CHILLERS & HEAT PUMPS

HYDROCIAT

HIGH EFFICIENCY IN A FLEXIBLE AND COMPACT SOLUTION

CIAT

THE HYDROCIAT A RANGE OF HIGHLY EFFICIENT WATER-TO-WATER HEAT PUMPS AND WATER-COOLED CHILLERS

The new generation of Hydrociat is designed to meet a broad range of heating and cooling requirements, while ensuring easy installation and commissioning, and offering excellent energy efficiency.

4 REASONS TO CHOOSE HYDROCIAT

- HIGH ENERGY EFFICIENCY
- PLUG & PLAY COMPACT SYSTEM
- FLEXIBILITY
- ADVANCED SYSTEM CONTROL

HYDROCIAT: THE SOLUTION FOR EVERY MARKET NEED

- OFFICES
- ADMINISTRATION
- HEALTHCARE
- SHOPPING CENTRES
- HOTELS
- INDUSTRIES

4 KEY ADVANTAGES OF HYDROCIAT

HIGH ENERGY EFFICIENCY

CIAT is dedicated to constantly improving the performance of its products and innovates to reduce energy consumption and greenhouse gas emissions.

Hydrociat boasts high energy efficiency levels thanks to a number of innovations:

- The **twin rotor screw compressor** is equipped with a direct drive motor that has no gears. As there are few moving parts, reliability is increased. A variable capacity valve exactly matches cooling capacity to load requirements, from 15 to 100%.
- The new generation **flooded shell and tubes evaporator** gives increased heat exchange capability through the use of new, grooved copper pipe bundle technology. Up to 2 refrigerant circuits are included. The entire heat exchange surface is immersed in the cooling agent, for maximum heat transfer.
- The **electronic expansion valve** enables operation at a lower condensing pressure and improves utilisation of the evaporator heat exchange surface, minimising energy consumption at partial load.

Hydrociat can also recover energy, lowering operating costs and giving a faster ROI.

The **premium efficiency Hydrociat LW HE version's** exchangers and compressors satisfy the most stringent energy requirements in terms of very high seasonal performance. With an average SEER of 6.62 and an average $SCOP_{35}$ of 6.30, this product is the most efficient of all the units in its category:

- The HE version also includes an economiser system with an electronic expansion valve that provides increased unit cooling capacity for a given cooling surface.

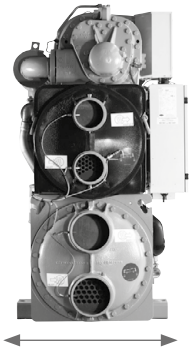
The standard model provides an average SEER of 6.29 and an average $SCOP_{35}$ of 5.89. It is the optimised balance between technical and economical aspects, capacity and operating costs.

Hydrociat also complies with current European regulations and directives for **Eco design** and **energy-related products** and anticipates those to come. The products benefit from **Eurovent** certified performance and are designed and manufactured in accordance with ISO 9000, 14000 and 50000 quality management systems.

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

PLUG & PLAY COMPACT SYSTEM

The new generation of Hydrociat is one of the most compact water-to-water chillers and heat pumps on the market, adapting easily to existing machine room configuration. It is delivered on-site ready to run.

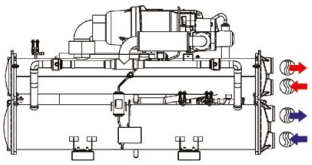


Compact

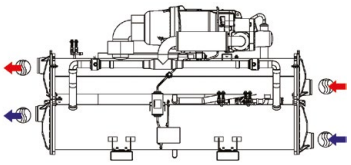
Its compact size, at about 1 metre wide, passes through a standard door opening and requires minimum floor space in the machine room. It can be retrofitted without difficulty during refurbishment, and also leaves space to perform maintenance comfortably.

Flexible water connections

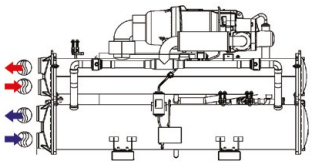
Hydrociat's simplified hydraulic connections provide multiple arrangements to meet the constraints of machine rooms. Connect to pipes that are already in place, rather than renovating the pipes to fit the machine.



STANDARD



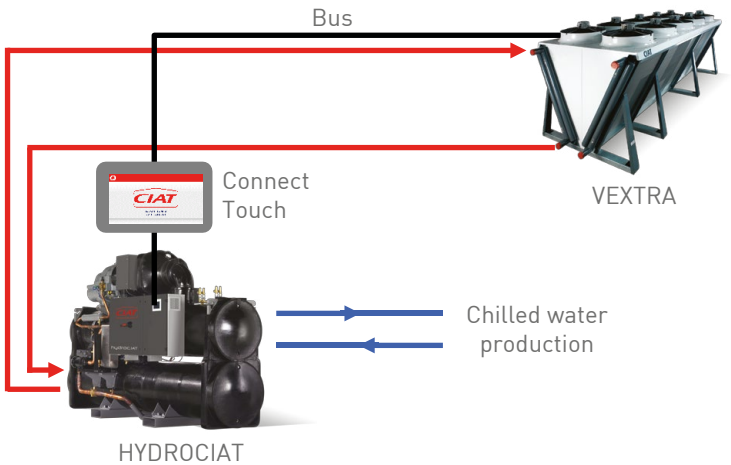
ONE PASS EVAPORATOR AND CONDENSER



REVERSED EVAPORATOR AND CONDENSER

Full equipment compatibility

Hydrociat works with the Opera and Vextra dry cooler ranges for an optimised global solution.



FLEXIBILITY

The new Hydrociat range is designed to operate continuously in numerous applications and to work with different comfort units and evacuation outlets.

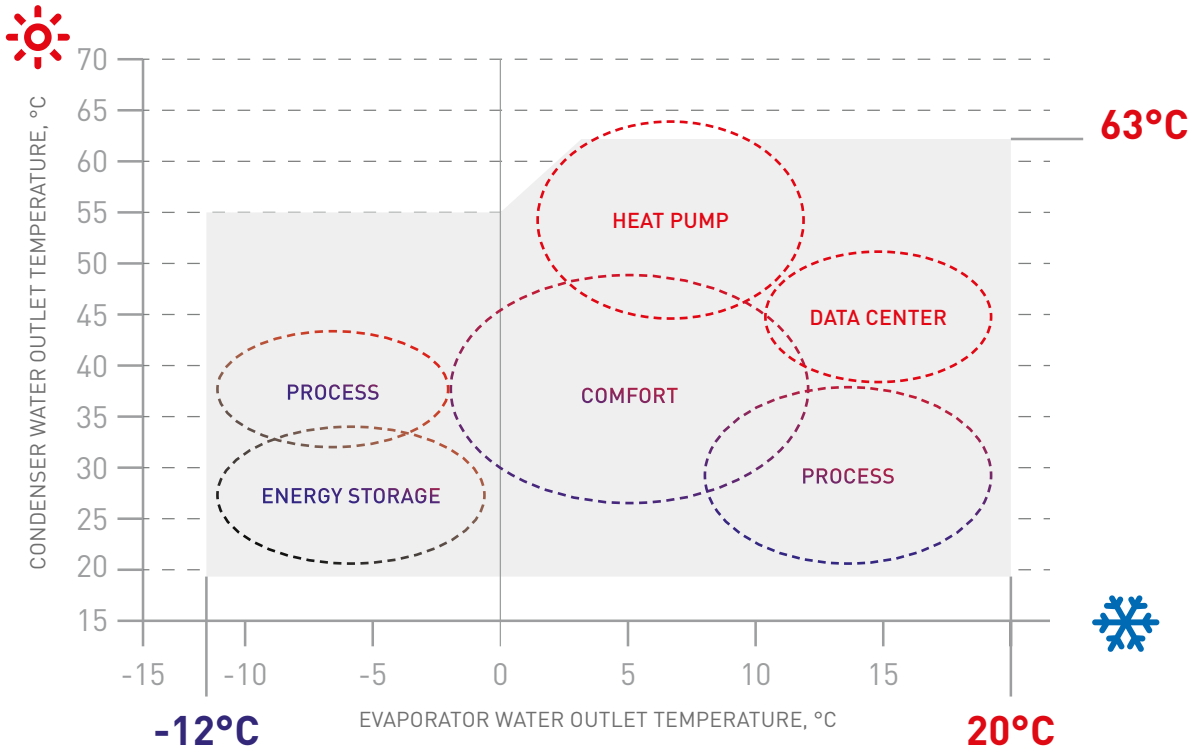
Multifunctional, Hydrociat provides flexible heating and cooling for sectors such as storage, process and data centres, as well as other applications such as comfort and brine:

- Cooling temperatures between **-12°C** and **20°C**.
- Heating temperatures up to **63°C**.

The unit is designed to work with all emitters: comfort units, underfloor heating, chilled beams, air handling units and radiators.

Moreover, Hydrociat is fully adapted to different evacuation outlets such as dry coolers or cooling towers.

Extensive operating map for numerous applications



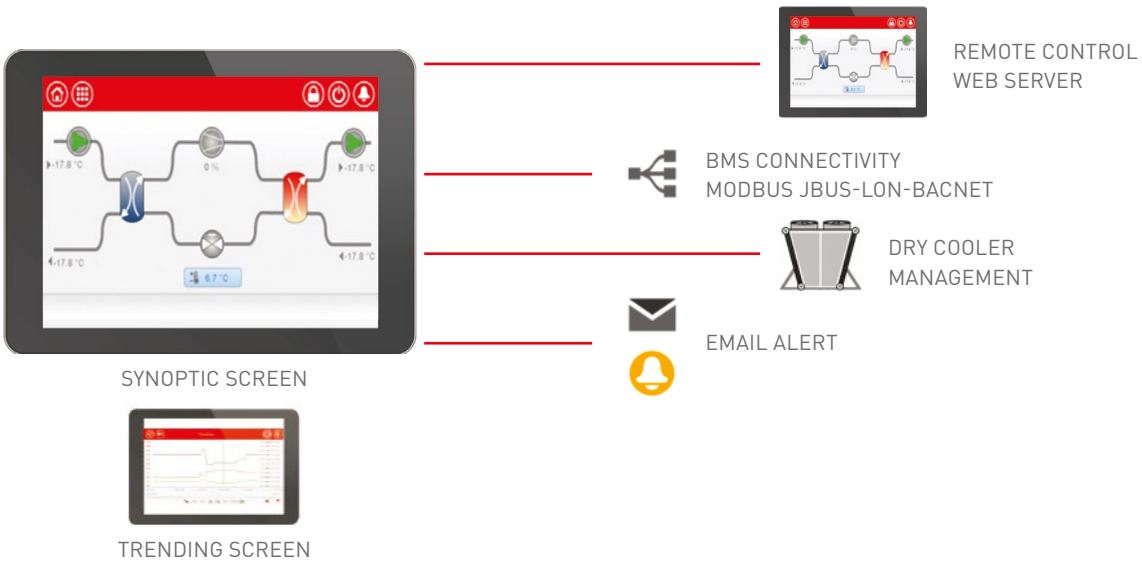
ADVANCED SYSTEM CONTROL

Optimise energy while ensuring occupancy comfort using a set of interconnected services that simultaneously monitor all energy and water loop components.

ConnectTouch

Manage your installation intuitively with Connect Touch's **smart monitoring**.

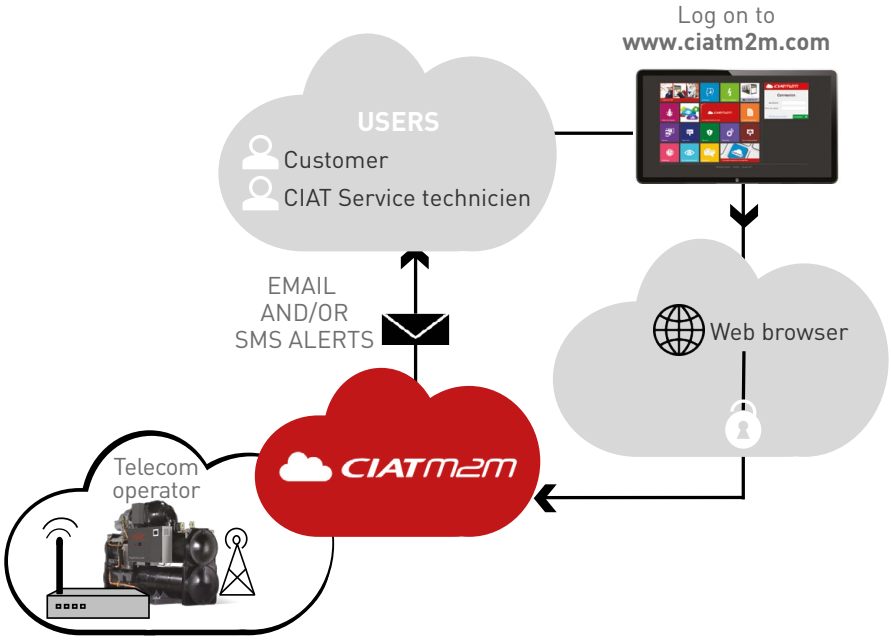
- User-friendly, touch sensitive 4.3-inch (7-inch option) intuitive screen.
- Control panel in 9 languages.
- Easy and secure access to parameters (3 levels with password).
- Lead/lag management of 2 units in series or in parallel, with runtime balancing and automatic changeover to ensure consistent run times.
- Diagnosis and operating statuses, email alerts, supervision and follow-up of any incidents.
- Automatic reminders of maintenance operations (periodicity can be adjusted according to site needs) and compulsory periodic sealing detection, according to F-Gas regulations.
- Communication with all types of Building Management System (BMS) via Modbus protocol available as standard; LON or BACNET as option.
- Connect Touch includes as standard a webserver for full connectivity and remote access using a computer and internet connection.
- Instructions and user technical information, electrical diagram integrated on the controller.
- Dry cooler management.
- Trend curve to follow main sensor progression.
- Black box recording of all parameters and values for quick investigation in case of fault.



CIATM2M

CIATM2M is an **advanced monitoring solution** which enables customers for all applications to track and monitor their CIAT equipment.

- Real-time data retrieval through custom access to the CIATM2M website (synoptic, controller dashboard, event and temperature curves, alert and fault memory, black box and parameters log).
- Email alert for any event concerning the equipment.
- Monthly and annual reports with analysis and recommendations from CIAT experts.

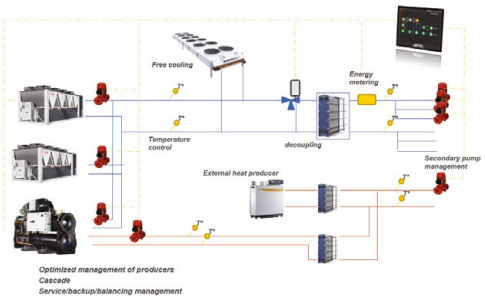


Power'Control

Power'Control is the **plant management tool** for your Energy Hub solution. It optimises energy for high performance systems and is designed to control a complete thermal energy production system (cooling and heating).

Main functions :

- Command and control all components on the production loop
- Maximise energy optimisation
- Optimise and secure system operation
- Offer local and remote monitoring

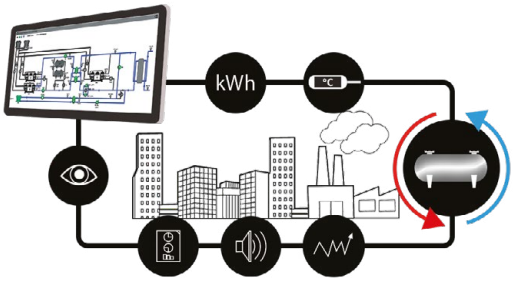


Cristo'Control

Cristo'Control is a piloting, control and **monitoring system dedicated to Thermal Energy Storage (TES) installations.**

It helps contractors and owners to reduce operating costs and optimise their energy use, while lowering CO_2 and greenhouse gas emissions.

Cristo'Control also provides performance measures. It monitors support and preventive and curative maintenance, using both local and remote control.



MAXIMUM ENERGY EFFICIENCY
IN MINIMUM SPACE

The Hydrociat range offers 31 models of water-cooled chillers and heat pumps and two levels of performance to cover all needs.

Hydrociat LW ST

The standard Hydrociat LW ST version offers the most optimised balance between capacity and operating costs. It is most suited to refurbishment projects.

HYDROCIAT LW ST

Sizes	Performances COOLING mode[1]			Performances HEATING mode[1]			Dimensions mm			Weight kg
	Pf[2] kW	EER[2] kW/kW	SEER kW/kW	Pc[3] kW	COP[3] kW/kW	SCOP kWh/kWh	Length	Width	Height	
708C	273	5,32	5,84	317	4,59	5,94	2724	928	1567	2017
858C	307	5,3	5,80	358	4,57	6,05	2724	928	1567	2036
1008C	359	5,24	5,64	421	4,61	5,83	2724	928	1567	2072
1300C	459	5,21	5,77	516	4,54	5,88	2741	936	1692	2575
1302C	473	5,35	5,75	529	4,59	5,92	2741	936	1692	2575
1500C	532	5,21	5,81	599	4,47	5,92	2741	936	1692	2613
1508C	538	5,17	5,77	632	4,52	5,79	2741	936	1692	2644
1900C	677	5,39	6,09	751	4,56	6,07	3059	1040	1848	3247
2100C	730	5,3	6,13	813	4,49	6,01	3059	1040	1848	3266
2300C	792	5,19	5,87	887	4,46	5,83	3059	1040	1848	3282
2308C	839	5,39	6,27	967	4,64	5,90	2780	1042	1898	3492
2800C	1017	5,26	6,47	1138	4,48	6,05	4025	1036	1870	5370
3000C	1060	5,21	6,53	1190	4,42	5,96	4025	1036	1870	5408
3008C	1141	5,3	6,44	1320	4,54	5,99	4025	1036	1925	5698
3400C	1257	5,69	7,14	1384	4,73	6,19	4730	1156	2051	7066
3800C	1342	5,51	6,93	1481	4,57	5,84	4730	1156	2051	7267
4200C	1453	5,36	6,75	1612	4,46	5,64	4730	1156	2051	7305
4600C	1547	5,29	6,63	1717	4,41	5,47	4730	1156	2051	7337
4408C	1654	5,59	7,05	1891	4,67	5,73	4790	1902	1515	8681
4608C	1728	5,6	7,03	1969	4,68	5,70	4790	1902	1515	8699

[1] In accordance with EN 14511-2013 EUROVENT - [2] Chilled water = 12°C/7°C Hot water = 30°C/35°C - [3] Chilled water = 10°C/7°C Hot water = 40°C/45°C
Pf = Cooling capacity - Pc = Heating Capacity - EER/COP = Performance coefficient in full load - SEER = Seasonal performance coefficient

Cooling Heating Heat recovery

Eurovent certified values

CIAT participates in the ECP program for Liquid Chilling Packages and Hydronic Heat Pumps. Check ongoing validity of certificate: www.eurovent-certification.com

Hydrociat LW HE

When premium efficiency is required, Hydrociat LW HE's operating costs provide a better return on investment. The HE version is most suited to new buildings, low energy buildings, and industry and applications with high operating hours.

HYDROCIAT LW HE

Sizes	Performances COOLING mode[1]			Performances HEATING mode[1]			Dimensions mm			Weight kg
	Pf[2] kW	EER[2] kW/kW	SEER kW/kW	Pc[3] kW	COP[3] kW/kW	SCOP kWh/kWh	Length	Width	Height	
1328C	509	5,71	5,79	583	4,91	6,27	3059	936	1743	2981
1528C	577	5,64	5,82	662	4,84	6,33	3059	936	1743	3020
1928C	737	5,83	6,60	842	4,97	6,50	3290	1069	1950	3912
2128C	786	5,62	6,36	904	4,8	6,27	3290	1069	1950	3947
2328C	861	5,65	6,03	982	4,85	6,27	3290	1069	1950	3965
2628C	1039	5,73	6,75	1191	4,9	6,43	4730	1039	1997	6872
3028C	1157	5,78	7,17	1320	4,86	6,37	4730	1039	1997	6950
3428C	1323	5,8	7,00	1509	4,89	6,22	4730	1162	2051	7542
3828C	1452	5,58	6,83	1663	4,71	6,01	4730	1162	2051	7752
4228C	1626	5,87	7,27	1846	4,89	6,38	4832	2129	1562	10910
4628C	1756	5,79	7,25	1989	4,87	6,29	4832	2129	1562	10946

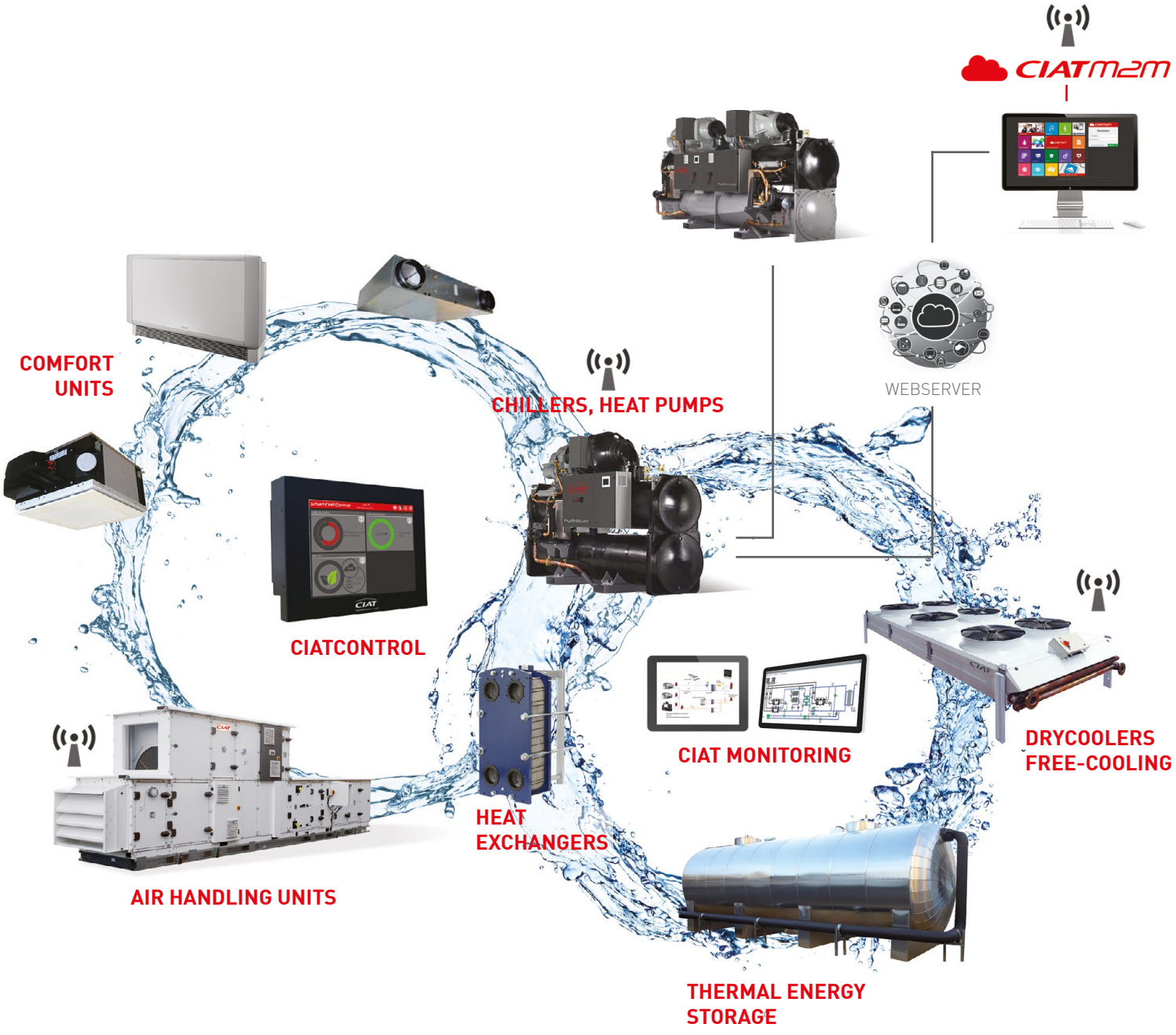
EQUIPMENTS	HYDROCIAT RANGE
Disconnect safety switch	✓
Control circuit transformer	✓
Water flow controller	✓
Electronic expansion valve	✓
Multi language touch sensitive controller 4.3'' option 7''	✓
Modbus-Jbus communication	✓
Web server	✓
Multi language touch sensitive controller 7''	•
Low Noise	•
Low temperature glycol water down to -3°C	•
Low temperature glycol water down to -6°C and -12°C	Sizes : 1328/1528/2628/3008
Unit supplied in two assembled parts	Sizes 4228/4408/4608/4628
Evaporator-condenser pump power/control circuit	Sizes 708 to 3428
Heat pump application	•
Compressor-condenser thermal insulation	•
High condensing application up to 63°C condenser leaving temperature	•
Control for low condensing temperature	•
Service valves set (liquid line and compressor suction)	•
Evaporator-condenser with on pass less	•
Water side 21 bar evaporator-condenser	•
Reversed evaporator-condenser water connections	•
Refrigerant leak detection input contact	•
Lead / Lag operation	•
Lon communication	•
BACnet / IP communication	•
M2M supervision 1 unit or 3 units	•
Compliance with Russian-Swiss-Australian regulations	•

✓ Supplied as standard
• Option

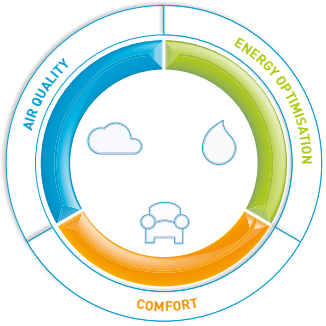
GLOBAL SYSTEM PROVIDER

FULL EQUIPMENT COMPATIBILITY FOR IMPROVED PERFORMANCE

CIAT offers a complete range of equipment designed to work together for the best possible results providing first rate performance and optimised energy efficiency.



SMART CIATCONTROL
THE ENERGY MANAGEMENT SYSTEM



Connected to all HVAC components (refrigeration, comfort units, air handling unit) and using a patented algorithm that can be programmed according to building occupancy and weather conditions, Smart CIATControl adapts the efficiency of the thermodynamic producer to emitter needs in real time. Features include:

- Automatic system changeover based on calculation requirements.
- Optimal Stop & Start: Predictive function which anticipates the stop and start times of the HVAC system.
- Optimal Water®: Allows the temperature of the chiller or heat pump to be controlled according to emitter demand.
- Night Cooling: Fills the building with fresh air during the night and delays the activation of the refrigeration request during the day.
- Epure Dynamics®: Patented process which ensures a particulate level for the building that is beneath the fixed WHO recommendation of 10µg/m^3

The optimisations offered by Smart CIATControl allow an average **energy saving of 40%** for the building.

OPTIMAL WATER®

Epure DYNAMICS

THE CIAT CHILLER AND HEAT PUMPS RANGE
A COMPREHENSIVE SOLUTION FOR EVERY APPLICATION

AIR-COOLED	AQUACIAT 40-160 kW	AQUACIAT*POWER* 160-740 kW	POWERCIAT 270-1490 kW
WATER-COOLED	DYNACIAT 20-190 kW	DYNACIAT*POWER* 220-710 kW	HYDROCIAT 270-1750 kW

SUPPORT THROUGHOUT YOUR PROJECT

CIAT makes a long-term commitment as a partner by your side: from the specifications stage right through to installing the equipment, our experts analyse your requirements to provide you with the best possible solutions. Our integrated engineering department, ultramodern research and design centre and cutting-edge industrial facilities, from which we manage the entire production process, allow us to adapt to your specific needs.

SPECIFICATIONS — SOLUTIONS — INDUSTRIAL FACILITIES — INSTALLATION — SERVICE

CIAT
AT YOUR **SERVICE**

At CIAT, our objective is to develop partnerships with you and provide high quality service throughout the lifecycle of your HVAC system. We understand your changing needs, and develop smart services and energy solutions that optimise energy performance and enable savings.

We provide the support you need to get the most out of your solution:

- Preventive and corrective service maintenance.
- On-site inspection by experts close at hand.
- Online parts shop.
- Dedicated hotline for off-site technical support.

We also offer you a comprehensive range of smart services:

- Consulting on energy performance upgrade.
- Advanced monitoring and plant system management solutions.
- Equipment and system modernization.

PRESENT IN OVER 50 countries

OVER 80 years OF EXPERIENCE

AVAILABLE 24/7

CIAT

www.ciat.com

Hydrociat - June 2019
Ref. : Hydrociat Sales Brochure - NA17.07C
Photos: CIAT, istock