



Inspiring Solutions. Since 1989



ELFOEnergy Sheen EVO

WSAT-YSi 10.1 – 22.2

Product presentation

A Group Company of



New hydronic range

NEW ELFOEnergy SHEEN EVO R-32



5 kW

ELFOEnergy EDGE EVO



ELFOEnergy SHEEN EVO



90 kW

ELFOEnergy STORM EVO



New hydronic range

NEW ELFOEnergy SHEEN EVO R-32



5 kW

ELFOEnergy EDGE EVO

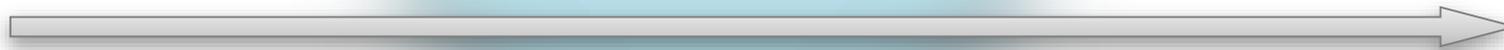


ELFOEnergy SHEEN EVO



90 kW

ELFOEnergy STORM EVO

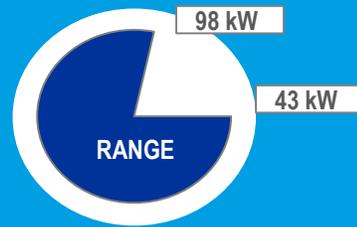


ELFOEnergy SHEEN EVO

Cooling only version (Chiller)

WSAT-YES

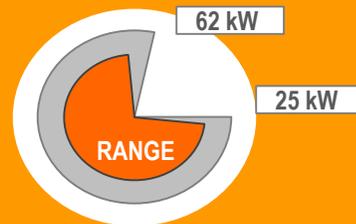
- Chilled water production for air conditioning and process applications



Heat pump version

WSAN-YES

- Alternate Hot water and chilled water production for air conditioning application and domestic hot water



ELFOEnergy SHEEN EVO: new refrigerant R-32



ELFOEnergy Sheen EVO is the sustainable solution for the all year round comfort thanks to the new ecological **refrigerant R-32**:

- Low GWP (Global Warming Potential): -70% compared to R410A
- Better performance under severe conditions
- Less charged volume is needed in the system
- Higher heat transfer coefficient

CHILLER

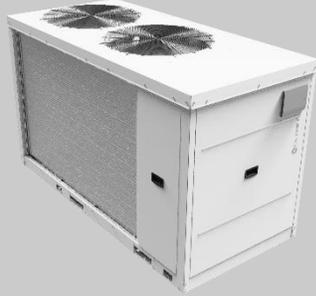
FULL DC INVERTER TECHNOLOGY FOR AN EVEN WIDER RANGE

- **New R-32 refrigerant**
- 6 models are available for any needs
- **High Seasonal efficiency**
- Twin rotary and Scroll DC inverter compressor and DC inverter fans
- **Microchannel coil**
- Cooling operation from **-20°C** to **+48°C**
- Chilled water down to **-8°C**
- **Silent mode** and **super silent mode** for night operation
- **Built-in solution** for hydronic pump and system tank



Nominal cooling capacity :
(A35/W7) from 43 to 98 kW

Capacity range

Series	WSAT-YSi 16.2 – 40.2					
Size	16.2	20.2	24.2	30.2	35.2	40.2
Cooling capacity [kW] (A35/W7)	43.0	54.0	65.0	76.0	87.0	98.0
Appearance						
Compressors / Circuits Type	2 / 1 Rotary	2 / 1 Rotary	2 / 1 Rotary	2 / 1 Scroll	2 / 1 Scroll	2 / 1 Scroll
Fans Type	2 Brushless DC	2 Brushless DC	2 Brushless DC	3 Brushless DC	3 Brushless DC	3 Brushless DC

Key Technology

ELFOEnergy Sheen EVO is the new **energetic reference** for the heat pump, bringing:

- **DC Inverter technology**, ideal for the operation at partial load.
- **Electronic expansion valve**, that quickly and precisely adapts to the effective load required.
- The **plate heat exchanger** maximizes the thermal efficiency thanks to large exchange surfaces.
- **Microchannel Coil** ensures an high efficiency heat exchange, reducing the refrigerant charge.

EER up to **3,30**
A35/W7

SEER up to **5,37**

LOT21 READY!!!



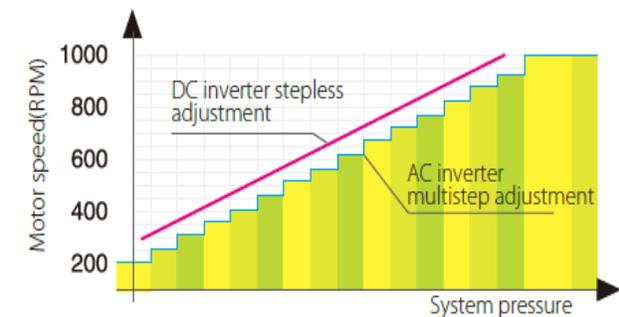
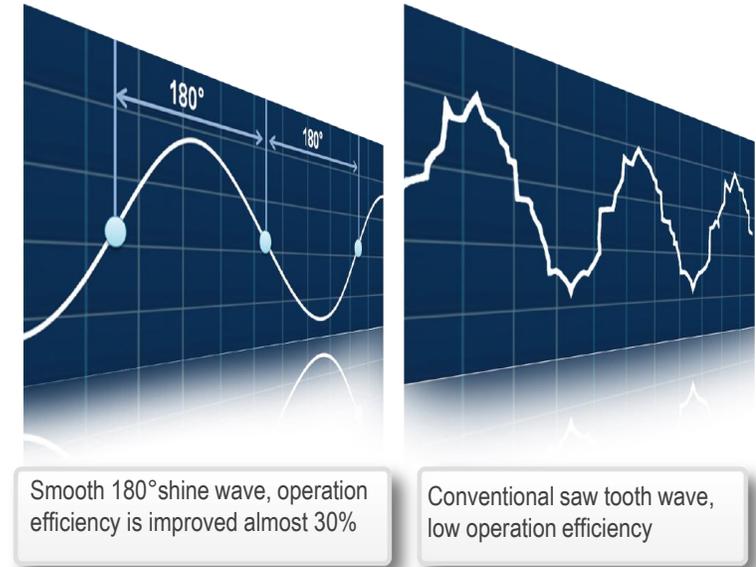
Full DC Inverter Technology

DC inverter twin rotary compressor

- ✓ New designed compressor with Permanent Magnets:
 - low working sound
 - wide working frequency.
- ✓ Full DC frequency conversion system that dramatically **reduces power consumption by more than 30%**.

DC inverter fan motor

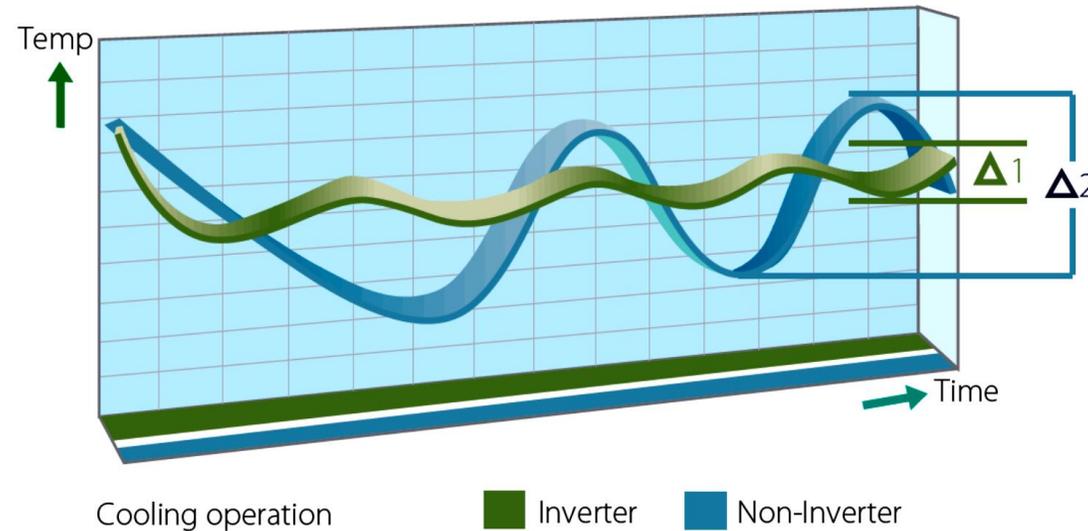
- ✓ Brushless DC (BLDC) fan motor helps to meet up-to-date heating and cooling demands with **low noise fan**, as well **low power consumption**.
- ✓ Fan blower and fan guard designed with **CFD air flow technology** (Computation Fluid Dynamics), bringing quiet and high efficient operation.



Full DC Inverter Technology

Thanks to the **inverter system** the rotary speed of compressor is precisely controlled according to the energy demand, offering:

- **Start-up time** is reduced
- **Comfort conditions** are achieved in **less time** than systems without inverter
- **Lower levels of temperature fluctuation** during operation



Compressors

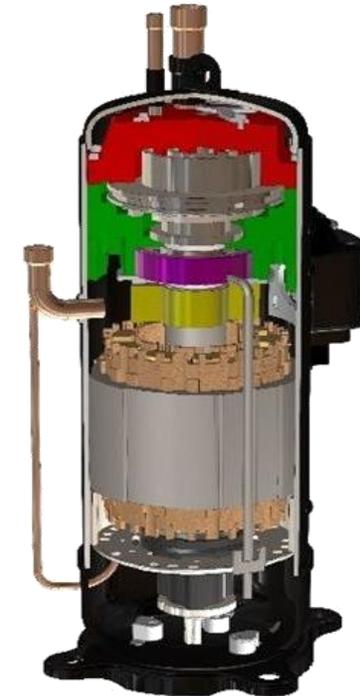
DC inverter compressors

- ✓ Motor protection device from overheating, overcurrents and excessive temperature of supply gas.
- ✓ Sound-absorbing hood, to reduce sound emissions and to thermally insulates it.
- ✓ Compressors are connected in **tandem** on a single refrigerant circuit with a **dedicated system for the oil recovery**.

Rotative hermetic
Gr. 16.2 – 24.2



Scroll hermetic with vapour
injection
Gr. 30.2 – 40.2



High Efficiency heat exchangers

Internal exchanger

- Direct expansion heat exchanger, **brazed AISI 316 stainless steel plates** type
- Thermal insulation in expanded polypropylene, thickness 17 mm
- Antifreeze heater, flow switch and anti-ice probe **included**.



External exchanger

- **Aluminum alloy coil** with possibility of **E-coated** coating for higher corrosion resistance and longer life expectancy.
- **-30% refrigerant charge** compared to traditional solutions.



User Interface

Newly designed User Interface

New generation integrated user interface, that guarantees a **complete control solution**:

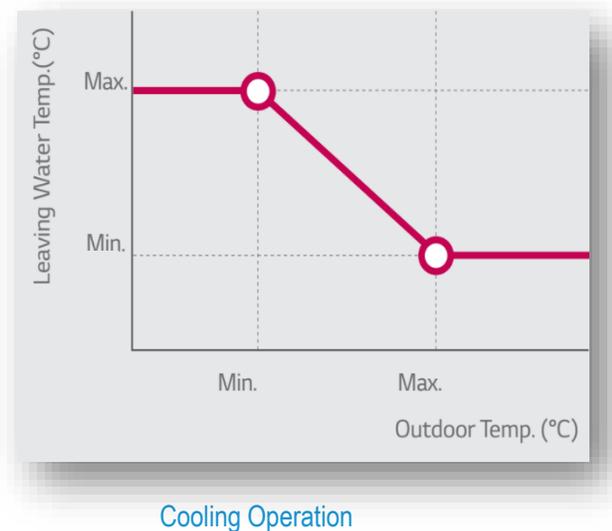
- Unit ON/OFF
- Auto-restart function
- Time setting: 12H/24H
- Timer ON/OFF setting, Day/Weekly
- Display components status
- Query, malfunction code, parameters
- Two multi-authorization control levels
- **Modbus connection** as standard
- **Connection of up to 16 units in parallel**
- Adapt for **remote** use



Features & Specifications

Climatic compensation with outdoor air temperature

In cooling mode, the user can set the **Climate correlation curve** according to its needs, then system will set the outlet water temperature according to the outdoor ambient temperature automatically.

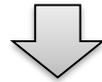


- **Cooling operation:** if outdoor temperature increases outlet water set-point will decrease automatically to allow a higher cooling capacity to the system.

Features & Specifications

Double set-point management

Unit is able to manage **two different set-point**, either in heating and in cooling operation.



*For an even **greater energy savings!***



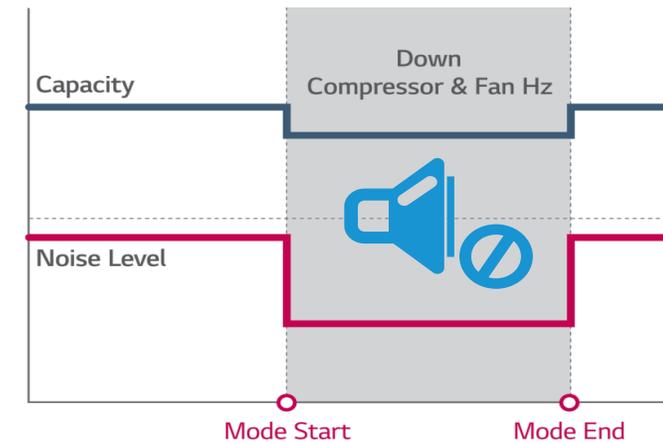
DOUBLE SETPOINT			
SET POINT COOL_1	SET POINT HEAT_1	SET POINT COOL_2	SET POINT HEAT_2
▲ 7 ▼	35	7	30
ok		↕	

- ✓ **Easy** to set-up through the user interface
- ✓ Set-points activated through **dry contact** terminal board

Features & Specifications

Silent mode

- Silent mode operation can reduce the noise level specially during the night time.
- When the silent mode operation starts, the unit will reduce the compressor and fan motor speed to lower the noise.
- **3 silent mode levels** are available (standard, Silent, Super Silent).
- The **silent mode** operation must be set manually.



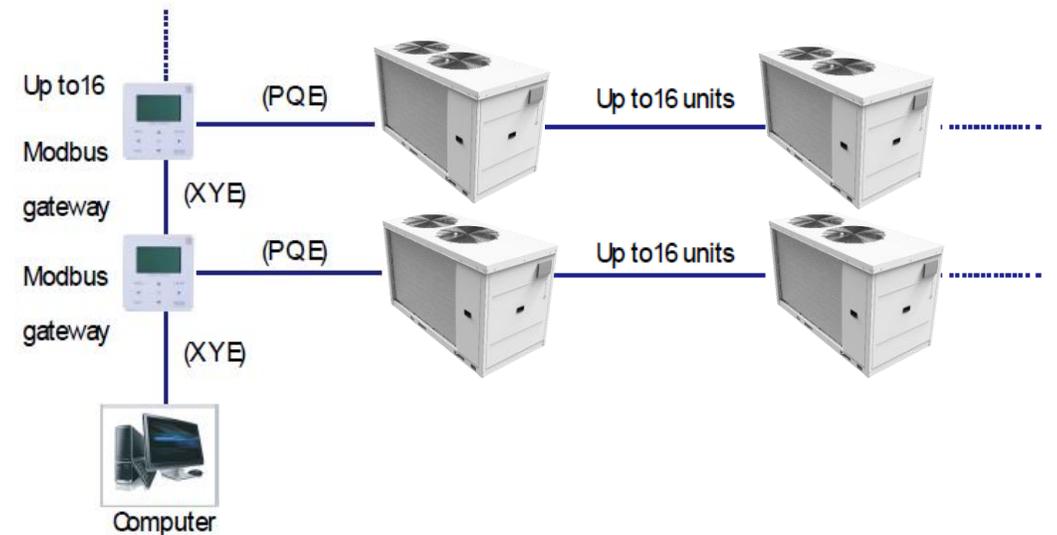
Features & Specifications

Modularity

- Management of **up to 16 units** in a local network
- Up to **960 kW** of installed capacity
- **Easy** to connect and set the system through the user interface
- Possibility to manage it through a BMS system thanks to the **Modbus** connection as standard

Which benefits?

- ✓ System efficiency increased
- ✓ Higher reliability
- ✓ Simplified handling and installation
- ✓ Easy and quick maintenance
- ✓ Scalability

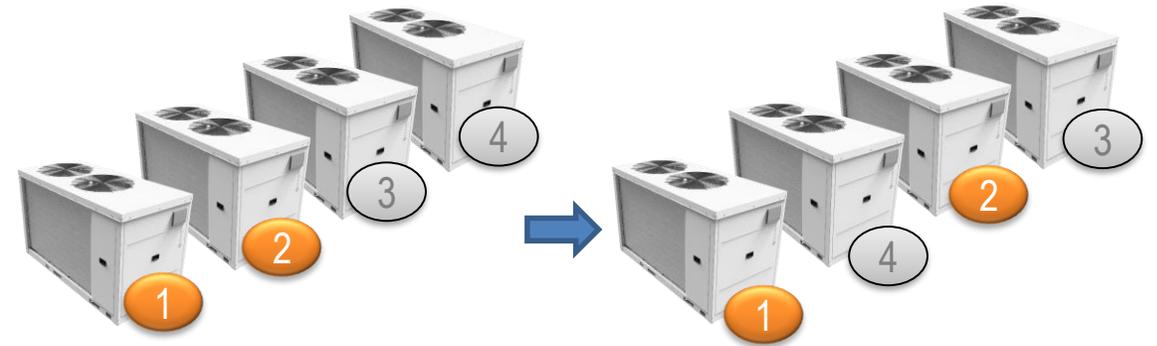


Modularity

Main features of the modular system:

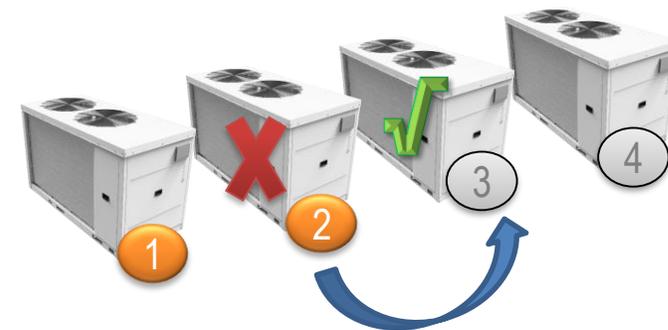
➤ Duty cycling

Duty cycling **equalizes** the running time of the outdoor units in a multiple-unit system, significantly extending compressor lifespan.



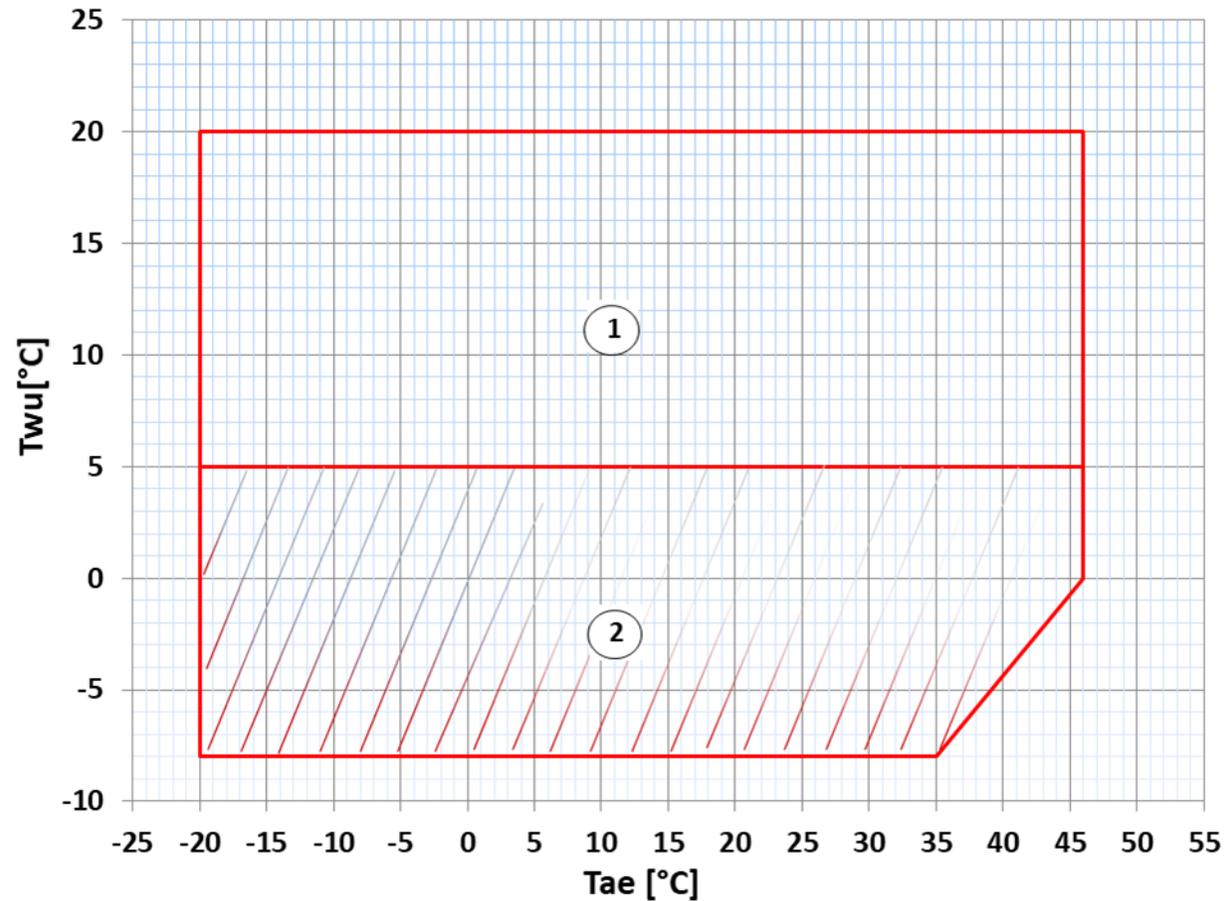
➤ Back-up

In a multi-unit system, if one module fails, the other modules provide backup so that the system can continue operating.



Extended operation ranges

Cooling



Chilled water at -8°C from -20°C up to 35°C of outdoor air temperature!

- T_{wu} [°C] = Leaving exchanger water temperature
 T_{ae} [°C] = External exchanger inlet air temperature
- ① = Normal operating range
 - ② = Operating range with glycol

Chilled water at low temperature

Suitable for **Brine** applications

Chilled water at **low temperature**:

- ❖ **Industrial processes**
 - ❖ **High dehumidification**
 - ❖ **Wine and food industry**
- Chilled water from **+4°C** down to **-8°C**
 - Operation down to **-20°C** of outdoor air temperature
 - Evaporator equipped with **thick insulation**
 - Anti-freeze **glycol solution** is needed



CONFIGURATIONS

Configurations

➤ Hydronic assemblies

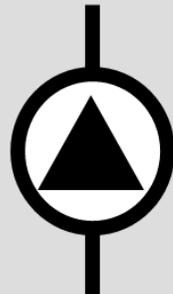
Optional integrated pumping groups **save**:

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

Available options:

- On/off pump
- Inverter pump
- System tank

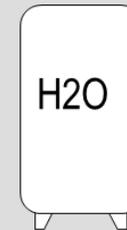
1 on/off PUMP



1 inverter PUMP



System Tank



CONCLUSIONS

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Thank you!

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 Midea