



SCREWLine⁴-i

WDH-iK4 120.1 – 540.2

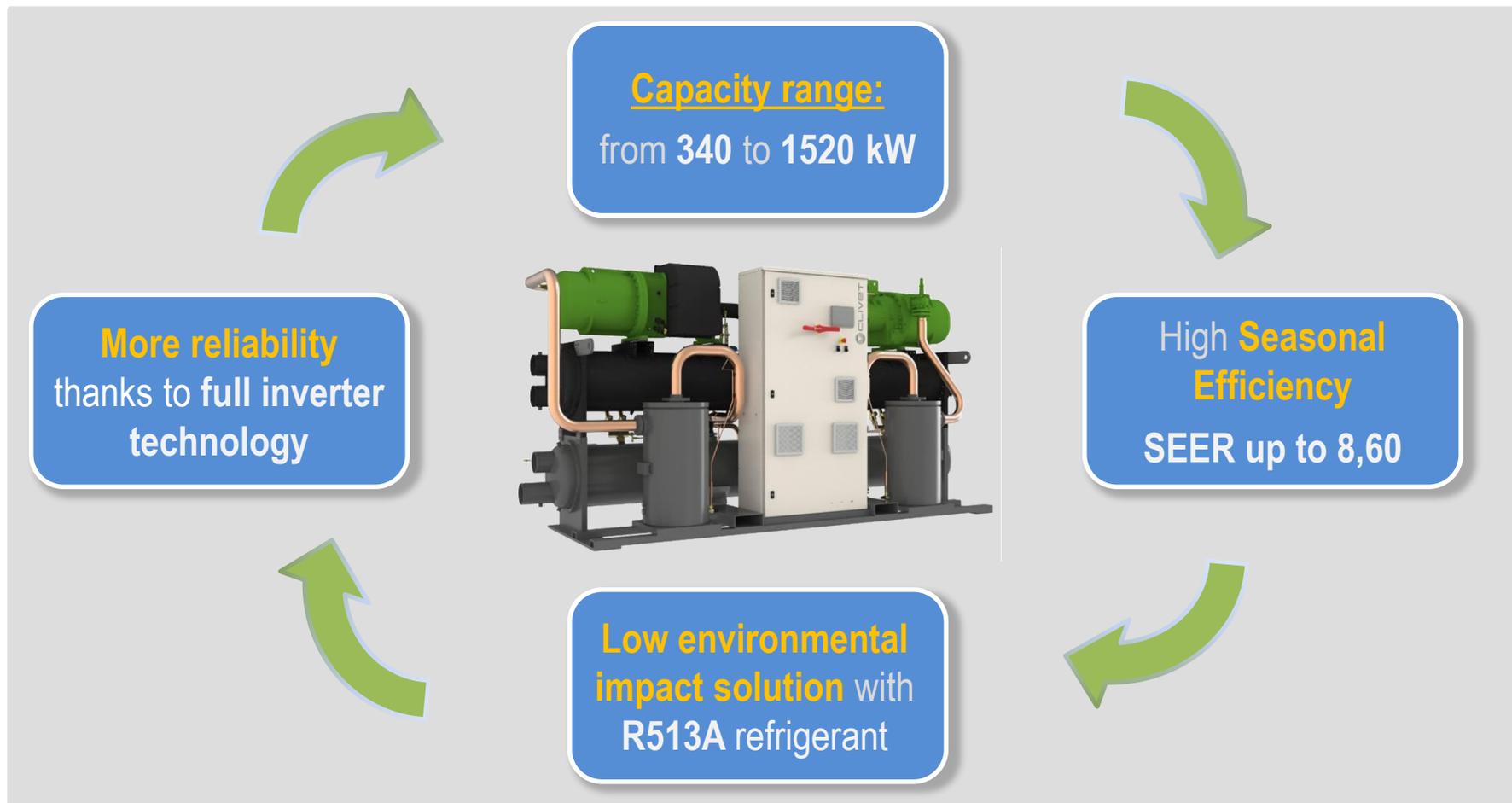
Product Presentation

A Group Company of



SCREWLine⁴-i, Water source – Main Features

SCREWLine⁴-i is the most **technologically advanced solution** available on the Market with inverter screw compressors and R513A refrigerant



SCREWLine⁴-i, Water source – Capacity Range

WDH-iK4 serie is available with **Excellence version** from **340 kW** to **1520 kW**

Range 340 – 830 kW: Unit with 1 refrigeration circuit e 1 inverter compressor

SIZES	120.1	160.1	200.1	220.1	240.1	270.1	290.1
Cooling capacity	340	415	520	610	690	760	830
EER	5,13	5,18	5,13	5,15	5,01	5,06	5,02
SEER	8,41	8,46	8,53	8,57	8,55	8,60	8,57
N° compressors	1	1	1	1	1	1	1
N° circuits	1	1	1	1	1	1	1

Range 705 – 1520 kW: Unit with 2 refrigeration circuits e 2 inverter compressors

SIZES	250.2	280.2	320.2	360.2	400.2	480.2	540.2
Cooling capacity	705	800	900	1065	1280	1385	1520
EER	5,11	5,15	5,10	5,12	5,14	5,12	5,07
SEER	8,59	8,38	8,47	8,56	8,38	8,51	8,58
N° compressors	2	2	2	2	2	2	2
N° circuits	2	2	2	2	2	2	2

SCREWLine⁴-i, Water source – Low environmental impact

R513A = Solution with low environmental impact

The environmental benefits of R513A compared to R-134a

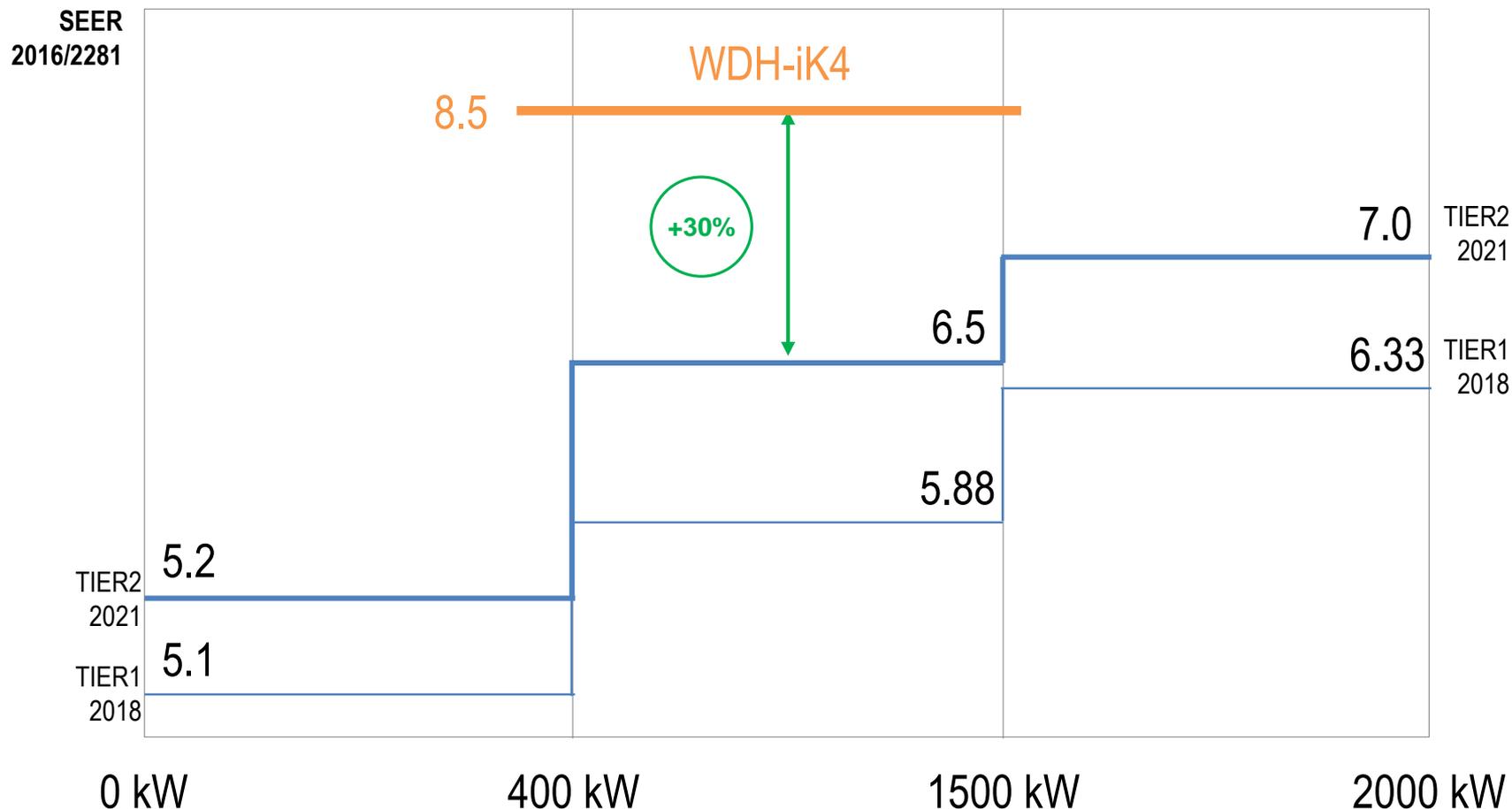
Refrigerant		
Refrigerant type	HFO/HFC	HFC
GWP	631	1430
Dispersion in the atmosphere	6 years	14 years
ASHRAE 34, ISO 817 classification	A1	A1



SCREWLine⁴-i, Water source – Seasonal Efficiency (Comfort application)

WDH-iK4 reaches very high seasonal efficiency values (SEER up to 8,60)

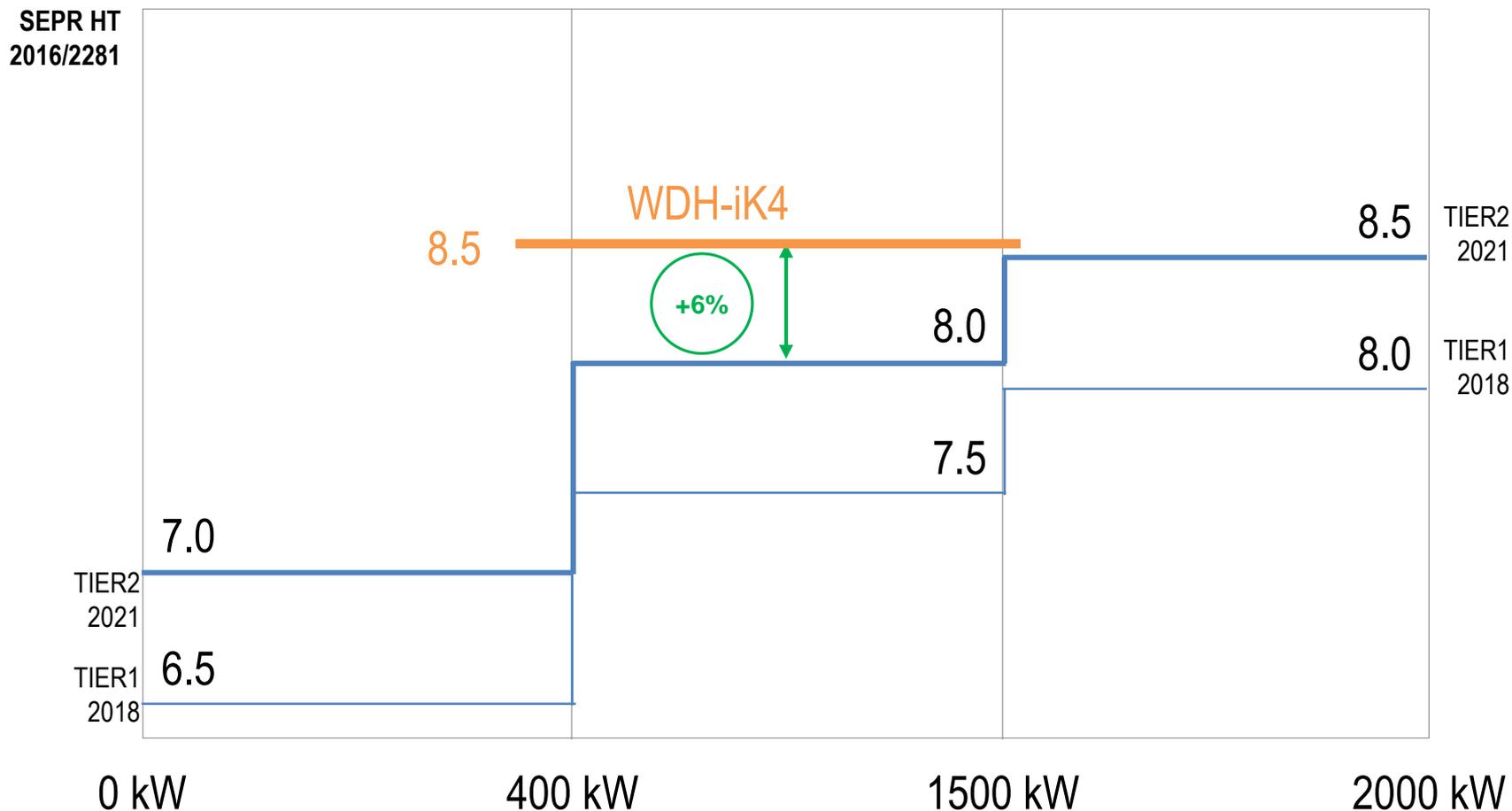
It's already compliant to **2021 requirements (Tier 2)**



SCREWLine⁴-i, Water source – Seasonal Efficiency (Industrial application)

WDH-iK4 reaches very high seasonal efficiency values (SEPR HT up to 8,88)

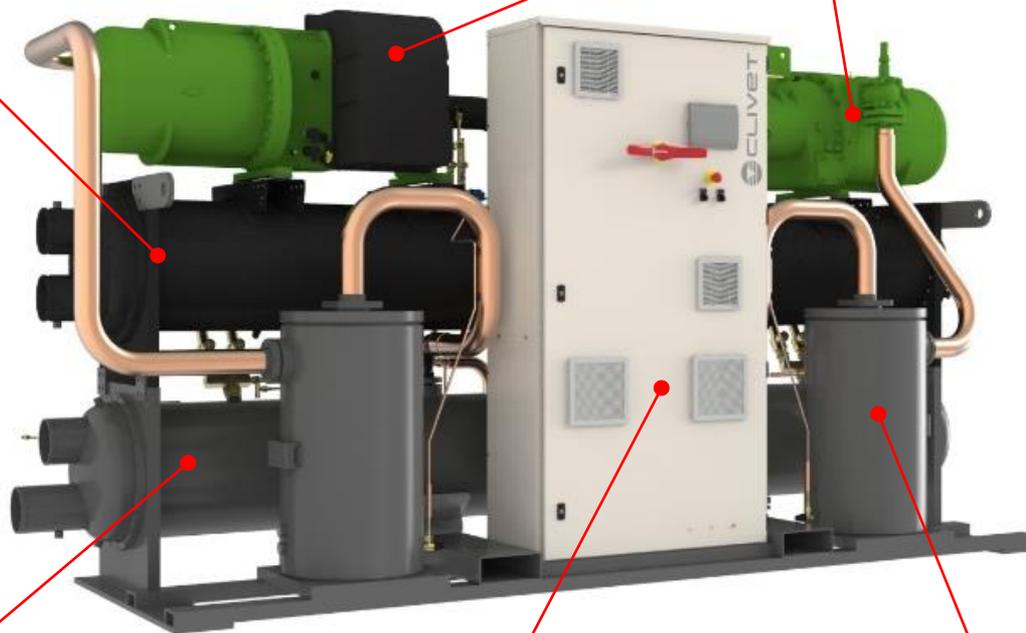
It's already compliant to **2021 requirements (Tier 2)**



SCREWLine⁴-i, Water source – Technologies for high efficiency

High efficiency **Spray Shell and Tube evaporator** (standard Victaulic connections)

Compressors with infinitely variable capacity control – FULL INVERTER TECHNOLOGY



High efficiency **Shell and Tube condenser** (standard Victaulic connections)

Automatic control

Oil circulation system for an higher exchange efficiency

Inverter screw compressor: Minimum turndown

SCREWLine⁴⁻ⁱ is equipped with **inverter screw compressor**

- Perfectly match the cooling load of the plant in any condition
- Minimum turndown of **12%** (2 refrigeration circuits unit), of **24%** (1 refrigeration circuit unit)
- Ensure high efficiency values, reducing operating costs
- Reduce the sound levels at partial loads
- Reduce the water content of the system
- Ensure a null starting current

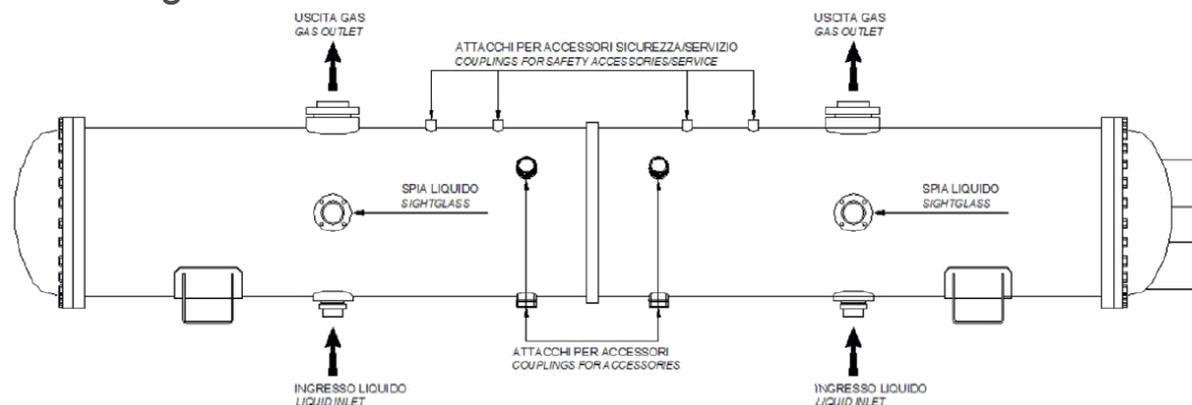


Spray shell & tube evaporator

SCREWLine⁴-i is equipped with **Spray shell & tube evaporator**

The spray shell and tube evaporator is distinguished by the distribution system that injects the refrigerant in spray format. The surface of the heat exchange tubes, in which water circulates, is completely covered by a film of refrigerant:

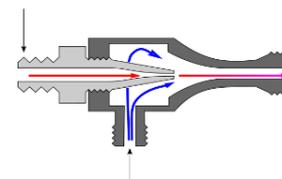
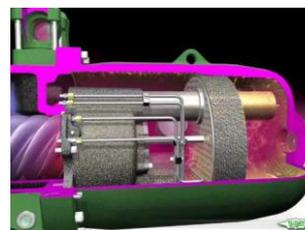
- High exchange efficiency
- Low superheat (close to 0 K)
- Less refrigerant charge



Oil circulation system

SCREWLine⁴⁻ⁱ is equipped with **Oil separators** and **Oil circulation system**:

- Oil separator integrated in the compressor
- Oil separator positioned between compressor and condenser
- Oil recovery system: active in both separators and evaporator via jet-pump



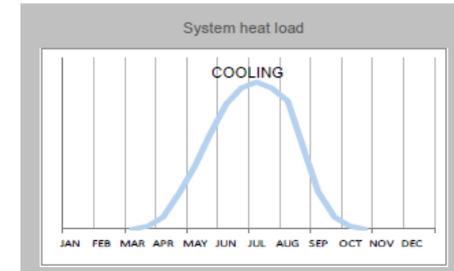
They ensure optimum lubrication of the compressor and prevent oil circulation in the refrigeration circuit.

- Higher exchange efficiency at the evaporator and the condenser
- Improved compressor reliability.

SCREWLine⁴-i, Water source – 3 operation versions

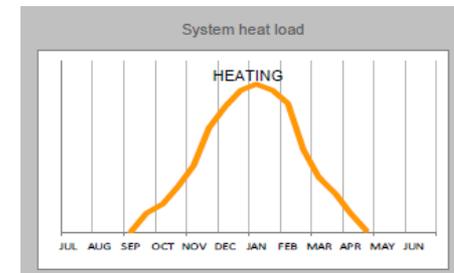
OCO = Cooling only version

Cooling capacity: 340 – 1520 kW



OHO = Heating only version

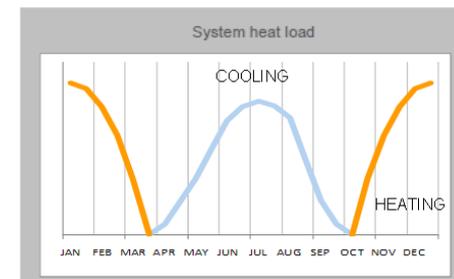
Heating capacity: 398 – 1781 kW



OHI = Operation with water circuit change-over version

Cooling capacity: 340 – 1520 kW

Heating capacity: 398 – 1781 kW



SCREWLine⁴-i, Water source – Acoustic configurations

ST = Standard acoustic version



EN = Super-silenced version



-3
dB(A)

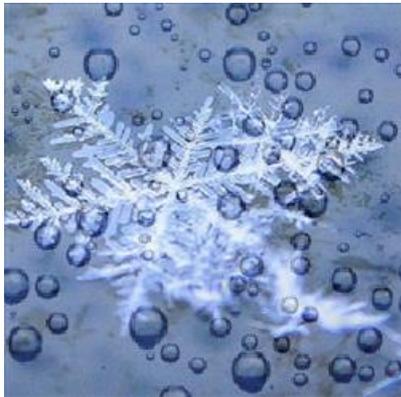
Compressors supplied with jackets



SCREWLine⁴-i, Water source – Low temperature water production

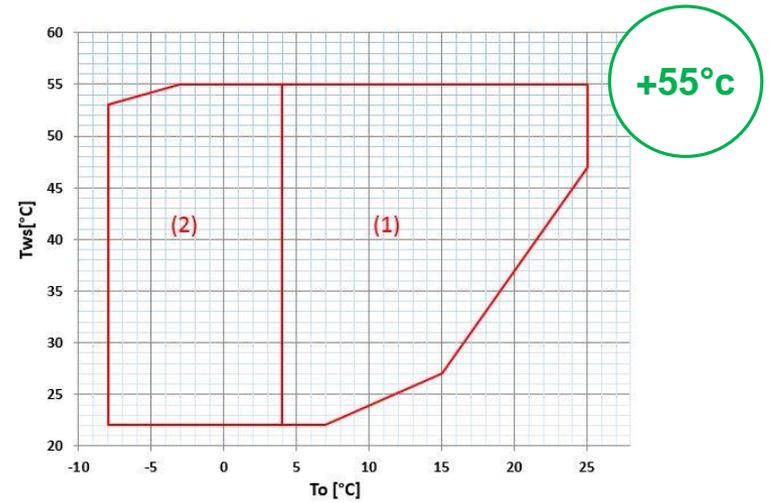
Brine configuration = Low temperature of chilled water

- Chilled water between +4°C and -8°C
- Process application or high dehumidification
- Evaporators are complete with thick closed-cell insulation
- Anti-freeze glycol solution is needed

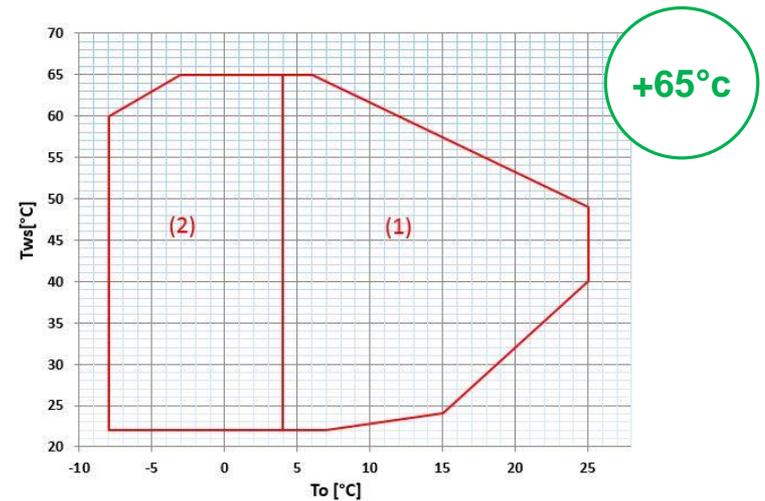


SCREWLine⁴-i, Water source – Operative range

STD = Standard version



HWT = High water temperature version



SCREWLine⁴-i, Water source – Perfect for Leed

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

Performance

SIZE			120.1	160.1	200.1	220.1	240.1	270.1	290.1	250.2	280.2	320.2	360.2	400.2	480.2	540.2
Cooling																
Cooling capacity (AHRI 550/590)	(6)	kW	342	413	517	607	687	756	826	701	797	896	1060	1274	1379	1513
Total power input (AHRI 550/590)	(6)	kW	67,0	80,2	101	118	138	150	165	137	154	177	208	249	268	300
COP _R	(6)	-	5,10	5,15	5,11	5,13	4,99	5,04	5,00	5,13	5,17	5,07	5,09	5,12	5,15	5,04
IPLV	(6)	-	7,94	7,74	7,78	7,82	7,83	7,52	7,73	7,62	7,82	7,77	7,68	7,62	7,64	7,74



* **Sizes from 120.1 to 320.2** satisfy prerequisites related to “Minimum Energy Performance” and “Fundamental Refrigerant Management”. Also matches “Enhanced Refrigerant Management” parameters.

SCREWLine⁴-i, Water source – Partial load performances

Performances at partial load for each unit are easy to obtain consulting:

Performances

Cooling at part load OCO - OHI - Size 120.1 ÷ 290.1

Size	Load	Condenser inlet temperature											
		35°C			30°C			25°C			20°C		
		kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER
120.1	100	299	86,3	3,46	322	75,2	4,28	340	64,7	5,34	363	54,9	6,61
	75	232	62,2	3,73	249	54,4	4,58	266	47,1	5,65	279	40,7	6,86
	50	152	40,3	3,77	164	34,9	4,70	176	30,1	5,85	184	26,1	7,05
	25	64,8	20,4	3,18	73	16,5	4,45	82	13,1	6,24	88,1	10,6	8,31
	Min	64,8	20,4	3,18	73,4	16,5	4,45	81,8	13,1	6,24	88,1	10,6	8,31
160.1	100	362	101	3,58	390	89,2	4,37	416	78,5	5,30	438	68,7	6,38
	75	295	78,3	3,77	317	69,1	4,59	337	60,8	5,54	353	53,4	6,61
	50	197	52,2	3,77	212	45,4	4,67	225	39,4	5,71	236	34,3	6,88
	25	87,9	31,3	2,81	76,7	25,5	3,01	107	20,5	5,22	114	16,5	6,91
	Min	87,9	31,3	2,81	76,7	25,5	3,01	107	20,5	5,22	114	16,5	6,91

Documentation

part load
 Capacity required (kW)
 external exchanger air intake (°C)

Part Load	500	500	500	500	500	500
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

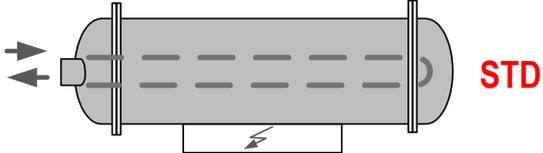
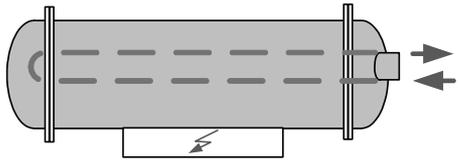
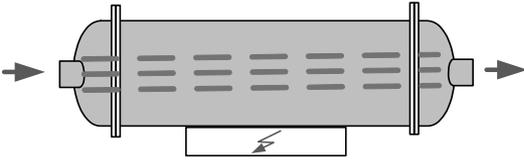
Selection software

Functionalities and options available



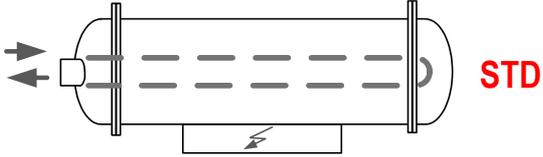
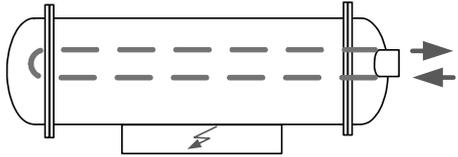
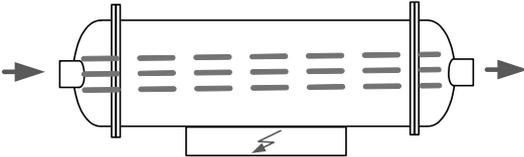
Simplifies and industrializes the plant – Evaporator choice

THE CHOICE OF THE EVAPORATOR IS CONSEQUENT TO THE PRESSURE DROPS

WATER FLOW	N° PASSES	WATER CONNECTION	SCHEME
Standard	Two pass	Left (Std)	
		Right (option)	
Low	Three pass	Opposed	

Simplifies and industrializes the plant – Condenser choice

THE CHOICE OF THE CONDENSER IS CONSEQUENT TO THE PRESSURE DROPS

WATER FLOW	N° PASSES	WATER CONNECTION	SCHEME
Standard	Two pass	Left (Std)	
		Right (option)	
Low	Three pass	Opposed	

Simplifies and industrializes the plant

EMC filtering for residential-industrial environment EN 61800-3 cat C2 (optional):

Unit is supplied as standard with **network choke**:

- Solution for industrial process



Unit with **EMC filter**:

- Solution for commercial / residential application

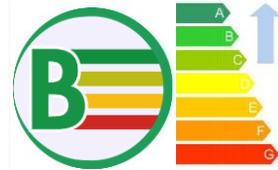


Ecoshare: Automatic management of a group of units

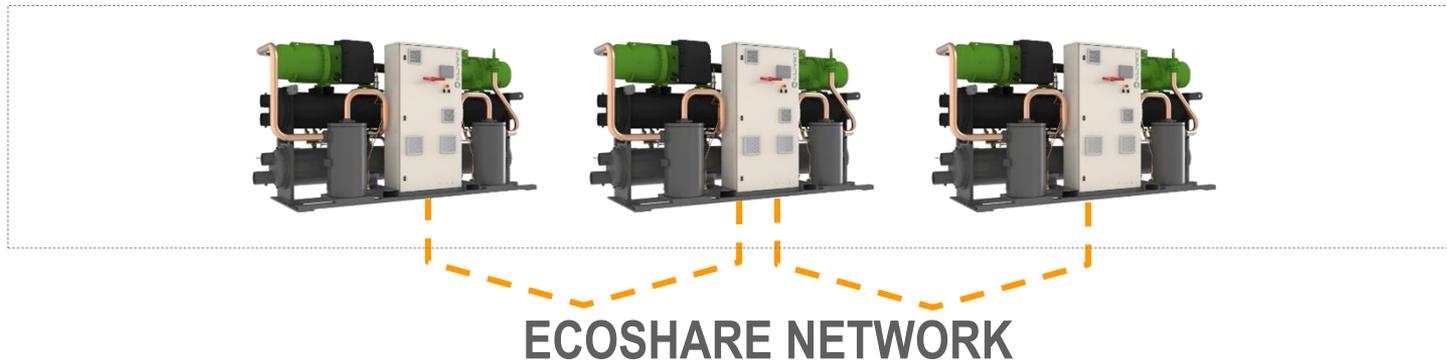
Modular system with **ECOSHARE** up to 7 units in local network

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

- **Increased energy efficiency**



- **Higher resilience**



Simplifies and industrializes the plant

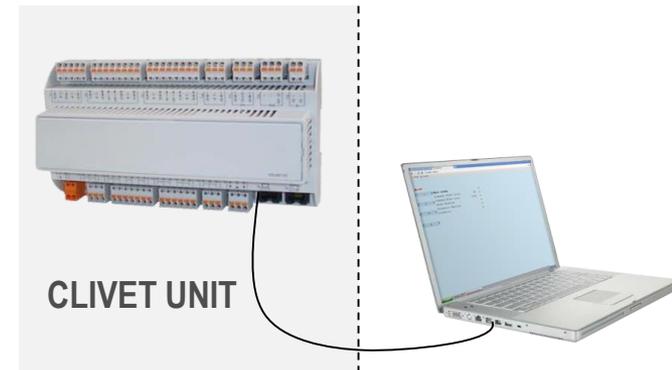
On board display

- 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



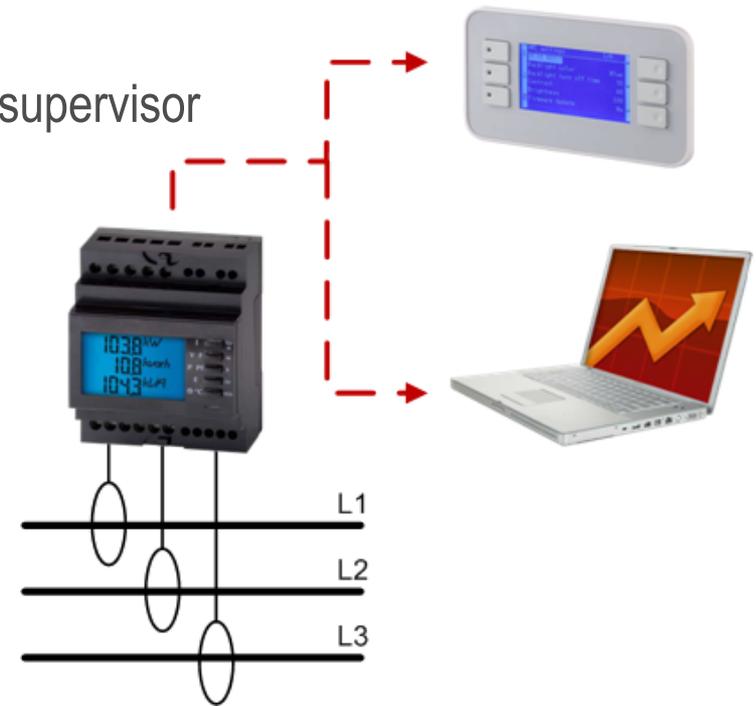
Simplifies and industrializes the plant

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:

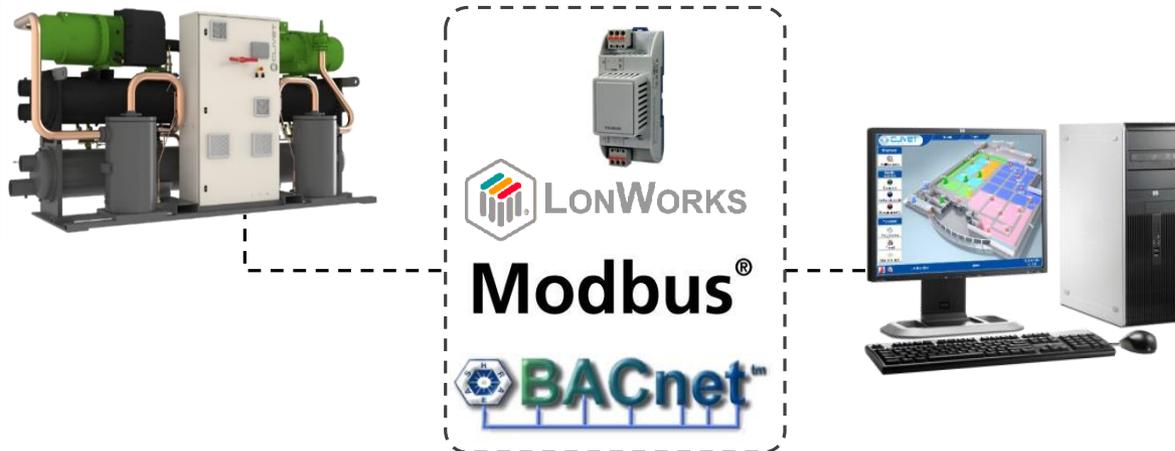
- Voltage/ Current/ Frequency
- Cosfe/ Harmonic components
- Power input/ Energy



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



www.clivet.com



A Group Company of

