

High efficiency water cooled chillers and heat pumps. **436**÷**1564** kW







# OMEGA SKY ECODESIGN

#### General

High efficiency water-source chillers. Screw compressors. Shell & tube heat exchangers.

#### Configurations

LN: low noise

XLN: super low noise

OH: heating-only heat pump

HPW: reversible heat pump (water side)

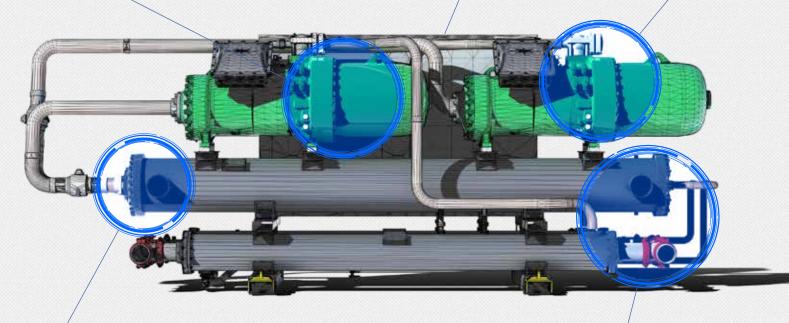
DC: total heat recovery

LC: condenser-less execution for split system

#### Bluethink advanced control

Web server Blueye supervision Multilogic function

Environmentally friendly refrigerants: R513A default & LGW R1234ze Highest performances on the market segment



**High-efficiency dry evaporator** low charge, low pressure drop

Plug & Play unit for easy indoor installation

## ECODESIGN framework Directive (2009/125/EC)





- The ECODESIGN Directive, with its Regulations, sets new challenging standards for a more efficient use of energy
- For the European market, all chillers and heat pumps must comply with related seasonal efficiency targets
- SEER SEPR HT Regulation 2281/2016: chillers and large heat pumps; mandatory since January 1st, 2018

All OMEGA SKY models comply to tier 1 • SEER (LT, MT) and SEPR HT.

Also heat pump versions are compliant to Ecodesian.

# COOLING HIGH EFFICIENCY AT PART LOAD





According to Regulation 2016/2281 and norm FN 14825. SEER / nsc reference: LT / low temperature condition, user-side temperature 12/7°C



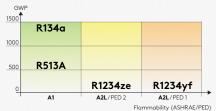
## **LOW GWP**



- Non flammable category A1
- Smart GWP 573\*
- Not subject to shortage or price hikes
- May be promoted by local incentive schemes
- R134a: option



- Category A2L, classified as PED group 2
- Lowest GWP < 1\*
- Not subject to shortage or price hikes
- Totally exempted by local taxation/bans
- Best future-proof choice



Performances related to all three refrigerants are certified by Eurovent.

\* GWP (AR5) according to IPCC V time horizon 100 years.

## **ENVIRONMENTALLY** FRIENDI Y FATIN

versions to satisfy different requirements

# **HEATING ONLY**

compressor optimized for heating



Leaving

temperature up to

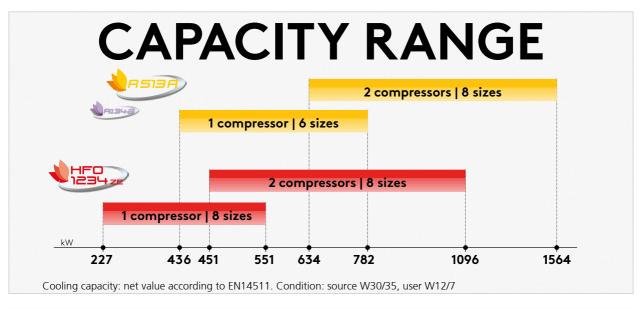
65°C\*



High performance heating coupled with

LOW GWP refrigerants

\* applies to OMEGA SKY LGW OH.







- Fully integrated management of all components by Bluethink
- Boost on yearly energy savings

#### Water-cooled indoor chillers = unique solution by Blue Box

- Ideal for systems with year-round cooling load, e.g. industrial applications, data centers
- Indoor installation allows to comply with architectural constraints.
- Selection of dry cooler easily matches noise requirements.







## Integrated web server



Unit ON



Mode unit mode (heating, cooling)



Unit visual status of unit (circuits, compressors..)



Alarms



Set points



Graphs real time diagrams of main variables (temperatures, pressure..)



Input/Output status of inputs / outputs (digital and analogic)



Multilogic status of multiple units



Tools visual status of unit (circuits, compressors..)



Logs analyze unit data history



Maintenance



Sign Out

# Multilogic function Management of multiple units of a system / hydraulic loop.

- > Specific operational logics to satisfy different installation requirements
- > Maximized energy efficiency
- > Fully embedded in the control resources and factory-preset
- > Fast commissioning. Simple LAN connection between units. No external devices required.



#### Remote supervision via web by Blue Box.

It offers, for one or more units / systems:

- > operation status monitoring
- > access to unit's settings and parameters
- > data recording via cloud, with options about data displaying, graphs, etc.
- > differentiated access profiles and privileges to ensure a safe and efficient interaction
- > also the status of system's additional components can be monitored, e.g. pumps, energy meters, valves



# Connectivity Default available

> Modbus over TCP/IP, Modbus RTU (RS-485)

**Options** 

- > LonWorks Gateway
- > BACnet
- > SNMP Gateway
- > Hot Spot Wi-Fi

# Blue Box applied product range

find out the complete product range on our web site and catalogues



## Zeta Rev > 40÷240 kW



Chillers and reversible units. Extensive range, versatile applications.



#### Zeta Rev HP XT > 40÷200 kW



Reversible heat pumps. Extreme heating envelope. Smart configuration options.







#### **Tetris 2** > 84÷913 kW

Modular chillers and reversible units for large commercial systems. Wide range; multiple combinations of high-efficiency, low-noise versions.





#### Tetris W Rev > 32÷615 kW

Water-source chillers, with heating and reversible versions. Extensive range, versatile applica-





## Omega Sky Xi > 260÷970 kW



High efficiency water source chillers and heat pumps. Inverter-driven screw compressor.





#### 

Modular air source chillers and reversible units.





## Kappa Sky > 260÷1360 kW ◆ 555

Modular air source chillers for large systems. Inverter-driven screw compressors.





#### Omicron Rev S4 > 100÷860 kW

Modular multifunctional units for large 4-pipe systems. Smart configuration options.







# **Tetris W Rev**





High efficiency water cooled chillers and heat pumps.
32÷615 kW





# THE BEST SOLUTION FOR INSTALLATIONS

TETRIS W REV is a complete range of highly energy efficient water-source chillers and heat pumps. Scroll compressors and plate heat exchangers.

#### Configurations

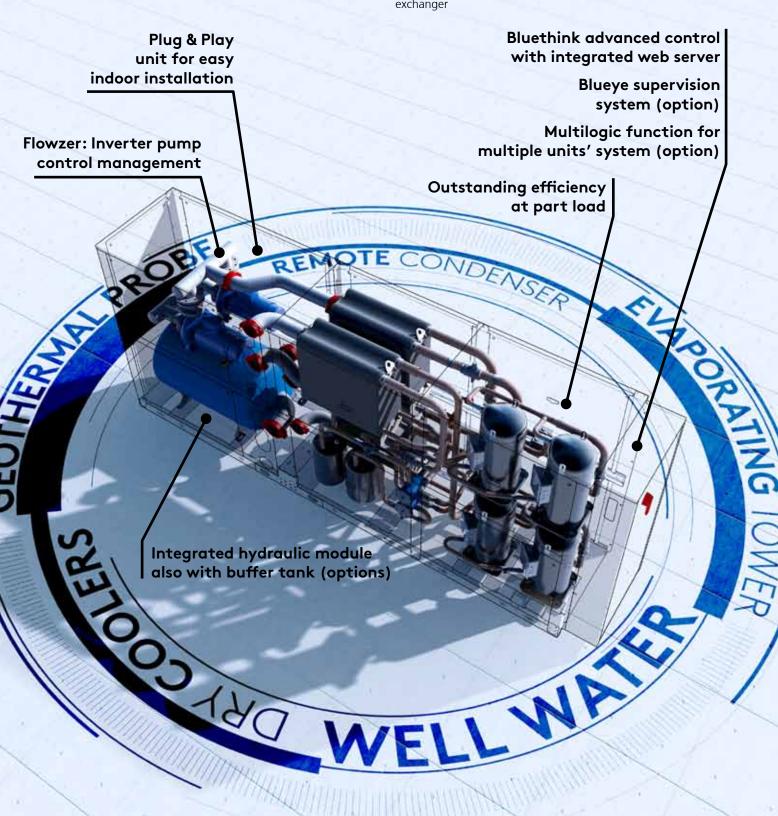
STD: chiller

OH: neating only heat pump

HPW: heat pump, reversible on water side

HP: heat pump, reversible on refrigerant side LC, LC/HP: units for split systems with remote source-side

exchanger



# ECODESIGN framework Directive (2009/125/EC)







- The ECODESIGN Directive, with its Regulations, sets new challenging standards for a more efficient use of energy
- For the European market, all chillers and heat pumps must comply with related seasonal efficiency targets
- SCOP-Regulation 813/2013: heat pumps with Pdesign <400 kW effective since 2015. Second tier from September 2017</li>

#### All TETRIS W REV models (HP, HPW, OH) comply

• SEER - Regulation 2281/2016: chillers and large heat pumps; becomes mandatory on January 1st, 2018

All TETRIS W REV models comply

# HEATING THE FOUR SHAPES OF HEAT PLIMP

High efficiency non reversible heat pump, optimized to operate in heating mode only.

High efficiency heat pump, reversible on water side: designed for plant where user and source-side fluids can be

exchanged each other.

High efficiency heat pump, reversible on refrigerant side: guarantees the separation between user and source-side fluids.

Values conform to EN 14511-3:2011

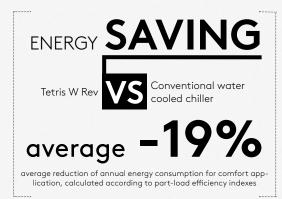
Reversible unit for split systems, with remote sourceside exchanger: flexible use of space, smart selection of outdoor exchanger and ots noise levels; no glycol on user side.



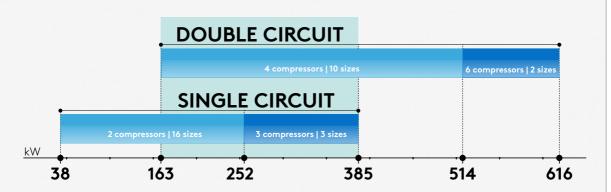
# COOLING HIGH EFFICIENCY AT PART LOAD

Tetris W Rev offers best-in-class efficiency at part load conditions. This leads to an outstanding reduction of the operational cost.





## **CAPACITY RANGE**



In the capacity range between 163 and 385kW, the customer can choose between dual circuit models, with the highest ESEER values, and single circuit units, which are more compact but still with top EER and COP levels.

Cooling: 30/35°C; water 12/7°C



# EASYINSTALLATION

Tetris W Rev provides a lot of options and pumping configurations to suit every requirements.

Double circuit models always use twin circuit plate exchangers for the evaporator, condenser and heat recovery.

#### This means:

- Less design time
- Quicker and less cost for installation team
- Reduced refrigerant charge.
- Reduced unit footprint
- Less connections for easier installation

# BUILT-IN HYDRAULIC MODULE

TETRIS W Rev can be fitted with different hydraulic modules:

- 1 or 2 pumps
- Useful head: standard, oversized or for high glycol concentrations
- selectable for user-, source- or heat recovery sides
- Selectable integrated buffer tank for the user-side circuit











## Integrated web server

main features



Set point perating set point



Alarm



visual status of unit (circuits, compressors..)



Input/Output status of inputs / outputs (digital and analogic)



**Graphs**real time diagrams
of main variables
(temperatures, pressure..)

- > USB, RS485 and Ethernet ports as standard
- > Recording of unit parameters one month long

## **MULTILOGIC FUNCTION**

#### Management of multiple units of a system / hydraulic loop.

- > Specific operational logics to satisfy different installation requirements
- > Maximized energy efficiency
- > Feature fully embedded in the control resources and factory-preset
- > Fast commissioning. Simple LAN connection between units. No external devices required.

## **BLUEYE**

#### Remote supervision via web by Blue Box.

It offers, for one or more units / systems:

- > operation status monitoring
- > access to unit's settings and parameters
- > data recording via cloud, with options about data displaying, graphs, etc.
- differentiated access profiles and privileges to ensure a safe and efficient interaction
- > also the status of system's additional components can be monitored, e.g. pumps, energy meters, valves

# FLOWZER HYDRAULIC MANAGEMENT OPTIONS BASED ON INVERTER-DRIVEN PUMPS

The new family of scalable options associated to the wide range of built-in pump modules.

For each application layout, FLOWZER offers the best-fitting solution about the water distribution to the system:

- Pumping energy saving; minimized operational cost
- No external devices required.

#### > Flowzer VP

Operation at fixed speed setpoint

#### > Flowzer VD

Management of constant  $\Delta P$ 

#### > Flowzer VPS

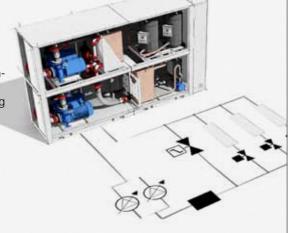
Management of constant  $\Delta T$  on Primary/Secondary pump circuit

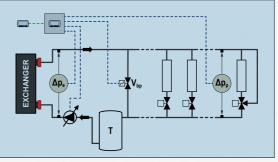
## > Flowzer VFPP

Management of constant  $\Delta T$  on primary pump circuit Simplified system's circuit, as additional external pumps of secondary circuit are not required.

up to -80%

pumping energy consumption\*





# **Blue Box** applied product range

find out the complete product range on our web site and catalogues



#### Zeta Rev $> 40 \div 240 \text{ kW}$



Chillers and reversible units. Extensive range, versatile applications.

















#### Zeta Rev HP XT > 40÷200 kW



Reversible heat pumps. Extreme heating envelope. Smart configuration options.

















## Beta Rev > 40÷240 kW



Chillers and reversible units for indoor installation. Extensive range, also with self-adaptive highefficiency fans.



















#### **Tetris 2** > 84÷913 kW



Modular chillers and reversible units for large commercial systems. Wide range; multiple combinations of high-efficiency, low-noise versions.

















#### **Kappa Rev** > 296÷1983 kW



Modular chillers and reversible units for large commercial systems. Wide range and versions

















## Omega Rev $> 143 \div 1569 \text{ kW}$



Water-source chillers, with heating- and reversible versions. Wide range for large commercial systems.













#### Omicron Rev S4 > 100÷860 kW



Modular multifunctional units for large 4-pipe systems. Smart configuration options.























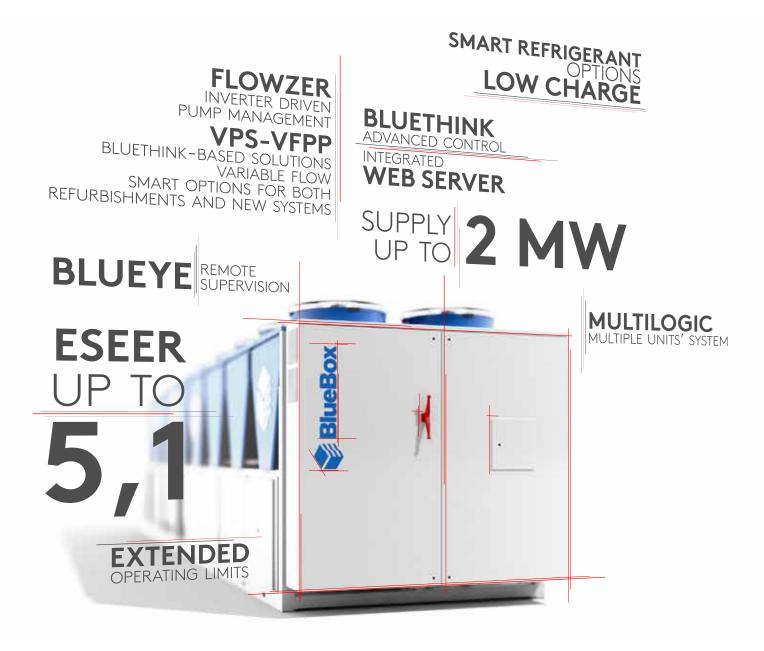


Air cooled modular screw chillers and heat pumps cooling **286**÷**1983** kW





# REVOLUTION CARRIESON



#### General

Modular chillers and reversible units for large systems. Wide range: high efficiency multiple combinations and low noise versions. Screw compressors, also with integrated inverter for selected models.

#### Configurations

HE: high efficiency unit HEi: with hybrid compressors XEi: with full inverter compressors

HP: reversible heat pump

/HAT: for high external air temperature

/HWT: for production of high temperature water

SLN: super low noise unit

/LN: low noise

/DS: with desuperheater /DC: with total recovery







## ECODESIGN framework Directive (2009/125/EC)



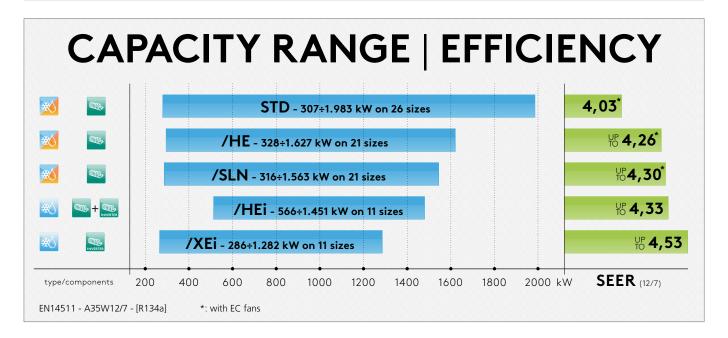


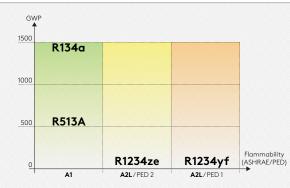
- The **ECODESIGN Directive**, with its Regulations, sets new challenging standards for a more efficient use of energy
- For the European market, all chillers and heat pumps must comply with related seasonal efficiency targets
- SEER SEPR Regulation 2281/2016: chillers and large heat pumps. Mandatory since January 1st, 2018: tier 1.

#### All chillers comply to SEPR HT and SEER MT.

**All chillers** (except base version) are also compliant to **SEER LT**.

Heat pumps can achieve compliance to applicable Ecodesign regulations, depending on sizes/versions.





- non-flammable (A1 according to ASHRAE classification) and non-toxic
- low environmental impact with GWP=573 (\*)
- as a novel substitute for R134a, R513A is not subject to shortage or price hikes
- R513A offers a smart & future-proof approach to systems designed for low refrigerant charge

(\*) GWP (AR5) according to IPCC V time horizon 100 years; GWP (AR4) = 631

All KAPPA REV chillers are available with R513A or R134a. All models are **EUROVENT** certified.



## **EXTENDED OPERATING LIMITS**

ambient temperature



ambient temperature

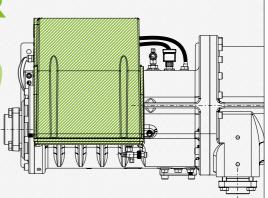
\*: Limits depend on model / version. For ambient temperature above 46°C, HAT option is required, allowing to extend operation up to 52°C. Ambient temperatures up to indicatively 55°C can be reached with dedicated setup.

# INTEGRATED INVERTER SCREW COMPRESSOR

**当HYBRID・ 学FULL** VERSIONS

COMPARED TO STEPLESS SCREW COMPRESSOR UNITS CLOSER CONTROL
OF WATER TEMPERATURE

YEARLY ENERGY SAVING -12,5%





The unit (HE or SLN) can operate in high efficiency mode or super low noise mode according to day time setting.

up to 3 dB(A)

of sound power reduction



## SMART ANTI-ICE CIRCUIT PEVERS

REVERSIBLE HEAT PUMP VERSIONS

The defrost cycle can be a critical condition: KAPPA REV features the **Smart Anti-Ice Circuit**, to avoid ice forming on the bottom part of exchanger: the function is efficiently activated according to air temperature - only when necessary.



## EC AXIAL FANS | ELECTRONICALLY COMMUTATED BRUSHLESS MOTOR AS OPTION



15% ENERGY SAVING PER FAN
3.000 €/y\* SAVING

\*unit with 12 fans; operating 8700 hours/year; 0,10 €/kWh



FURTHER
ENERGY SAVING
+ 100 Pa
AVAILABLE PRESSURE PER FAIN



LESS AIR SIDE PRESSURE DROP

+ 50 Pa

AVAILABLE PRESSURE PER FAN COMPARED TO OVERSIZED FANS



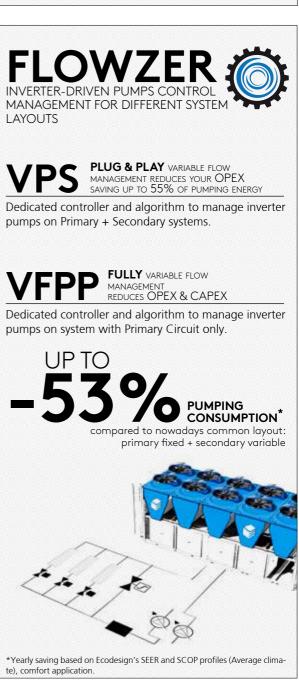


Monitoring, performance reports, full management.

Blue Box control platform allows a total access to the machine from any device, in complete autonomy.







# **Blue Box** applied product range

find out the complete product range on our web site and catalogues



## Zeta Rev > 40÷240 kW



Reversible heat pumps. Extreme heating envelope. Smart configuration options.















#### Zeta Rev HP XT > 40÷200 kW



Reversible heat pumps. Extreme heating envelope. Smart configuration options.















## Beta Rev > 40÷240 kW



Chillers and reversible units for indoor installation. Extensive range, also with self-adaptive highefficiency fans.



















## Tetris 2 > 84÷913 kW



Modular chillers and reversible units for large commercial systems. Wide range; multiple combinations of high-efficiency, low-noise versions.

















#### Tetris W Rev > 32÷615 kW



Water-source chillers, with heating and reversible versions. Extensive range, versatile applica-













## Omega Sky > 444÷1589 kW





Water-source chillers with heat pump reversible versions for indoor installations.















Modular multifunctional units for large 4-pipe systems. Smart configuration options.



















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# Tetris 2





Air cooled modular chillers and heat pumps cooling **84**÷**913** kW





# SAVING& PERFORMANCE AT REAL CONDITION YEAR-ROUND

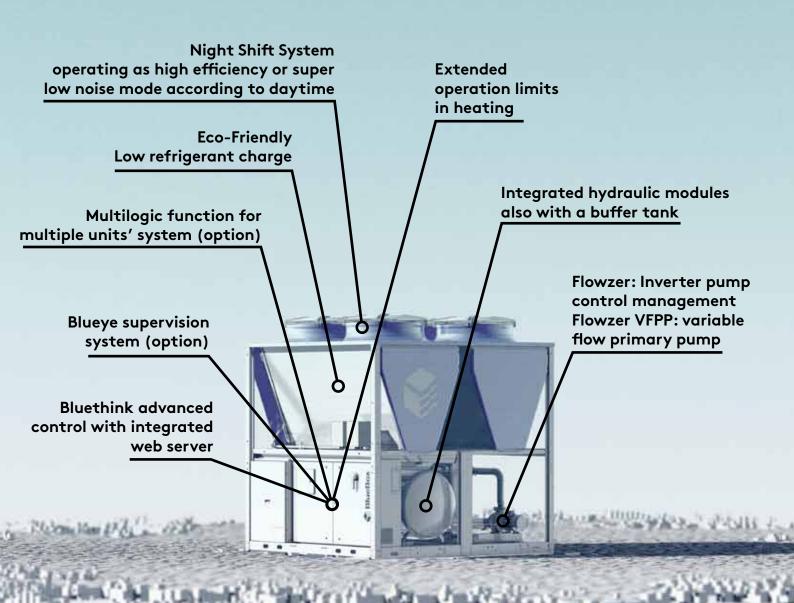
#### General

The generation of energy efficient, highly configurable modular chillers and reversible units with scroll compressors, created to meet the needs of commercial and industrial sectors.

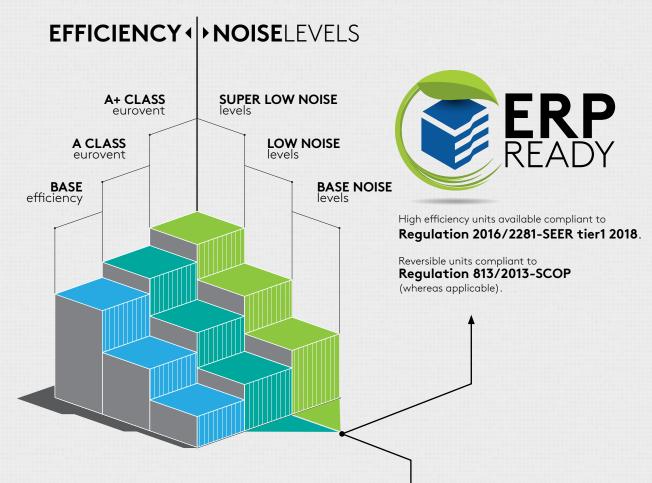
#### **Configurations**

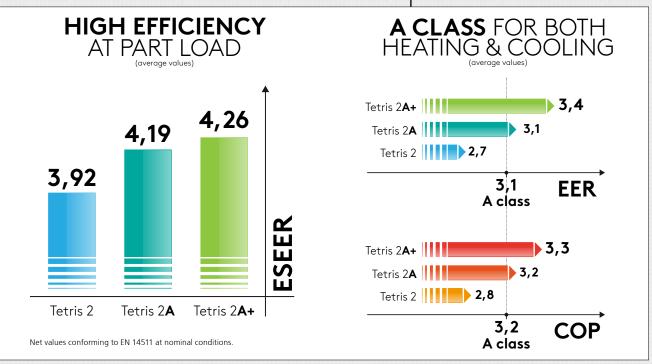
A and A+: High efficiency units LN: Low noise unit SLN: Super Low noise unit

HP: Reversible heat pump DS: Partial heat recovery DC: Total heat recovery



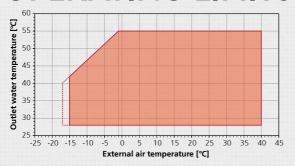
# EFFICIENCY&NOISE REDUCTION





# **HEATING**

## OPERATING LIMITS HEAT RECOVERY



55°C at -1°C

FULL LOAD down to -15°C

down to -17°C PART LOAD

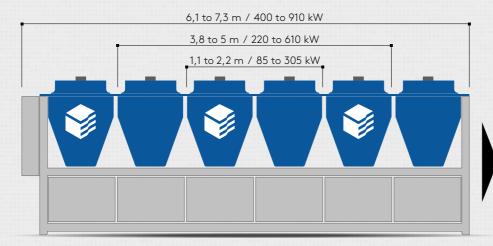


#### **ENERGY RECOVERY**

UP TO 100% RECOVERY IN COOLING MODE

## **COMPACTNESS**

▶ best solution for replacement projects



**COMPETITORS** 







EC axial fans with electronically commutated brushless motor as option.

15% energy saving per fan 2.000\* €/y saving

(\*unit with 8 fans; operating 8700 hours/year; 0,10 €/kWh)





## Integrated web server

main features







visual status of unit (circuits, compressors..)



Input/Output status of inputs / outputs (digital and analogic)



Graphs real time diagrams of main variables (temperatures, pressure..)

- > USB, RS485 and Ethernet ports as standard
- > Recording of unit parameters one month long

## MULTILOGIC FUNCTION

#### Management of multiple units of a system / hydraulic loop.

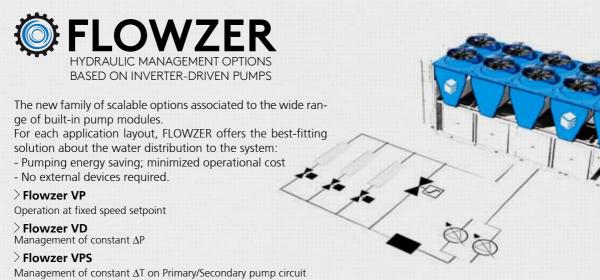
- > Specific operational logics to satisfy different installation requirements
- Maximized energy efficiency
- > Feature fully embedded in the control resources and factory-preset
- > Fast commissioning. Simple LAN connection between units. No external devices required.

#### BLUEYE

#### Remote supervision via web by Blue Box.

It offers, for one or more units / systems:

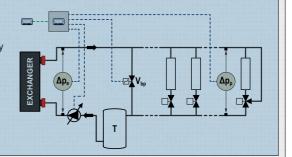
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# > Flowzer VFPP Management of constant $\Delta T$ on primary pump circuit

Simplified system's circuit, as additional external pumps of secondary circuit are not required.

pumping energy consumption\*



# Blue Box applied product range

find out the complete product range on our web site and catalogues



# Epsilon Echos series > 6:44 kW High efficiency air cooled chillers and heat pumps.















High efficiency air cooled chillers and heat pumps.













## **Kappa Rev** series > 296÷1983 kW High efficiency air cooled modular chillers and heat pumps.





## Tetris W Rev series > 32÷615 kW

High efficiency water cooled chillers and heat pumps.



















## Omicron Rev S4 > 100÷860 kW

Multi-functional units for 4-pipe systems











