,37	4,55	4,51	4,38	4,34	4,49	4,46	4,27
Unit with Option 299 Seasonal energy efficiency **	η_s cool_{12/7°C}	%	170	172	172	179	177	172	171	177	175	168
	SEPR_{12/7°C} Process high temp.	kWh/kWh	6,03	6,10	6,15	5,79	6,01	5,99	6,04	6,04	5,93	5,59
	SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh										
Unit with Option 5 & 17 Seasonal energy efficiency **	SEER_{12/7°C} Comfort low temp.	kWh/kWh	4,43	4,37	4,34	4,42	4,38	4,25	4,25	4,40	4,33	4,16
	η_s cool_{12/7°C}	%	174	172	171	174	172	167	167	173	170	164
	SEPR_{12/7°C} Process high temp.	kWh/kWh	6,04	6,14	6,14	5,74	5,97	5,90	5,93	6,04	5,89	5,64
Unit with Option 5 & 17 Seasonal energy efficiency **	SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh										
	SEER_{12/7°C} Comfort low temp.	kWh/kWh	4,31	4,36	4,36	4,55	4,50	4,33	4,32	4,48	4,42	4,21
Unit with Option 299 & 15LS (+) Seasonal energy efficiency **	η_s cool_{12/7°C}	%	170	171	171	179	177	170	170	176	174	165
	SEPR_{12/7°C} Process high temp.	kWh/kWh	6,02	6,06	6,14	5,78	6,01	5,93	5,96	6,03	5,92	5,66
	SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh										
Unit with Option 5 & 17 Seasonal energy efficiency **	SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh										
	SEER_{12/7°C} Comfort low temp.	kWh/kWh	4,31	4,36	4,36	4,55	4,50	4,33	4,32	4,48	4,42	4,21
	η_s cool_{12/7°C}	%	170	171	171	179	177	170	170	176	174	165
Unit with Option 5 & 17 Seasonal energy efficiency **	SEPR_{12/7°C} Process high temp.	kWh/kWh	6,02	6,06	6,14	5,78	6,01	5,93	5,96	6,03	5,92	5,66
	SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh										
	SEER_{12/7°C} Comfort low temp.	kWh/kWh	4,31	4,36	4,36	4,55	4,50	4,33	4,32	4,48	4,42	4,21
Sound levels												
Standard unit												
Sound power ⁽¹⁾	dB(A)	99	99	99	99	101	99	101	99	103	103	
Sound pressure at 10 m ⁽²⁾		67	67	67	67	69	67	68	66	70	70	
Sound pressure at 1 m	dB(A)	80	80	80	79	81	79	80	78	82	82	
Unit + option 15⁽³⁾												
Sound power ⁽¹⁾	dB(A)	93	93	94	95	95	95	97	96	97	98	
Sound pressure at 10 m ⁽²⁾		61	61	62	63	63	63	64	63	64	65	
Sound pressure at 1 m	dB(A)	74	74	75	75	75	75	76	75	76	77	
Unit + option 15LS⁽³⁾												
Sound power ⁽¹⁾	dB(A)	87	87	87	90	91	91	93	92	94	94	
Sound pressure at 10 m ⁽²⁾		55	55	55	58	59	59	60	59	61	61	
Sound pressure at 1 m	dB(A)	68	68	68	70	71	71	72	71	73	73	
Unit + option 15LS+⁽³⁾												
Sound power ⁽¹⁾	dB(A)	-	-	-	-	89	89	91	90	91	92	
Sound pressure at 10 m ⁽²⁾		-	-	-	-	57	57	58	57	58	59	
Sound pressure at 1 m	dB(A)	-	-	-	-	69	69	70	69	70	71	
Dimensions												
Standard unit												
Length	mm	3604	3604	3604	4798	4798	4798	7186	7186	7186	7186	
Width	mm	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253	
Height	mm	2322	2322	2322	2322	2322	2322	2322	2322	2322	2322	

* In accordance with standard EN14511-3:2013.
 ** In accordance with standard EN14825:2016, average climate
 *** With EG 30%
 CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W
η_s cool_{12/7°C} & SEER_{12/7°C} Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application
SEPR_{-2/-8°C} Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application
 (1) in dB ref=10⁻¹²W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

PHYSICAL DATA, SIZES 30XB-ZE-200 TO 600

30XB-ZE		200	230	250	300	350	400	450	500	550	600
Operating weight⁽⁴⁾											
Standard unit	l	3036	3067	3087	3669	3733	3795	4793	4938	5195	5512
Unit + option 15 ⁽³⁾	l	3304	3335	3355	3968	4032	4094	5124	5269	5526	5843
Compressors											
06T semi-hermetic screw compressor, 50 r/s											
Circuit A		1	1	1	1	1	1	1	1	1	1
Circuit B		1	1	1	1	1	1	1	1	1	1
No. of control stages											
Refrigerant⁽⁴⁾											
R1234ze(E)											
Circuit A	kg	37	35	35	51	52	52	58	58	65	69
	teqCO ₂	0,04	0,04	0,04	0,05	0,05	0,05	0,06	0,06	0,07	0,07
Circuit B	kg	39	36	37	40	40	40	59	62	58	65
	teqCO ₂	0,04	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,06	0,07
Oil											
Circuit A	l	20,8	20,8	20,8	23,5	23,5	23,5	23,5	23,5	27,6	27,6
Circuit B	l	20,8	20,8	20,8	20,8	20,8	20,8	23,5	23,5	23,5	23,5
Capacity control		SmartView, Electronic Expansion Valve (EXV)									
Minimum capacity	%	15	15	15	15	15	15	15	15	15	15
Air heat exchanger											
Aluminum micro-channel coils (MCHE)											
Fans											
Inverter driven Flying Bird (TM) VI fans with AC motors											
Standard unit											
Quantity		6	6	6	8	8	8	11	12	12	12
Maximum total air flow	l/s	28920	28920	28920	38560	38560	38560	53020	57840	57840	57840
Maximum rotation speed	r/s	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7
Unit + option 15LS											
Maximum total air flow	l/s	23580	23580	23580	31440	31440	31440	43230	47160	47160	47160
Maximum rotation speed	r/s	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7
Water heat exchanger											
Flooded multi-tube type											
Water volume	l	58	61	61	66	70	77	79	94	98	119
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Water connections											
Victaulic® type											
Standard											
Nominal diameter	in	5	5	5	5	5	5	5	6	6	6
Actual outside diameter	mm	141,3	141,3	141,3	141,3	141,3	141,3	141,3	168,3	168,3	168,3
Options 100A											
Nominal diameter	in	4	4	4	4	4	4	5	5	5	5
Actual outside diameter	mm	114,3	114,3	114,3	114,3	114,3	114,3	141,3	141,3	141,3	141,3
Options 100C											
Nominal diameter	in	5	5	5	5	5	5	6	6	6	6
Actual outside diameter	mm	141,3	141,3	141,3	141,3	141,3	141,3	168,3	168,3	168,3	168,3
Casing paint											
Colour code RAL 7035											

(3) Options : 15 = Low noise, 15LS = Very Low noise, 15LS+ = Ultra Low noise

(4) Values are guidelines only. Refer to the unit name plate.

(5) Depends on options

PHYSICAL DATA, SIZES 30XB-ZE-630 TO 1200

30XB-ZE		630	700	750	900	950	1050	1150	1200
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Cooling

Standard unit Full load performances*	CA1	Nominal capacity	kW	614	667	737	886	963	1042	1119	1162
		EER	kW/kW	3,21	3,25	3,22	3,33	3,25	3,30	3,20	3,14
		Eurovent class		A	A	A	A	A	A	A	A
Unit with option 15LS (+) Full load performances*	CA1	Nominal capacity	kW	590	641	710	852	929	1003	1080	1087
		EER	kW/kW	3,04	3,09	3,07	3,16	3,09	3,13	3,03	2,96
		Eurovent class		B	B	B	A	B	A	B	B
Standard unit Seasonal energy efficiency **		SEER _{12/7°C} Comfort low temp.	kWh/kWh	4,17	4,15	4,14	4,42	4,24	4,27	4,20	4,15
		ηs cool _{12/7°C}	%	164	163	163	174	166	168	165	163
		SEPR _{12/7°C} Process high temp.	kWh/kWh	5,51	5,65	5,65	5,56	5,24	5,62	5,42	5,18
Unit with Option 5 Seasonal energy efficiency **		SEPR _{-2/-8°C} Process medium temp.***	kWh/kWh								
		SEER _{12/7°C} Comfort low temp.	kWh/kWh	4,24	4,20	4,18	4,40	4,21	4,31	4,26	4,21
Unit with Option 299 Seasonal energy efficiency **		ηs cool _{12/7°C}	%	166	165	164	173	165	170	167	165
		SEPR _{12/7°C} Process high temp.	kWh/kWh	5,53	5,67	5,67	5,58	5,26	5,66	5,46	5,21
		SEPR _{-2/-8°C} Process medium temp.***	kWh/kWh								
Unit with Option 5 & 17 Seasonal energy efficiency **		SEPR _{-2/-8°C} Process medium temp.***	kWh/kWh								
		SEER _{12/7°C} Comfort low temp.	kWh/kWh	4,13	4,12	4,10	4,39	4,17	4,19	4,12	4,11
Unit with Option 15LS (+) Seasonal energy efficiency **		ηs cool _{12/7°C}	%	162	162	161	173	164	165	162	161
		SEPR _{12/7°C} Process high temp.	kWh/kWh	5,62	5,66	5,67	5,57	5,35	5,56	5,44	5,24
		SEPR _{-2/-8°C} Process medium temp.***	kWh/kWh								
Unit with Option 5 & 15LS (+) Seasonal energy efficiency **		SEER _{12/7°C} Comfort low temp.	kWh/kWh	4,20	4,16	4,12	4,34	4,07	4,23	4,16	4,14
		ηs cool _{12/7°C}	%	165	163	162	171	160	166	163	163
		SEPR _{12/7°C} Process high temp.	kWh/kWh	5,65	5,68	5,69	5,59	5,37	5,60	5,48	5,27
Unit with Option 5, 17, 15LS(+) Seasonal energy efficiency **		SEPR _{-2/-8°C} Process medium temp.***	kWh/kWh								
		SEPR _{-2/-8°C} Process medium temp.***	kWh/kWh								
Sound levels											
Standard unit											
Sound power ⁽¹⁾		dB(A)	101	104	102	103	102	104	104	104	104
Sound pressure at 10 m ⁽²⁾			68	71	69	70	69	71	71	71	71
Sound pressure at 1 m ⁽²⁾		dB(A)	80	83	81	81	80	81	81	81	81
Unit + option 15⁽³⁾											
Sound power ⁽¹⁾		dB(A)	97	99	98	98	98	100	99	99	99
Sound pressure at 10 m ⁽²⁾			64	66	65	65	65	67	66	66	66
Sound pressure at 1 m ⁽²⁾		dB(A)	76	78	77	76	76	77	76	76	76
Unit + option 15LS⁽³⁾											
Sound power ⁽¹⁾		dB(A)	94	95	94	94	94	99	95	96	96
Sound pressure at 10 m ⁽²⁾			61	62	61	61	61	66	62	63	63
Sound pressure at 1 m ⁽²⁾		dB(A)	73	74	73	72	72	76	72	73	73
Unit + option 15LS+⁽³⁾											
Sound power ⁽¹⁾		dB(A)	91	93	92	93	93	97	94	95	95
Sound pressure at 10 m ⁽²⁾			58	60	59	60	60	64	61	62	62
Sound pressure at 1 m ⁽²⁾		dB(A)	70	72	71	71	71	74	71	72	72

* In accordance with standard EN14511-3:2013.

** In accordance with standard EN14825:2016, average climate

*** With EG 30%

+ SEER calculated with the option 119

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W

ηs cool _{12/7°C} & SEER _{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR _{-2/-8°C} **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**

(1) in dB ref=10⁻¹²W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

PHYSICAL DATA, SIZES 30XB-ZE-630 TO 1200

30XB-ZE		630	700	750	900	950	1050	1150	1200
Dimensions									
Standard unit									
Length	mm	7186	8380	8380	10770	10770	11962	11962	11962
Width	mm	2253	2253	2253	2253	2253	2253	2253	2253
Height	mm	2322	2322	2322	2322	2322	2322	2322	2322
Operating weight⁽⁴⁾									
Standard unit									
kg		5561	6163	6341	7757	7751	8650	8727	8772
Unit + option 15⁽³⁾									
kg		5892	6494	6672	8131	8125	9024	9101	9146
Compressors									
06T semi-hermetic screw compressor, 50 r/s									
Circuit A		1	1	1	1	1	1	1	1
Circuit B		1	1	1	1	1	1	1	1
No. of control stages									
Refrigerant⁽⁴⁾									
R1234ze(E)									
Circuit A	kg	69	69	70	76	76	110	116	120
	teqCO ₂	0,07	0,07	0,07	0,08	0,08	0,11	0,12	0,12
Circuit B	kg	65	71	72	116	120	116	124	120
	teqCO ₂	0,07	0,07	0,07	0,12	0,12	0,12	0,12	0,12
Oil									
Oil type									
Circuit A	l	27,6	27,6	27,6	27,6	27,6	36,0	36,0	36,0
Circuit B	l	23,5	27,6	27,6	36,0	36,0	36,0	36,0	36,0
Circuit C	l								
Circuit D	l								
Capacity control									
SmartView, Electronic Expansion Valve (EXV)									
Minimum capacity	%	15	15	15	15	15	15	15	15
Air heat exchanger									
Aluminum micro-channel coils (MCHE)									
Fans									
Inverter driven Flying Bird (TM) VI fans with AC motors									
Standard unit									
Quantity		12	14	14	18	18	20	20	20
Maximum total air flow	l/s	57840	67480	67480	86760	86760	96400	96400	96400
Maximum rotation speed	r/s	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7
Unit + option 15LS									
Maximum total air flow	l/s	47160	55020	55020	70740	70740	78600	78600	78600
Maximum rotation speed	r/s	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7
Water heat exchanger									
Flooded multi-tube type									
Water volume	l	119	130	140	164	174	180	189	189
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000
Water connections									
Victaulic® type									
Standard									
Nominal diameter	in	6	6	8	6	6	6	6	6
Actual outside diameter	mm	168,3	168,3	219,1	168,3	168,3	168,3	168,3	168,3
Options 100A									
Nominal diameter	in	5	5	6	6	6	6	6	6
Actual outside diameter	mm	141,3	141,3	168,3	168,3	168,3	168,3	168,3	168,3
Options 100C									
Nominal diameter	in	6	6	8	-	-	-	-	-
Actual outside diameter	mm	168,3	168,3	219,1	-	-	-	-	-
Casing paint									
Colour code RAL 7035									

(3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = Dx freecooling option, 50= heat recovery.

(4) Values are guidelines only. Refer to the unit name plate.

(5) Depends of options

PHYSICAL DATA, SIZES 30XPZE-200 TO 400

30XPZE		200	230	250	300	350	400			
Cooling										
Standard unit Full load performances*	CA1	Nominal capacity	kW		211	228	244	303	342	378
		EER	kW/kW		3,36	3,31	3,26	3,40	3,35	3,32
		Eurovent class			A	A	A	A	A	A
Unit with Option 15LS Full load performances*	CA1	Nominal capacity	kW		205	224	239	297	336	363
		EER	kW/kW		3,30	3,30	3,25	3,36	3,32	3,14
		Eurovent class			A	A	A	A	A	A
Standard unit Seasonal energy efficiency **		SEER_{12/7°C} Comfort low temp.	kWh/kWh		4,52	4,42	4,40	4,47	4,43	4,33
		η_{s cool}_{12/7°C}	%		178	174	173	176	174	170
		SEPR_{12/7°C} Process high temp.	kWh/kWh		6,09	6,19	6,19	5,78	6,02	6,00
Unit with option 5 Seasonal energy efficiency **		SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh							
Unit with Option 15LS Seasonal energy efficiency **		SEER_{12/7°C} Comfort low temp.	kWh/kWh		4,50	4,41	4,39	4,45	4,42	4,28
		η_{s cool}_{12/7°C}	%		177	173	172	175	174	168
		SEPR_{12/7°C} Process high temp.	kWh/kWh		6,09	6,20	6,19	5,78	6,03	5,96
Unit with option 5 & 15LS Seasonal energy efficiency **		SEPR_{-2/-8°C} Process medium temp.***	kWh/kWh							
Sound levels										
Standard unit										
Sound power ⁽¹⁾		dB(A)		99	99	99	99	101	99	
Sound pressure at 10 m ⁽²⁾				67	67	67	67	69	67	
Sound pressure at 1 m		dB(A)		80	80	80	79	81	79	
Unit + option 15⁽³⁾										
Sound power ⁽¹⁾		dB(A)		93	93	94	95	95	95	
Sound pressure at 10 m ⁽²⁾				61	61	62	63	63	63	
Sound pressure at 1 m		dB(A)		74	74	75	75	75	75	
Unit + option 15LS⁽³⁾										
Sound power ⁽¹⁾		dB(A)		87	87	87	90	91	91	
Sound pressure at 10 m ⁽²⁾				55	55	55	58	59	59	
Sound pressure at 1 m		dB(A)		68	68	68	70	71	71	
Unit + option 15LS+⁽³⁾										
Sound power ⁽¹⁾		dB(A)		-	-	-	-	89	89	
Sound pressure at 10 m ⁽²⁾				-	-	-	-	57	57	
Sound pressure at 1 m		dB(A)		-	-	-	-	69	69	
Dimensions										
Standard unit										
Length		mm		3604	3604	3604	4798	4798	4798	
Width		mm		2253	2253	2253	2253	2253	2253	
Height		mm		2322	2322	2322	2322	2322	2322	
Operating weight⁽⁴⁾										
Standard unit		kg		3012	3043	3062	3647	3711	3773	
Unit + option 15 ⁽³⁾		kg		3280	3311	3330	3946	4010	4072	
Compressors										
Circuit A				06T semi-hermetic screw compressor, 50 r/s						
Circuit B				1	1	1	1	1	1	
No. of control stages				1	1	1	1	1	1	
Refrigerant⁽⁴⁾										
				R1234ze(E)						
Circuit A		kg		37	35	35	51	52	52	
		teqCO ₂		0,04	0,04	0,04	0,05	0,05	0,05	
Circuit B		kg		38,5	36	37	40	40	40	
		teqCO ₂		0,04	0,04	0,04	0,04	0,04	0,04	

* In accordance with standard EN14511-3:2013.
 ** In accordance with standard EN14825:2016, average climate
 *** With EG 30%
 CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fooling factor 0 m².K/W
η_{s cool}_{12/7°C} & SEER_{12/7°C} Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application
SEPR_{-2/-8°C} Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application
 (1) in dB ref=10⁻¹²W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

PHYSICAL DATA, SIZES 30XPZE-200 TO 400

30XPZE		200	230	250	300	350	400
Oil							
Circuit A	l	20,8	20,8	20,8	23,5	23,5	23,5
Circuit B	l	20,8	20,8	20,8	20,8	20,8	20,8
Capacity control							
SmartView, Electronic Expansion Valve (EXV)							
Minimum capacity	%	15	15	15	15	15	15
Air heat exchanger							
Aluminum micro-channel coils (MCHE)							
Fans							
Inverter driven Flying Bird (TM) VI fans with EC motors							
Standard unit							
Quantity		6	6	6	8	8	8
Maximum total air flow	l/s	28920	28920	28920	38560	38560	38560
Maximum rotation speed	r/s	15,7	15,7	15,7	15,7	15,7	15,7
Unit + option 15LS							
Maximum total air flow	l/s	23580	23580	23580	31440	31440	31440
Maximum rotation speed	r/s	11,7	11,7	11,7	11,7	11,7	11,7
Water heat exchanger							
Flooded multi-tube type							
Water volume	l	58	61	61	66	70	77
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000
Water connections							
Victaulic® type							
Standard							
Nominal diameter	in	5	5	5	5	5	5
Actual outside diameter	mm	141,3	141,3	141,3	141,3	141,3	141,3
Option 100A							
Nominal diameter	in	4	4	4	4	4	4
Actual outside diameter	mm	114,3	114,3	114,3	114,3	114,3	114,3
Options 100C							
Nominal diameter	in	5	5	5	5	5	5
Actual outside diameter	mm	141,3	141,3	141,3	141,3	141,3	141,3
Casing paint							
Colour code RAL 7035							

(5) Depends of options

ELECTRICAL DATA, 30XB-ZE-200 TO 750

30XB-ZE		200	230	250	300	350	400	450	500	550	600	630	700	750	
Power circuit supply															
Nominal voltage	V-ph-Hz	400-3-50													
Voltage range	V	360-440													
Control circuit supply		24 V via internal transformer													
Maximum operating input power ⁽¹⁾															
Standard unit	kW	95	102	110	139	157	171	219	235	252	266	277	299	322	
Unit + option 15LS	kW	89	96	104	130	148	163	208	222	239	253	264	286	307	
Power factor at maximum power ⁽¹⁾															
Standard unit															
Displacement Power Factor (Cos Phi)		0,87	0,86	0,86	0,87	0,87	0,87	0,87	0,87	0,86	0,86	0,87	0,86	0,87	
Unit + option 15LS															
Displacement Power Factor (Cos Phi)		0,87	0,86	0,86	0,87	0,87	0,87	0,87	0,87	0,86	0,86	0,87	0,86	0,87	
Nominal operating current draw ⁽²⁾															
Standard unit	A	117	126	135	163	182	199	250	270	289	306	316	349	369	
Unit + option 15LS	A	107	115	124	149	169	185	231	249	269	286	295	325	345	
Maximum operating current draw (Un) ⁽¹⁾															
Standard unit	A	158	171	184	231	261	283	363	389	422	444	459	505	536	
Unit + option 15LS	A	148	161	174	217	247	270	345	368	401	423	439	482	512	
Maximum current (Un-10%) ⁽¹⁾															
Standard unit	A	169	183	197	247	280	304	389	417	452	476	492	542	575	
Unit + option 15LS	A	159	173	187	233	266	290	371	396	432	456	472	518	551	
Nominal start-up current ⁽³⁾															
Standard unit	A	230	239	239	363	457	457	527	527	705	722	722	766	776	
Unit + option 15LS	A	225	234	234	358	452	452	518	516	697	713	713	754	764	
Unit + option 25C	A	193	200	200	326	418	418	432	432	622	631	631	655	673	
Maximum start-up current(Un) ⁽²⁾															
Standard unit	A	251	264	264	384	482	482	586	586	759	781	781	844	859	
Unit + option 15LS	A	246	259	259	379	477	477	578	576	751	773	773	832	847	
Unit + option 25C	A	213	224	224	346	442	442	492	492	676	691	691	733	756	

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

ELECTRICAL DATA, 30XB-ZE-0900 TO 1200

30XB-ZE		900	950	1050	1150	1200
Power circuit supply						
Nominal voltage	V-ph-Hz	400-3-50				
Voltage range	V	360-440				
Control circuit supply						
24 V via internal transformer						
Maximum operating input power⁽¹⁾ - 30XB-ZE						
Standard unit						
Circuit 1 ^(a)	kW	151	161	220	241	256
Circuit 2 ^(a)	kW	241	258	239	256	256
Option 081	kW	392	418	460	497	512
Unit + option 15LS						
Circuit 1 ^(a)	kW	144	154	210	231	246
Circuit 2 ^(a)	kW	230	247	229	246	246
Option 081	kW	374	400	439	477	492
Power factor at maximum power⁽¹⁾ - 30XB-ZE						
Standard unit						
Displacement Power Factor (Cos Phi)		0,86	0,87	0,86	0,87	0,87
Unit + option 15LS						
Displacement Power Factor (Cos Phi)		0,86	0,87	0,86	0,87	0,87
Nominal operating current draw⁽²⁾ - 30XB-ZE						
Standard unit						
Circuit 1 ^(a)	A	175	185	251	268	290
Circuit 2 ^(a)	A	272	293	268	290	290
Option 081	A	446	477	519	558	579
Unit + option 15LS						
Circuit 1 ^(a)	A	163	173	234	251	273
Circuit 2 ^(a)	A	253	274	251	273	273
Option 081	A	416	447	485	524	545
Maximum operating current draw (Un)⁽¹⁾ - 30XB-ZE						
Standard unit						
Circuit 1 ^(a)	A	253	268	369	401	426
Circuit 2 ^(a)	A	404	430	401	426	426
Option 081	A	657	697	770	827	852
Unit + option 15LS						
Circuit 1 ^(a)	A	241	256	352	384	409
Circuit 2 ^(a)	A	386	411	384	409	409
Option 081	A	626	667	736	793	818
Maximum current (Un-10%)⁽¹⁾ - 30XB-ZE						
Standard unit						
Circuit 1 ^(a)	A	271	288	396	430	458
Circuit 2 ^(a)	A	434	461	430	458	458
Option 081	A	704	748	826	887	915
Unit + option 15LS						
Circuit 1 ^(a)	A	259	276	379	413	441
Circuit 2 ^(a)	A	415	442	413	441	441
Option 081	A	674	718	792	853	881
Nominal start-up current⁽³⁾ - 30XB-ZE						
Circuit 1 ^(a)	A	587	587	629	629	629
Circuit 2 ^(a)	A	629	629	629	629	629
Option 081	A	865	887	903	925	925
Option 081 & Opt 25c	A	670	684	712	726	726
Maximum start-up current(Un)⁽²⁾ - 30XB-ZE						
Circuit 1 ^(a)	A	587	587	629	629	629
Circuit 2 ^(a)	A	629	629	629	629	629
Option 081	A	998	1023	1036	1061	1061
Option 081 & Opt 25c	A	802	820	844	862	862

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B.

ELECTRICAL DATA, 30XBPZE-200 TO 400

30XBPZE		200	230	250	300	350	400
Power circuit supply							
Nominal voltage	V-ph-Hz	400-3-50					
Voltage range	V	360-440					
Control circuit supply							
24 V via internal transformer							
Maximum operating input power ⁽¹⁾							
Standard unit	kW	97	104	112	142	160	174
Unit + option 15LS	kW	94	101	109	138	156	170
Power factor at maximum power ⁽¹⁾							
Standard unit							
Displacement Power Factor (Cos Phi)		0,90	0,89	0,89	0,90	0,89	0,89
Unit + option 15LS							
Displacement Power Factor (Cos Phi)		0,90	0,89	0,89	0,90	0,89	0,89
Nominal operating current draw ⁽²⁾							
Standard unit	A	115	124	133	160	180	197
Unit + option 15LS	A	110	119	128	154	173	190
Maximum operating current draw (Un) ⁽¹⁾							
Standard unit	A	156	169	183	229	259	281
Unit + option 15LS	A	151	164	178	222	252	274
Maximum current (Un-10%) ⁽¹⁾							
Standard unit	A	167	181	196	245	278	302
Unit + option 15LS	A	162	176	191	238	271	295
Nominal start-up current ⁽³⁾							
Standard unit	A	228	237	237	361	455	455
Unit + option 15LS	A	225	234	234	358	452	452
Unit + option 25C	A	190	197	197	323	415	415
Maximum start-up current(Un) ⁽²⁾							
Standard unit	A	248	262	262	381	480	480
Unit + option 15LS	A	246	259	259	379	477	477
Unit + option 25C	A	211	222	222	344	440	440

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

ELECTRICAL DATA

Electrical data notes and operating conditions for 30XB-ZE units:

- 30XB-ZE & XBPZE 200 to 750 units have a single power connection point; 30XB-ZE & XBPZE 900 to 1200 units have two connection points.
- The control box includes the following standard features:
 - One general disconnect switch per circuit
 - Starter and motor protection devices for each compressor, the fan(s) and the pump
 - Control devices

Field connections:

- All connections to the system and the electrical installations must be in full accordance with all applicable local codes.
- The Carrier 30XB-ZE & 30XBPZE units are designed and built to ensure conformance with these codes. The recommendations of European standard EN 60204-1 (corresponds to IEC 60204-1) (machine safety - electrical machine components - part 1: General regulations) are specifically taken into account, when designing the electrical equipment.

IMPORTANT:

- Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation regulations.
- Conformance with EN 60204 is the best means of ensuring compliance with the Machines Directive ~ 1.5.1. Annex B of EN 60204-1 describes the electrical characteristics used for the operation of the machines.
 1. Environment* . Environment as classified in EN 60364 (corresponds to IEC 60364):
 - Outdoor installation*
 - Ambient temperature range: from -20°C to +55°C
 - Altitude less than or equal to 2000 m (for hydraulic module, see paragraph 4.7 in the IOM)
 - Presence of hard solids, class AE3 (no significant dust present)*
 - Presence of corrosive and polluting substances, class AF1 (negligible)
 - Competence of persons: BA4 (Persons wise).
 2. Compatibility for low-frequency conducted disturbances according to IEC61000-2-2 and to class 2 levels per IEC61000-2-4 standard:
 - Power supply frequency variation : +-2Hz
 - Phase imbalance : 2%

- Total Voltage Harmonic Distortion (THDV) : 8%

3. The neutral (N) line must not be connected directly to the unit (if necessary use a transformer).
4. Overcurrent protection of the power supply conductors is not provided with the unit.
5. The factory installed disconnect switch(es)/circuit breaker(s) is (are) of a type suitable for power interruption in accordance with EN 60947-3 (corresponds to IEC 60947-3).

6. The units are designed for simplified connection on TN(s) networks (IEC 60364). For IT networks provide a local earth and consult competent local organisations to complete the electrical installation. Units delivered with variable frequency drive(s) (options : 28, 17) are not compatible with IT network. 30XB-ZE units are designed to use for domestic / residential and industrial environments:

Machines that are not equipped with variable frequency drive(s) are in accordance with the codes :

- 61000-6-3: General standards - Standard emission for residential, commercial and light industry.
- 61000-6-2: General standards - Immunity for industrial environments.

- Leakage currents: If protection by monitoring the leakage currents is necessary to ensure the safety of the installation, the presence of additional leakage currents introduced by the use of variable frequency drive(s) in the unit must be considered. In particular these protection devices shall be of reinforced immunity types and have a threshold not lower than 150 mA.

NOTE: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local Carrier representative.

* The required protection level for this class is IP43BW (according to reference document IEC 60529). All 30XB-ZE & XBPZE units are protected to IP44CW and fulfil this protection condition.

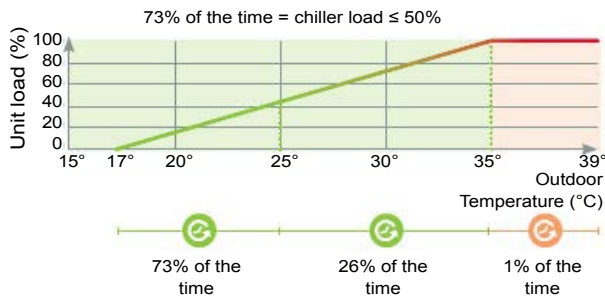
PART LOAD PERFORMANCE

SEER for comfort chillers (in accordance with EU ECODESIGN)

The SEER (Seasonal energy efficiency ratio) permits the evaluation of the average energy efficiency of comfort chillers, based on multiple operating conditions (load variation from 0% to 100%). From 1st January 2018, Tier 1 and from 1st January 2021, Tier 2, European member states will impose minimum SEER values to meet the requirements of Eco-design directive for ENER Lot 21 comfort cooling chillers. The Ecodesign Directive aims to minimize the environmental impact of energy-related products through consideration of their full lifecycle.



SEER is the new metric for chillers in comfort cooling applications.



EU ECODESIGN MEPS(*) for air-cooled chillers		Tier 1 (from 01/01/2018)	Tier 2 (from 01/01/2021)
SEER for comfort Chillers < 400kW	kWh/kWh	3,80	4,10
SEER for comfort Chillers > 400kW	kWh/kWh	4,10	4,55

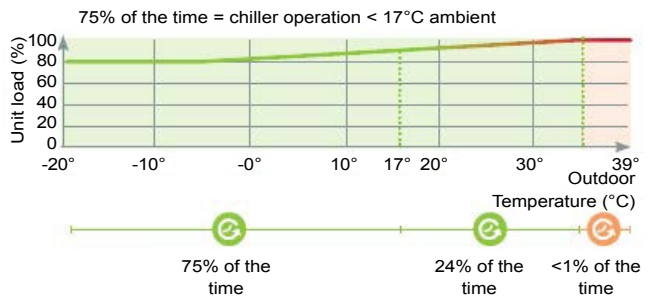
(*) Minimum Efficiency Performance Standards set by EU member states to comply with EU Ecodesign directive.

SEPR for process chillers (in accordance with EU ECODESIGN)

The SEPR (Seasonal energy performance ratio) permits the evaluation of the average energy efficiency of process chillers, based on multiple operating conditions (load variation from 80% to 100%). From 1st January 2018, Tier 1 and from 1st January 2021, Tier 2, European member states will impose minimum SEPR values for process chillers to meet the requirements of Eco-design directive for ENER Lot 21 for high temperature process chillers (7°C to 12°C) and for ENTR Lot 1 for low temperature process chillers (-25°C to -8°C) and medium temperature process chillers (-8°C to 7°C). The Ecodesign Directive aims to minimize the environmental impact of energy-related products through consideration of their full lifecycle. All process chillers marked with a CE label must meet the required SEPR (Seasonal Energy Performance Ratio) value stipulated in EU Directive.



SEPR is the new metric for chillers in industrial process cooling applications.



EU ECODESIGN MEPS(*) for air-cooled chillers		Tier 1 (from 01/07/2016)	Tier 2 (from 01/07/2018)
SEPR for medium temperature Process Chillers < 300 kW	kWh/kWh	2,24	2,58
SEPR for medium temperature Process Chillers > 300 kW	kWh/kWh	2,80	3,22

EU ECODESIGN MEPS(*) for air-cooled chillers		Tier 1 (from 01/01/2018)	Tier 2 (from 01/01/2021)
SEPR for high temperature Process Chillers < 400 kW	kWh/kWh	4,50	5,00
SEPR for high temperature Process Chillers > 400 kW	kWh/kWh	5,00	5,50

(*) Minimum Efficiency Performance Standards set by EU member states to comply with EU Ecodesign directive.

SOUND SPECTRUM 30XB-ZE UNITS

30XB-ZE - Standard unit

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	96	95	92	98	86	81	dB(A)	99
230	dB	96	95	92	98	86	81	dB(A)	99
250	dB	97	95	92	98	86	81	dB(A)	99
300	dB	97	96	94	98	88	83	dB(A)	99
350	dB	104	106	95	96	88	84	dB(A)	101
400	dB	96	95	95	96	91	86	dB(A)	99
450	dB	103	105	96	95	90	86	dB(A)	101
500	dB	97	95	95	96	91	86	dB(A)	99
550	dB	104	107	97	99	90	86	dB(A)	103
600	dB	100	101	98	100	92	88	dB(A)	103
630	dB	99	98	97	97	91	88	dB(A)	101
700	dB	100	103	98	102	91	87	dB(A)	104
750	dB	101	101	98	99	90	90	dB(A)	102
900	dB	101	103	100	99	94	88	dB(A)	103
950	dB	101	103	99	98	94	88	dB(A)	102
1050	dB	102	103	102	101	94	88	dB(A)	104
1150	dB	101	103	102	101	94	88	dB(A)	104
1200	dB	101	103	102	101	94	88	dB(A)	104

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

30XB-ZE - Unit with Option 15LS

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	88	89	83	84	76	68	dB(A)	87
230	dB	88	89	83	84	76	68	dB(A)	87
250	dB	88	89	83	84	76	68	dB(A)	87
300	dB	89	92	87	86	80	71	dB(A)	90
350	dB	90	96	87	86	80	69	dB(A)	91
400	dB	92	94	89	87	81	72	dB(A)	91
450	dB	90	96	91	88	81	77	dB(A)	93
500	dB	92	94	90	87	82	73	dB(A)	92
550	dB	91	97	91	89	80	70	dB(A)	94
600	dB	92	94	92	90	81	72	dB(A)	94
630	dB	96	96	92	89	81	74	dB(A)	94
700	dB	93	94	94	92	80	71	dB(A)	95
750	dB	97	96	93	89	79	75	dB(A)	94
900	dB	97	95	91	88	86	85	dB(A)	94
950	dB	97	95	91	88	86	85	dB(A)	94
1050	dB	97	98	99	93	90	87	dB(A)	99
1150	dB	97	95	92	90	88	86	dB(A)	95
1200	dB	98	96	93	91	89	87	dB(A)	96

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

30XB-ZE - Unit with Option 15

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	95	94	90	90	83	78	dB(A)	93
230	dB	95	94	90	90	83	78	dB(A)	93
250	dB	95	94	91	90	83	78	dB(A)	94
300	dB	96	95	92	91	85	80	dB(A)	95
350	dB	96	94	92	91	86	80	dB(A)	95
400	dB	96	94	93	91	86	81	dB(A)	95
450	dB	96	97	94	93	89	82	dB(A)	97
500	dB	97	95	94	92	86	81	dB(A)	96
550	dB	101	99	94	94	86	81	dB(A)	97
600	dB	98	96	95	95	87	82	dB(A)	98
630	dB	99	96	95	94	87	83	dB(A)	97
700	dB	99	97	95	96	87	82	dB(A)	99
750	dB	99	96	95	94	87	83	dB(A)	98
900	dB	101	98	95	91	90	87	dB(A)	98
950	dB	101	98	95	91	90	87	dB(A)	98
1050	dB	102	99	99	95	92	88	dB(A)	100
1150	dB	101	99	96	93	90	87	dB(A)	99
1200	dB	101	99	96	93	90	87	dB(A)	99

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

30XB-ZE - Unit with Option 15LS+

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	-	-	-	-	-	-	dB(A)	-
230	dB	-	-	-	-	-	-	dB(A)	-
250	dB	-	-	-	-	-	-	dB(A)	-
300	dB	-	-	-	-	-	-	dB(A)	-
350	dB	89	93	84	85	76	67	dB(A)	89
400	dB	90	92	85	85	77	70	dB(A)	89
450	dB	91	93	88	87	79	77	dB(A)	91
500	dB	92	92	87	85	79	73	dB(A)	90
550	dB	92	94	89	87	79	73	dB(A)	91
600	dB	93	92	90	88	80	75	dB(A)	92
630	dB	93	92	90	87	79	74	dB(A)	91
700	dB	94	92	91	89	80	76	dB(A)	93
750	dB	94	91	91	87	79	75	dB(A)	92
900	dB	97	93	90	87	85	84	dB(A)	93
950	dB	97	93	90	87	85	84	dB(A)	93
1050	dB	95	96	97	91	88	85	dB(A)	97
1150	dB	97	95	91	88	86	85	dB(A)	94
1200	dB	98	96	92	89	87	86	dB(A)	95

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

SOUND SPECTRUM 30XBPZE UNITS

30XBPZE - Standard unit

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	95	94	91	98	86	80	dB(A)	99
230	dB	95	94	91	98	86	80	dB(A)	99
250	dB	95	94	92	98	86	80	dB(A)	99
300	dB	96	95	94	97	87	83	dB(A)	99
350	dB	103	106	94	96	88	84	dB(A)	101
400	dB	95	93	95	96	91	86	dB(A)	99

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

30XBPZE - Unit with Option 15LS

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	89	89	83	84	76	64	dB(A)	87
230	dB	89	89	83	84	76	64	dB(A)	87
250	dB	89	89	83	84	76	64	dB(A)	87
300	dB	90	92	87	86	79	67	dB(A)	90
350	dB	90	96	87	85	79	65	dB(A)	91
400	dB	92	93	88	87	81	69	dB(A)	91

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

30XBPZE - Unit with Option 15

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	93	93	90	90	82	78	dB(A)	93
230	dB	93	93	90	90	82	78	dB(A)	93
250	dB	94	94	91	91	83	79	dB(A)	94
300	dB	95	94	92	91	85	80	dB(A)	95
350	dB	95	93	92	91	87	80	dB(A)	95
400	dB	95	93	93	91	86	81	dB(A)	95

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

Acoustic spectrum and power of the unit + option 15LS+

		Octave bands, Hz ⁽¹⁾						Sound power level ⁽²⁾	
		125	250	500	1k	2k	4k		
200	dB	-	-	-	-	-	-	dB(A)	-
230	dB	-	-	-	-	-	-	dB(A)	-
250	dB	-	-	-	-	-	-	dB(A)	-
300	dB	-	-	-	-	-	-	dB(A)	-
350	dB	90	93	84	85	76	65	dB(A)	89
400	dB	91	92	85	85	77	66	dB(A)	89

- (1) In dB ref=10⁻¹² W, as a guideline. Measured in accordance with ISO 9614-1.
 (2) In dB ref=10⁻¹² W, weighting (A), with uncertainty +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

OPERATING LIMITS

Water heat exchanger	Minimum	Maximum
Entering temperature at start-up °C	-	45 ⁽¹⁾
Leaving temperature during operation °C	3,3	20
Entering/leaving water temperature difference K	2,8	10
Condenser air temperature	Minimum	Maximum
Storage	-20	68
Operation, standard unit	-20	55 ⁽²⁾
With Low noise option (option 15LS)	-20	52 ⁽²⁾

Note: If the air temperature is below 0°C, a glycol/water solution or the frost protection option must be used.

Note: If the leaving water temperature is below 4°C, a glycol/water solution or the frost protection option must be used.

- (1) Based on the installation type and the air temperature
 (2) Part load, depended of sizes & leaving water temperature

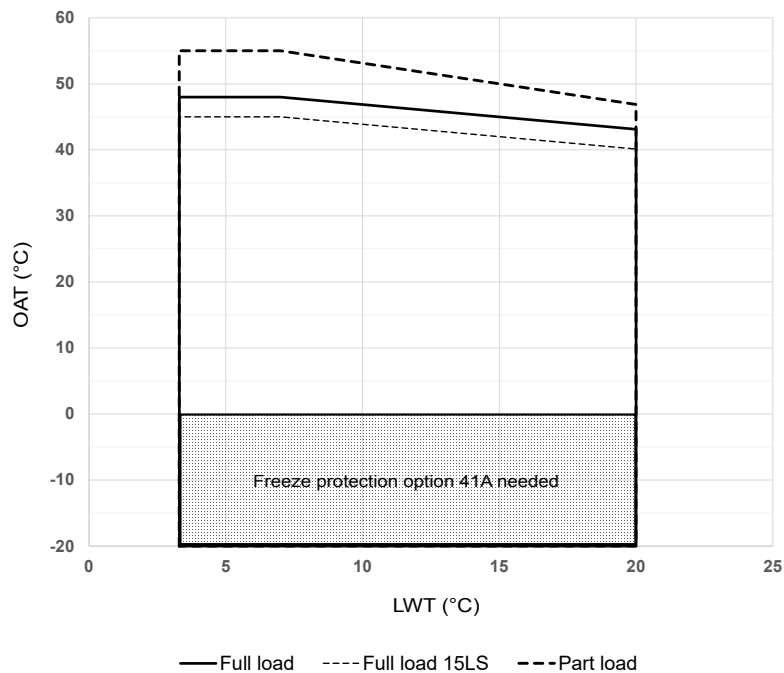
Units without hydraulic module

30XB-ZE & 30XBPZE	Minimum flow rate ⁽¹⁾ (l/s)	Maximum flow rate ⁽²⁾ (l/s)
200	3,6	37,5
230	4,0	40,5
250	4,3	40,5
300	5,3	34,1
350	6,0	36,9
400	6,7	42,0
450	8,1	45,0
500	8,9	56,1
550	9,6	59,1
600	10,4	67,1
630	11,0	67,1
700	11,8	73,9
750	13,1	83,9
900	15,1	87,8
950	16,4	126,5
1050	17,5	92,9
1150	16,4	132,1
1200	18,8	107,4

(1) Minimum flow rate for maximum allowable water temperature difference conditions (10K) under Eurovent conditions

(2) Maximum flow rate for a pressure drop of 100 kPa in the exchanger

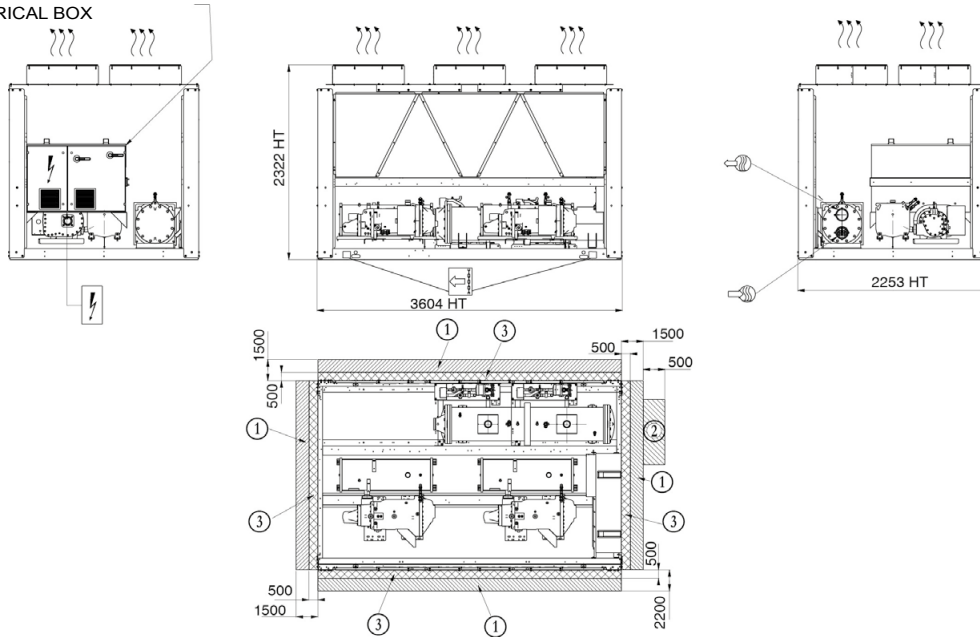
OPERATING RANGE



DIMENSIONS / CLEARANCES

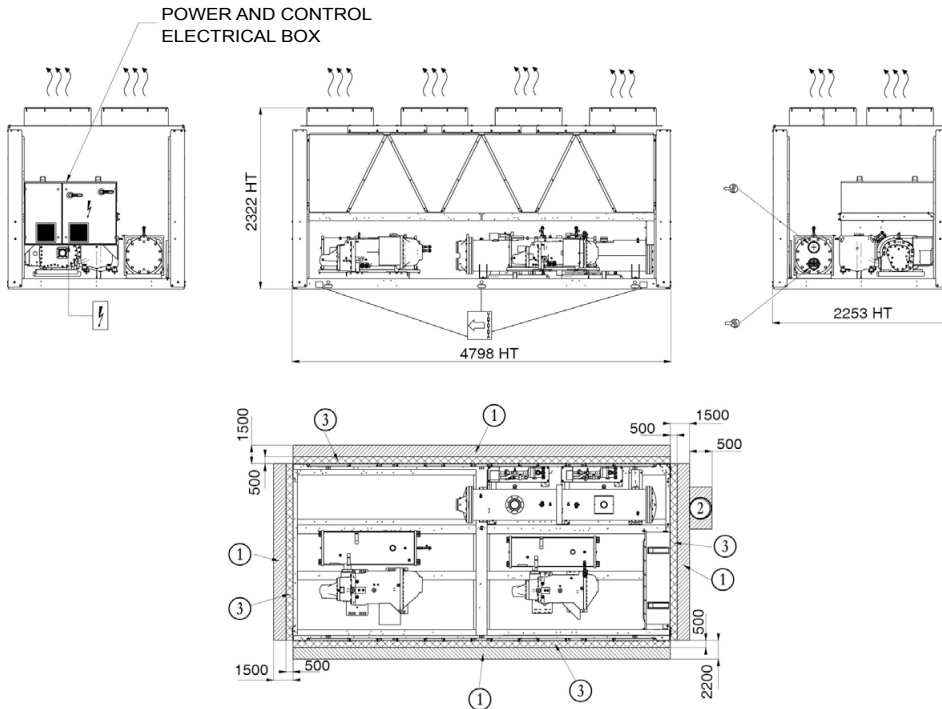
30XB(P)ZE 0200 to 250

POWER AND CONTROL ELECTRICAL BOX



30XB(P)ZE 0300 to 400

POWER AND CONTROL ELECTRICAL BOX



Legend

All dimensions are given in mm.

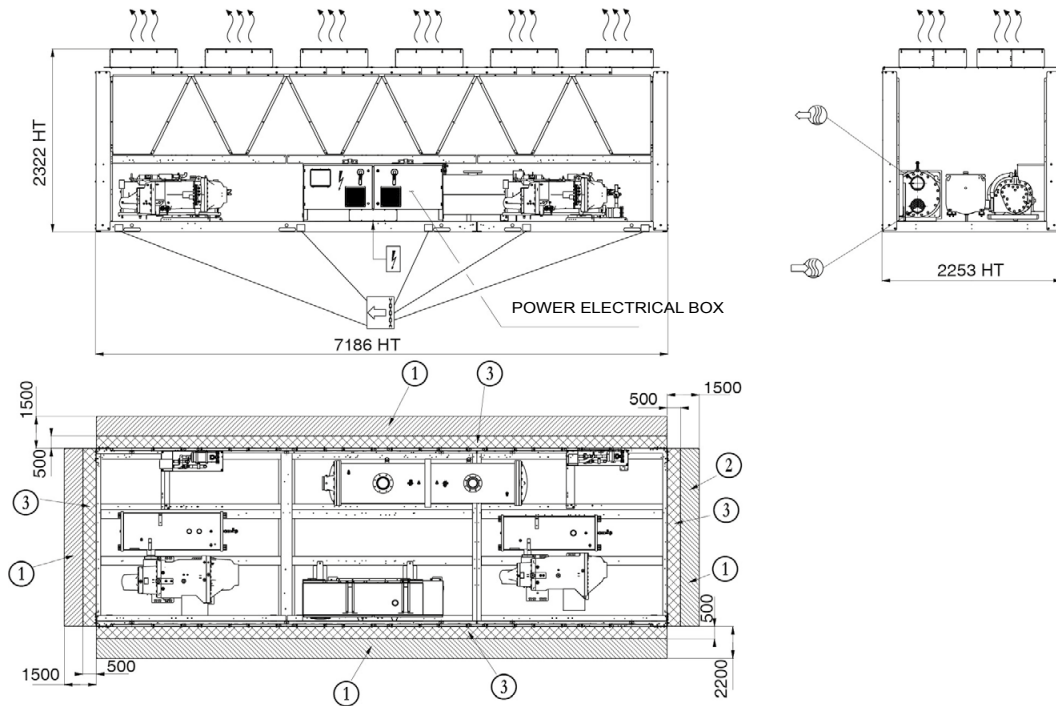
- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- ③ ATEX zone around the unit
- Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Air outlet – do not obstruct
- Power supply and control connection
- Slings points

NOTES:

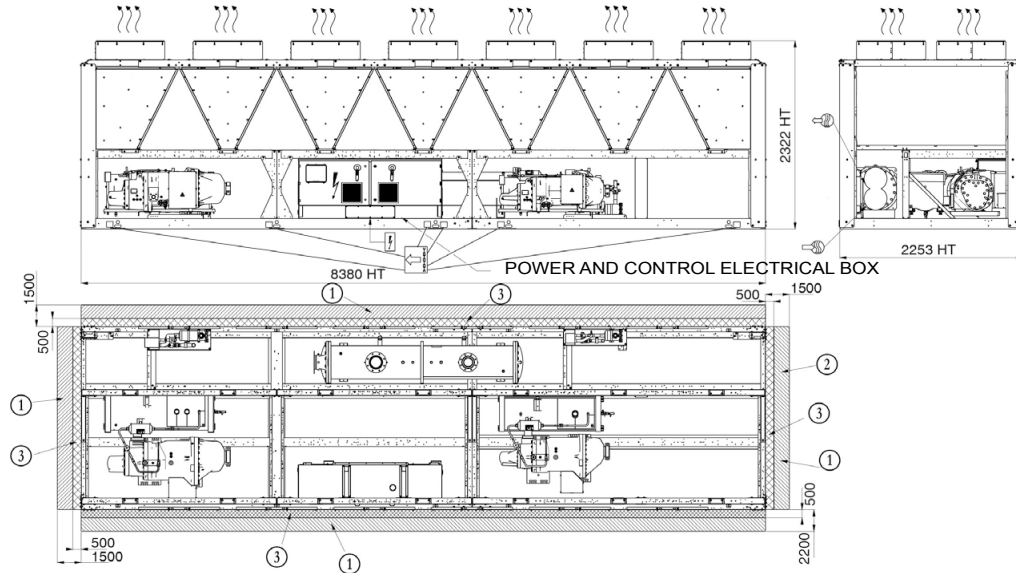
- Drawings are not contractually binding.
- Refer to unit nameplate for unit weight information
- Before designing an installation, consult the certified dimensional drawings, provided with the unit (Appendix 4).
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.7 - "Multiple chiller installation" and 3.8 - "Distance to the wall" of the installation manual to determine the space required

DIMENSIONS / CLEARANCES

30XB-ZE 0450 to 630








30XB-ZE 0700 & 750



Legend

All dimensions are given in mm.

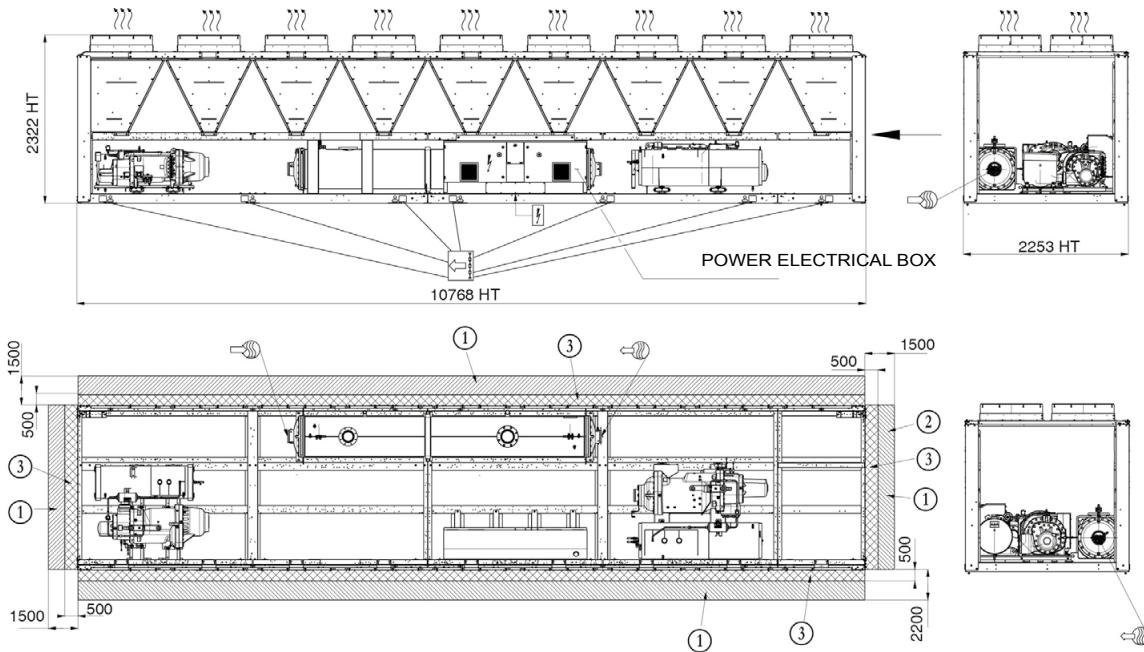
- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- ③ ATEX zone around the unit
-  Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
-  Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
-  Air outlet – do not obstruct
-  Power supply and control connection
-  Slings points

NOTES:

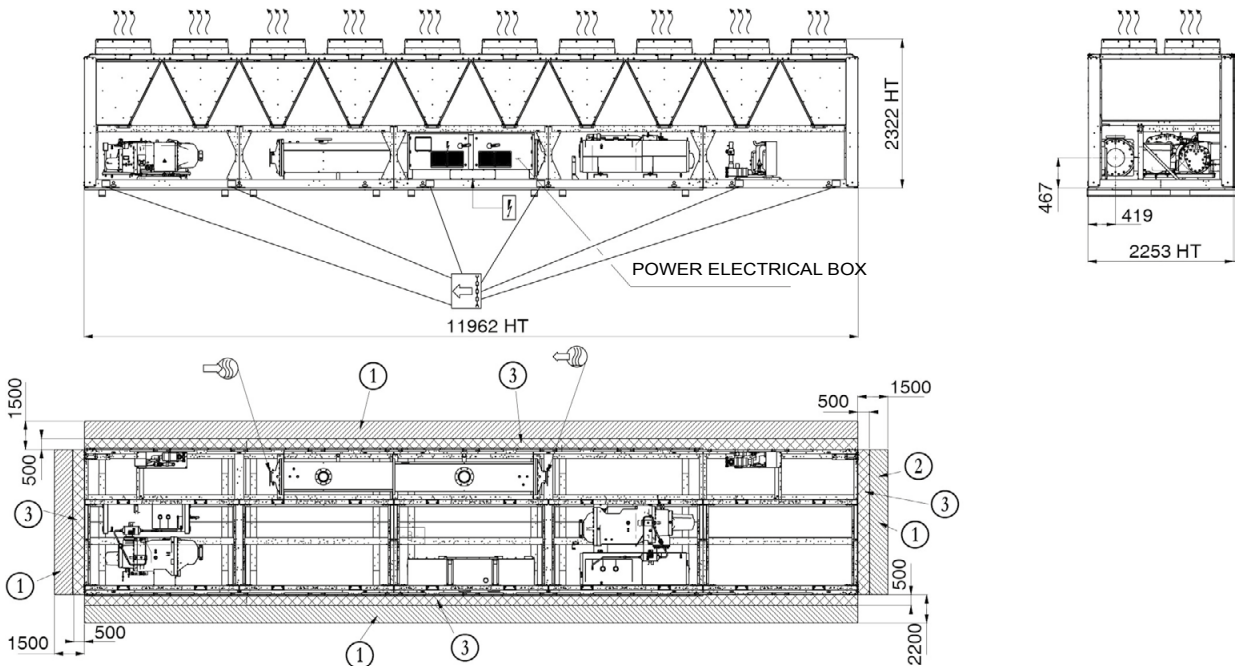
- Drawings are not contractually binding.
- Refer to unit nameplate for unit weight information
- Before designing an installation, consult the certified dimensional drawings, provided with the unit (Appendix 4).
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.7 - "Multiple chiller installation" and 3.8 - "Distance to the wall" of the installation manual to determine the space required

DIMENSIONS / CLEARANCES

30XB-ZE 0900 & 950



30XB-ZE 1050 to 1200



Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- ③ ATEX zone around the unit
- Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Air outlet – do not obstruct
- Power supply and control connection
- Slinging points

NOTES:

- Drawings are not contractually binding.
- Refer to unit nameplate for unit weight information
- Before designing an installation, consult the certified dimensional drawings, provided with the unit (Appendix 4).
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.7 - “Multiple chiller installation” and 3.8 - “Distance to the wall” of the installation manual to determine the space required



Order No.: 10538, 11.2019. Supersedes order No.: New.

Manufacturer reserves the right to change any product specifications without notice.

Manufactured by: Carrier SCS, Montluel, France.

Printed in the European Union.

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