

ENERGY OPTIMISATION

TERTIARY • INDUSTRY

POWERCIAT2

WATER CHILLER 600 to 1350 kW - CLASS A

THE ENVIRONMENTALLY-RESPONSIBLE
HIGH CAPACITY RANGE



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COMFORT • AIR QUALITY





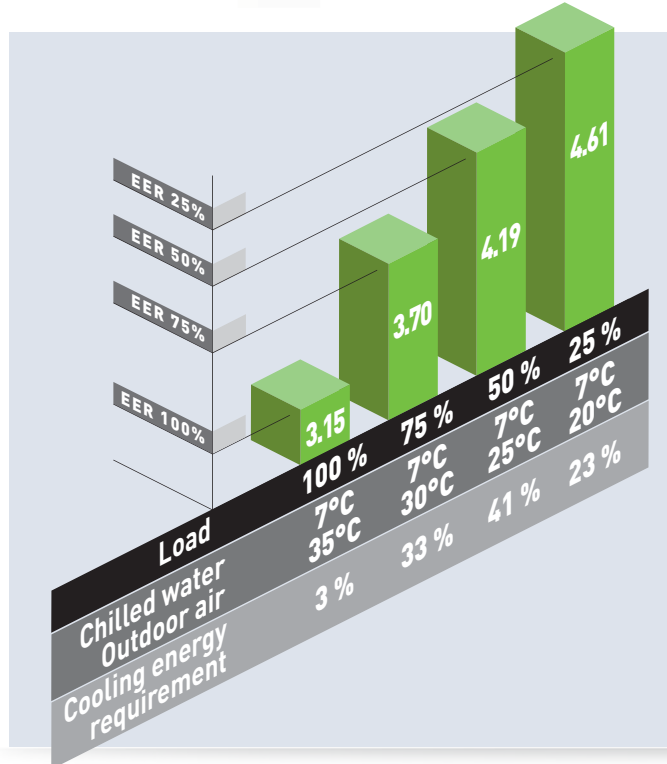
POWERCIAT2, high performance



To minimise the operating costs and environmental impacts of high capacity models, CIAT has developed the POWERCIAT2 range which combines the best of new technologies and guarantees you unprecedented performance levels.

CLASS A Energy efficiency

Thanks to its state-of-the-art components, POWERCIAT2 has achieved the highest energy classification: class A. With an average EER of 3.15 (HEE version), POWERCIAT2 meets the new European environmental and energy requirements.



Optimum seasonal efficiency

The ESEER (European Seasonal Energy Efficiency Ratio) characterises the seasonal efficiency of the chiller, taking into account performance levels with partial loads, thereby giving a true measure of its profitability throughout the year.

With continuous regulation on each compressor and precise control of overheating (electronic expansion valve), POWERCIAT2 achieves exceptional levels of efficiency, proven by an average ESEER of 4.1 (HEE version).



POWERCIAT2 is available in two versions:

- Standard (STD) version which meets the most demanding technical and economical requirements.
- High Energy Efficiency (HEE) version, the reference for environmentally-responsible projects.

bringing together new technologies to create the reference in

POWERCIAT2 At the heart of CIAT systems

The exceptional performance levels of POWERCIAT2 form the central element of the HYSYS POWER system that provides heating, summer comfort and indoor air quality to buildings in the tertiary sector. For large-scale projects, this optimised system can integrate a CIAT Energy Pool, the most advanced response to the environmentally-responsible constraints linked to energy production.

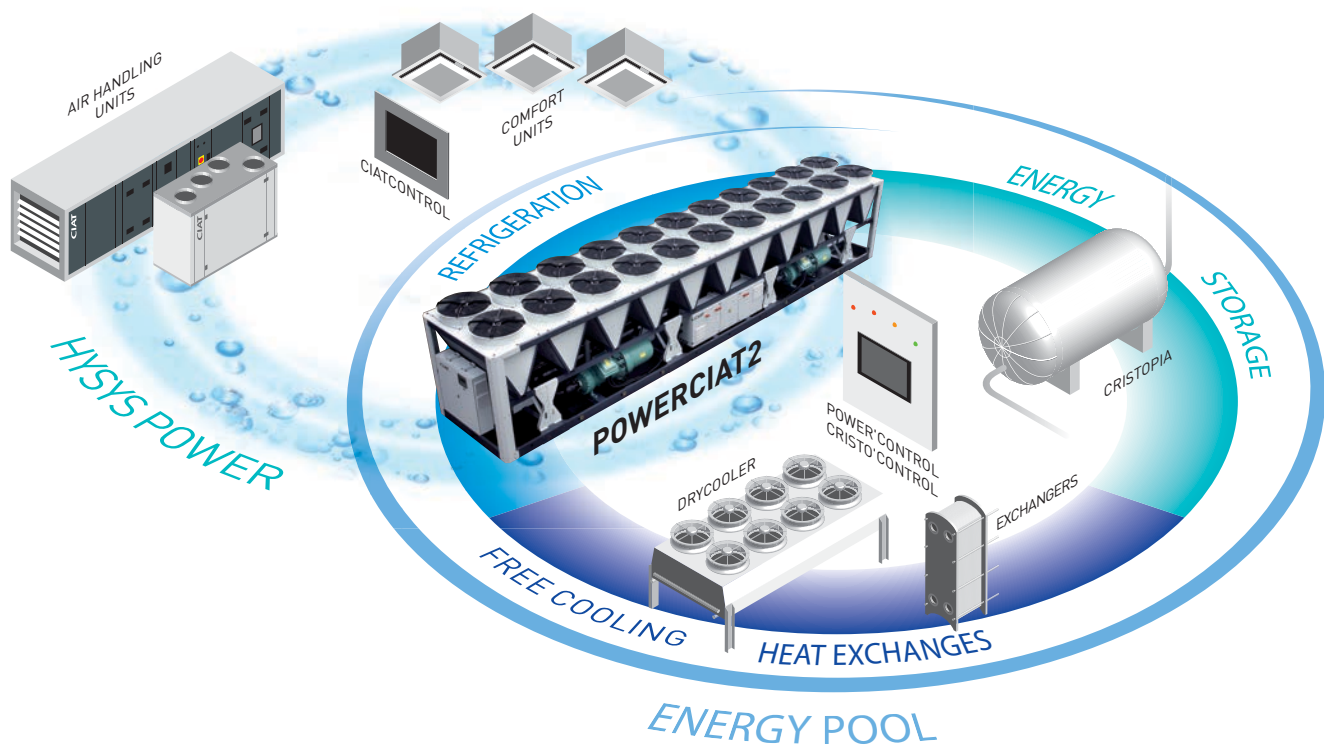
This global solution reduces consumption levels, lowers carbon emissions and anticipates future environmental regulations.

POWER'CONTROL/CRISTO'CONTROL Control your power

POWER'CONTROL and CRISTO'CONTROL are smart control systems designed by CIAT for the global management of the CIAT Energy Pool.

They guarantee sustainable performance and perfect optimisation of the installation (free cooling, energy storage and heat recovery).

POWERCIAT2, along with the other water loop components, communicates perfectly with these systems.



POWERCIAT2

Innovative components to reduce environmental impact

The all-aluminium micro-channel coil

Already used in the automotive sector, the all-aluminium micro-channel coil has become POWERCIAT2's key technology thanks to the many benefits it offers:

► 45% less refrigerant

Thanks to its innovative technology, the quantity of refrigerant is significantly reduced while still offering enhanced performance levels which are greener too.

► 10% more efficient

More efficient than a standard copper/aluminium coil with the same surface.

► Machine up to 20% lighter

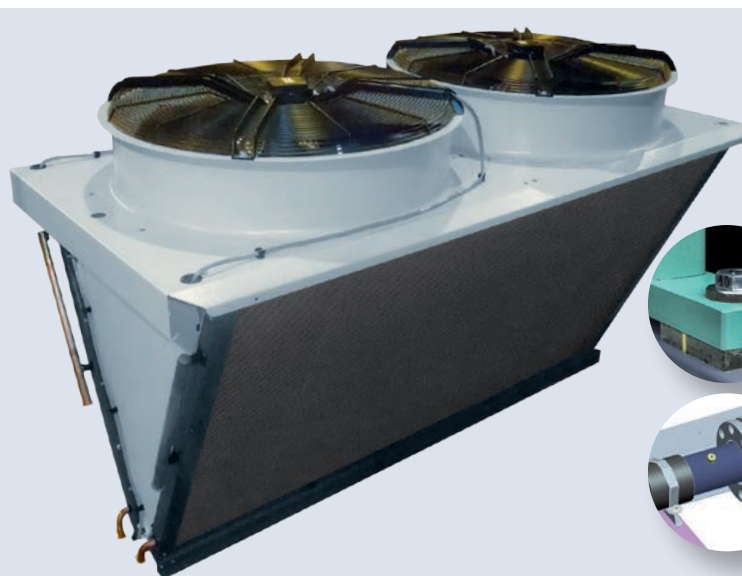
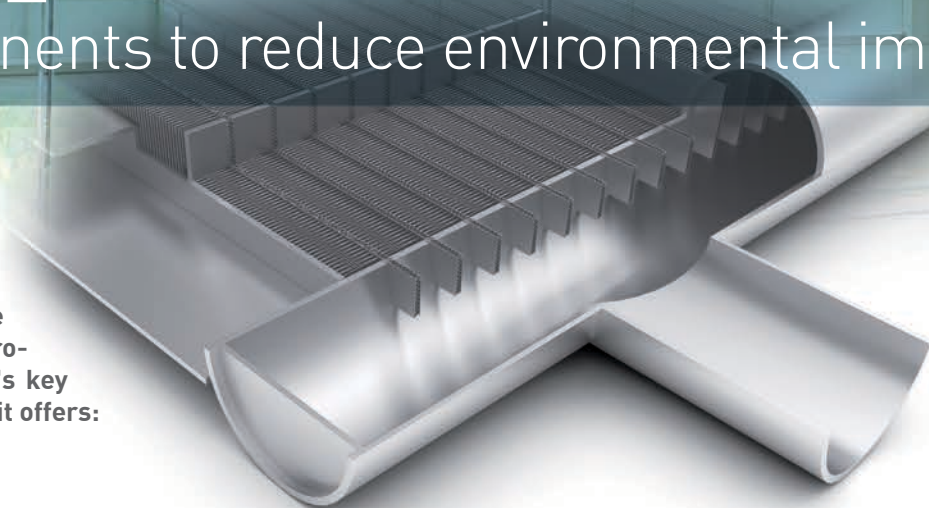
The all-aluminium coil means that the weight of POWERCIAT2 is significantly reduced, making it easier to handle, transport and install on site.

► 20% reduction in footprint

The coil's improved thermal performance means we can design even more compact machines.

► Easy maintenance

The coil's rigid external surface is compatible with high-pressure cleaning, which facilitates maintenance and extends its service life. Its all-aluminium design eliminates galvanic currents between different metals and offers greater resistance to corrosion.



60 dB(A)* only for 1330 kW, acoustic performance

POWERCIAT2 achieves this remarkable level thanks to a reduction in noise levels on each of its components.

Latest generation silent fans automatically adjust the flow of air according to cooling requirements, which significantly reduces the sound level at night and in mid-season.

The compressors, fitted on **anti-vibration mounts**, are placed in sound boxes made from absorbent materials. The intake pipes are equipped with **flexible couplings** preventing any vibration.

POWERCIAT2's exceptional acoustic performance levels mean that it can be integrated on all sites and satisfy all environmental noise constraints.

* Pressure level at 10 m on Xtra Low Noise version

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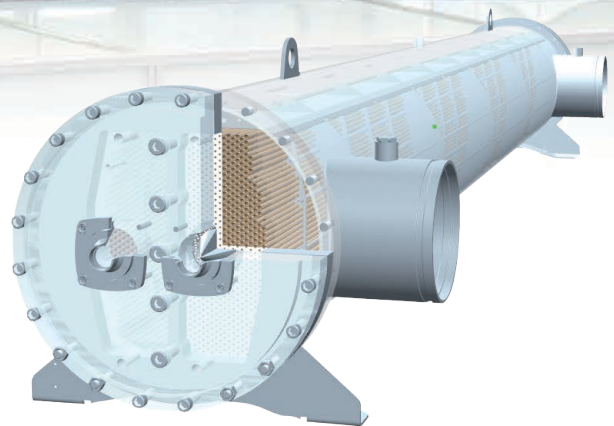
Compact screw compressor: concentrated technology

The latest generation of compact screw compressors is characterised by even greater energy efficiency.

In partial load, the compressor's continuous regulation using slide control allows it to adjust precisely to the cooling requirements, thereby limiting the number of starts for each compressor and extending their service life.

The reduction in pressure drop, the optimisation of the oil management system and a wider range of applications mean its energy performance and ESEER values are improved.

The economiser fitted as standard to each compressor significantly increases the cooling capacity and contributes to the machine's energy optimisation.

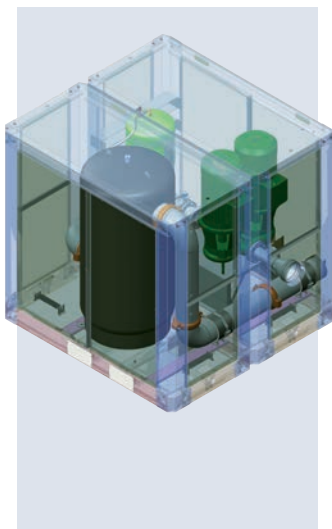


Dry expansion shell and tube evaporator: controlling heat exchange

Using its unique expertise in heat exchange, CIAT has designed for POWERCIAT2 a dry expansion evaporator: COREVA. Two patent applications have been made for this evaporator, namely for the technique of distributing the refrigerant inside the tubes which helps improve the chiller's efficiency.

The exceptional performance levels of this component offer maximum output, a reduction in the quantity of refrigerant and the optimisation of pressure drops to achieve high energy efficiency.

This technology responds perfectly to new environmental constraints and the strictest European standards.



Plug & Cool with the hydraulic version

POWERCIAT2 is available in a hydraulic LXC version, with or without buffer tank (as an option) for a quick, easy and economical set-up. We select the very best hydraulic equipment and fit and test it in the factory, which limits the risks at the installation and facilitates assembly on site.

The hydraulic module is available in two versions: single pump, or dual pump with automatic switchover to the emergency pump which provides an additional safety feature.

A safety sensor (option) installed at the pump intake monitors the minimum pressure required to ensure the pump operates correctly.

The wide selection of pumps means the flow/pressure requirements of all installations are met.

XtraCONNECT2/POWER'CONTROL

New generation control



Smart technology for easy management

A product of CIAT's expertise, XtraCONNECT2 is the new generation of controller optimised for water chillers equipped with screw compressors.

This control means the unit can be operated easily and efficiently and as a result delivers high performance, while offering multiple solutions which perfectly meet the criteria of different users. It is compatible with all types of CMS via the RS485 port and MODBUS/JBUS MODBUS/TCP-IP, LONWORKS and BACNET communication protocols.

A user-friendly human-machine interface

XtraCONNECT2 is equipped with a multi-language screen, with 4 lines of 24 characters, and is backlit for enhanced visual comfort. It enables quick, direct access to all the parameters needed to manage the system.

Versatile and secure control

With a choice of 4 possible controls, XtraCONNECT2 offers the user the perfect configuration to meet his different needs: action on water return, on water supply, water law according to the climate conditions and energy storage management with CRISTOPIA.

Finally, its many built-in safety devices guarantee the equipment is fully protected and has a long service life.

Controlled energy management

Thanks to its energy meter (available as an option), XtraCONNECT2 gives real-time measurements of voltage, current, electrical power and electrical energy consumption.

This meter can also be used to limit the machine's consumption of electricity defined by a maximum threshold pre-set by the user.

To ensure perfect compliance with regulations on energy management in buildings, XtraCONNECT2 is equipped with a water law controller which allows the water temperature to be modified according to the outdoor temperature; this water temperature can be entirely defined by the user depending on the site.

Easy maintenance

Users have access to a log of the last 20 incidents with operating readings, guaranteeing quick and effective help in troubleshooting.

POWER'CONTROL, controlling the Energy Pool

Power'Control is a global management system for high performance thermal energy production pools providing heating and cooling. It manages all the producers as well as the regulation and transfer peripherals from the primary loop down to the supply manifolds on the various distribution networks; refrigeration unit or heat pumps, drycoolers, valves, pumps....

Power'Control also allows you to program daily and seasonal schedules, configure setpoints, choose from among various strategies and manage priorities for the operation of equipment in terms of starting, alternation and backup.

It also reports events (faults, alarms) and serves as a local and remote supervision tool.

All operating parameters are displayed as curves and tables and are accessible via remote monitoring. Key information is also available on the BMS, where applicable.



POWERCIAT2 Excellence born from the CIAT Group's ecodesign approach

The CIAT Group has placed Sustainable Development at the heart of its industrial and commercial strategy.

Since 2008, every branch of the company has joined forces to implement initiatives in this area. They are all focused on how we can better protect the environment.

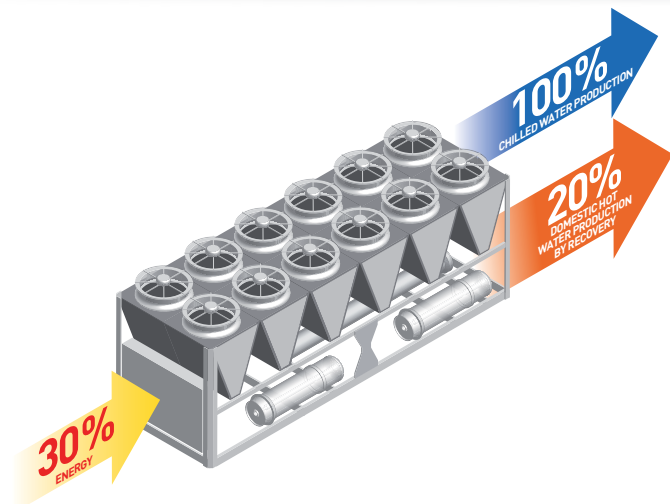
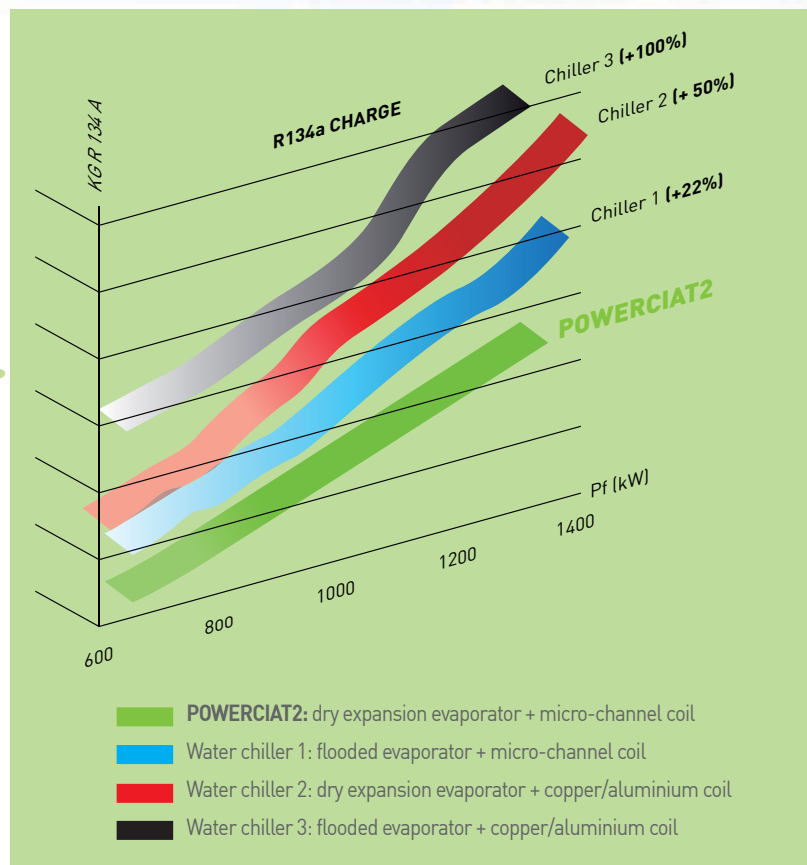
Our products are developed by our Research, Innovation & Development Centres in compliance with ecodesign standards and are integrated into optimised systems and solutions; this ensures that their environmental impact is minimised throughout their entire life cycle.



► 7 kW refrigerant fluid/kg R134a: POWERCIAT2's performance is unique on the market

Never before has a water chiller achieved such a power to fluid charge ratio.

To date, only POWERCIAT2 combines both micro-channel coil and dry expansion shell and tube evaporator technologies.



Heat recovery: the smart solution for maximum savings



Using heat to produce free domestic hot water is a truly economical and environmentally-responsible solution.

POWERCIAT2, with partial recovery option, enables hot water to be produced at a temperature of 60°C, fully meeting the demand for domestic hot water in hotels, for example.

2 ranges to meet the needs of all projects



POWERCIAT2 LX - LXC - HIGH EFFICIENCY VERSION HEE

Sizes	Performance (1)							Dimensions (mm)				Weight (kg) LX / LXC
	Cc kW	Pi kW	EER / ESEER	Energy class	Lw dB(A)			Length		Width LX / LXC	Height	
					HEE	HEELN	HEEXLN	LX	LXC			
2500X HEE	606	197	3.07/4	B	100	96	90	6506	7598	2251	2436	5159 / 6341
2800X HEE	681	217	3.13/4.08	A	101	96	91	7592	8684	2251	2436	5731 / 6939
3050X HEE	743	242	3.07/4	B	101	97	91	7592	8684	2251	2436	6166 / 7374
3200X HEE	816	254	3.21/4.19	A	102	97	92	9756	10848	2251	2436	7782 / 8975
3400X HEE	866	269	3.22/4.2	A	102	98	92	9756	10848	2251	2436	7795 / 8988
3600X HEE	919	284	3.24/4.22	A	102	98	92	9756	10848	2251	2436	7813 / 9006
3900X HEE	970	312	3.11/4.06	A	102	98	92	9756	10848	2251	2436	7900 / 9093
4200X HEE*	1056	331	3.19/4.16	A	103	99	93	11928	13020	2251	2436	9123 / 10351
4500X HEE*	1109	352	3.15/4.11	A	103	99	93	11928	13020	2251	2436	9136 / 10364
4800X HEE*	1161	374	3.11/4.06	A	103	99	93	11928	13020	2251	2436	9148 / 10376



POWERCIAT2 LX - LXC - STANDARD VERSION STD

Sizes	Performance (1)							Dimensions mm				Weight (kg) LX / LXC
	Cc kW	Pi kW	EER / ESEER	Energy class	Lw dB(A)			Length		Width LX / LXC	Height	
					STD	STDLN	STDXLN	LX	LXC			
2800X STD	667	227	2.94/3.82	B	100	96	90	6506	7596	2251	2436	5196 / 6378
3000X STD	723	250	2.90/3.72	B	100	97	90	6506	7596	2251	2436	5612 / 6793
3200X STD	792	266	2.98/3.84	B	101	97	91	7592	8684	2251	2436	6558 / 7766
3400X STD	840	282	2.98/3.82	B	101	97	91	7592	8684	2251	2436	6591 / 7798
3600X STD	891	299	2.98/3.82	B	101	97	91	7592	8684	2251	2436	6618 / 7826
4200X STD	1049	345	3.04/3.91	B	102	98	92	9756	10848	2251	2436	7843 / 9036
4800X STD	1156	390	2.96/3.75	B	102	99	92	9756	10848	2251	2436	7867 / 9060
5600X STD*	1269	426	2.98/3.83	B	103	100	93	11928	13020	2251	2436	9334 / 10562
6400X STD*	1355	470	2.88/3.69	C	103	100	93	11928	13020	2251	2436	9508 / 10736

* Sizes uncertified Eurovent.

(1) Standardised conditions EN 14511-2013 - EUROVENT: Chilled water = 12°C/7°C Air = 35°C Air = 35°C - **Cc** = Net cooling capacity - **Pi** = Total net power input

EER = Energy Efficiency Ratio - **ESEER** = European seasonal energy efficiency ratio - **Lw** = Niveau de puissance acoustique - **STD** = Standard

STDLN = Standard Low Noise - **STDXLN** = Standard Xtra Low Noise - **HEE** = Haute Efficacité - **HEELN** = Haute Efficacité Low Noise - **HEEXLN** = Haute Efficacité Xtra Low Noise

POWERCIAT2 LX-LXC EQUIPMENT

Fused disconnect safety switch	●	Reinforced insulation, low-temperature glycol/water mix (0°C to -8°C)▲
Control circuit transformer	●	Partial heat recovery - Desuperheater ▲
Electrical cabinet wire numbers	●	Single and dual pumps (1) ▲
RS485 - ETHERNET communication interface	●	Pump intake mini safety device (1) ▲
Water flow controller	●	Buffer tank (1) ▲
High efficiency ALTENA coil coating	●	Container handling equipment ▲
Electronic expansion valve	●	CIAT M2M remote machine monitoring ▲
Star-delta start compressors	●	Refrigerant leak detection ▲
Phase controller (reversal, loss, asymmetry, over and under voltage)	●	Handling shackles ◆
Optimised High Pressure Operation	▲	Anti-vibration mounts ◆
[All-season operation with energy optimisation]		Flexible hydraulic sleeves ◆
Variable speed fans (operates down to -15°C outdoors)	▲	Remote control unit (remote control console) ◆
Energy meter	▲	Relay board with dry contacts ◆
Low Noise version (LN)	▲	MULTICONNECT management of multiple units (> 2) ◆
Xtra Low Noise Version (XLN)	▲	POWER'CONTROL/CRISTO'CONTROL Energy Pool management ◆
Compressor intake shut-off valves	▲	LONWORKS - BACNET gateway ◆
Frost protection	▲	

● Supplied as standard ▲ Factory-fitted option ◆ Option supplied in kit (1) LXC version only

