

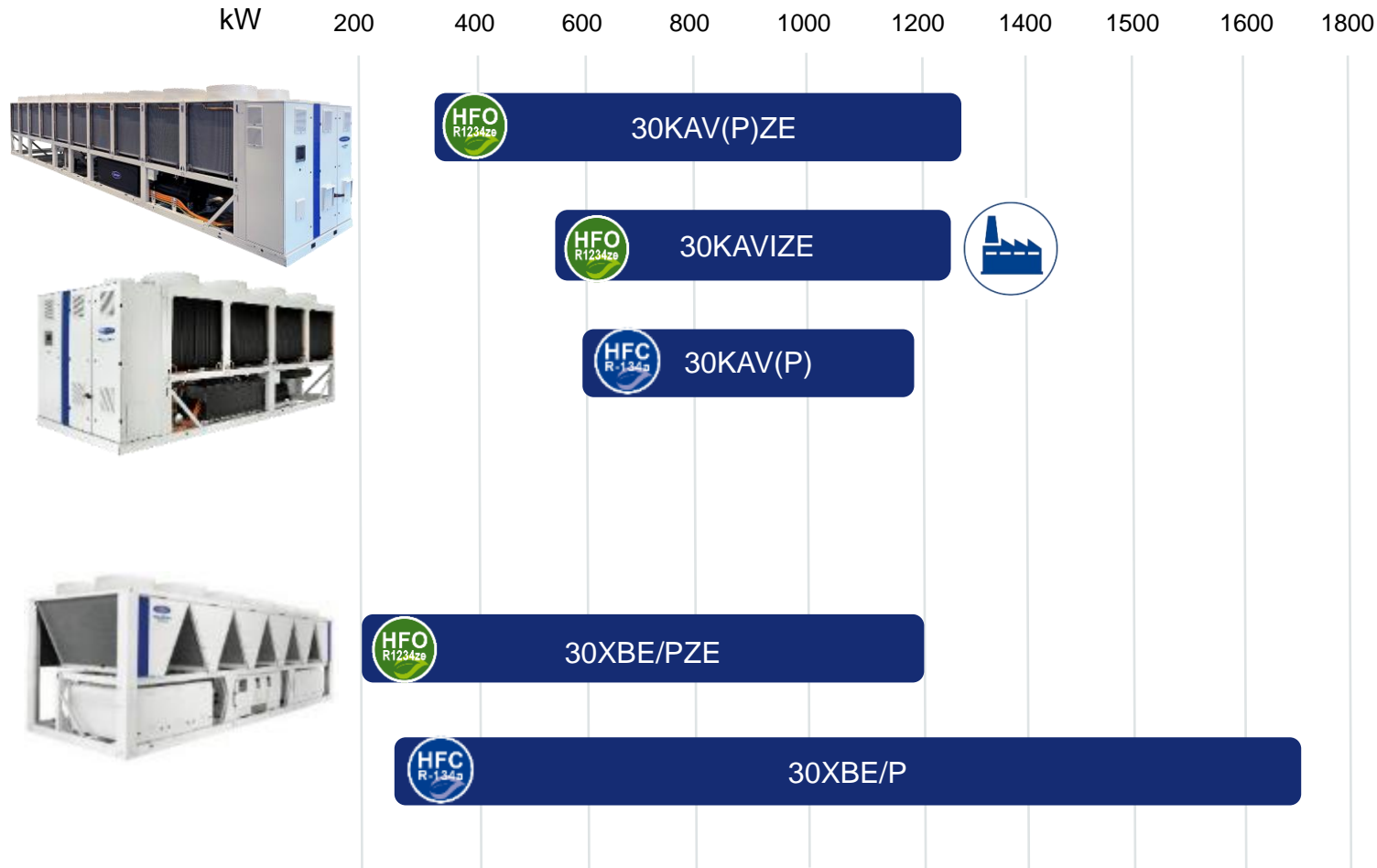


AIR-COOLED SCREW CHILLER RANGE

AQUAFORCE



Product range overview



30KAV KEY BENEFITS

- Premium offer with variable speed screw compressors
- Specific options for industry
- Smaller footprint thanks to W shape
- Eligible to financial incentives



30XBE KEY BENEFITS

- Competitive offer with fixed speed compressors
- Large cooling capacity range
- Total heat recovery



SEER : Seasonal Efficiency Energy Ratio (**SEER < 4,55 = prohibited in Europe**)



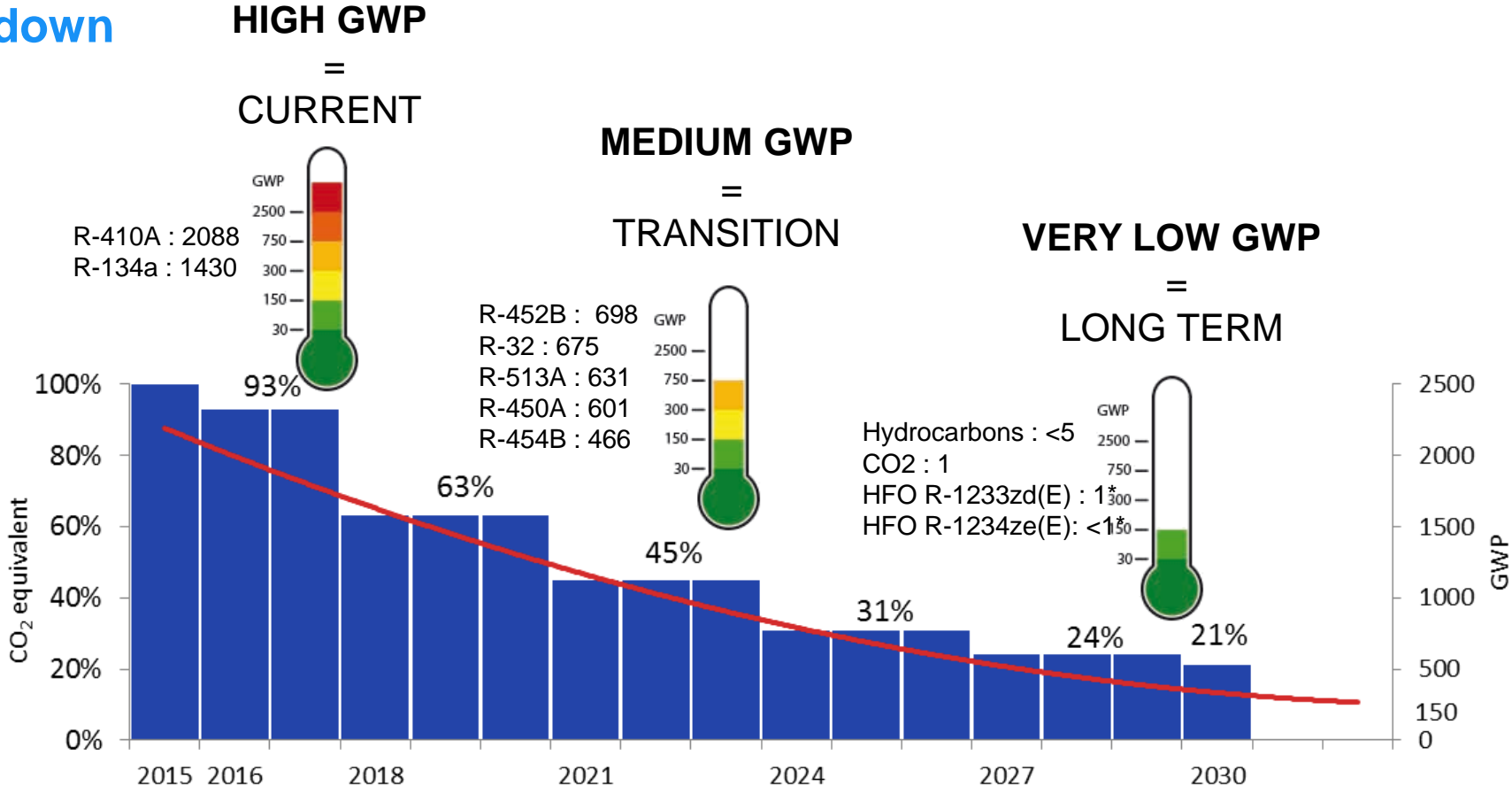
PURETEC
SOLUTIONS,
USING HFO
REFRIGERANT

AQUAFORCE
PUREtec



EU F-Gas Regulation

HFC Phase down

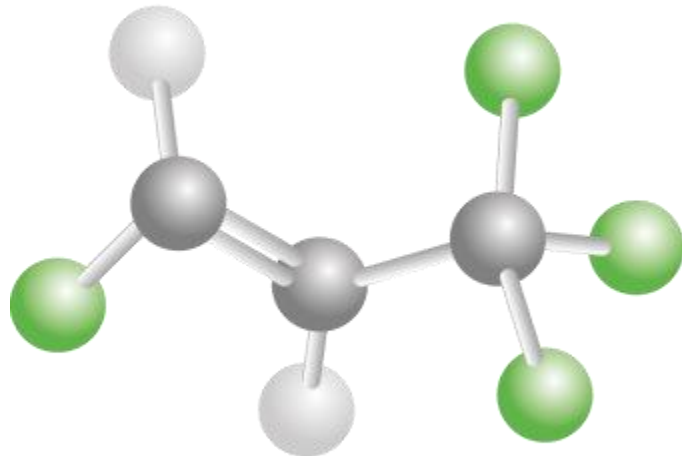


Long term refrigerants should have GWP < 150

Note: GWP according to IPCC AR4, except for HFOs: IPCC AR5



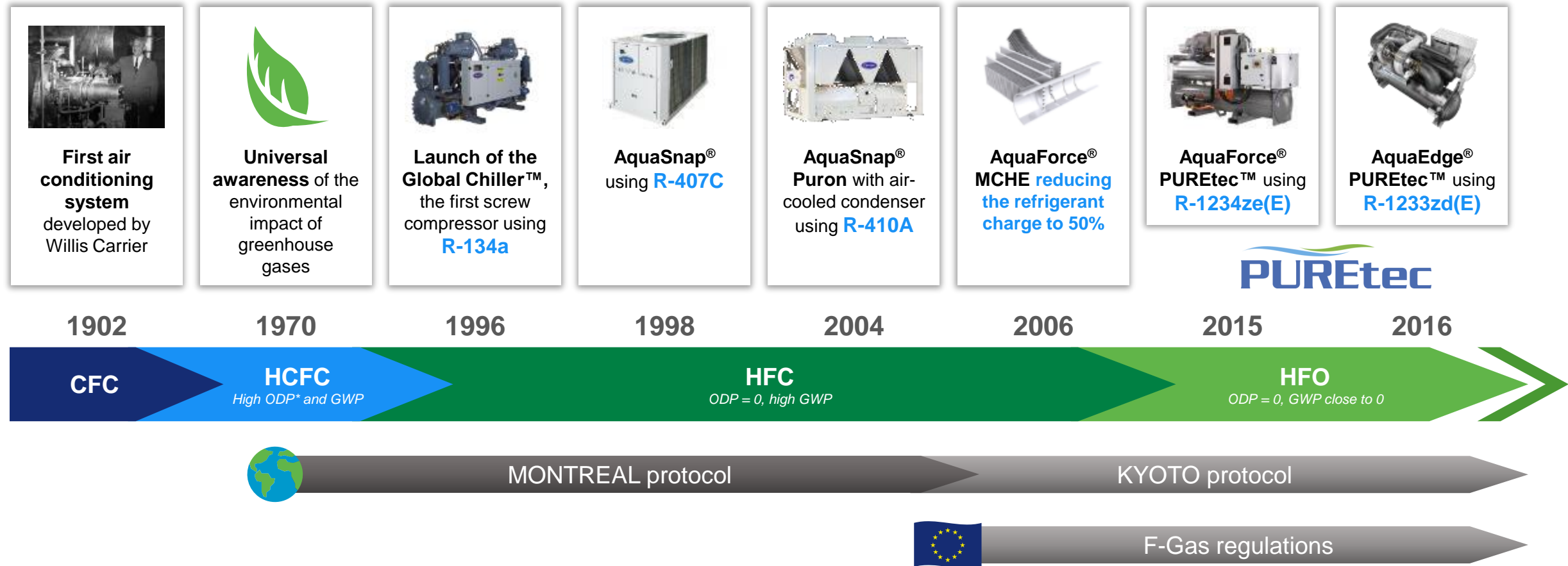
What are HFOs?



- A molecule with a carbon-to-carbon double bond = less stable in the atmosphere than HFCs
- Very short lifespan in the atmosphere = very low GWP
- Very low energy consumption
- R-1233zd(E) at low pressure for turbomachinery, non-flammable (A1)
- R-1234ze(E) at medium pressure for screw machinery, moderately flammable (A2L)

	Atmospheric lifetime	GWP - IPCC AR5
R-134a	13.4 years	1430
R-1233zd(E)	26 days	1
R-1234ze(E)	16 days	< 1

Carrier at the cutting edge of technology



*ODP = Ozone Depletion Potential

PUREtec™ range



AQUAFORCE
PUREtec

Air-cooled and water-cooled screw chillers

30XAZE
30XAVZE
30XWPZE (250-1100 kW)
30XWVZE (450-1350 kW)

AQUAFORCE
PUREtec

High-temperature water-source heat pump

61XWHZE (200-2500 kW)

AQUAEDGE greenspeed
PUREtec

Water-cooled Centrifugal chiller

19DV (1400-3500 kW)

AQUAFORCE
PUREtec

Air-cooled screw chillers

30KAV(P)ZE (350-1300 kW)
30XBE/PZE (200-1200 kW)

AQUAFORCE
PUREtec

Dedicated to Industry Air-cooled screw chiller

30KAVIZE (530-1300 kW)

PUREtec tried and trusted solution



has been chosen by over 1000 sites across Europe since 2016 for a variety of applications:



Comfort



Culture & leisure



Industry



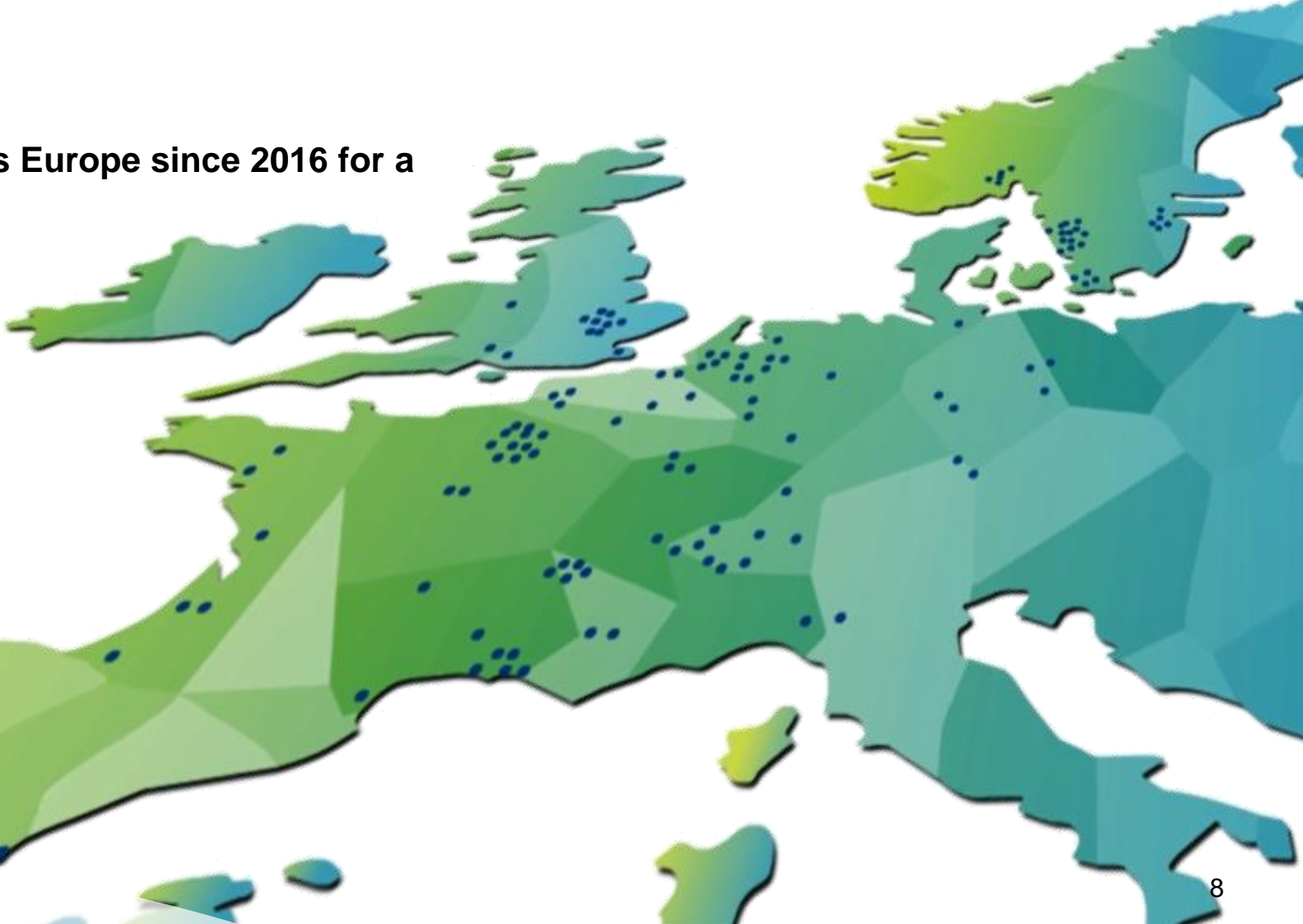
District heating



Healthcare



Data centre





**AQUAFORCE®
PURETEC
PROVEN
PERFORMANCE
30XB RANGES**

AQUAFORCE
PUREtec



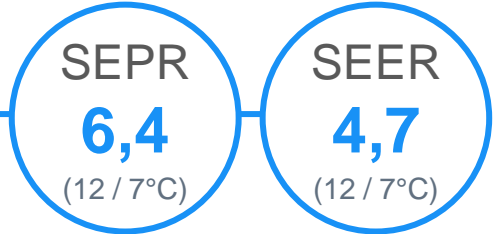
AquaForce® PUREtec™ 30XBE/PZE



30XBEZE

200kW - 1200kW

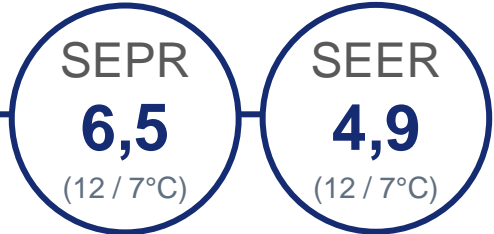
Variable-speed fans with AC motors



30XBPZE

200kW - 1200kW

Premium version with EC fans



Applications: Commercial and industrial. Operation from -20°C up to 55°C air ambient temperature.

COMFORT & PROCESS CHILLERS	From 01/2021		
	SEPR -2/-8°	SEPR 12 / 7	SEER 12 / 7
Air-cooled < 400 kW	2,32	5,00	4,10
Air-cooled 400 to 2000 kW	2,90	5,50	4,55

Note: for medium temperature process chillers intended to be charged with a refrigerant fluid with a GWP<150, SEPR values can be lowered by a maximum of 10%



Eurovent certified range according to the ECP LCP/HP programme.

AquaForce® PUREtec 30XBEZE

SmartVu™
touch screen



“V” shape Novation®
micro channels



Flooded shell and
tube evaporator

HFO R-1234ze(E)

PUREtec

Flying Bird™ fans
Variable-speed AC



Two fixed-speed
pumps



Fixed-speed twin rotor
screw compressor



AquaForce® PUREtec 30XBPZE

SmartVu™
touch screen



“V” shape Novation®
micro channels



Flooded shell and
tube evaporator

HFO R-1234ze(E)

PUREtec

Flying Bird™ fans

Variable-speed EC



Two fixed-speed
pumps



Fixed-speed twin rotor
screw compressor



AquaForce® PUREtec 30XBE/PZE

2nd generation of “V” shape Novation® micro channel heat exchangers

- Exclusive Carrier design
- High reliability with long-life aluminum alloy
- Significant reduction in refrigerant load (-40% vs Cu/Al coils)
- Enviro-shield™ coating for mildly corrosive environments (option 262)
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications – option 263)



AquaForce® PUREtec 30XBE/PZE

6th generation Flying Bird™ variable-speed fans

- Exclusive Carrier design
- Fan blade design inspired by nature
- Variable-speed AC fans available as standard on the 30XBEZE standard version model
- EC fans available as standard on 30XBPZE premium version



AquaForce® PUREtec 30XBE/PZE

Carrier fixed-speed twin rotor screw compressor with AC motor

- Exclusive Carrier design
- Fixed-speed twin rotor screw compressor
- Sliding valve control (30%-100%)
- Bearing life exceeding 100,000 hours
- 99.7% of units without a compressor failure



AquaForce® PUREtec 30XBE/PZE

Flooded shell and tube evaporator

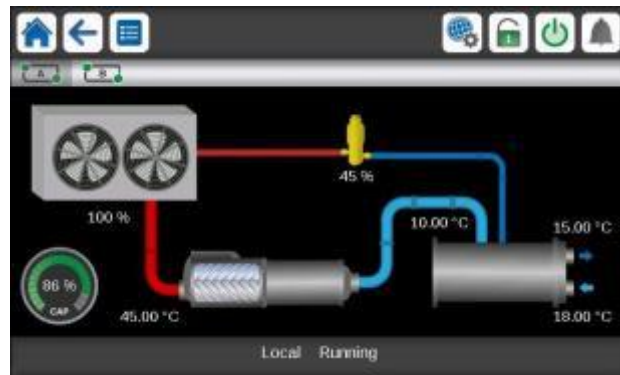
- Exclusive Carrier design
- Flooded evaporator for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol
- Operation down to -12 °C leaving water temperature with glycol



AquaForce® PUREtec 30XBE/PZE

State-of-the-art 7-inch colour SmartVu™ touch screen

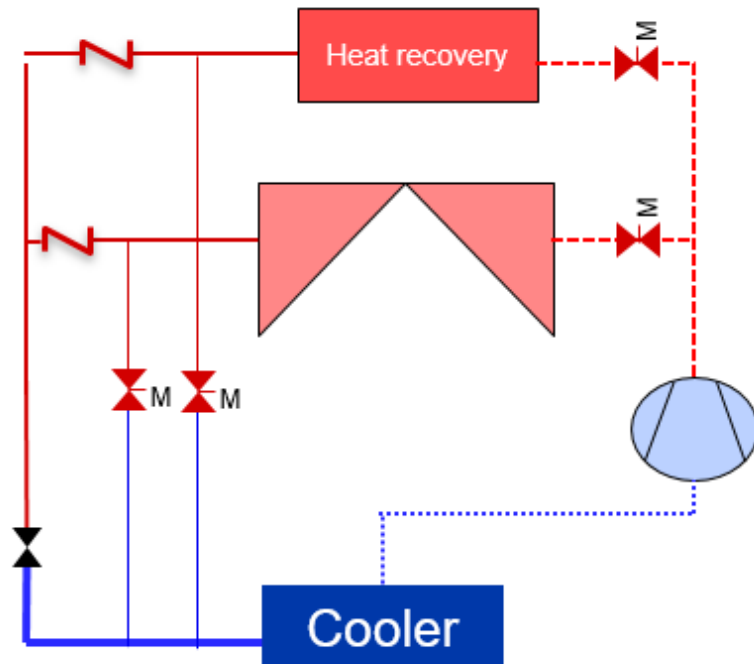
- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, RU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



AquaForce® PUREtec 30XBE/PZE

Heat recovery (options 50 - 50C)

- Total heat recovery (option 50)
- Total heat recovery on a single refrigerant circuit (option 50C)
- SIMULTANEOUSLY generates hot water up to 60°C for domestic hot water, pre-heating and heater, etc.



One product, many applications



MULTI-RESIDENTIAL



SUSTAINABLE BUILDING



INDUSTRY



HOTEL



DATA CENTER



HOSPITAL

Key benefits AquaForce® PUREtec 30XBE/PZE

Outstanding
reliability



Environmental
sustainability



Extensive scope of
applications



Low operating
sound levels



Key benefits AquaForce® PUREtec 30XBE/PZE



Outstanding reliability

99.7%*

of units without compressor fault

Equipped with:

- The Carrier 06T twin screw compressors.
- The **fully aluminium Novation® microchannel heat exchangers** with Super Enviro-shield™ coatings to deliver guaranteed long-term optimized performance.

*Quality rate measured over a period of 15 years operation



Environmental sustainability

Up to **-40%** less refrigerant charge

GWP < 1

- Combining a **reduced load refrigerant** thanks to the use of **Novation microchannel heat exchangers** and high energy efficiency.
- With **PUREtec™** refrigerant, the 30XBE/P-ZE offers a **long-term refrigerant solution**.

Key benefits AquaForce® PUREtec 30XBE/PZE



Extensive scope of applications

from

-20°C to 55°C

- Large temperature application range.
- From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, whatever the climate and wherever the location.



Low operating sound levels

93 dB(A)

- Available with **4 sound levels to comply** with every need.
- **6th generation of Carrier Flying Bird fans.**



AQUAFORCE®
VISION
INNOVATION
AT WORK
30KAV RANGES

AQUAFORCE
PUREtec



AquaForce® PUREtec™ 30KAV(P)ZE



30KAV-ZE

350kW – 1300kW

Variable-speed screw chiller with variable-speed fans with AC motors

SEPR
6,5
(12 / 7°C)

SEER
5,5
(12 / 7°C)

30KAVPZE

350kW – 800kW

Screw chiller with permanent magnet compressor and Greenspeed® Intelligence + EC fans + additional condenser

SEPR
7,3
(12 / 7°C)

SEER
6,0
(12 / 7°C)

30% annual energy savings*

Up to 25% above EcoDesign requirements for 2021

Applications:

Commercial and industrial. Operation from -20°C up to 55°C air ambient temperature.

COMFORT & PROCESS CHILLERS	From 01/2021		
	SEPR -2/-8°	SEPR 12 / 7	SEER 12 / 7
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Note: for medium temperature process chillers intended to be charged with a refrigerant fluid with a GWP<150, SEPR values can be lowered by a maximum of 10%



Eurovent certified range according to the ECP LCP/HP programme.



AquaForce[®] PUREtec 30KAV(P)ZE

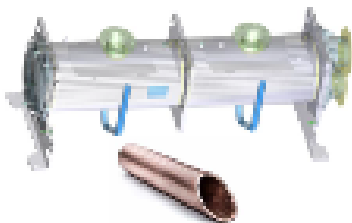
Flying Bird™ fans with AC or EC motors (option 17)



HFO R-1234ze(E) refrigerant with GWP < 1



Flooded shell and tube evaporator for leaving water operation -12 °C (MEG)



All-aluminum micro-channel coil
40% reduction in the refrigerant charge

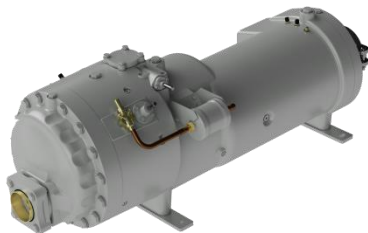
Variable-speed and screw compressor
High efficiency, with permanent magnets



AquaForce® PUREtec 30KAV(P)ZE

Latest generation Carrier variable-speed 06Z screw compressor

- Exclusive Carrier design
- Twin screw compressor designed for variable speed operation
- Stepless variable-speed control (0%-100%)
- Integrated resonator array for compressor acoustic attenuation
- Integrated check valve for quiet shutdown
- Air-cooled variable-speed drive for increased reliability
- Bearing life exceeding 100,000 hours



HIGH EFFICIENCY SCREW COMPRESSOR WITH PERMANENT MAGNET MOTOR

- Permanent magnet synchronous motor
- Stepless inverter control (0%-100%)
- Air-cooled inverter drive for increased reliability

AquaForce® PUREtec 30KAV(P)ZE

3rd generation of “W” shape novation® micro channel heat exchangers

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (-40% vs cu/al coils)
- More compact units (-25% vs previous 30XAV generation)
- 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



AquaForce® PUREtec 30KAV(P)ZE

6th generation of variable-speed Flying Bird™ fans

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with AC motor technology
- EC motor technology (option 17)



FLYING BIRD™ EC FANS

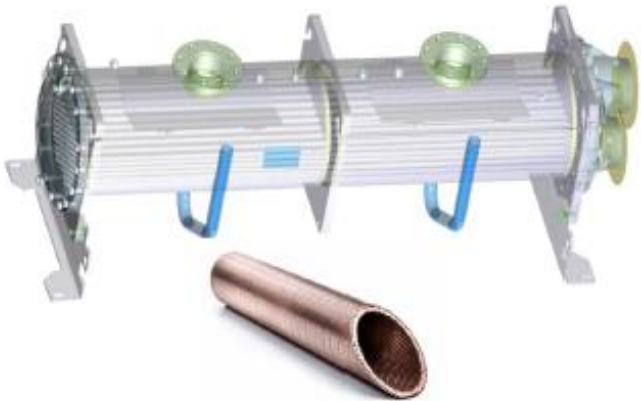
- Exclusive Carrier design
- EC motor technology (efficiency up to +10% compared with AC motor)



AquaForce® PUREtec 30KAV(P)-ZE

Flooded shell and tube evaporator

- Exclusive Carrier design
- Flooded evaporator for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol
- Capable of producing chilled water down to -12 °C
- Compatible with variable water flow: reduction in installation, maintenance and operating costs



- Compatible with variable water flow
- Reduction in installation, maintenance and operating costs
- Capable of producing chilled water down to -12 °C (HFO) and -15 °C (R-134a)

AquaForce® PUREtec 30KAV(P)ZE

Advanced Smartvu™ 7 inch color touch screen interface

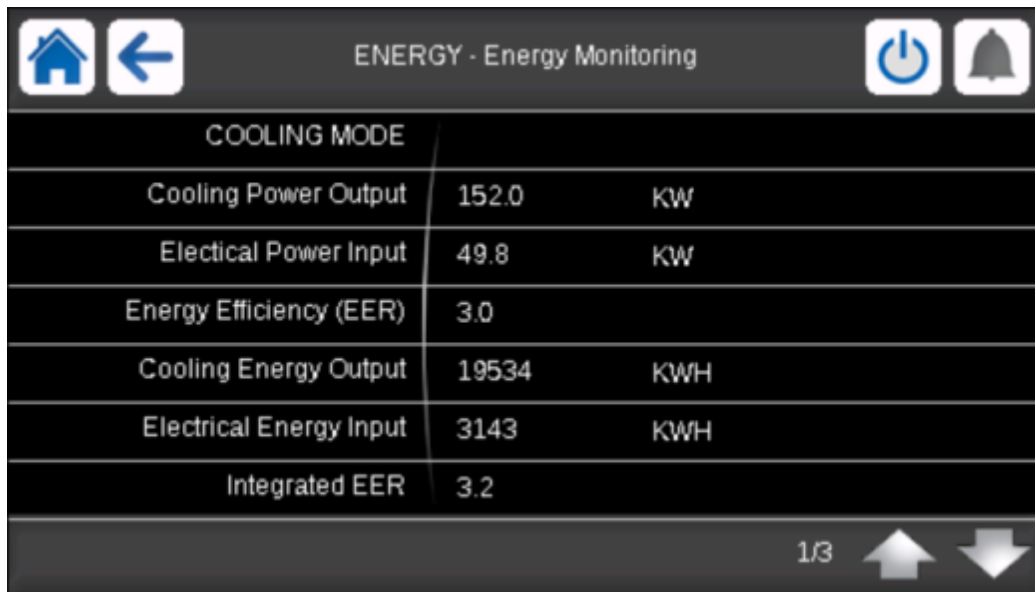
- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, RU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



AquaForce® PUREtec 30KAV(P)ZE

Smart energy monitoring function

- Provides data based on intelligent algorithms
- Measures energy consumption in real time (kWh)
- Measures cooling capacity in real time (kW)
- Provides instantaneous and average values from seasonal energy efficiency reports



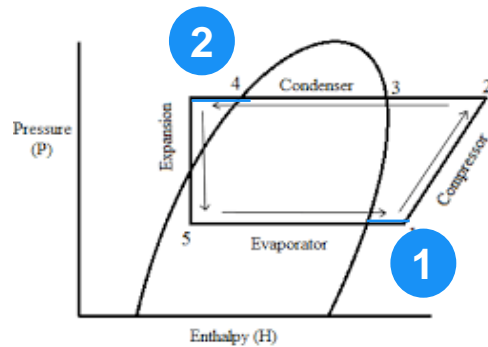
ENERGY - Energy Monitoring		
COOLING MODE		
Cooling Power Output	152.0	KW
Electrical Power Input	49.8	KW
Energy Efficiency (EER)	3.0	
Cooling Energy Output	19534	KWH
Electrical Energy Input	3143	KWH
Integrated EER	3.2	



AquaForce® PUREtec 30KAV(P)ZE

Smart refrigerant leak detection

- Algorithm that can detect serious refrigerant loss at any point on the system
- Sensitivity: 25% refrigerant charge loss per circuit means ~12% refrigerant charge loss per unit
- Help to achieve recognition within pollution prevention assessment programs, ideal for assisting in the design of sustainable buildings.



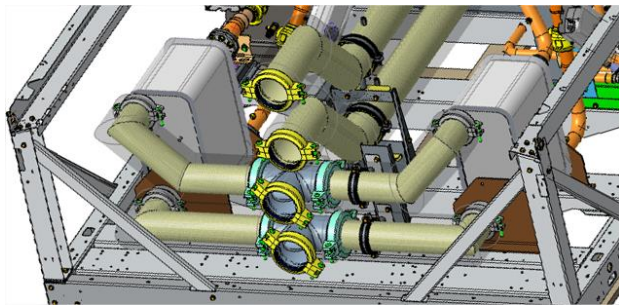
LEAK DETECTION



AquaForce® PUREtec 30KAV(P)ZE

Heat recovery (options 49 & 50)

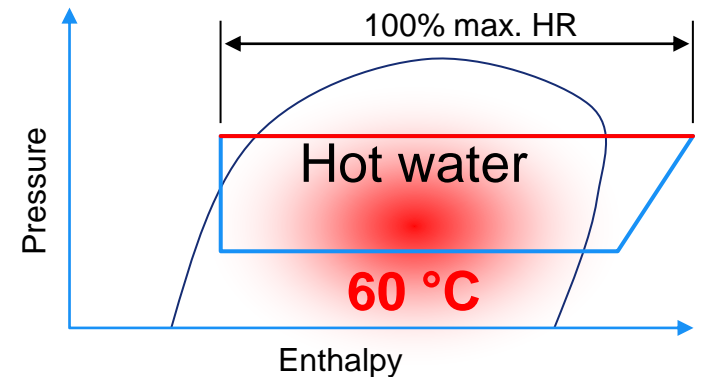
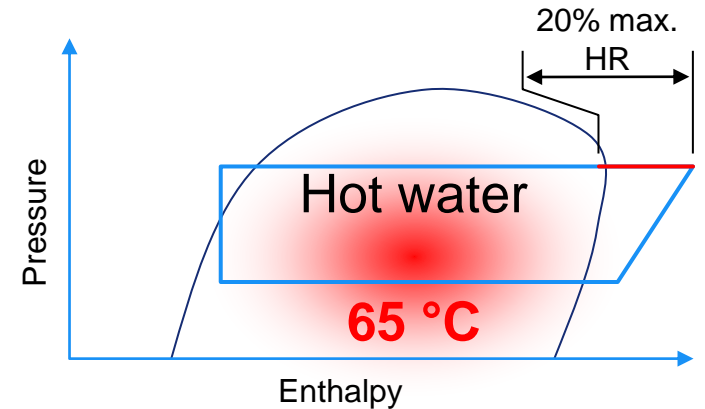
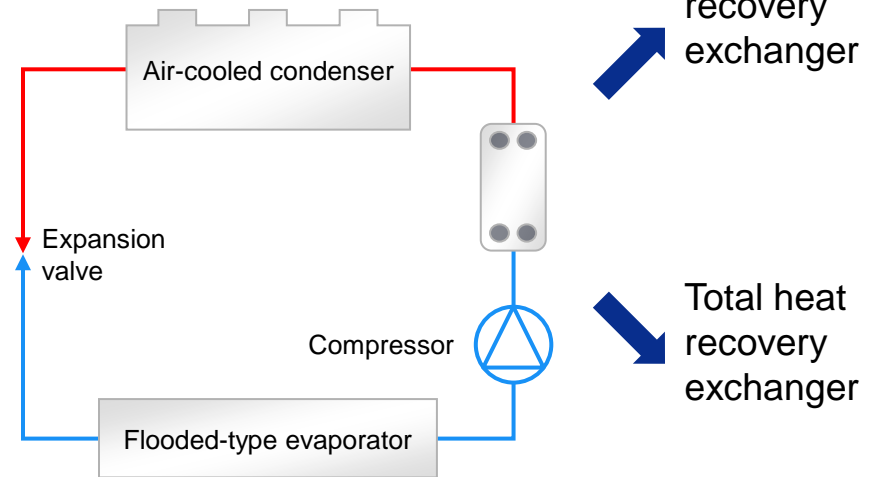
- Partial heat recovery (Option 49)
- Total heat recovery (Option 50)
- Boosted total heat recovery (Option 50+)
- Variable reclaim : No load limit to activate reclaim
- BPHE in serial with air condenser
- Less complexity, more flexibility
- Desuperheater mode



AquaForce® PUREtec 30KAV(P)ZE

Partial and total heat recovery options

- Brazed plate heat exchanger
- Simple & reliable
- Variable recovery: no load limit to activate recovery
- BPHE as standard with air-cooled condenser
- Less complex, more flexible
- Desuperheater mode



One product, many applications



MULTI-RESIDENTIAL



SUSTAINABLE BUILDING



INDUSTRY



HOTEL



DATA CENTER



HOSPITAL

Key benefits AquaForce® PUREtec™ 30KAV(P)ZE

Outstanding performance



Acoustic comfort



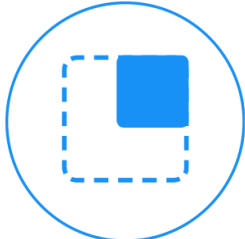
Intelligence & connectivity



Extensive scope of applications



Easy installation & maintenance



Key benefits AquaForce® PUREtec 30KAV(P)ZE



Outstanding performance

	30KAV-ZE	30KAVP-ZE
SEER up to	5.4	5.7
EER up to	3.2	3.6

Equipped with variable-speed screw compressors, variable-speed fans and optional variable-speed pumps.

- **Adjusts the cooling capacity and the water.**
- **Up to 25%** above Ecodesign 2021 requirements.
- Specific features on 30KAVPZE: Permanent magnet motor screw chiller with Greenspeed® Intelligence, **EC fans**, additional condenser surface.



Acoustic comfort

-6 dB(A) vs former 30XAV

3x SOUND LEVELS

- **Standard unit** New 06Z compressor + new oil separator design, 6th generation Flying Bird™ fans.
- **Unit with option 15** Compressor sound enclosure.
- **Unit with option 15 LS** Compressor sound enclosure + low speed fans.

Sound Power
(dBA)

96

95

90

Key benefits AquaForce® PUREtec 30KAV(P)ZE



Intelligence & connectivity

Smart energy monitoring

- The advanced SmartVu™ intelligent control system displays **operating parameters in real-time** (intuitive and user-friendly).
- It 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.

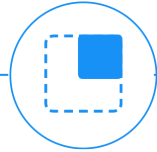


Extensive scope of applications

From **-20°C** to **55°C**

- 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 whatever the climate and wherever the location.
- Specific options on 30KAVIZE dedicated to industry: Ultra fast recovery, energy meter, Neutral IT system and boosted total heat recovery.

Key benefits AquaForce® PUREtec 30KAV(P)ZE



Easy installation & maintenance

25% smaller

Built-in variable-speed pumps up to 600 kW, automatic nominal water flow adjustment through electronic control, automatic unit, energy performance measurement under real conditions, in units that are **25% smaller than the previous 30XAV generation**, all these new features provide **peace of mind for installers and service companies** alike.

AquaForce® PUREtec™ 30KAVIZE



Dedicated to industry



HFO R-1234ze

ECO DESIGN READY 2021

AQUAForce greenspeed PUREtec

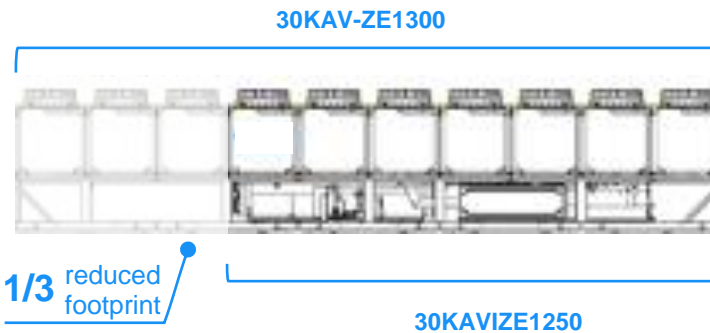
New Carrier air-cooled variable speed screw chiller

30KAVIZE

530kW – 1300kW

Variable-speed screw chiller with variable-speed fans

Specific industry options



COMFORT & PROCESS CHILLERS	From 01/2021		
	SEPR -2 / -8°	SEPR 12 / 7	SEER 12 / 7
Air-cooled < 400 kW	2,32	5,00	4,10
Air-cooled 400 to 2000 kW	2,90	5,50	4,55

Up to 5% annual energy savings*

Up to 10% above 2021 Ecodesign requirements

Applications: Operation -20°C up to 48°C air ambient temperature.

Cooling Capacity:

530 – 1300 kW (12/7°C)

280 – 800 kW (-4/-8 °C, 35% MEG)



Eligible to comfort application



Eurovent certified range according to the ECP LCP/HP programme.

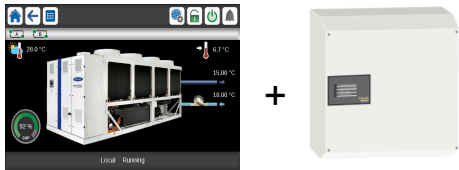
AquaForce® PUREtec 30KAVIZE



Dedicated to industry

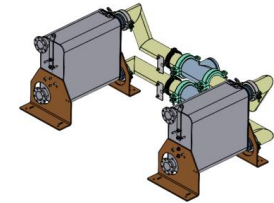
New

Ultra fast capacity recovery (<1 min)



Total Heat Recovery

New



New

Energy meter



New

Neutral IT System



Brine options



Compressor
PM Motor

AquaForce® PUREtec 30KAVIZE



Dedicated to industry

New

Ultra fast capacity recovery

Option 295+

- Full cooling capacity recovery within 1 minute after power restoration
- Plug & Play built-in solution
- Maximized energy efficiency
- Minimized temperature drop
- High unit availability rate



+



AquaForce® PUREtec 30KAVIZE



Dedicated to industry

New

Energy metering

Option 294

- Power energy monitoring
- Eligible to CEE incentive IND136
- Plug & Play built-in solution



New

Neutral IT system

Option 333

- The IT regime is used where business continuity is essential: hospital rooms, industry, etc ...
- Solution dedicated to industry electricity network



AquaForce® PUREtec 30KAVIZE

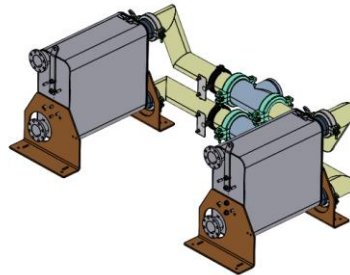


Dedicated to industry

Total Heat Recovery

Option 50

- Simultaneously generates chilled water up to -12°C and hot water up to 60°C
- Compatible with brine options
- Significant energy savings



New

Boosted Total Heat Recovery

Option 50+

- Up to 20% performance increase

AquaForce® PUREtec 30KAVIZE



Dedicated to industry

Brine Options

Option 6

Operation down to -12 °C leaving water temperature

- Reduction of pressure drops
- High efficiency
- Lower pumping costs



AquaForce® PUREtec 30KAVIZE



Dedicated to industry

Compressor PM Motor

Option 329

- Permanent magnet synchronous motor
- Performances increased by 3%
- Eligible to CEE incentive IND114
- Step-less inverter control (0%-100%)



Key benefits AquaForce[®] PUREtec 30KAVIZE

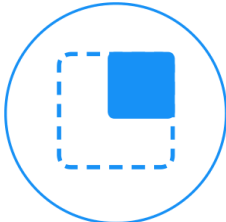


Dedicated to industry

Cost effective solution



Lower footprint



Easy installation & maintenance



Outstanding performance



Environmental sustainability



Key benefits AquaForce® PUREtec 30KAVIZE

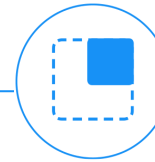


Dedicated to industry



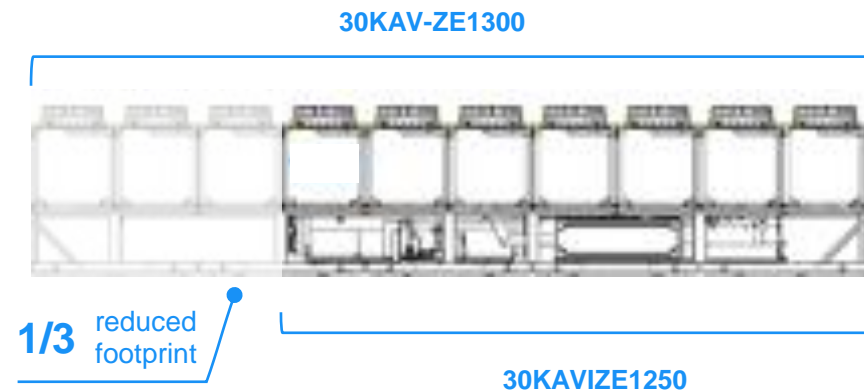
Cost effective solution

- 30KAVIZE is the **optimal cost-effective solution** for industry uses.
- **Many options eligible to CEE incentives**, while reducing installing time and allowing energy savings.
- Up to **10% above 2021 Ecodesign** requirements



Reduced footprint

- **1/3 shorter than 30KAV**, the new 30KAVIZE takes up **less place** and provide **peace of mind** for installers and service companies alike.



Key benefits AquaForce® PUREtec 30KAVIZE



Dedicated to industry



Easy installation & Maintenance

- The chiller requires smaller **pumps** which makes installation much easier in addition to **lower installation costs** and **reduce energy consumption**.
- Installation in industrial environment is now possible thanks to **Neutral IT System** which has been developed to comply with customer specific electrical network.
- **Smart Energy Monitoring** and **Smart Leak Detection** makes maintenance and daily monitoring easier.



Outstanding performance

- **Up to 10%** above 2021 Ecodesign requirements
- **Performances up to 3%** thanks to the compressor PM motor
- **Ultra fast capacity recovery** maximizes **energy efficiency** by minimizing water loop temperature drop.

Key benefits AquaForce[®] PUREtec 30KAVIZE



Dedicated to industry



Environmental
sustainability

Up to **-40%** less refrigerant charge

GWP < 1

- Combining a **reduced load refrigerant** thanks to the use of **Novation[®] microchannel heat exchangers** and high energy efficiency.
- With **PUREtec[™]** refrigerant, the 30KAVIZE offers a **long-term refrigerant solution.**



AQUAForce

**AQUAForce®
PROVEN
PERFORMANCE
30XB RANGE**



**ECO
DESIGN
READY
2021**

AquaForce® 30XB ranges

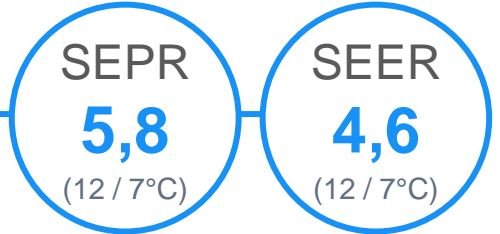


Applications: Commercial and industrial. Operation from -20°C up to 55°C air ambient temperature.

30XBE

250kW - 1700kW

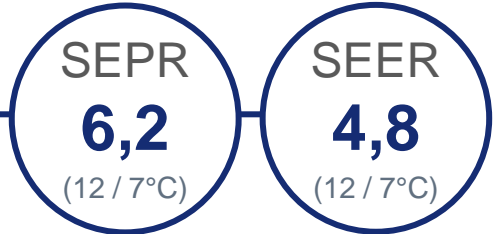
Fixed-speed screw chiller with AC variable-speed fans



30XBP

250kW - 1500kW

Premium version with EC variable-speed fans



COMFORT & PROCESS CHILLERS	From 01/2021		
	SEPR -2/-8°	SEPR 12 / 7	SEER 12 / 7
Air-cooled < 400 kW	2,32	5,00	4,10
Air-cooled 400 to 2000 kW	2,90	5,50	4,55

Note: for medium temperature process chillers intended to be charged with a refrigerant fluid with a GWP<150, SEPR values can be lowered by a maximum of 10%



Eurovent certified range according to the ECP LCP/HP programme.

AquaForce® 30XBE

SmartVu™
touch screen



“V” shape Novation®
micro channels



Flooded shell and
tube evaporator

Flying Bird™ fans
Variable-speed AC



Two fixed-speed
pumps



Fixed-speed twin rotor
screw compressor



AquaForce® 30XBP

SmartVu™
touch screen



“V” shape Novation®
micro channels



Flooded shell and
tube evaporator

Flying Bird™ fans

Variable-speed EC



Two fixed-speed
pumps



Fixed-speed twin rotor
screw compressor



AquaForce® 30XB ranges

2nd generation of “V” shape novation® micro channel heat exchangers

- Exclusive Carrier design
- High reliability with long-life aluminum alloy
- Significant reduction in refrigerant load (-40% Vs. Cu/Al coils)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)



AquaForce® 30XB ranges

6th generation Flying Bird™ variable-speed

- Exclusive Carrier design
- Fan blade design inspired by nature
- EC fans available as standard on 30XBP premium version
- 30XBE standard version with fixed-speed fans and AC motor



AquaForce® 30XB ranges

Carrier fixed-speed twin rotor screw compressor with AC motor

- Exclusive Carrier design
- Fixed-speed twin rotor screw compressor
- Sliding valve control (30%-100%)
- Bearing life exceeding 100,000 hours
- 99.7% of units without a compressor failure



AquaForce® 30XB ranges

Two fixed-speed pumps with AC motor

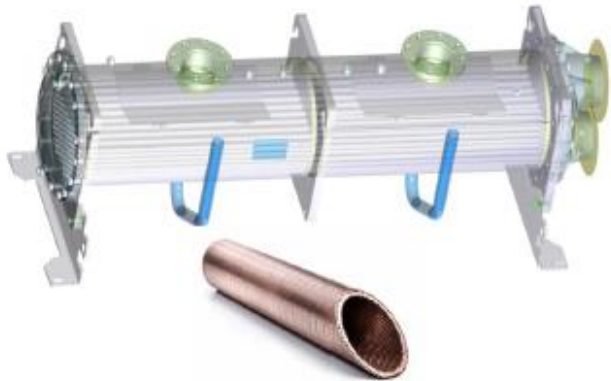
- Low static pressure (~100 kPa) or high static pressure (~180 kPa) available
- Available up to 400kW



AquaForce® 30XB ranges

Flooded shell and tube evaporator

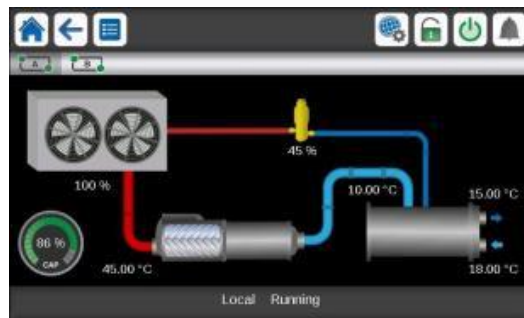
- Exclusive Carrier design
- Flooded evaporator for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol
- Operation down to -12 °C leaving water temperature with glycol



AquaForce® 30XB ranges

State-of-the-art 7-inch colour SmartVu™ touch screen

- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, RU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity
- Web server capabilities-easy remote access via internet
- Trending capabilities



AquaForce® 30XB ranges

Heat recovery (options 50 - 50C)

- Available on a single refrigerant circuit (option 50C)
- Simultaneously generates chilled water up to -12°C and hot water up to 60°C
- Compatible with brine options
- Gain of space in machine's room
- Significant energy saving



One product, many applications



MULTI-RESIDENTIAL



SUSTAINABLE BUILDING



INDUSTRY



HOTEL



DATA CENTER



HOSPITAL

Key benefits AquaForce® 30XB ranges

Outstanding
reliability



Compact footprint



Extensive scope of
applications



Low operating
sound levels



Key benefits AquaForce® 30XB ranges



Outstanding reliability

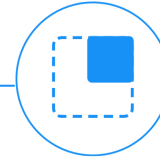
99.7%*

of units without compressor default

Equipped with:

- The Carrier 06T twin screw compressors.
- The **fully aluminium Novation® microchannel heat exchangers** with Super Enviro-shield™ coatings to deliver guaranteed long-term optimized performance.

*Quality rate measured over a period of 15 years operation



Compact footprint

-25%

smaller

- Designed with **one “V shape” Novation microchannel heat exchanger less.**
- Up to **1.2 meters** shorter than the previous range while offering same energy efficiency ratio.

Key benefits AquaForce® 30XB ranges



Extensive scope of applications

from

-20°C to 55°C

- Large temperature application range.
- From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, whatever the climate and wherever the location.



Low operating sound levels

93 dB(A)

- Available with **4 sound levels to comply** with each single need.
- **6th generation of Carrier Flying Bird™ fans.**



AQUAFORCE®
VISION
INNOVATION AT
WORK
30KAV RANGE

greenspeed
AQUAFORCE



AquaForce® 30KAV/P Ranges



30KAV

500kW – 1100kW

Variable-speed screw chiller with variable-speed fans with AC motors

SEPR

6,5

(12 / 7°C)

SEER

5,4

(12 / 7°C)

30KAVP

500kW – 1100kW

Screw chiller with permanent magnet compressor and Greenspeed® Intelligence
+ EC fans
+ additional condenser

SEPR

7,3

(12 / 7°C)

SEER

5,7

(12 / 7°C)

30% annual energy savings*

Up to 25% above EcoDesign requirements for 2021

Applications:

Commercial and industrial. Operation from -20°C up to 55°C air ambient temperature.

COMFORT & PROCESS CHILLERS	From 01/2021		
	SEPR -2/-8°	SEPR 12 / 7	SEER 12 / 7
Air-cooled < 400 kW	2,32	5,00	4,10
Air-cooled 400 to 2000 kW	2,90	5,50	4,55

Note: for medium temperature process chillers intended to be charged with a refrigerant fluid with a GWP<150, SEPR values can be lowered by a maximum of 10%

AquaForce® 30KAV

Flying Bird™ fans with AC motors (EC motors option)

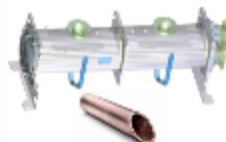


Advanced SmartVu™

Smart Energy Monitoring

ENERGY - Energy Monitoring	
COOLING MODE	
Cooling Power Output	152.0 kW
Electrical Power Input	49.8 kW
Energy Efficiency (EER)	3.0
Cooling Energy Output	1954 kWh
Electrical Energy Input	3143 kWh
Integrated EER	3.2

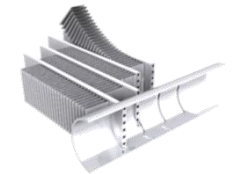
Flooded shell and tube evaporator for leaving water operation -15 °C (MEG)



Inverter-driven dual pumps (option)



All-aluminum micro-channel coil
40% reduction in the refrigerant charge



Variable-speed and screw compressor
(with permanent magnet as option)



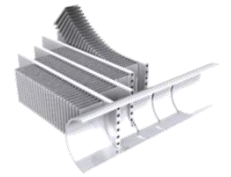
AquaForce® 30KAVP

Inverter-driven Flying Bird™ fans with
EC technology



Additional condenser

All-aluminum micro-channel coil
40% reduction in the refrigerant
charge



Variable-speed and screw compressor
High efficiency, **with permanent
magnets**



AquaForce® 30KAV ranges

3rd generation of “W” shape novation® micro channel heat exchangers

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (-40% vs cu/al coils)
- More compact units (-25% vs previous 30XAV generation)
- 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



AquaForce® 30KAV ranges

6th generation of variable-speed Flying bird™ fans

- Exclusive Carrier design
- Fan blade design inspired by nature
- High-efficiency version with AC motor technology
- EC motor technology



FLYING BIRD™ EC FANS

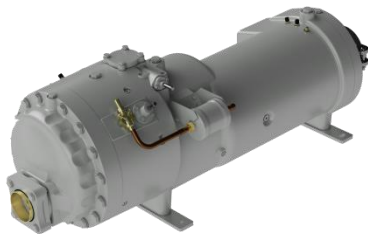
- Exclusive Carrier design
- EC motor technology (efficiency up to +10% compared with AC motor)



AquaForce® 30KAV ranges

Latest generation Carrier variable-speed 06Z twin screw

- Exclusive Carrier design
- Twin screw compressor designed for variable speed operation
- Stepless variable-speed control (0%-100%)
- Integrated resonator array for compressor acoustic attenuation
- Integrated check valve for quiet shutdown
- Air-cooled variable-speed drive for increased reliability
- Bearing life exceeding 100,000 hours



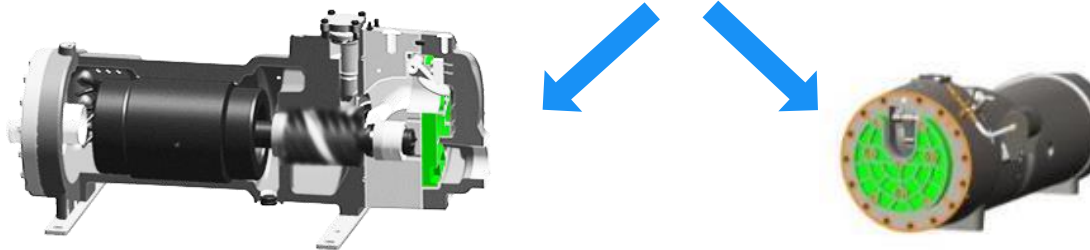
HIGH EFFICIENCY SCREW COMPRESSOR WITH PERMANENT MAGNET MOTOR

- Permanent magnet synchronous motor
- Step-less inverter control (25%-100%)
- Air-cooled inverter drive for increased reliability

AquaForce® 30KAV ranges

Integrated resonator array at compressor discharge

- Exclusive Carrier design
- Pulsation at discharge reduced by 5 for improved reliability
- Contributes to reduce global acoustic level
- No pressure drop addition
- Footprint reduction (no additional muffler)



AquaForce® 30KAV ranges

Variable-speed dual pumps with AC motor

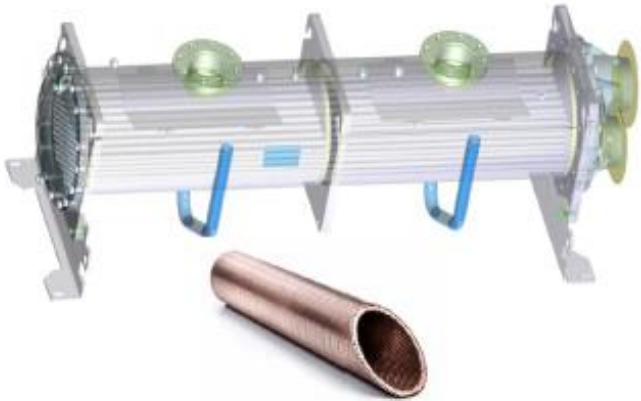
- Dual pumps designed for variable-speed operation
- High-efficiency AC motor
- Low static pressure (~100 kPa) or high static pressure (~180 kPa) available
- 3 pump control modes available: constant water flow with 2 speeds, variable water flow based on constant delta T or constant delta P
- Compatibility of chillers for variable primary flow operation



AquaForce® 30KAV ranges

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
- Able to produce brine up to -15°C
- Compatible with variable water flow



AquaForce® 30KAV ranges

Advanced SmartVu™ 7 inch color touch screen interface

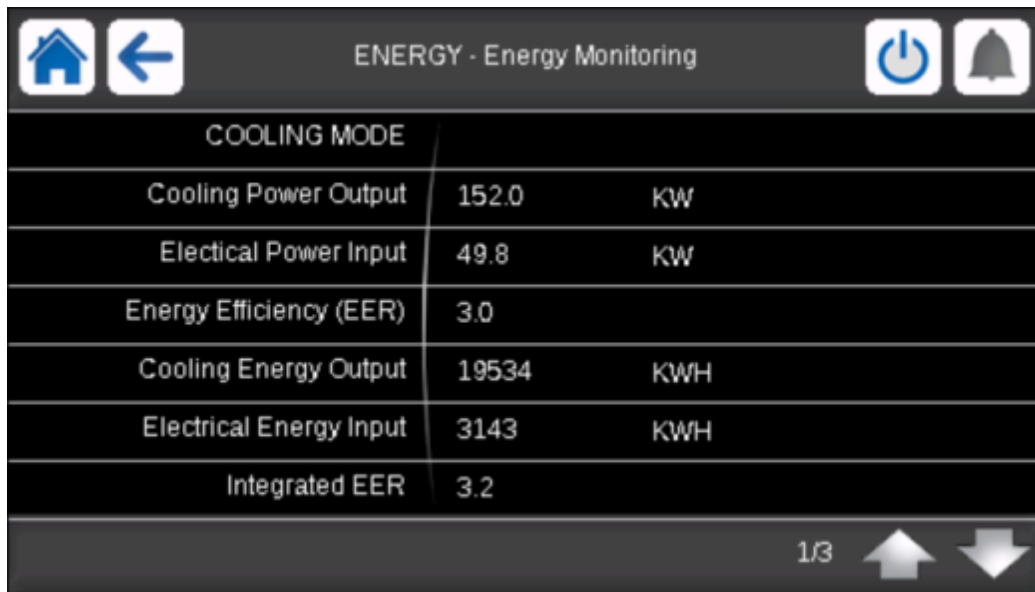
- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, RU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



AquaForce® 30KAV ranges

Smart energy monitoring function

- Provides data based on intelligent algorithms
- Measures energy consumption in real-time (kW.h)
- Measures cooling capacity in real-time (kW.h)
- Provides instantaneous and average values from seasonal energy efficiency reports



ENERGY - Energy Monitoring

COOLING MODE		
Cooling Power Output	152.0	KW
Electrical Power Input	49.8	KW
Energy Efficiency (EER)	3.0	
Cooling Energy Output	19534	KWH
Electrical Energy Input	3143	KWH
Integrated EER	3.2	

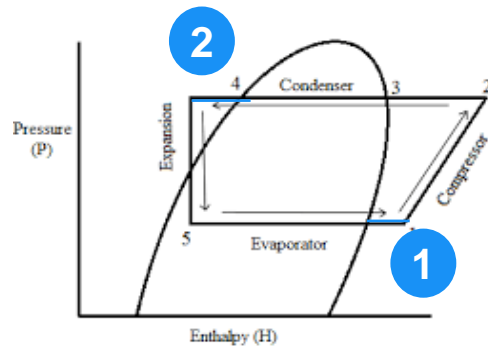
1/3



AquaForce® 30KAV ranges

Smart refrigerant leak detection

- Algorithm that can detect serious refrigerant loss at any point on the system
- Sensitivity: 25% refrigerant charge loss per circuit means ~12% refrigerant charge loss per unit
- Help to achieve recognition within pollution prevention assessment programs, ideal for assisting in the design of sustainable buildings.



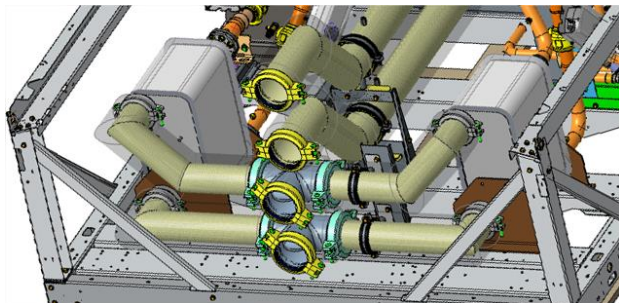
LEAK DETECTION



AquaForce® 30KAV ranges

Heat recovery (options 49 & 50)

- Partial heat recovery (Option 49)
- Total heat recovery (Option 50)
- Variable reclaim : No load limit to activate reclaim
- BPHE in serial with air condenser
- Less complexity, more flexibility
- Desuperheater mode



One product, many applications



MULTI-RESIDENTIAL



SUSTAINABLE BUILDING



INDUSTRY



HOTEL



DATA CENTER



HOSPITAL

Key benefits AquaForce® 30KAV ranges

Outstanding performance



Acoustic comfort



Intelligence & connectivity



Extensive scope of applications



Easy installation & maintenance



Key benefits AquaForce® 30KAV ranges



Outstanding performance

	30KAV	30KAVP
SEER up to	5.7	5.4
EER up to	3.5	3.6

Equipped with variable-speed screw compressors, variable-speed fans and optional variable-speed pumps

- **Adjusts the cooling capacity and the water**
- **Up to 25%** above Ecodesign 2021 requirements
- Specific features on 30KAVP: Permanent magnet motor screw chiller with Greenspeed® intelligence, **EC fans**, additional condenser surface



Acoustic comfort

-6 dB(A) vs former 30XAV

Sound Power
(dBA)

3x SOUND LEVELS

- **Standard unit** New 06Z compressor + new oil separator design
6th generation Flying Bird™ fans
- **Unit with option 15**
Compressor sound enclosure
- **Unit with option 15 LS**
Compressor sound enclosure + low speed fans

96

95

90

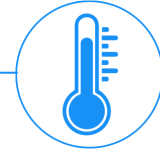
Key benefits AquaForce® 30KAV ranges



Intelligence & connectivity

Smart energy monitoring

- The advanced SmartVu™ intelligent control system displays **operating parameters in real time** (intuitive and user-friendly).
- It 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.

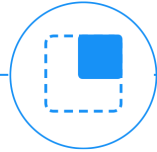


Extensive scope of applications

From **-20°C** to **55°C**

- 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 whatever the climate and wherever the location.

Key benefits AquaForce® 30KAV ranges



Easy installation & maintenance

25% smaller

Built-in variable-speed pumps up to 600 kW, automatic nominal water flow adjustment through electronic control, automatic unit energy performance measurement under real conditions, in units that are **25% smaller than the previous 30XAV generation**, all these new features provide **peace of mind for installers and service companies** alike.

BLUEDGE®



Your service partner a solution for every situation



*BLUEDGE DIGITAL is the new name for Connected Services – Technology remains the same.

BluEdge – Your service partner

Customer focus

As your preferred partner, Carrier designs tailored Service programs to meet your goals and optimize your business performance.

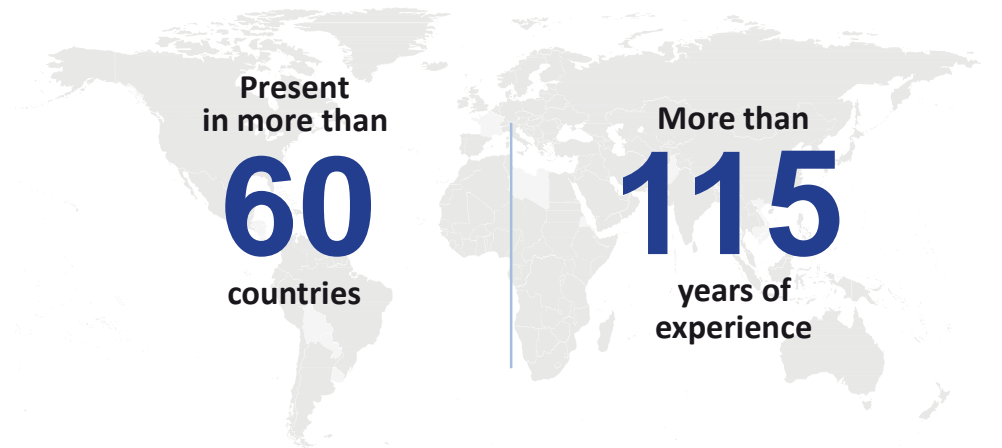
Our BluEdge service platform is designed to meet your requirements and keep your equipment running efficiently. We can help you create a customized program that is suited to your specific goals and needs.

Proximity & responsiveness

Expert Carrier technicians are there to take action quickly. Our comprehensive and highly efficient maintenance processes mean your equipment will soon be back in action.

Expertise & consultancy

Your Carrier experts can help you find the right balance between energy efficiency and your investments' optimization with our wide choice of technologies and solutions. Thanks to the data analyzed via our Connected Services and the expertise of our internal team, we are able to offer the highest level of consultancy.



BluEdge Digital*

Solutions that empower your team to visualise, advise, and optimise the lifecycle and outcomes of your HVAC system.



Remote monitoring



Proactivity to anticipate breakdowns



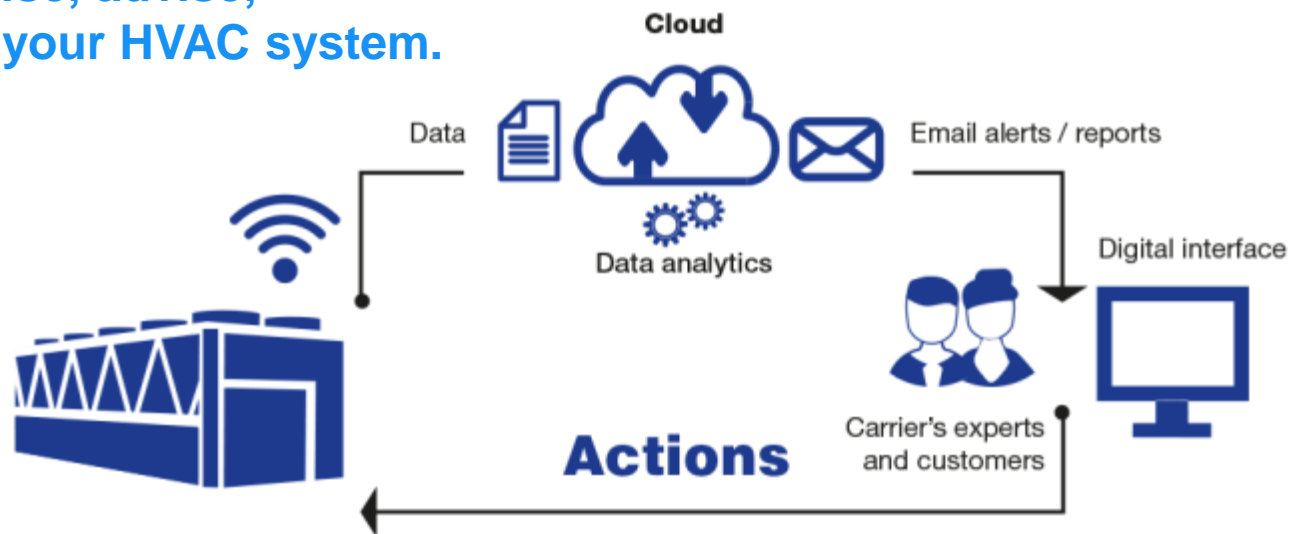
Precision monitoring



Effective maintenance



Easy, secured access



- Performance monitored 24/7, 365 days a year
- Up to 5 connected units
- Real-time data
- Analysis of the data log to improve diagnostics and correctly define the maintenance requirements
- Digitally connected Carrier technicians for quick on-site intervention
- Advice from Carrier experts on the actions to be undertaken to optimise performance

*BluEdge Digital is the new name for Connected services

Carrier rental systems



+8,000

Available units



+34

Depots



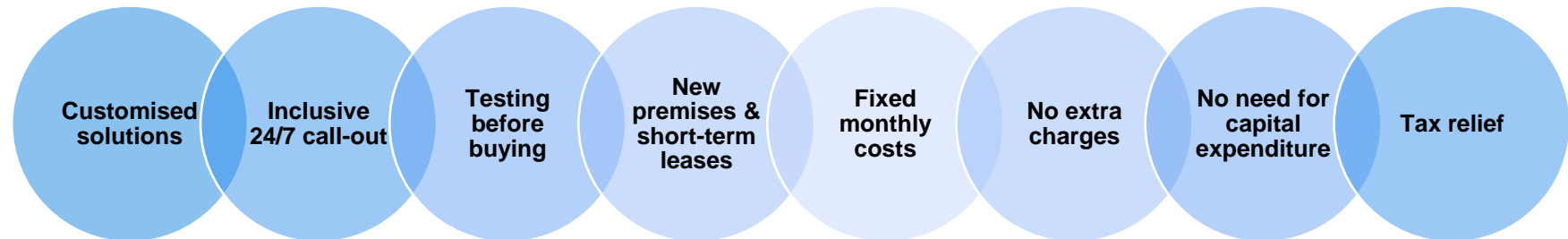
24/7

Availability

Temporary short, medium and long-term cooling and heating solutions for various customer needs:

- Seasonal capacity requirements
- Breakdown emergencies
- Planned service work
- Facility refurbishment
- Special events
- Contingency planning...

On-time and on-budget delivery, from system design to installation and decommissioning.



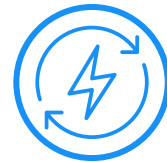
Plant room management

Carrier PlantCTRL™

The PlantCTRL™ system regulates, controls & optimizes the operation and energy consumption of your heating and cooling production plant. Available for all applications, this system is able to manage and pilot all cooling & heating production components and all associated hydraulic devices.

Thanks to its remote monitoring capabilities, we can provide support from a distance.

The PlantCTRL™ system reduces your operating & maintenance costs while guaranteeing a quick return on investment:



Optimize energy consumption of the installation



Decrease equipment down-time



Secure connection to the industrial facility

CARRIER



CARRIER

Carrier was founded by Willis Carrier, the inventor of modern air conditioning, in 1902. Over time Carrier has been recognized as the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions.

At Carrier, sustainability leadership is something that comes naturally. Willis Carrier was an inventor, his brand pioneered the industry, and his products changed the world. Along the way, a focus on sustainability and preserving natural resources has endured as a guiding principle.

As a result, Carrier experts provide sustainable solutions, integrating energy-efficient products, building controls and energy services for residential, commercial, retail, transport and food service customers.



Montluel Site (France)

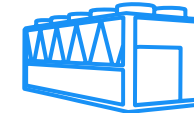
800

employees



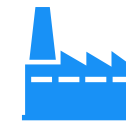
7,500 m²

Largest European
HVAC laboratory



Chillers &
Heat pumps

Center of
Excellence



32,000 m²

Largest European
chiller plant

Culoz Site (France)

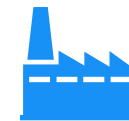
780
employees



6
platforms dedicated
to airside
applications



Airside
Center of
Excellence



94,000 m²

Montilla Site (Spain)

305

employees



Specialized

rooftop laboratory



Rooftop & package

Center of Excellence



40,000 m²

Largest Spain HVAC plant

Vence Site (France)

+ 3000

customers

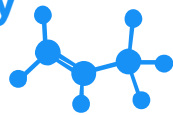


Smart services

development

& Thermal Energy
storage

worldwide player



+ 65

countries

Pool of engineers with
dual **cooling,**

**heating &
automation
expertise**





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