



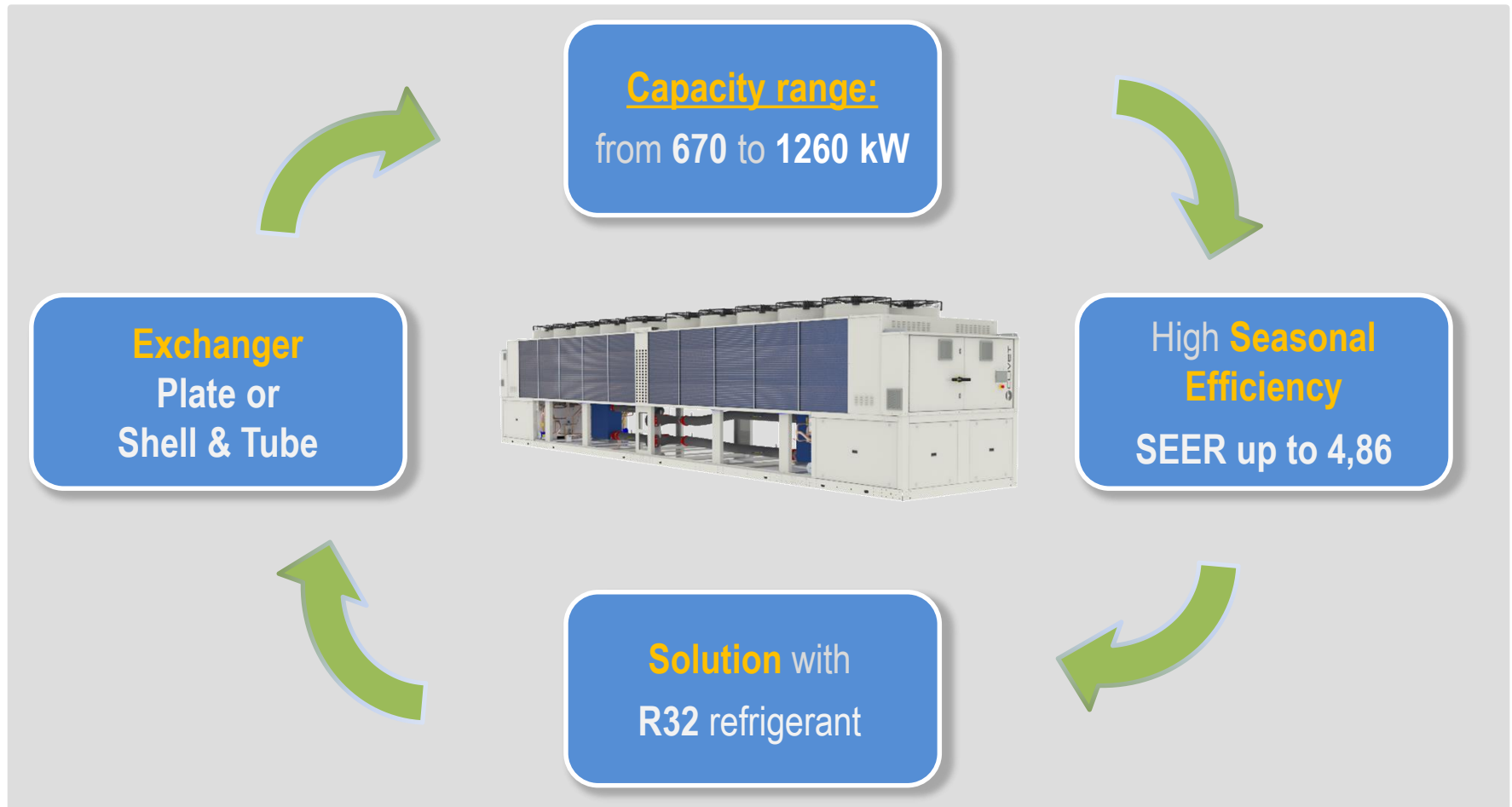
SPINchiller⁴

WSAN-YSC4 260.8 – 480.12

Product presentation

SPINchiller⁴, Air source – Main Features

SPINchiller⁴ is the solution with scroll compressors and R32 refrigerant, ideal for multiple types of installation



SPINchiller⁴, Air source – Capacity Range

WSAN-YSC4 serie is available with 2 energy versions: **Excellence and Premium**

EXCELLENCE, Capacity range 710 – 1212 kW:

| SIZES | 260.8 | 290.8 | 320.8 | 345.9 | 370.10 | 420.12 | 450.12 |
|------------------|-------|-------|-------|-------|--------|--------|--------|
| Cooling capacity | 710 | 780 | 860 | 930 | 1000 | 1112 | 1212 |
| EER | 3,14 | 3,07 | 3,03 | 3,06 | 3,09 | 2,99 | 3,01 |
| SEER | 4,82 | 4,75 | 4,70 | 4,81 | 4,86 | 4,83 | 4,84 |
| Heating capacity | 750 | 830 | 910 | 985 | 1060 | 1168 | 1268 |
| COP | 3,32 | 3,35 | 3,35 | 3,35 | 3,35 | 3,32 | 3,29 |
| N° compressors | 8 | 8 | 8 | 9 | 10 | 12 | 12 |
| N° circuits | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Length | 10150 | 10150 | 10150 | 11122 | 12094 | 12094 | 13070 |

SPINchiller⁴, Air source – Capacity Range

WSAN-YSC4 serie is available with 2 energy versions: **Excellence and Premium**



PREMIUM, Capacity range 670 – 1260 kW:

| SIZES | 260.8 | 290.8 | 315.9 | 345.9 | 370.10 | 420.12 | 450.12 | 480.12 |
|------------------|-------|-------|-------|-------|--------|--------|--------|--------|
| Cooling capacity | 670 | 740 | 815 | 885 | 960 | 1060 | 1172 | 1260 |
| EER | 2,84 | 2,74 | 2,83 | 2,73 | 2,82 | 2,68 | 2,86 | 2,80 |
| SEER | 4,56 | 4,56 | 4,59 | 4,56 | 4,62 | 4,60 | 4,64 | 4,63 |
| Heating capacity | 700 | 770 | 850 | 920 | 1000 | 1108 | 1218 | 1308 |
| COP | 3,15 | 3,13 | 3,20 | 3,19 | 3,23 | 3,20 | 3,22 | 3,22 |
| N° compressors | 8 | 8 | 9 | 9 | 10 | 12 | 12 | 12 |
| N° circuits | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Length | 8200 | 8200 | 9172 | 9172 | 10150 | 10150 | 12094 | 12094 |

SPINchiller⁴, Air source – Low environmental impact

R32 = Solution with low environmental impact

The environmental benefits of R32 compared to R-410A

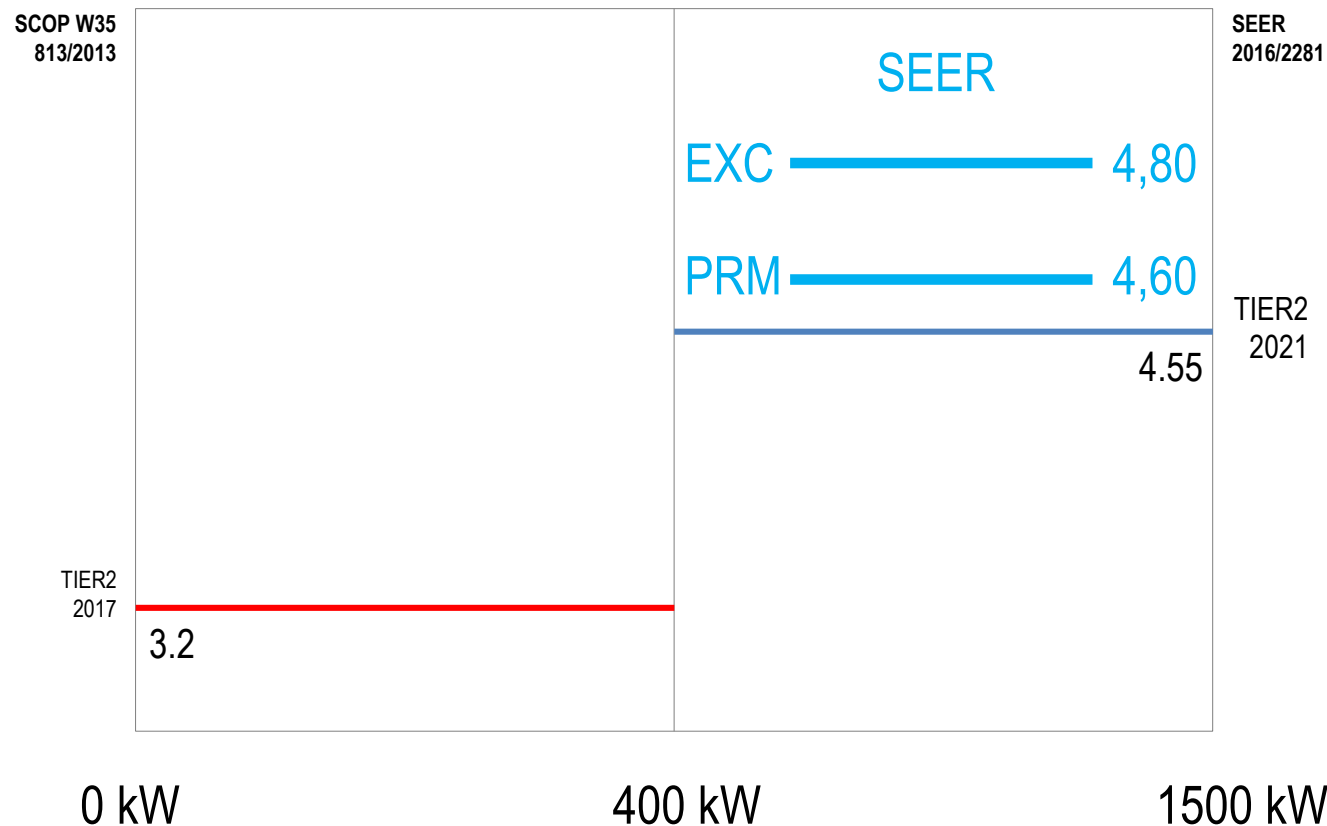
| Refrigerant |  |  |
|-------------------------------------|---|---|
| Refrigerant type | HFC | HFC |
| GWP | 675 | 2088 |
| Dispersion in the atmosphere (year) | 4,9 | 16,95 |
| ASHRAE 34, ISO 817 classification | A2L | A1 |



SPINchiller⁴, Air source – Seasonal Efficiency (Comfort application)

WSAN-YSC4 reaches very **high seasonal efficiency** values

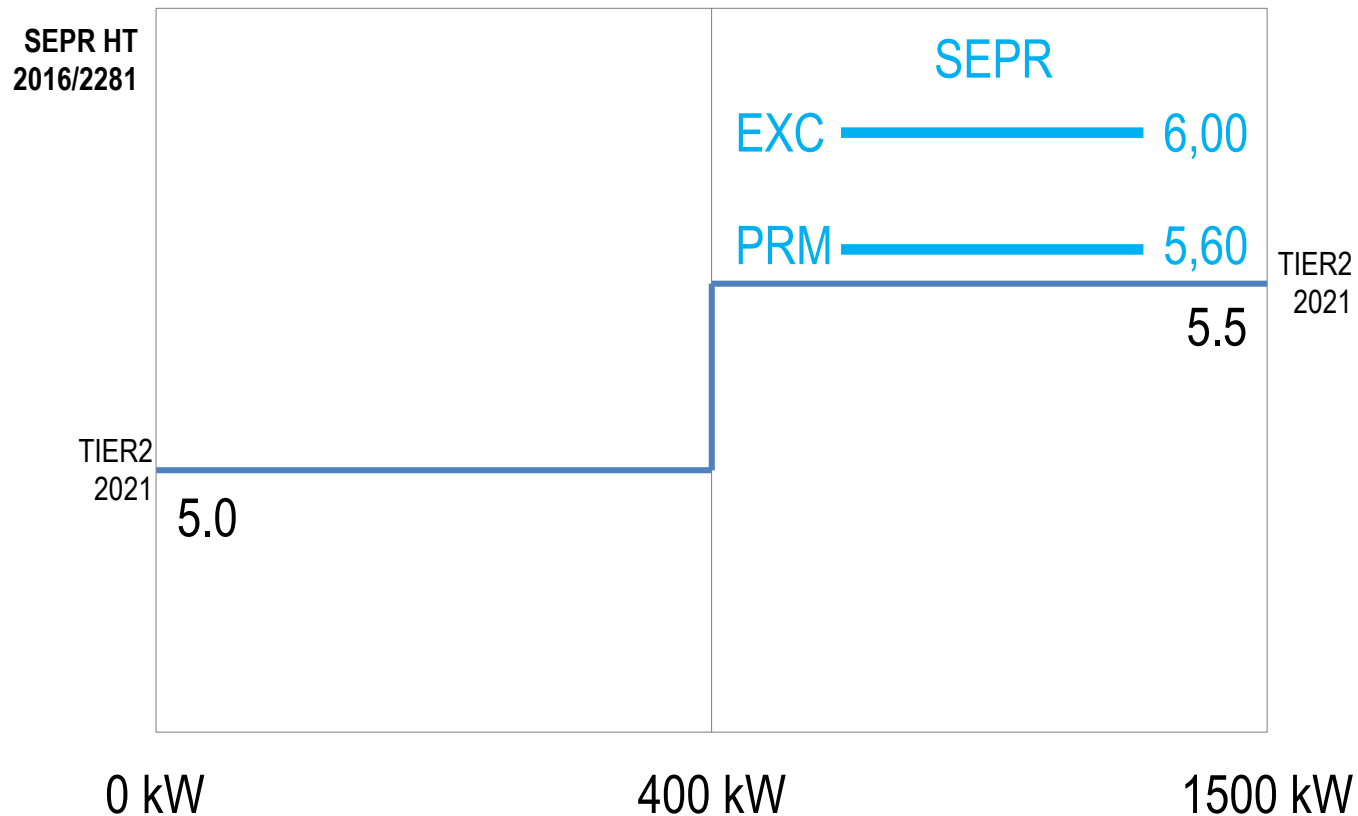
Both versions (**Excellence & Premium**) are compliant to **2021 requirements (Tier 2)**



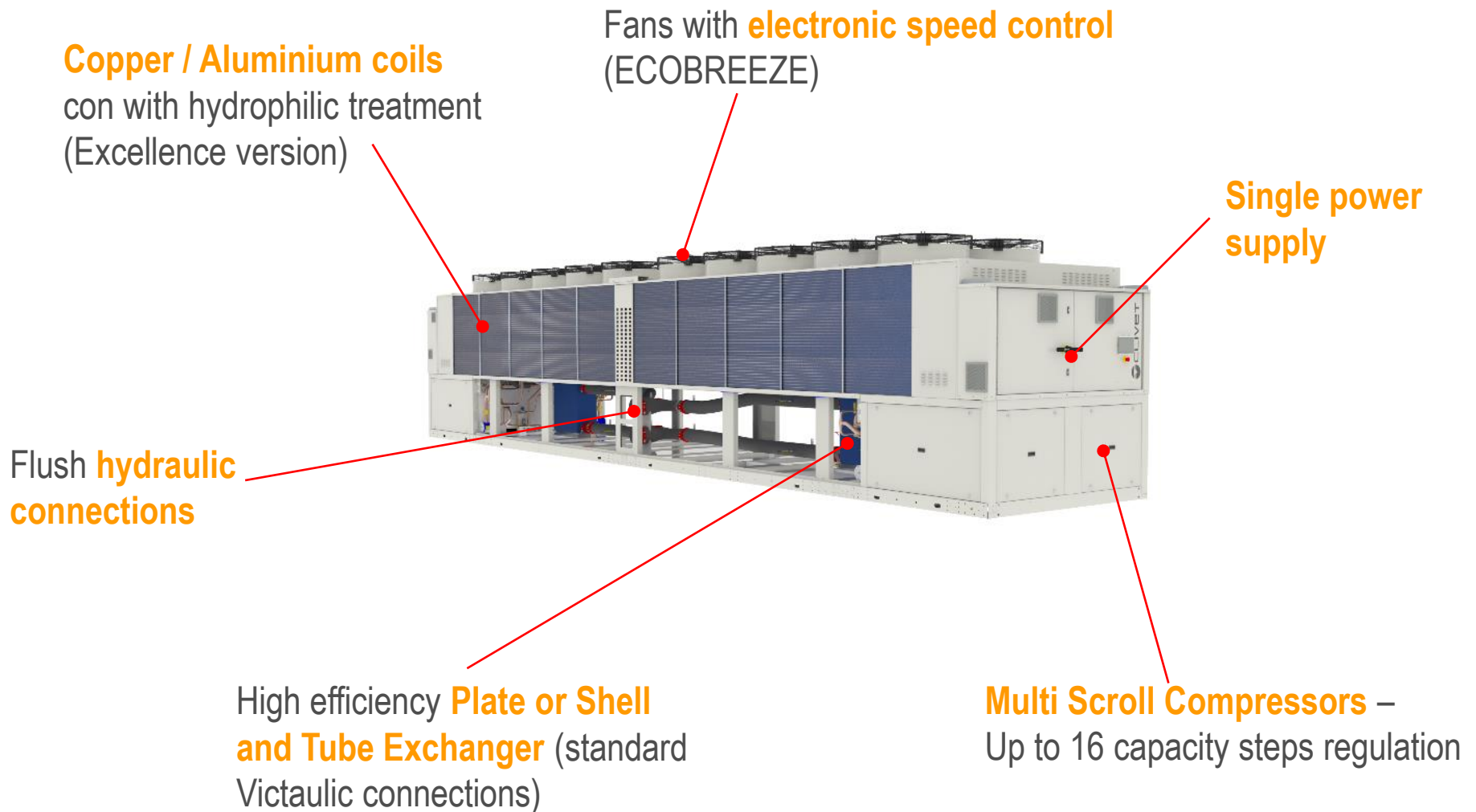
SPINchiller⁴, Air source – Seasonal Efficiency (Industrial application)

WSAN-YSC4 reaches very **high seasonal efficiency** values

Both versions (**Excellence & Premium**) are compliant to **2021 requirements (Tier 2)**



SPINchiller⁴, Air source – Technologies for high efficiency



SPINChiller⁴, Air source – The Multiscroll technology

SPINChiller⁴ is equipped with more scroll compressors on the same refrigerant circuit:

Advantages:

- Perfectly match the cooling load of the plant in any condition
- Follow the load also with a great staging. **Up to 16** capacity steps regulation
- Ensure high efficiency values, reducing operating costs, thanks to larger exchanging surface at partial load
- Reliability guaranteed thanks to the **four** independent refrigerant circuits

SPINchiller⁴, Air source – Acoustic configurations

ST = **Standard** acoustic version



SC = **Compressor Soundproofing** version
(same length of ST version)



-4/-5
dB(A)

Casing for compressors

EN = **Supersilenced** version
(same length of ST version)



-8/-9
dB(A)

Casing for compressors
and air-flow reduction



SPINchiller⁴, Air source – Operative range in heating

EXC = **EXCELLENCE** version

Minimum outdoor temperature = -15°C

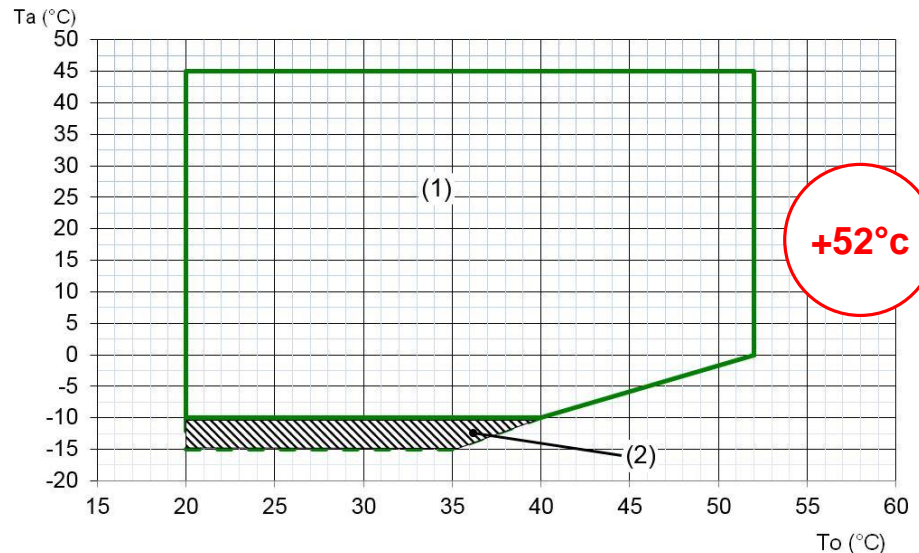
Maximum water temperature = $+55^{\circ}\text{C}$



PRM = **PREMIUM** version

Minimum outdoor temperature = -15°C

Maximum water temperature = $+52^{\circ}\text{C}$

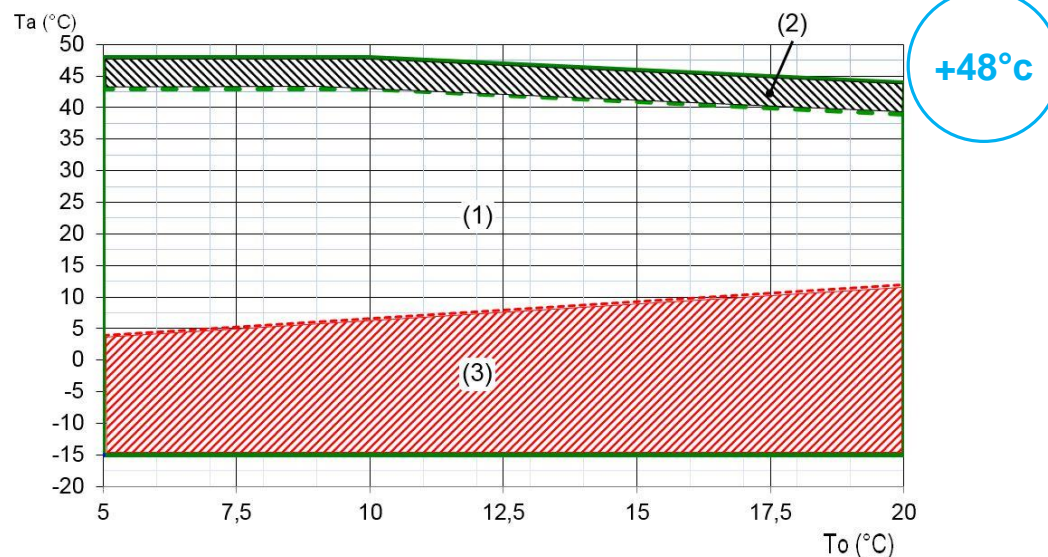


SPINchiller⁴, Air source – Operative range in cooling

EXC = **EXCELLENCE** version

Minimum outdoor temperature = -15°C

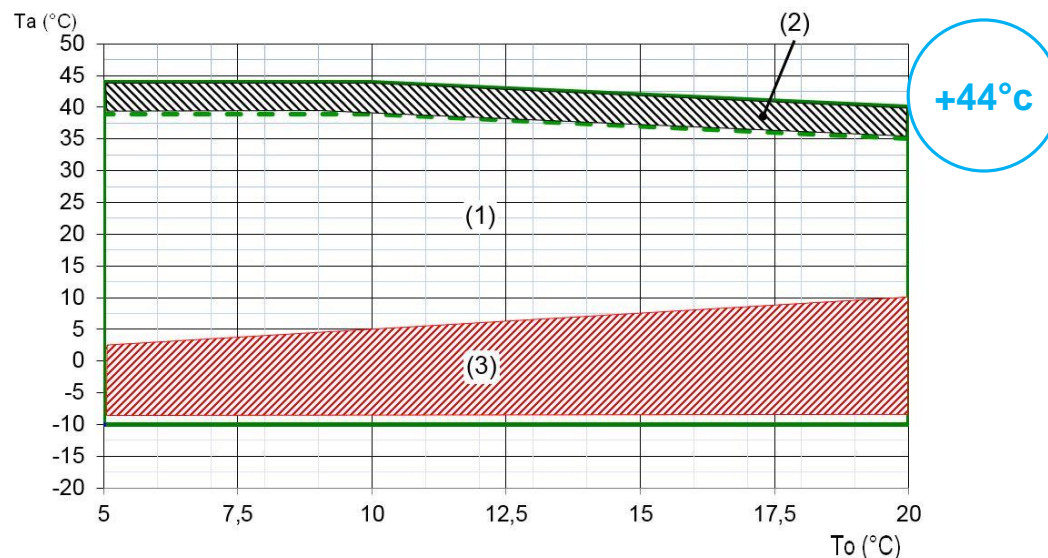
Maximum outdoor temperature = $+48^{\circ}\text{C}$



PRM = **PREMIUM** version

Minimum outdoor temperature = -10°C

Maximum outdoor temperature = $+44^{\circ}\text{C}$



SPINchiller⁴, Air source – Perfect for Leed

Thanks to specifications and performances as per AHRI is **perfect for LEED***

Performance - Excellence

Standard acoustic configuration (ST) / Compressor soundproofing (SC)

| SIZE | | | 260.8 | 290.8 | 320.8 | 345.9 | 370.10 | 420.12 | 450.12 |
|----------------------------------|---|------|-------|-------|-------|-------|--------|--------|--------|
| Cooling capacity (AHRI 550/590) | 5 | [kW] | 704 | 772 | 852 | 921 | 990 | 1100 | 1263 |
| Total power input (AHRI 550/590) | 5 | [kW] | 226 | 252 | 282 | 302 | 322 | 370 | 401 |
| COP _R | 5 | - | 3,12 | 3,06 | 3,02 | 3,05 | 3,07 | 2,97 | 3,15 |
| IPLV | 5 | - | 4,88 | 4,78 | 4,62 | 4,77 | 4,91 | 4,77 | 4,79 |

Super-silenced acoustic configuration (EN)

| SIZE | | | 260.8 | 290.8 | 320.8 | 345.9 | 370.10 | 420.12 | 450.12 |
|----------------------------------|---|------|-------|-------|-------|-------|--------|--------|--------|
| Cooling capacity (AHRI 550/590) | 5 | [kW] | 684 | 754 | 822 | 891 | 960 | 1070 | 1169 |
| Total power input (AHRI 550/590) | 5 | [kW] | 226 | 258 | 292 | 311 | 330 | 384 | 414 |
| COP _R | 5 | - | 3,03 | 2,92 | 2,82 | 2,86 | 2,91 | 2,80 | 2,82 |
| IPLV | 5 | - | 4,82 | 4,64 | 4,34 | 4,61 | 4,84 | 4,65 | 4,66 |



* All Excellence models satisfy prerequisites related to “Minimum Energy Performance” and “Fundamental Refrigerant Management”. Also matches “Enhanced Refrigerant Management” parameters.

SPINchiller⁴, Air source – Partial load performances

Performances at partial load in cooling and heating for each unit are easy to obtain consulting:

Cooling at part load- ST/SC

| SIZE | Load | Entering external exchanger air temperature (°C) | | | | | | | | | | | |
|-------|---------|--|---------|------|------|---------|------|------|---------|------|------|---------|------|
| | | 35°C | | | 30°C | | | 25°C | | | 20°C | | |
| | | kWf | kWe_tot | EER | kWf | kWe_tot | EER | kWf | kWe_tot | EER | kWf | kWe_tot | EER |
| 260.8 | 100 | 710 | 226 | 3,14 | 742 | 206 | 3,60 | 772 | 189 | 4,08 | 800 | 173 | 4,62 |
| | 75 | 534 | 155 | 3,45 | 556 | 141 | 3,94 | 578 | 129 | 4,48 | 600 | 117 | 5,11 |
| | 50 | 356 | 95 | 3,75 | 372 | 87 | 4,30 | 386 | 79 | 4,89 | 400 | 72 | 5,57 |
| | Minimum | 144 | 37 | 3,90 | 150 | 34 | 4,45 | 156 | 31 | 5,08 | 162 | 28 | 5,78 |

Heating at part load - ST/SC/EN

| SIZE | Load | Entering external exchanger air temperature (°C) | | | | | | | | | | | | | | | | | |
|-------|---------|--|---------|------|-------|---------|------|------|---------|------|-----|---------|------|-----|---------|------|-------|---------|------|
| | | -7/-8 | | | -5/-6 | | | 0/-1 | | | 2/1 | | | 7/6 | | | 12/11 | | |
| | | kWt | kWe_tot | COP | kWt | kWe_tot | COP | kWt | kWe_tot | COP | kWt | kWe_tot | COP | kWt | kWe_tot | COP | kWt | kWe_tot | COP |
| 260.8 | 100 | 528 | 216 | 2,45 | 558 | 218 | 2,57 | 630 | 220 | 2,86 | 662 | 222 | 2,98 | 750 | 226 | 3,31 | 830 | 232 | 3,58 |
| | 75 | 396 | 148 | 2,68 | 418 | 149 | 2,81 | 472 | 152 | 3,12 | 496 | 153 | 3,24 | 562 | 158 | 3,56 | 622 | 156 | 3,98 |
| | 50 | 264 | 91 | 2,91 | 278 | 92 | 3,04 | 316 | 93 | 3,39 | 330 | 94 | 3,53 | 374 | 96 | 3,90 | 416 | 95 | 4,36 |
| | Minimum | 110 | 36 | 3,03 | 116 | 37 | 3,16 | 133 | 38 | 3,52 | 140 | 38 | 3,67 | 160 | 39 | 4,07 | 182 | 40 | 4,50 |

part load

Capacity required (kW)

0

external exchanger air intake (°C)

35

Part Load

| | | | | | | |
|---|------|------|------|------|------|------|
| Cooling capacity (kW) | 500 | 500 | 500 | 500 | 500 | 500 |
| Compressor power input (kW) | 137 | 132 | 128 | 125 | 124 | 124 |
| Total power input (kW) | 152 | 148 | 144 | 144 | 143 | 146 |
| EER | 3.28 | 3.37 | 3.47 | 3.47 | 3.49 | 3.42 |
| EER compressor | 3.65 | 3.78 | 3.90 | 3.99 | 4.03 | 4.03 |
| Internal exchanger thermal head (°C) | 4.58 | 4.31 | 3.96 | 3.55 | 3.22 | 3.00 |
| Water flow-rate (User Side) (l/s) | 26.1 | 27.7 | 30.2 | 33.6 | 37.1 | 39.8 |
| Internal exchanger pressure drops (kPa) | 31.8 | 35.5 | 41.3 | 43.9 | 52.4 | 59.2 |

Documentation

Selection
software

SPINchiller⁴, Air source – Technical Insights

Functionalities and options available



Simplifies and industrializes the plant

Single power supply (standard):

- Only **Master electrical panel** must be connected to the electrical network
- **Red main switch** (**Master electrical panel**), Black main switch (**Slave electrical panel**)
- Switching off the **Master electrical panel**, the whole unit is off, even the slave
- Switching off the **Slave electrical panel**, only the slave is off, the master remains active



Simplifies and industrializes the plant

Flush hydraulic connections (option ABU - standard)



Water Inlet / Outlet

**Unit with
option ABU
(standard)**



Water Inlets / Outlets

**Unità without
option ABU**

Simplifies and industrializes the plant

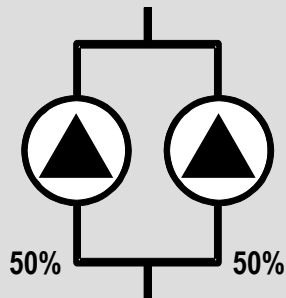
Optional integrated **pumping groups** save:

- Time and cost for the **set-up**
- Floor area for pumping equipment and relevant clearance

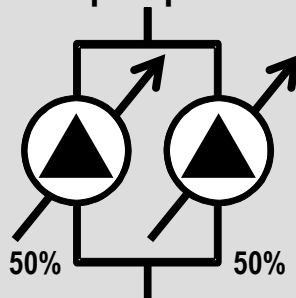
Available options:

Parallel operation

Hydropack
2 pumps

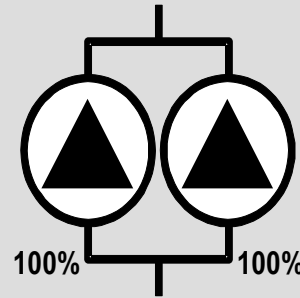


Hydropack
2 inverter
pumps

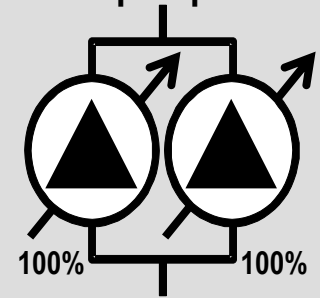


Stand by operation

Hydropack
1+1 pump



Hydropack
1+1 inverter
pump

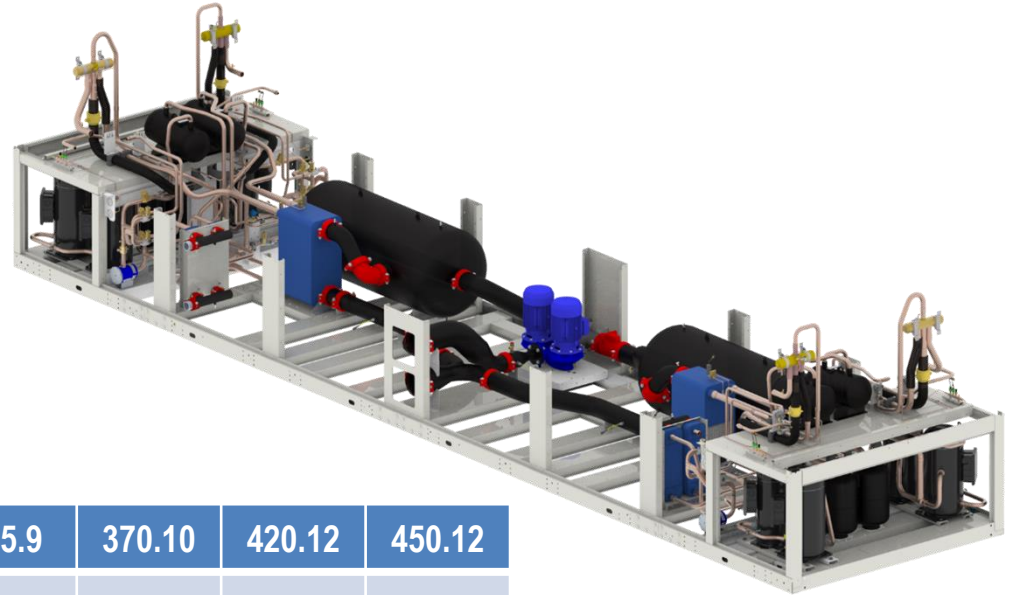


The hydronic group is unique for the whole unit

Simplifies and industrializes the plant

Storage Tank (optional):

- Recommended for applications with insufficient water content for the properly function of the unit



| EXCELLENCE | 260.8 | 290.8 | 320.8 | 345.9 | 370.10 | 420.12 | 450.12 |
|--------------------------------|---------|---------|---------|----------|-----------|-----------|-----------|
| Storage Tank capacity [Liters] | 750+750 | 750+750 | 750+750 | 750+1050 | 1050+1050 | 1050+1050 | 1050+1050 |

| PREMIUM | 260.8 | 290.8 | 315.9 | 345.9 | 370.10 | 420.12 | 450.12 | 480.12 |
|--------------------------------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Storage Tank capacity [Liters] | 500+500 | 500+500 | 500+750 | 500+750 | 750+750 | 750+750 | 1050+1050 | 1050+1050 |

Simplifies and industrializes the plant

Shell & Tube exchanger (optional):

- Less affected by fouling
- Simple maintenance
- All water fittings are Victaulic
- The unit performances remain unchanged

Option not compatible with the following hydronic options:

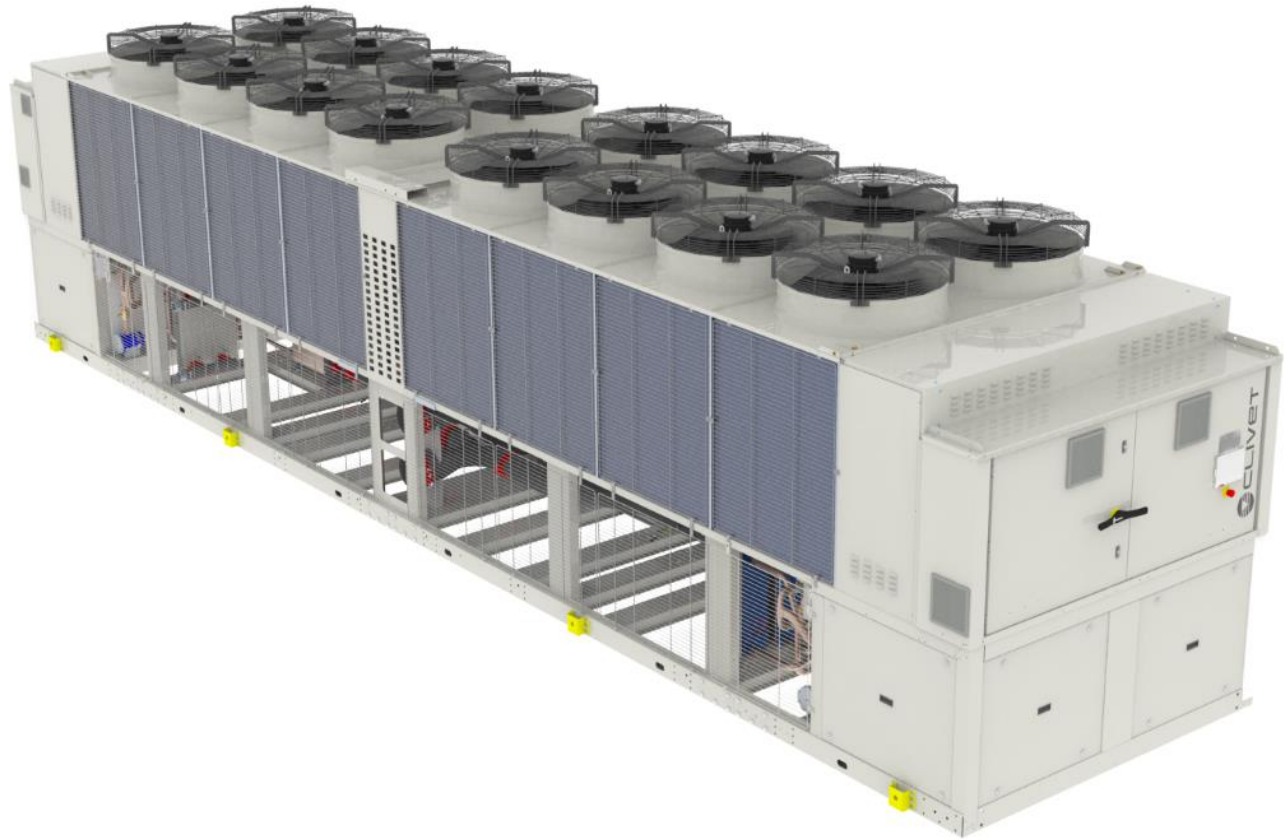


Simplifies and industrializes the plant

Finned coil protection grilles and compressor compartment (optional):

Protection Grilles

cover also the bottom part of the unit



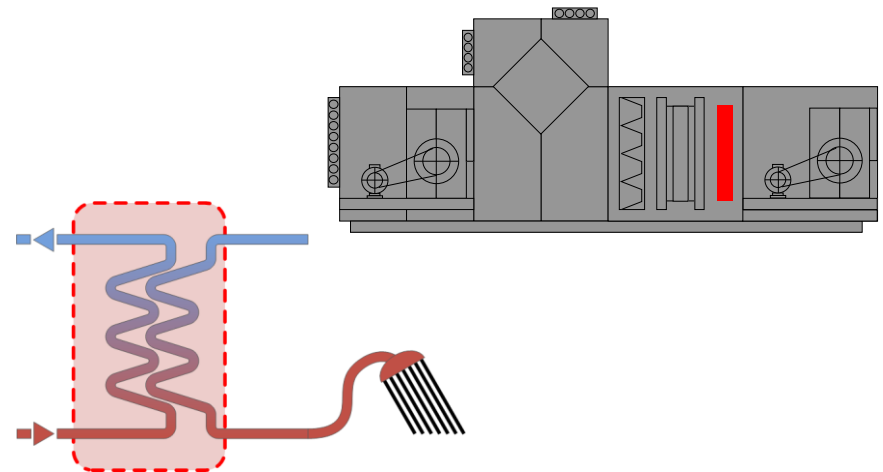
Simplifies and industrializes the plant

Partial recovery (optional):

- Recovery of the condensing heat, in cooling mode
- Partial recovery = around 26% of the available heat rejection

It allows **free hot water production** for

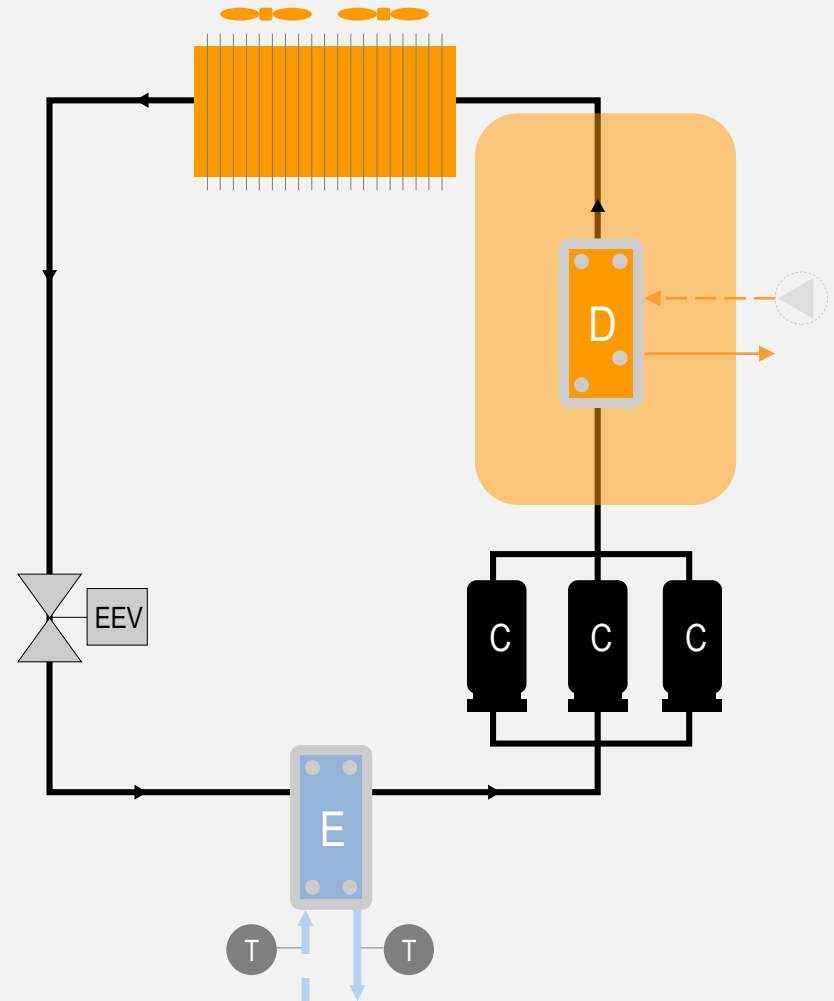
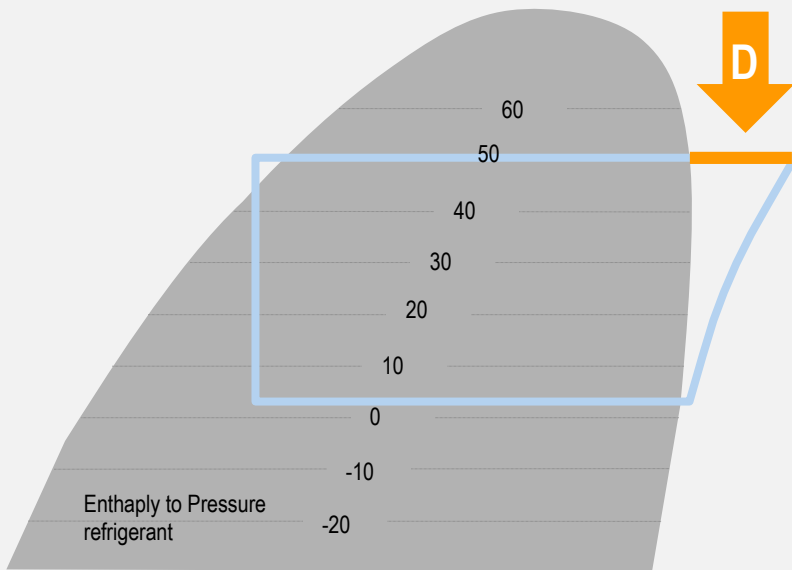
- **Re-heat** hot water coil
- **Domestic** hot water
- Other **processes** or **operation**



High efficiency of the heat recovery

Partial Heat recovery (D)

- Around **26%** of the available heat rejection
- **Control** is activated by the User

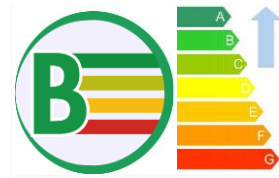


Ecoshare: Automatic management of a group of units

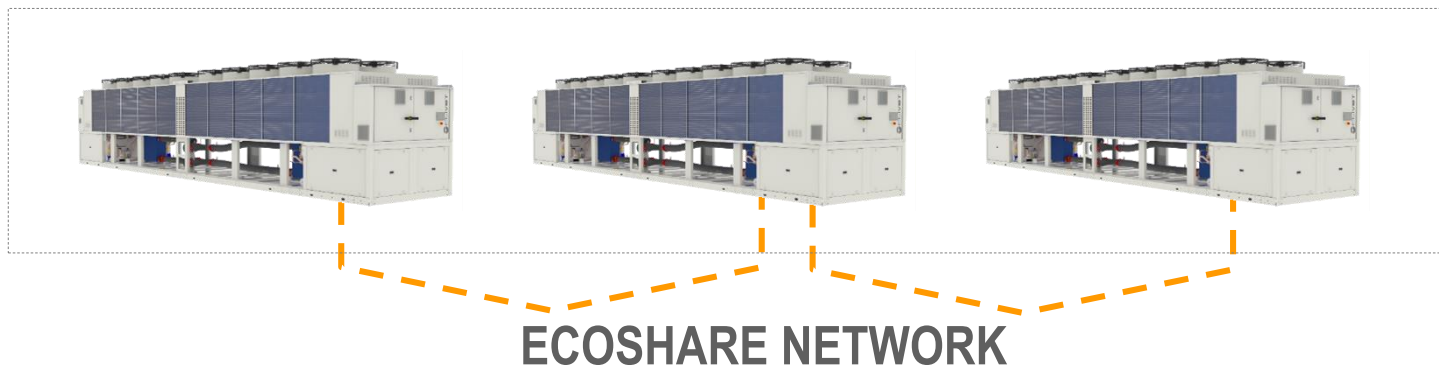
Modular system with **ECOSHARE** up to 4 units in local network

In comparison with a single unit of equivalent overall capacity it offers **many advantages** such as:

- **Increased energy efficiency**



- **Higher resilience**



Ecoshare: Automatic management of a group of units

ECOSHARE functionality: automatic management of a group of units that operates on the same circuit, by means of the creation of a **CLIVET local network**.

The group control is assigned to a unit identified as **MASTER**.

The local network can be extended **up to 4 units (1 Master and 3 Slaves)**.

- **Maximum reliability** → Unexpected breakdown does not compromise the whole system
- **Distribution Principles:**
 - **Vertical saturation:** The unit is activated if the previous one is at full load
 - **Horizontal saturation:** Units are activated following the group maximum efficiency

Pumping group: for both distribution technologies it is possible to have either the pumping group **always activated** or activated **only when at least one compressor of the unit** (chiller, heat pump, multifunction, ecc.) **is in operation**.

Simplifies and industrializes the plant

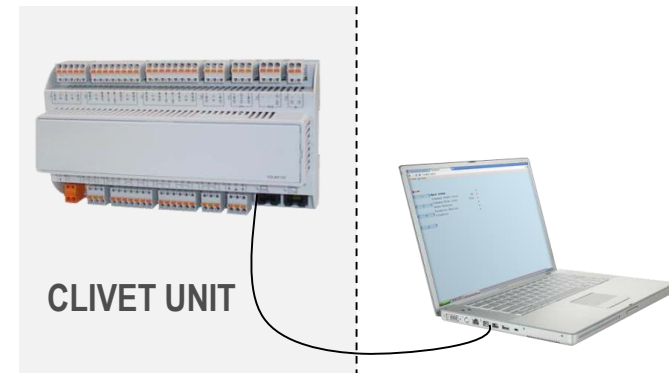
On board display

- Enables to interact easily and immediate with the unit



Connection to the PC through Ethernet port:

- Simplifies after-sales service thanks to the performing diagnostic, updating and for remote assistance tools



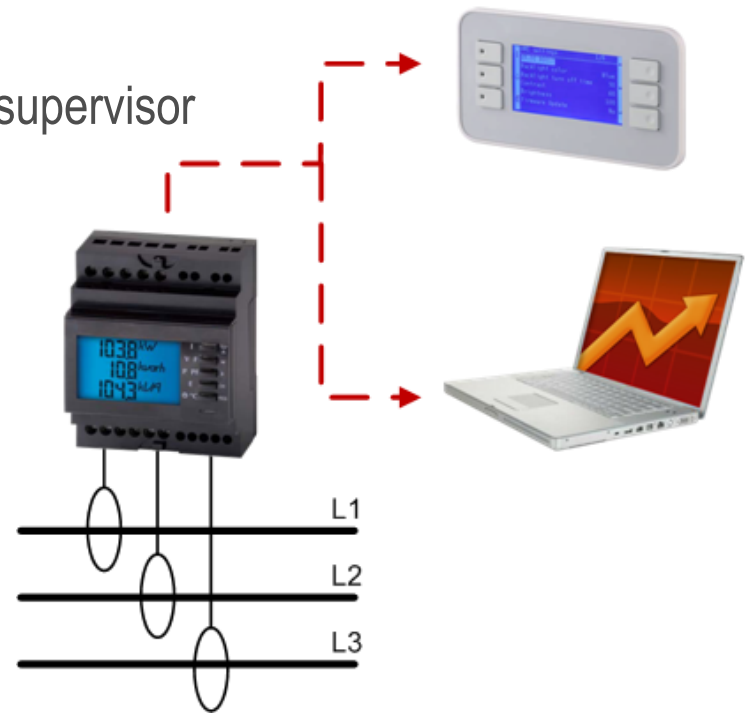
Simplifies and industrializes the plant

Energy measuring

- It **displays** the main unit's electrical parameters
- It **displays** them on the unit display
- It **transmits** them via the serial connection to the supervisor

The monitored **electrical parameters** are:

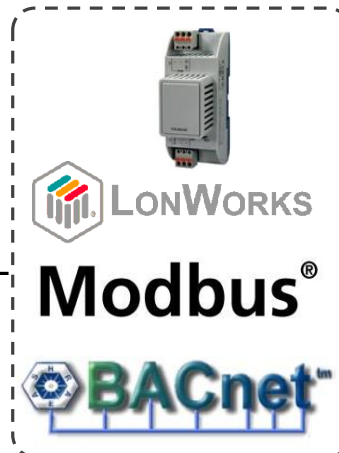
- Voltage/ Current/ Frequency
- Cosfe/ Harmonic components
- Power input/ Energy



Simplifies and industrializes the plant

The unit can be remotely managed by:

- optional **remote control**
 - replicates the on board user interface
- the **potential free contacts** as standard
- the **supervision system**
 - through different communication protocols



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