

L I V E S U S T A I N A B L Y

P U R E L Y

L I V E

W E L L

L I V E



→ PRODUCTION & ENERGY STORAGE

“Cool Energy System
improve production for
increased preservation



ENVIRONMENT

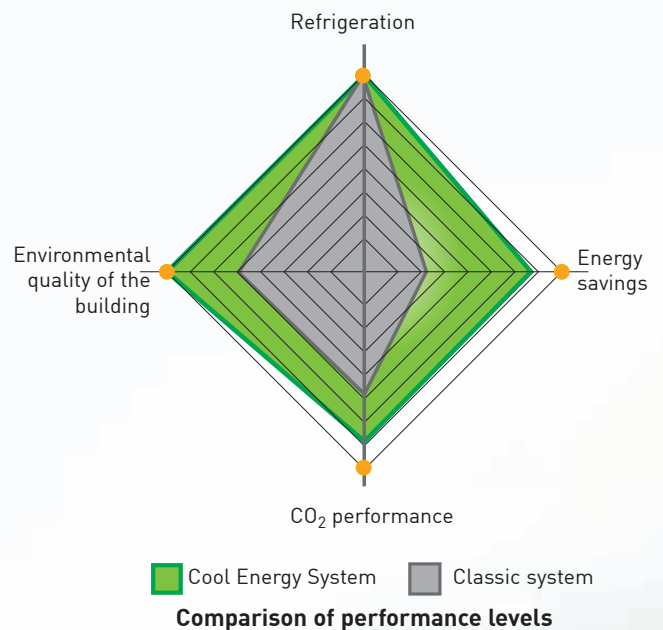
Refrigeration at the heart of environmental challenges

Energy for cooling spaces or processes is at the heart of the environmental issue. CIAT is taking up the challenge of meeting these requirements, whilst reducing their environmental impact thanks to a new generation of technologies and systems. Welcome to the age of eco-cooling.

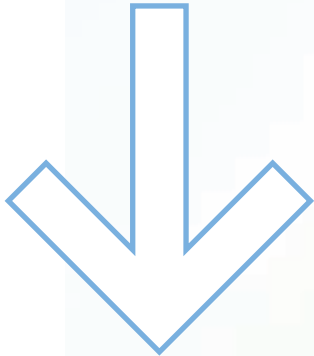
CIAT, the response of an expert in sustainable solutions.

CIAT is the number one French manufacturer of water chillers and heat pumps. Now an expert in sustainable solutions, CIAT relies on its Research & Innovation Centre and on its environmental expertise to go even further with the **Cool Energy System**. CIAT marks the birth of a new more economical and more environmentally-friendly approach to refrigeration dedicated to healthcare, shopping centres, industry and the tertiary sector.

The Cool Energy System by CIAT allows you, for the same production, to significantly reduce your energy bill, lower the carbon footprint of your installation and even anticipate future developments of environmental regulations and electricity distribution strategies.



Cool Energy System: all our expertise to create sustainable cooling



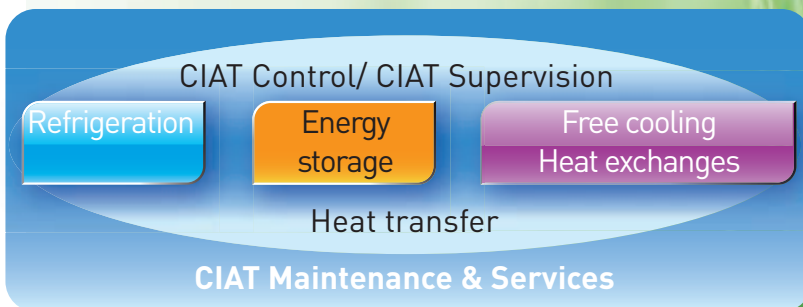
Improve production with a view to increasing comfort while reducing costs and limiting the impact on the environment. An ambitious objective that CIAT meets thanks to its expertise in thermal comfort, interior air quality and, above all, energy optimisation.

Multiple expertise for an optimised system

Cool Energy System is the result of the combination and optimisation of several technologies mastered by CIAT:

- refrigeration by state-of-the-art water chillers,
- energy storage by latent heat thanks to the Cristopia system,
- thermal transfer with free cooling aero refrigerants and high performance exchangers

Intelligent control, interactive supervision and preventive maintenance solutions round off our solution to create or transform a truly economical, reliable and sustainable installation.



TECHNOFOCUS

Assistance by CIAT experts at your disposal includes:

1. Summary of requirements and technical, legal, economic and environmental constraints.
2. Sizing of components, definition of systems, help with functional analysis and hydraulic design.
3. Help with installing the components of the Cool Energy System.
4. Optimisation of operating strategies.
5. Economic evaluation and environmental impact over the short, medium and long term.

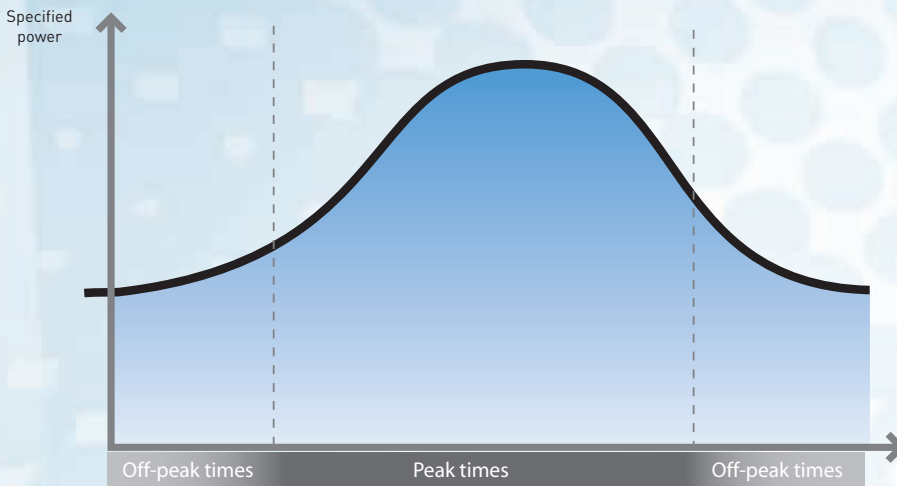
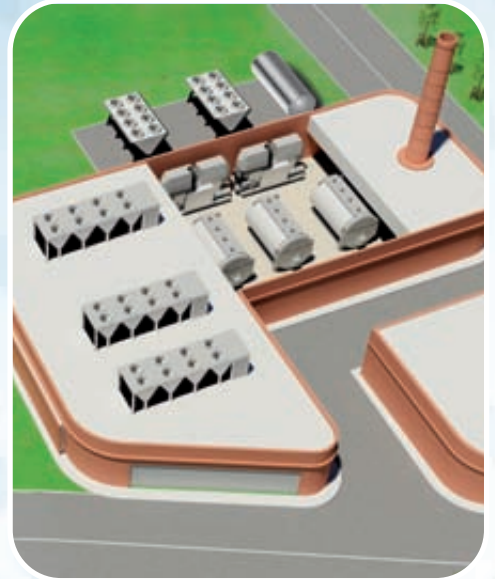
Benefit from CIAT's system expertise at every phase of your project, from the feasibility studies to first-time commissioning and running. CIAT Environment has specifically developed exclusive simulation software which can define a high-performance, made-to-measure solution and evaluate energy, economic and environmental savings.



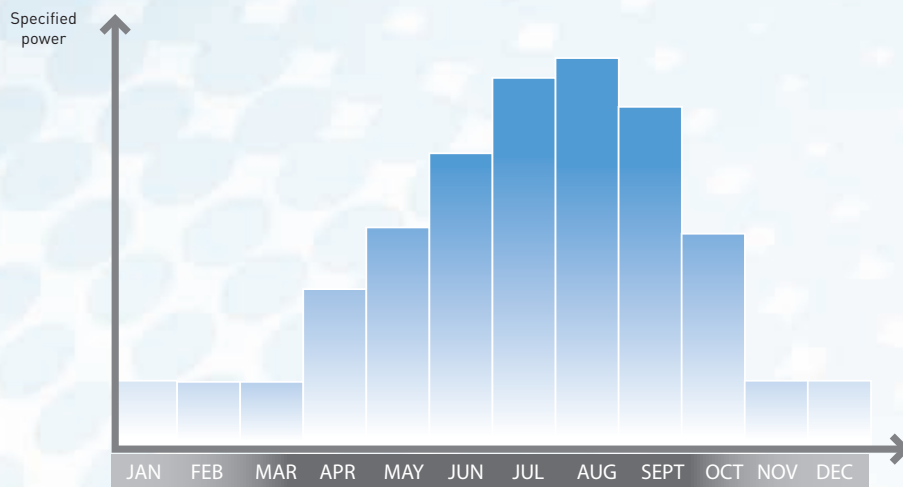
Specific responses

based on the actual requirements
of our customers

All the experience of the CIAT group, accumulated over the course of 75 years of development, is concentrated on the design and manufacture of solutions perfectly tailored to the specific requirements of the markets. In-depth analysis of each project, together with our expertise, makes CIAT Environment your indispensable partner for the design and installation of sustainable systems.



Cooling requirement over a day (mid-season)



Cooling requirement over a year

1.4%

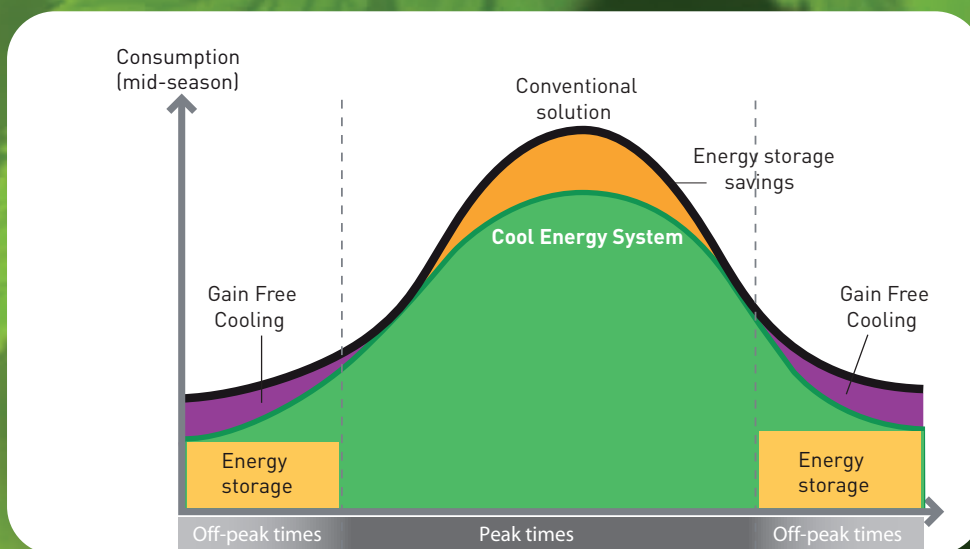
This is the average operating
time of a water chiller under
full load!

For more than
98% of the time,
unnecessarily over-sized
installations are
underperforming!

Savings and a significant reduction in the environmental impact

Financial advantages: less electrical power, lower consumption, a more reliable energy supply agreement, lower maintenance costs... the savings keep on growing.

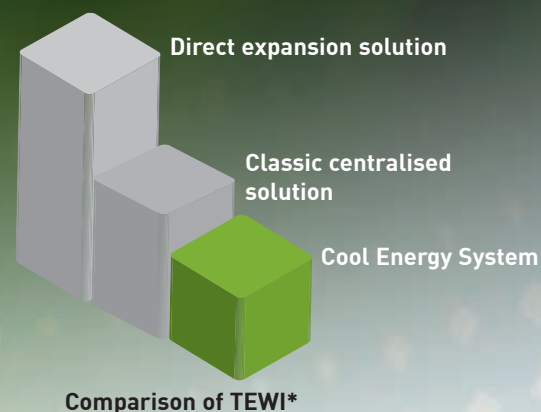
With CIAT, your satisfaction increases while everything else falls.



Environmental advantages:

Cool Energy System significantly reduces the CO₂ footprint of installations

- Energy is stored during off-peak times from low carbon kWh
- Free Cooling periods reduce consumption by disposing of the operation of compressors
- Reduction in the quantity of refrigerant gases through the reduction in the size of refrigeration equipment
- Suppression of refrigerant gas in the building thanks to the use of the water vector
- Savings of between 20% and 40% on the TEWI.



*The TEWI (Total Equivalent Warming Impact) of a refrigeration installation is defined as the sum of the direct incidence of refrigerant gas emissions (leaks and losses at end of life) and the indirect incidence of CO₂ emissions (due to primary energy consumption for refrigeration).

Cool Energy System

Combination and optim

Control

Cristo'Control the most advanced control ever designed by CIAT

CIAT Cool Energy System gives full performance in matters of saving energy and protecting the environment thanks to the generation of control. Cristo'Control, the real brains behind your energy installation, automatically manages all the parameters to optimise the operation of each unit. Simple to use, it puts the control of comfort and savings at your fingertips.

- Intuitive commissioning
- Automatic management based on outdoor temperatures and actual requirements
- Operating cost optimisation
- Machine performance continuity
- Long-term adaptation flexibility thanks to regular updates
- Preventive maintenance

Refrigeration

Water chillers at the leading edge of eco technology

Most of the time, CIAT water chillers allow you to use a water setting of 12°/17°C for cooling. Limiting the 7°/12°C setting, which is more demanding, to dehumidifying requirements alone, combined with the efficiency of CIAT units, reduces your energy consumption by 15 to 30%.



Energy storage

Energy management

With latent heat storage, CIAT... At night, when energy costs are low, the cold produced by the water chillers is stored. During the day, when energy costs are high, the stored cold is used to meet the demand, Cristopia reuses the energy.

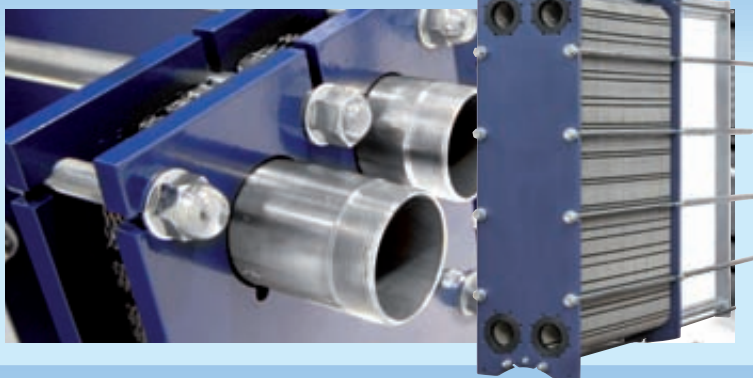
As a result,

- energy requirements are reduced
- day/night loads are rebalanced
- the size of refrigeration equipment and their peripherals are reduced
- and significant savings are achieved in costs and consumption.

Reliable technology, with a warranty of up to 30 years of operation) and sustainable savings.



Heat transfer



Itex, high performance

CIAT is a renowned expert in heat transfer technology. The environmental performance of the Cool Energy System is guaranteed by the precision, excellent thermal transfer coefficient and high efficiency of the Itex heat exchangers.

isation of CIAT technologies

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Monitor your installation with Cristo'Control

Cristocontrol.com, the control web server, allows you to view the operation of your installation and access a range of additional services (operation analysis, energy balance, maintenance help, etc.).

ment by Cristopia

transforms the design of installations.
are lower, the Cristopia system stores
er chillers in the nodules. During the
higher and more pollutant due to peaks
he cold using a simple heat exchange.

erfectly managed,
ced,
ipment
duced by 30 to 70%
e made on energy supply agreement

ery long service life (10,000 test cycles
nd without maintenance, guarantees



Free Cooling

Free Energy

CIAT FREE COOLING is based on an additional exchanger which cools the water loop of your installation by extracting the cold directly from the outdoor air. It is no longer necessary to run the compressors non-stop. Only the ventilators operate.

This system allows you to obtain very high energy coefficients of performance (COP). With FREE COOLING, the energy bill for refrigeration installations drops significantly. At the same time, the service life of the production systems increases and the CO₂ footprint of the building falls.



AQUACIAT Free Cooling / VEXTRA

Between seasons, use the outdoor air to cool the building without commissioning the compressors

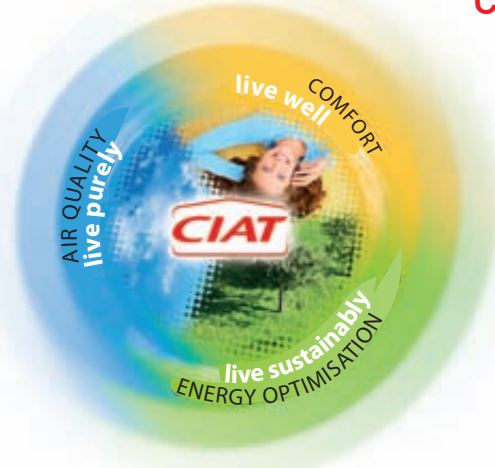
nce exchangers dedicated to the Cool Energy System

ansfer. State-of-the-art, ITEX gasketed plate heat exchangers optimise the energy and
l Energy System thanks to their manufacturing quality and the components used, great
efficients and slim design.

CIAT Group

A European leader, on a world scale

With 2300 employees and 8 production sites, including a vast industrial complex situated at the foot of the French Alps, CIAT, which is ISO 14001 certified, is a major player in sustainable climatic systems.



CIAT Environment

For the past 75 years, CIAT has provided equipment to guarantee comfort. Our continuous innovations have allowed us, over the course of time, to design products which are increasingly efficient and economical. Today, in response to environmental challenges, CIAT goes one step further by setting up CIAT Environment. The taskforce works directly with the CIAT Research & Innovation Centre, one of the most important integrated research centres in Europe. Their mission: to direct the development of CIAT installations towards maximum comfort, optimal energy efficiency and total air quality. By respecting both man and nature, CIAT is at the forefront, offering a promise to the world: live well, live purely, live sustainably.

CIAT services and network

Guarantee maximum performance

To guarantee maximum and sustainable performance of our solutions, we have developed a range of exclusive services, preventive maintenance, training, spare parts. In addition, our network of experts based in our 8 regional departments speaks your language and understands your exact expectations and needs.

We put all our energy into pleasing you.



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