

CLIMAVENETA
FOR DATA CENTER
THE MILESTONE OF GREEN DATA CENTER COOLING TECHNOLOGY

HIGH DENSITY THE FUTURE OF DATA CENTERS DESIGN

THE FUTURE BRINGS MORE PERFORMING TECHNOLOGIES AND EXPONENTIAL DATA EXCHANGE THAT STRONGLY INCREASE THE HEAT LOAD PER SQUARE METER OF ALL DATA CENTERS.

STRUCTURAL LIMITS RESULTS IN HIGHER AND HIGHER POWER DENSITIES THUS AFFECTING DEVELOPMENT AND DESIGN OF GROWING SERVER ROOMS.

Energy efficiency is so crucial for Data Centers that requires highest technologies to allow no compromise solutions in matching the reliability and the performances these applications needs.

Both upgrade and new design of Data Centers lead to the usage of servers with increasingly high performances that eventually result in higher density of power loads. The ambient of a Data Center is one of the most critical for modern activities thus requires more and more guarantees on reliability, device safety and modularity. So it proceeds the evolution of the design of the infrastructure, with more standards, classifications and certifications to comply with.

The key factors that must be continuously improved are the Energy Efficiency, to cope with more demanding OPEX requirements, and the global footprint as this greatly affects effectiveness of CAPEX.

Virtualisation, Cloud Computing and Internal Redundancy also greatly contribute to develop server rooms with many

more, more powerful and more concentrated servers up to the creation of racks exceeding 40kW of power load in less than one square meter (or 10 square feet).

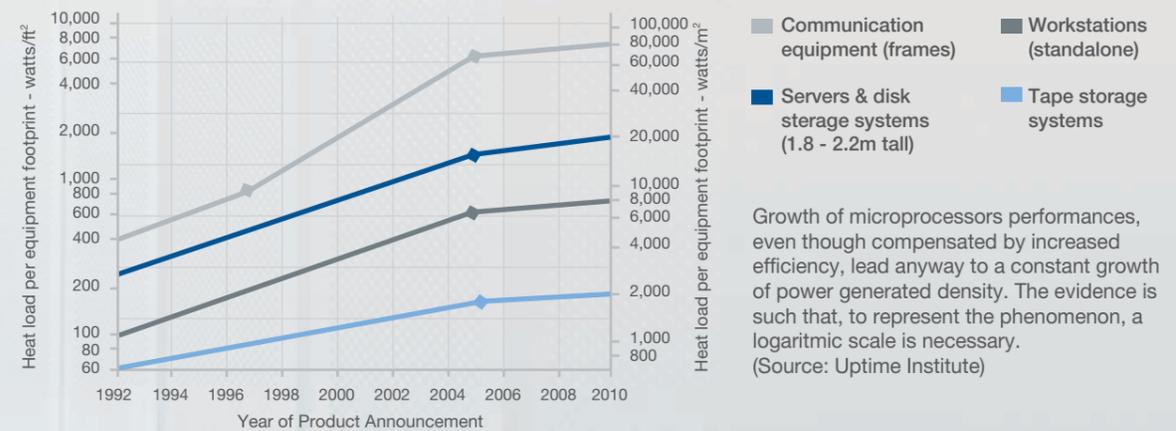
Cooling such loads with such restrictions is a current challenge for refrigeration industry and only a solid technologic innovation backed by laboratories and experienced staff can withstand such challenge and provide the right answers.

The answers lay in the usage and combinations of most sophisticate technologies such as the MAGNETIC LEVITATION and the FULL ELECTRONIC MODULATION of cooling equipments.

As a racing car needs a proper pilot, similarly high tech components require superb design capacities as well as deep understanding of application needs.

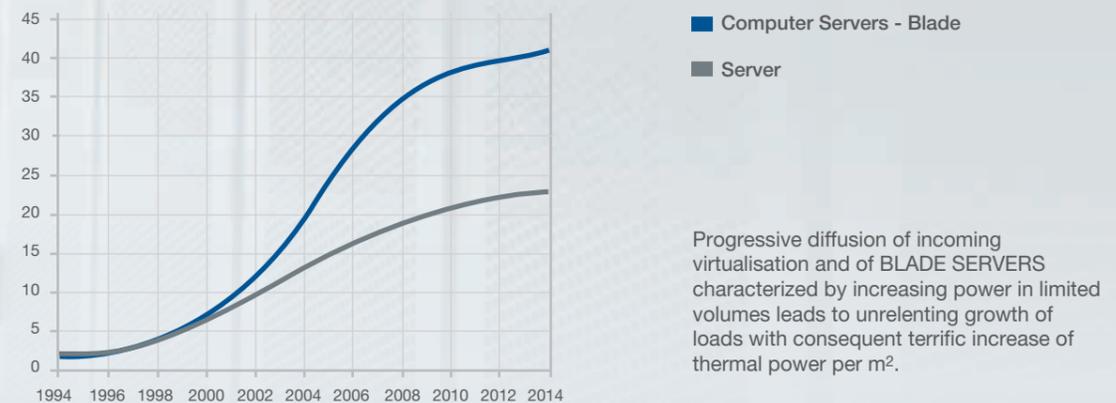
Climaveneta has a full range of cooling solutions that include the state of the art of efficient reliable cooling technologies for ICT environments.

Product Heat Density Trend Chart



Growth of microprocessors performances, even though compensated by increased efficiency, lead anyway to a constant growth of power generated density. The evidence is such that, to represent the phenomenon, a logarithmic scale is necessary. (Source: Uptime Institute)

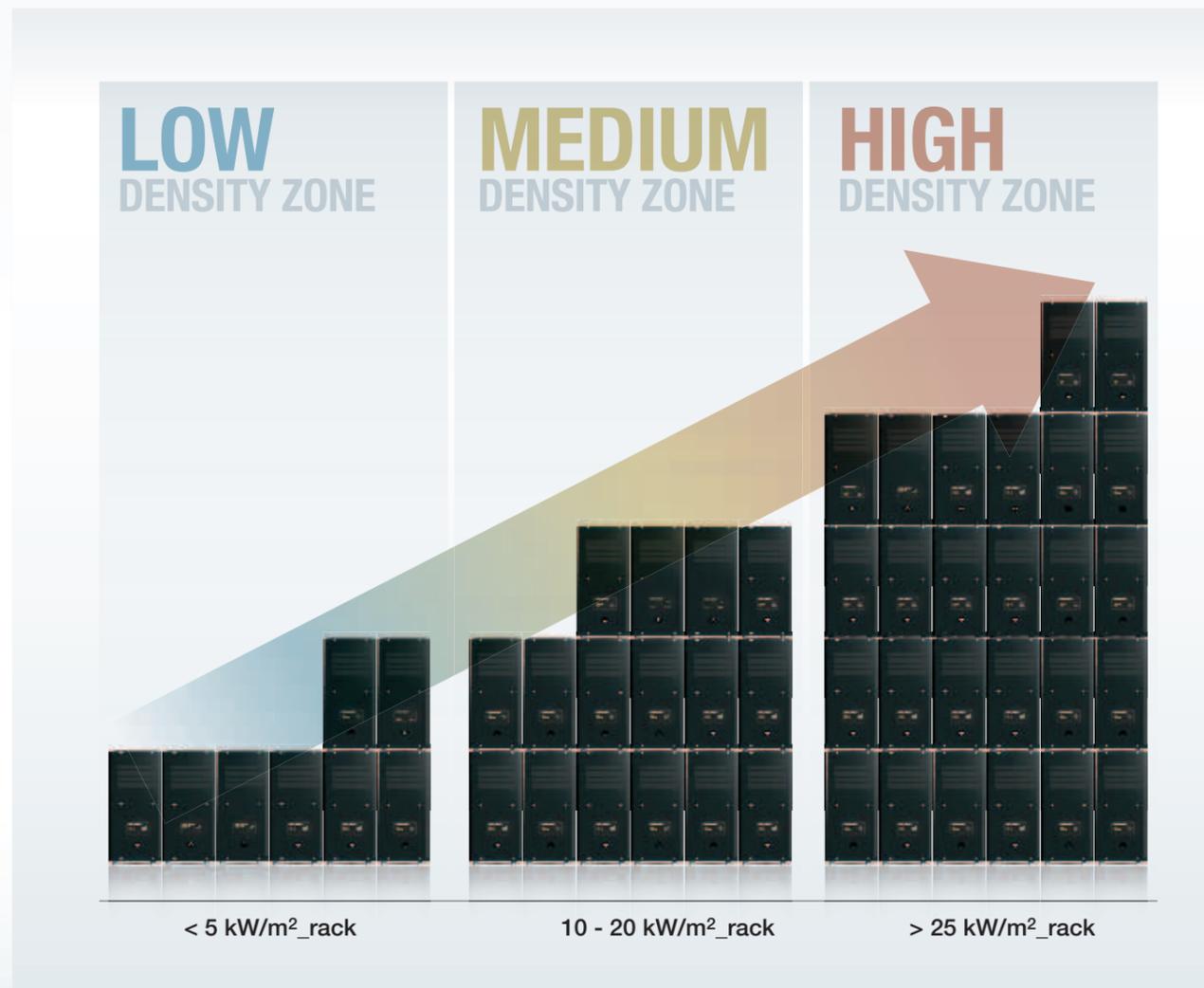
Thermal Load Trend by ASHRAE



Progressive diffusion of incoming virtualisation and of BLADE SERVERS characterized by increasing power in limited volumes leads to unrelenting growth of loads with consequent terrific increase of thermal power per m².

THE "BEST WAY" IS MODULATING COOLING

BASED ON ACTUAL DATA CENTER HEAT LOAD AND
INSTANTANEOUS WORKING CONDITION



ENERGY EFFICIENCY THE ULTIMATE CHALLENGE FOR HD DATA CENTERS

CLIMAVENETA CAN HELP YOU TO:



REDUCE OPERATING COSTS

The growing energy demand in modern Data Centers implies that every energy improvement allows to obtain a significant OPEX (operating costs) reduction. In infrastructures working 24 hours per day, 365 days per year, for an average time of 10 years, this represents by far the largest part of Data Centers overall costs.



BEST USAGE OF AVAILABLE POWER CAPACITY

Many utilities, especially in crowded urban areas, can not deploy more servers because power feeds are at capacity. In these cases to improve energy performances of the whole structure, is a key choice to let the Data Center grow.



OPTIMIZE AREAS

A green, energy efficient approach to Data Center has positive implications also for space optimization. It allows a more effective use of the Data Center concentrating cooling units along the walls, reducing the waste due to cooling dispersion and delaying the need of building new rooms.



INCREASE SUSTAINABILITY

Growing digitalization and consequent energy consumption transform Data Center in a very critical application also as concerns TEWI. Hence an intelligent energy management, is crucial not only for profitability but also for sustainability.

MEASURING EFFICIENCY



TO IMPROVE IT

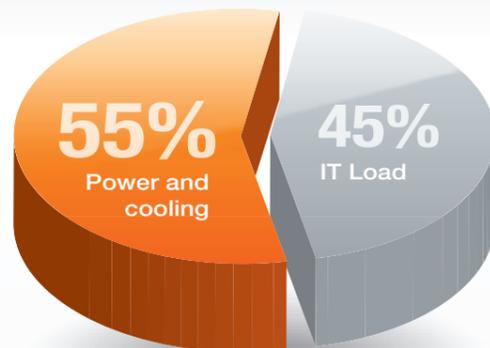
The awareness of the peculiarities of Data Centers, and the commitment to improve their energy efficiency has led to develop dedicated indexes for these applications.

All Climaveneta solutions are developed to optimize these metrics, thus allowing to evaluate in the most transparent and concrete way the real benefits offered by our approach to HD.

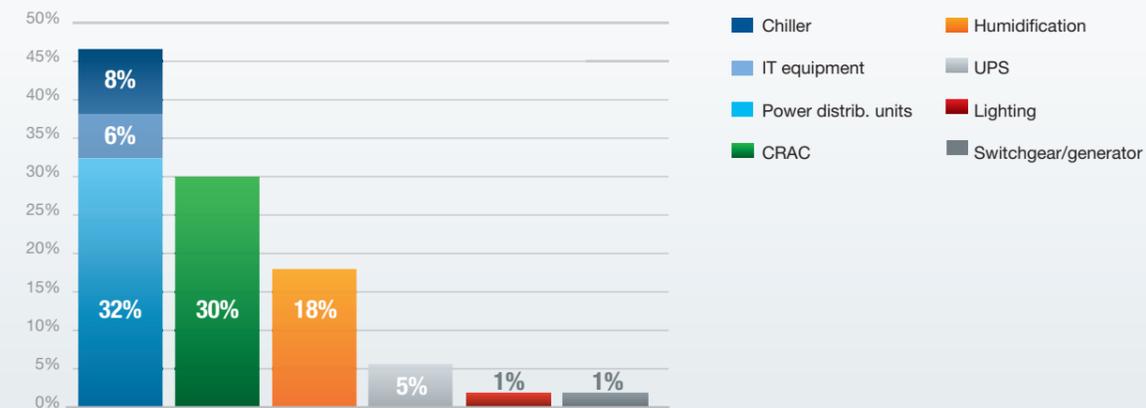
Data Center cooling & power load consumption

Power and cooling represent the lion's share of the energy consumption of a Data Center, although they are not directly linked with the value adding operations of the Data Centers.

To measure heat loads it is the essential base to design highly efficient Green Data Centers.

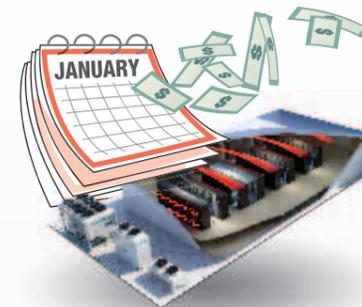


Data Center power consumption by apparatus



CAPEX Capital Expenditures

The Data Center is a valuable asset for a company: all expenses related to the infrastructure, especially if related to high-tech solutions, remains within the company by adding value and expanding life span of the Data Center.



OPEX Operating Expenditure

Running costs of a Data Center operating 24 hours a day, 365 days a year for an average of 10 years, are crucial for those who must manage it. Even a small saving becomes very significant over time. This justifies even very high initial investments and justifies an anticipated refurbishment of the systems, aimed to improve their efficiency.



PUE Percentage of effectiveness = total facility power/ IT equipment power

It considers the overall energy efficiency of the Data Center, measured as the ratio between total absorbed power and the power needed by the servers. As only energy used to transfer data creates value for the Data Center, a ratio close to 1 would represent the condition of optimum efficiency. Most Data Centers have a PUE between 2 and 3, excellent values are between 1,2 and 1,5.

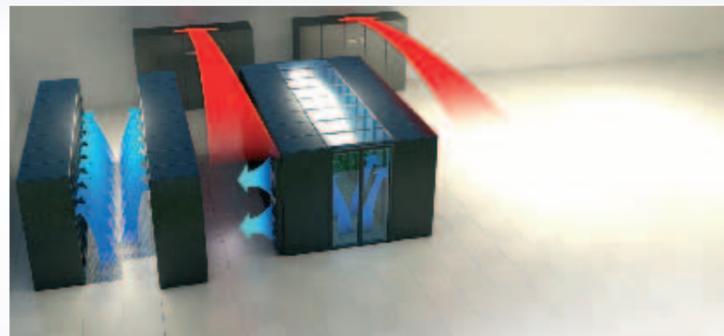


DCiE = 1/PUE x 100

Reciprocal of PUE, DCiE shows the % of power absorbed by IT infrastructure, compared to the overall Data Center consumption. Values close to 33% are usual for traditional Data Centers. DCiE 66% reflects a very high energy efficiency.

CLIMAVENETA HD APPROACH

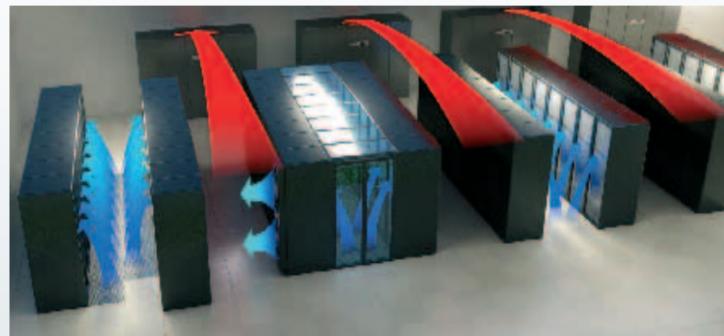
ALL SOLUTIONS ENHANCE THE ADVANTAGES OF A GREEN DATA CENTER DESIGN ENSURING:



FLEXIBILITY

Along the years Data Centers are continuously changing on their original designed features like:

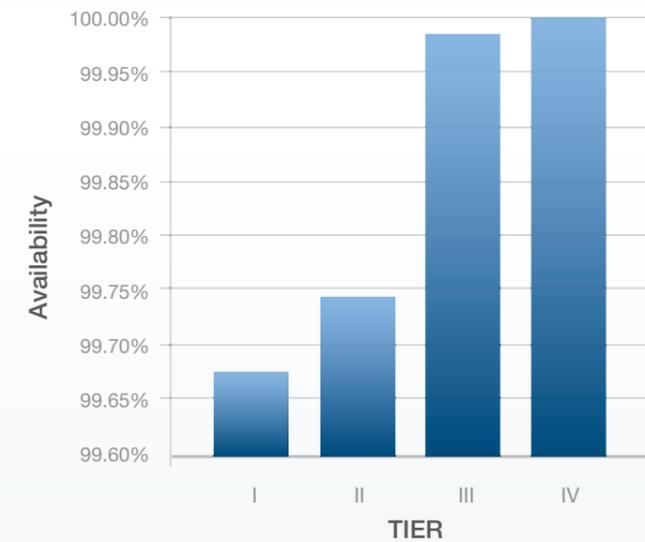
- in shape & global designing
- in computing capacity
- new rack solutions
- in heat dissipation



SCALABILITY

Data Centers require scalable design to:

- Manage different heat loads for different areas
- Allow increasing heat load over time
- Accomodate new areas to be cooled



RELIABILITY PROPER DESIGN

RELIABILITY - TIER Classification (by Uptime Institute) defines the acceptable Downtime per Data Center.

- TIER I: 99.671% (28.8 hours downtime)
- TIER II: 99.741% (22.7 hours downtime)
- TIER III: 99.982% (1.58 hours downtime)
- TIER IV: 99.995% (0.44 hours downtime)

Redundancy is the typical way to increase the Uptime. In facing the cooling problems only smart solutions can avoid the disaster of shut-down while limiting CAPEX and OPEX. Reliability must look around at 360°.

	TIER I	TIER II	TIER II	TIER IV
Number of Delivery Paths	Only 1	Only 1	1 Active 1 Passive	2 Active
Redundancy	N	N + 1	N + 1	S + S or 2 (N + 1)
Compartmentalization	No	No	No	Yes
Concurrently Maintainable	No	No	Yes	Yes
Fault tolerance to Worst Event	None	None	None	Yes

GREEN DATA CENTERS BEST PRACTICES

Extensive research in this application has developed some best practices, which are a must for an efficient Data Center.

Climaveneta solutions are designed to fit perfectly this approach

OPTIMIZED AIR FLOW MANAGEMENT

Optimized air flow design, directing cold air through raised floor to form cold aisles in front of the RAC air intake



COLD AND HOT AISLES

Hot & Cold aisles layout address air-flow to the servers to allow maintaining a constant temperature. Working conditions become more stable and efficiency of the whole cooling system increases.



LOCALIZED COOLING

Dedicated localized cooling to target cooling directly at hot spots as integration of the cold & hot aisle



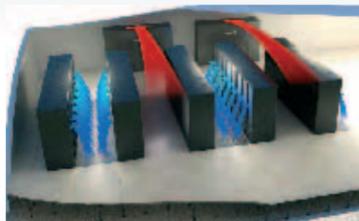
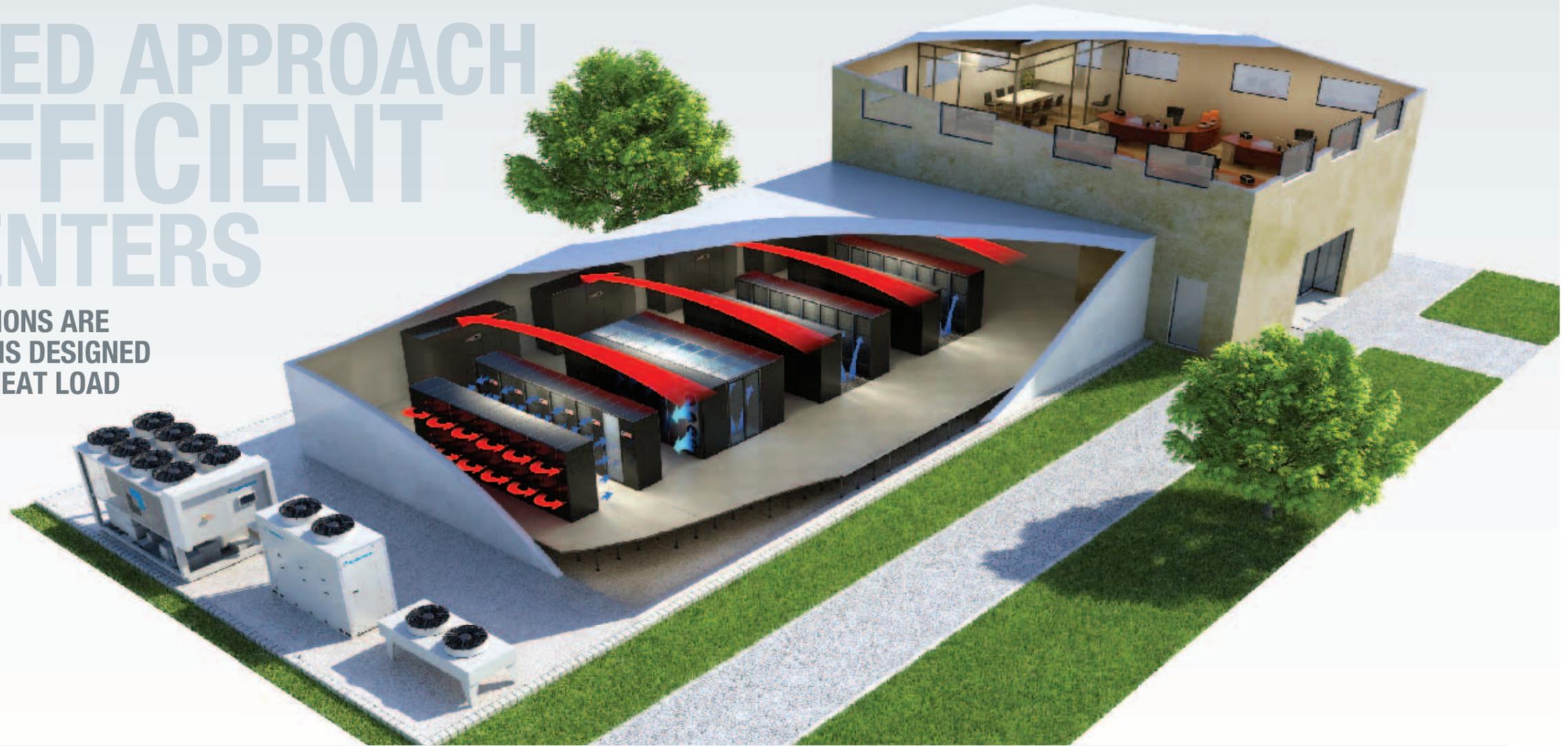
HIGHEST EFFICIENCY WITH WATER COOLED SYSTEMS

Optimized hydronic solutions for HPAC combine energy efficiency unthinkable for direct expansion system, flexible performances and utmost reliability,



DEDICATED APPROACH FOR EFFICIENT DATA CENTERS

CLIMAVENETA HPAC SOLUTIONS ARE ADAPTIVE COOLING SYSTEMS DESIGNED ON ACTUAL DATA CENTER HEAT LOAD REQUIREMENTS (kW/m²)



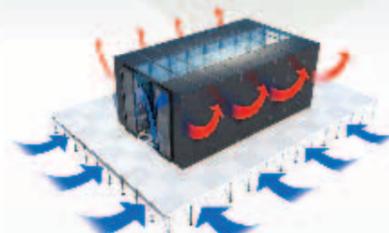
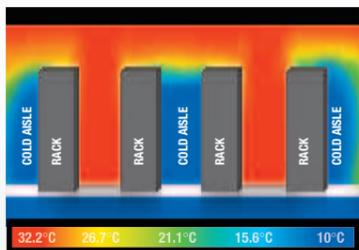
LOW DENSITY ZONE

< 5 kW/m²_rack

HOT/ COLD AISLE

Easy, fast and long lasting solution, hot&cold aisle is the basic and still essential concept that drives all layouts of Data Centers.

- Through raised floor air can be easily addressed exactly where required (in front of the rack) allowing easy management of redundant cooling units.
- Flexible as provide maximum freedom in accommodating new rack's distribution or even major infrastructure changes.
- Lowest CAPEX allows more investment on more productive equipment



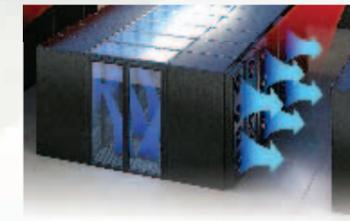
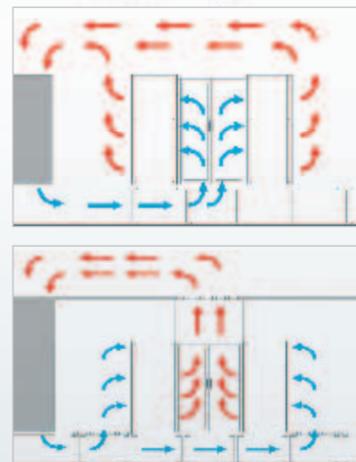
MEDIUM DENSITY ZONE

10-20 kW/m²_rack

COMPARTIMENTATION

COMPARTIMENTATION prevents the HOT & COLD air mixing in the upper section of the racks, guaranteeing homogeneous air flow at the suction of the server.

- No mixing between Hot & Cold air, so no losses.
- Additional energy saving around 15% depending from the Data Center layout
- Easy solution to implement after having HOT & COLD aisle with relatively low CAPEX
- Complete integration with existing Perimetral units
- Immediate energy benefits



HIGH DENSITY ZONE

> 25 kW/m²_rack

COMPARTIMENTATION + LOCALIZED COOLING to manage HOT SPOTS

CCD (Climaveneta Cooling Door) & CRC (Climaveneta Rack Cooler) stand for ideal integration to manage HOT SPOTS caused by new BLADE SERVERS providing extra local cooling exactly where it is needed.

- Extra cooling only where required
- Direct expansion inverter type or Chilled water system for a total flexibility of the cooling system
- Modulating Air flow thanks to EC high efficiency fans. The fans adapt to the thermal load detected by sensors positioned in the hot and cold aisle. This increases efficiency and reduces air stratification.
- Perfectly compatible with most of racks and ready for extension of the cooling system.



LOW DENSITY ZONE

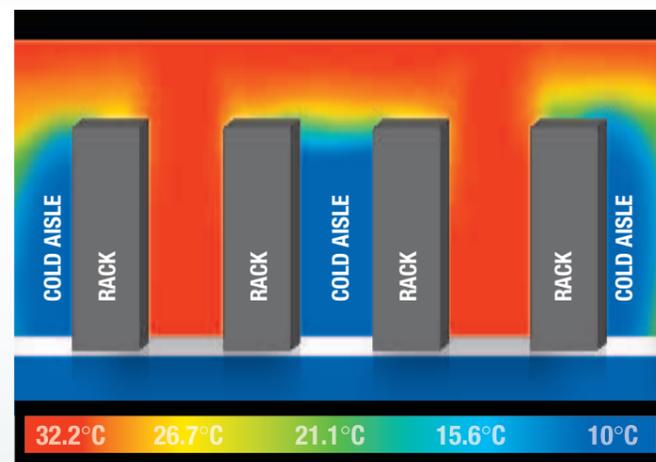
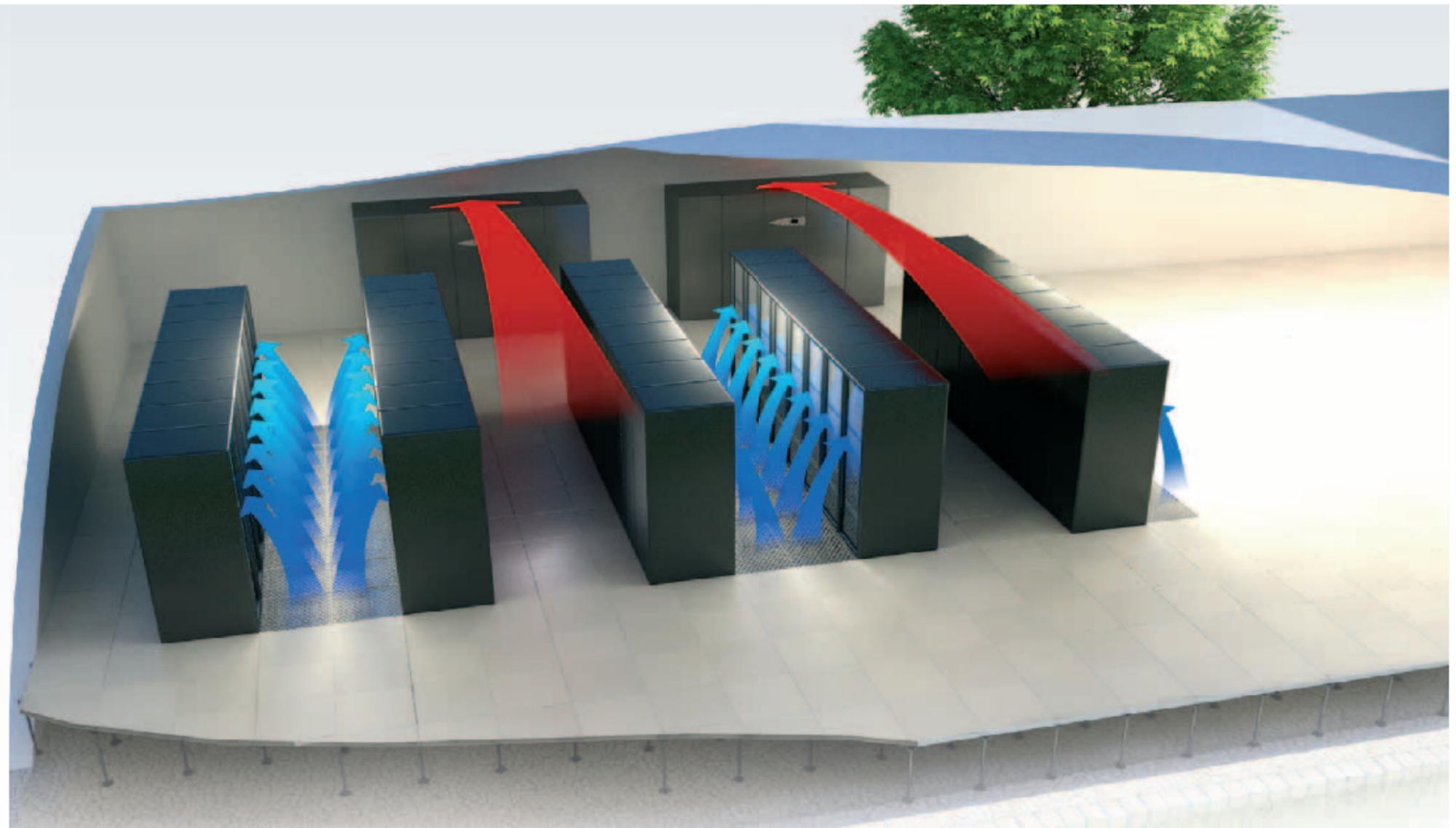
< 5 kW/m²_rack

HOT/ COLD AISLE

The Data Center is designed in order to create hot and cold aisles. Cold air is delivered through the floor or ducts exactly where is needed and hot air returns to the HPAC units, thus improving the set point, and the overall Energy Efficiency of the system.

THIS SYSTEM ALLOWS:

- good efficiency,
- easy redundancy,
- easy expansions,
- minimal investment.

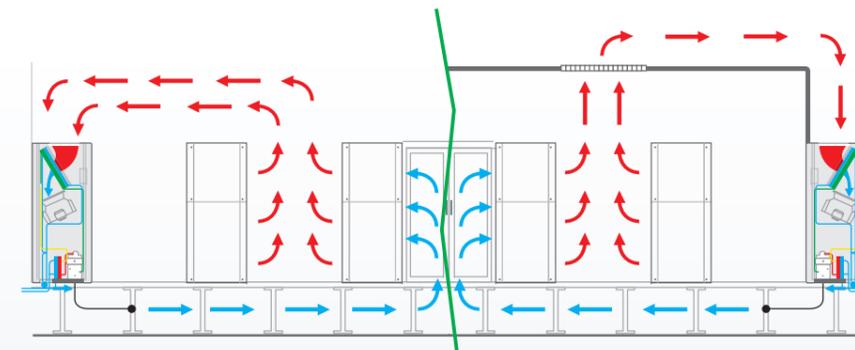


Cold and hot aisle solution enables to overcome the limits of the traditional approach, where cooling aims at maintaining stable conditions on the room, forgetting to focus on the racks requirements.

In last decade the landscape of Data Centers has dramatically changed. Years ago topology of a DC was not driven by heat loads so servers distribution in the room was driven by other needs hence leading to only one reference temperature of the room. This used to be from 18°C to 24°C, and it was as an accepted standard throughout the world. As soon as servers heat generation increased it became clear a more rational distribution of heat was necessary: this resulted into the Hot/Cold Isle concept.

The arrangement of rack servers according to such a logic allows to deliver the cold air-flow exactly where needed, i.e. typically in front of the racks, and greatly reduced the chances of cold-hot air mixing. This fact increases efficiency of cooling system by an easy 20% if compared to traditional layouts. On the other hand this new concept requires two level of temperatures to be properly defined and the optimisation of these temperatures easily leads to heavy working conditions.

CONSTANT AIR FLOW AND PRESSURE MANAGEMENT SYSTEMS



At the same time, the usage of raised floor demonstrated the clear advantage of distributing air where needed with negligible energy consumption. Those who designed very high raised floors could experience how long this choice extended life of their continuously growing Data Center. But such growth includes the increase of racks, data and power cabling, and other ancillary services that while crowding raised floor void lead to unexpected (!) effects in air distribution. The best way, and sometimes the only one, to cope with it is to keep constant pressure in the floor void:

this is the fundamental action to keep the required air distribution.

What appeared to be a complicate problem to solve, it is now wiped away by new Climaveneta pressuring system. All HPAC units can be connected to several pressure sensors and the air control system automatically manages airflows in order to keep steady ambient conditions for servers work. The feature can be customised as Constant Air Pressure or Constant Air-Flow.

MEDIUM DENSITY ZONE

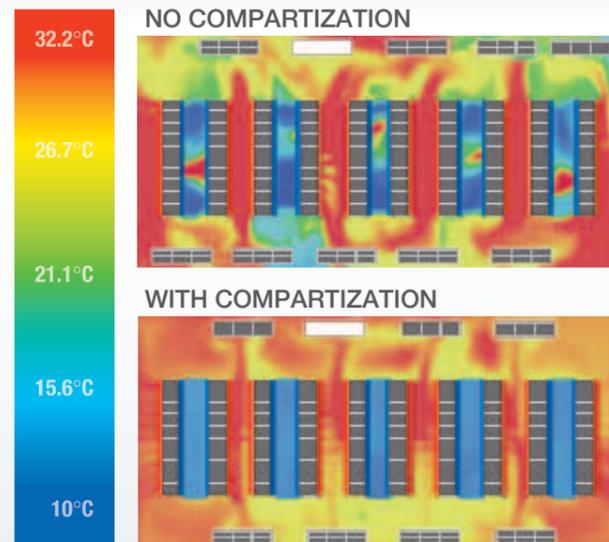
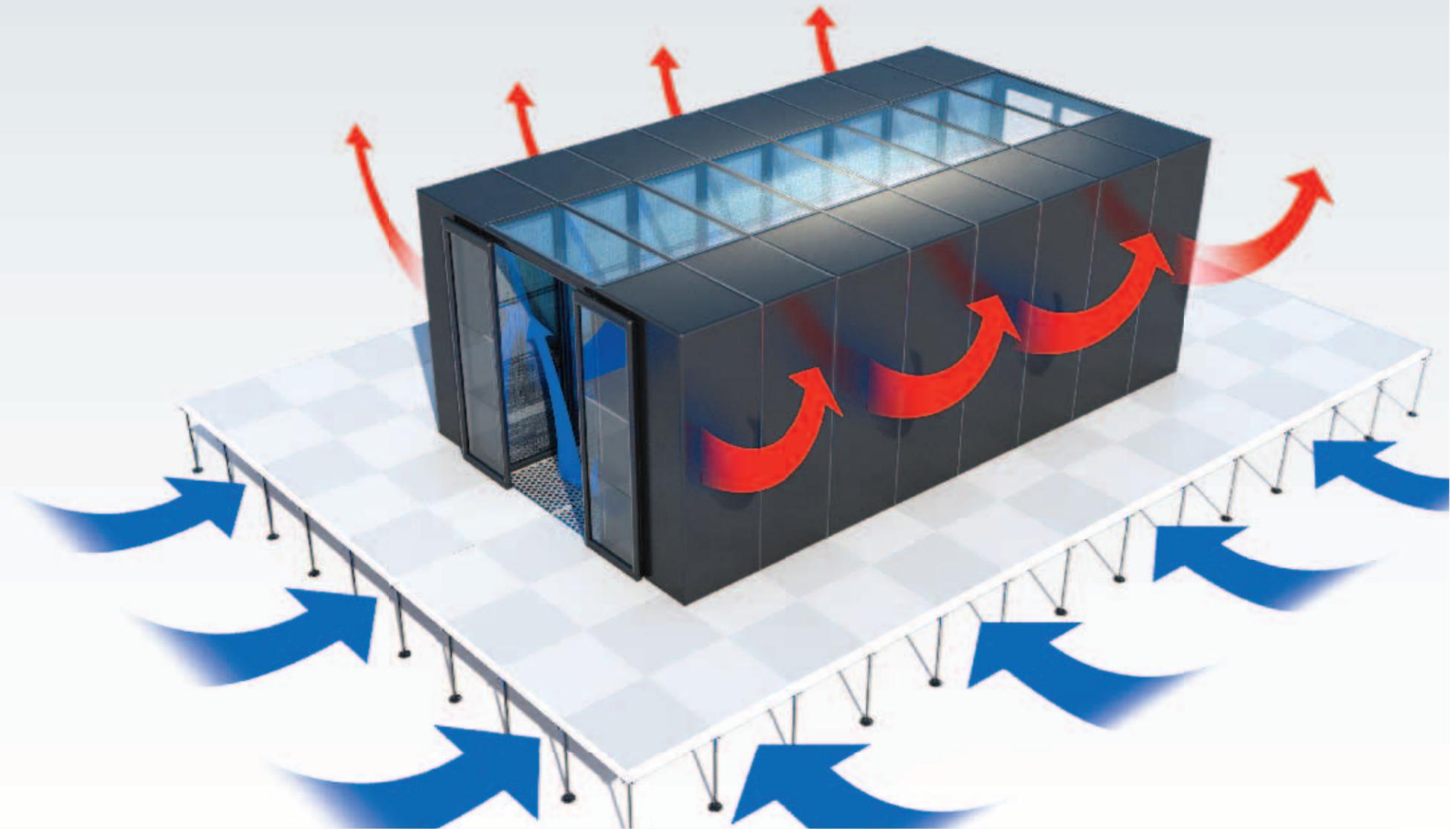
10-20 kW/m²_rack

COMPARTIMENTATION

Compartmentation prevents the HOT & COLD air mixing in the upper section of the racks, guaranteeing homogeneous air flow at the air-inlets of the servers.

THIS SYSTEM ALLOWS:

- important improvement of efficiency
- tight control of critical air feeding the servers
- to concentrate more servers in less volume.

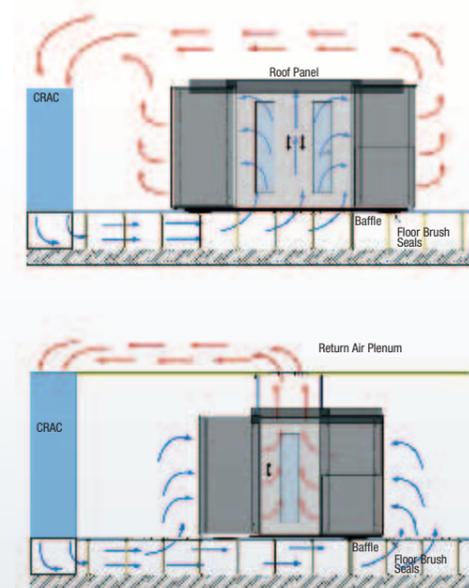


The image above shows an excellent example of the advantages in terms of hot and cold flows separation obtained through compartmentation.

COMPARTIMENTATION

In High Density applications the presence of hot and cold aisles is not enough to prevent the mix of supply and return air. This mix results in air flow with a temperature that reduces the performance of the Data Center. If such air goes to servers it is warmer than expected and servers may stop working due to overheating. If mixed air goes to the cooling system it is colder than air coming out from servers, therefore heat exchange is reduced and then global efficiency is affected.

Therefore it is necessary to provide a physical separation for the two airflows. This is achieved by using compartmentation, which is a simple and cost effective solution: it guarantees the servers to be fed with the design cold air and the cooling system to be more efficient.



TECHNOLOGIC SOLUTIONS

The decision regarding usage of compartmentation needs to be analyzed on a project basis as it is affected by different factors such as: room dimensions, shape, heat load and density, cooling technology, redundancy provisions and some more.

In practice Climaveneta provides two techniques di compartmentation:

- 1 **Cold Corridor Compartmentation**, which provides tight control to the cold air feeding the servers.
- 2 **Hot Corridor Compartmentation**, which confines hot discharge air from servers in a hot zone.

HIGH DENSITY ZONE

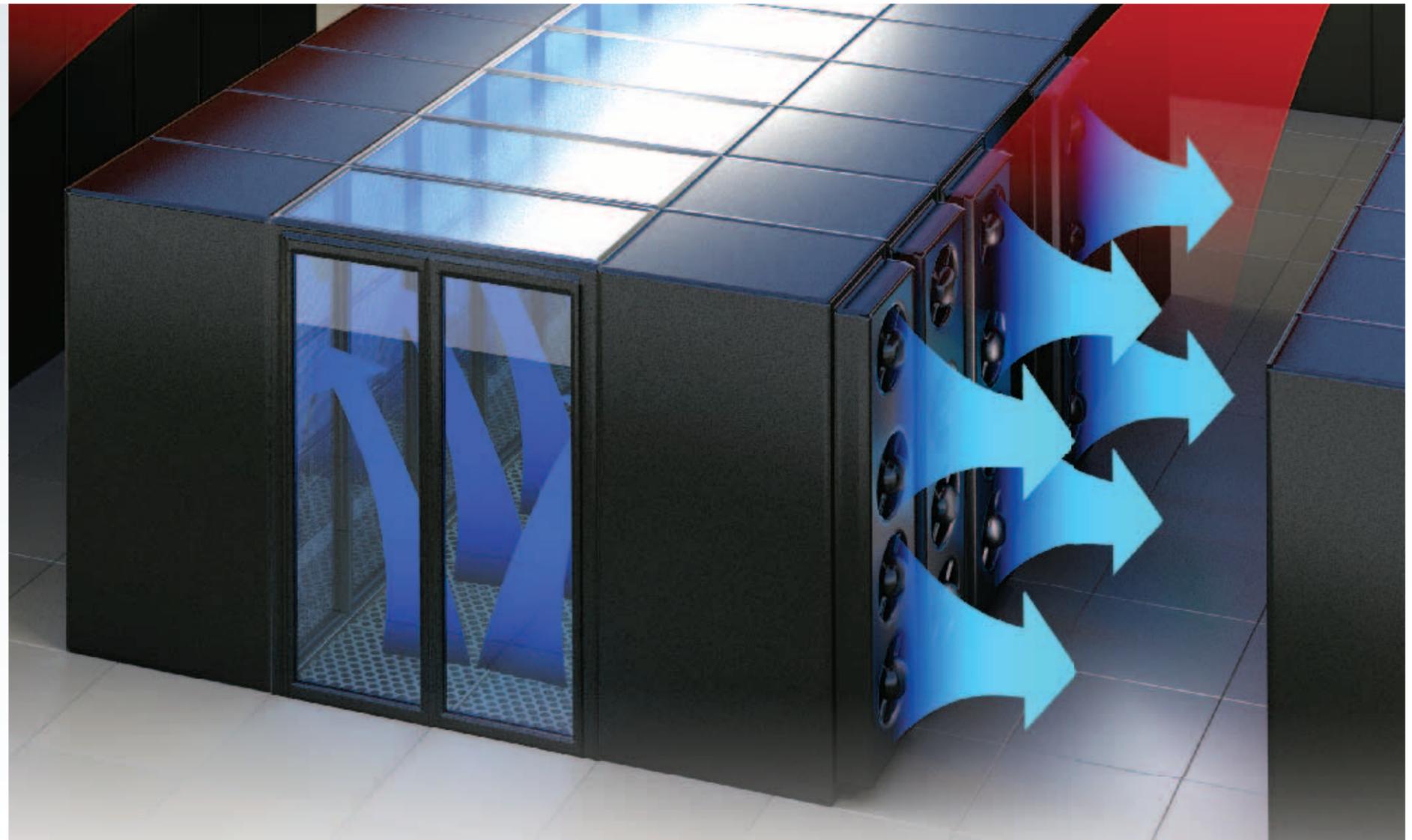
> 25 kW/m²_rack

COMPARTIMENTIZATION + COOLING DOOR + RACK COOLER

This solution must accommodate the most critical heat load densities. Here hot-spots cannot be avoided without compartmentization. Redundancy is a serious and complicated issue to address and extra cooling capacity must be added to traditional systems.

THIS SYSTEM ALLOWS:

- To maximize the internal capacity of the infrastructure.
- Eliminates hot spots.
- Allow minimum floorspace occupancy.



CCD

Climaveneta Cooling Door

- **ADDITIONAL COOLING CAPACITY**
Thanks to chilled water coil available both single & double circuit.
- **ZERO FOOTPRINT**
- **ADAPTABLE TO ALMOST ALL RACKS**
- **TOP ENERGY EFFICIENCY**
with Electronic Controlled Fans modulated on actual needs.
- **AIR STRATIFICATION MANAGEMENT**
Tight control of the RACK's temperatures thanks to 8 independent sensors
- **FLEXIBLE CONNECTIONS**
From top & from the bottom at customer choice depending from raise floor availability
- **READY TO OPERATE WITH LATEST GENERATION CHILLERS**
including MAGNETIC LEVITATION and FREE-COOLING technologies.



CRC

Climaveneta Rack Cooler

- **STRONG SAVING DUE TO THE LIMITED AIR VOLUME TO SCALABILITY & MODULARITY**
- **OPTIMAL SOLUTION FOR SINGLE RACK**
- **100% REDUNDANCY AVAILABLE.**

A solution for each system

CRCX: Direct expansion

- EC FANS
- R-410A, DC INVERTER COMPRESSOR
- CAPACITY FROM 20 TO 35 KW

CRCC: Chilled water

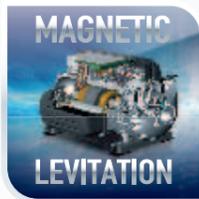
- EC FANS
- 3 WAY MODULATING VALVE
- CAPACITY FROM 20 TO 35 KW



EFFICIENT UNITS FOR GREEN DATA CENTER

THE MILESTONES OF DATA CENTER COOLING TECHNOLOGY

1 MAGNETIC LEVITATION



Unbeatable Efficiency, Silent Operation, Reliability. Only Climaveneta can deliver the Experience of the World Top Technology in Refrigeration: centrifugal compressors with Magnetic Levitation of Electric Rotor that reaches 50'000 rpm. EER can touch the threshold of 15 kW of cooling capacity per each 1 kW of Electric Power.

2 FREE COOLING



Freecooling is a fundamental technology to reduce energy consumption of Data Centers. Available as Direct and Indirect version, this solution enables to use external air whenever its temperature is lower than room or water temperature. The advantages of this technology are enhanced by the inverter compressor that enables to use also partial freecooling.

3 ECOLOGIC REFRIGERANTS



Both R-410A and R-134a represent the most modern and looking ahead choice in refrigerant technology: they clearly contribute in making the ICT GREEN since comply with environmental friendly policies and provide enhanced cooling efficiency.

4 ADAPTIVE SET POINT



Smart management of water temperature allows unprecedented increase of efficiency and money saving in cooling of Data Centers when coupled with Free-Cooling or Magnetic Levitation technologies. Best performances require decades of expertise to be developed.

11 ELECTRONIC INVERTER DRIVEN COMPRESSOR



Modulating the cooling capacity results in a major increase of Energy Efficiency: EER can rise from typical 2.7 to 5.2 and more! Redundant unit shall not be a dead investment as it will be on duty at extremely partialised loads thus granting cooling capacity with greater efficiency. i-ACCURATE represents the ultimate MILESTONE in Data Center cooling, providing THE FIRST FULLY ELECTRONICALLY CONTROLLED HPAC UNIT

10 ELECTRONIC CONTROLLED FANS



NEW GENERATION EC FANS

The high efficiency EC fan reduces both noise levels as well as energy consumption, and assures a variable air flow at part loads. Operational Costs reduce -15% if compared to traditional EC-Fans, -25% if compared to plug fans.

EC FANS ALSO IN THE REMOTE CONDENSERS

The use of EC technology even on the remote condenser fan assures a further average reduction of noise levels by 10%, together with a strong reduction of energy consumption by 45% when compared with traditional condensers with AC technology.

9 ELECTRONIC EXPANSION VALVE



Electronic Expansion Valve allows ultimate compressors working conditions in order to achieve the most efficient performances and to avoid dangerous downtimes.

8 COMPARTIMENTATION FOR HIGHEST EFFICIENCY



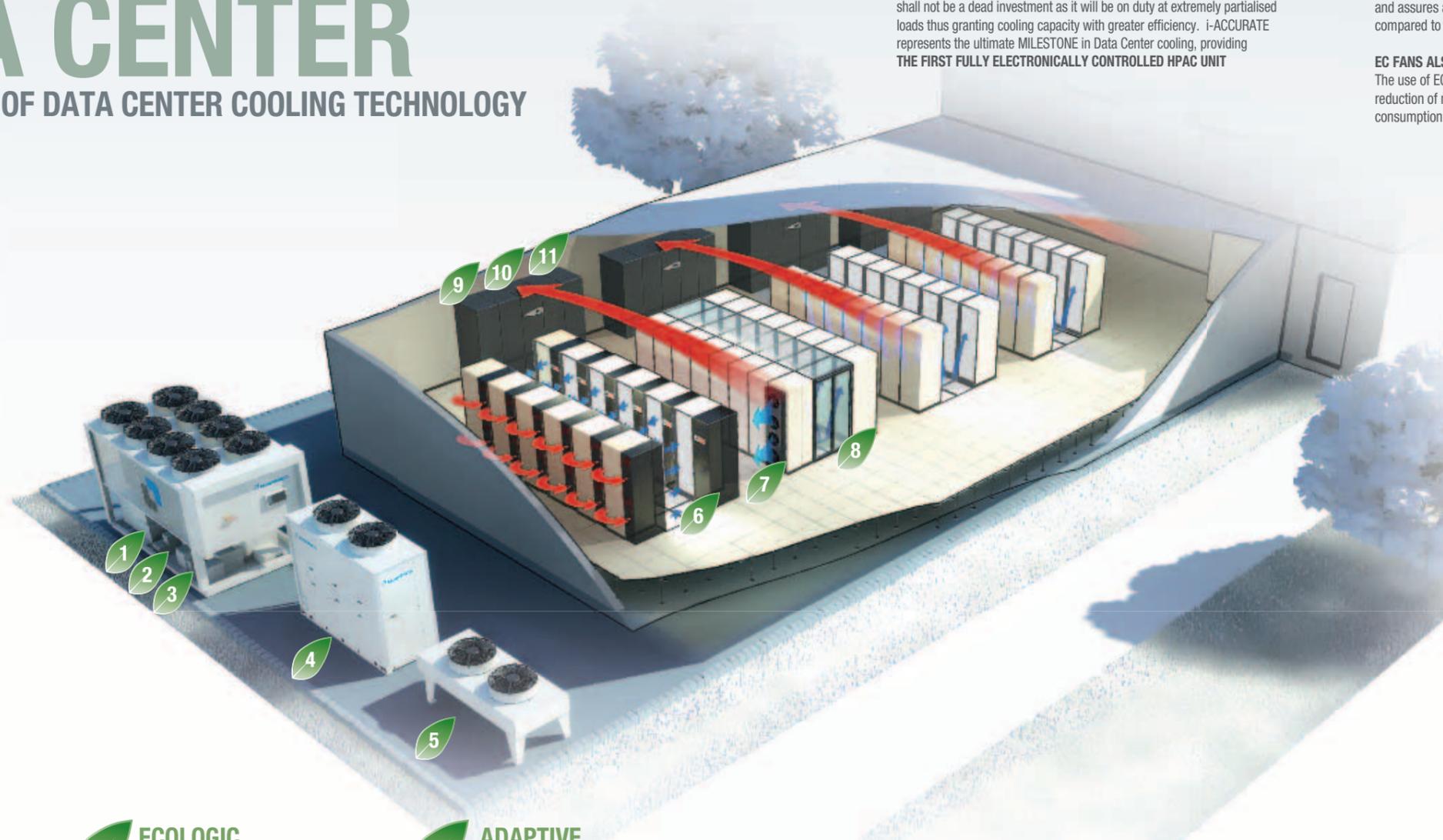
7 ADDITIONAL FULL SENSIBLE COOLING CAPACITY



5 LOW NOISE ENVIRONMENT & ENERGY SAVING



6 SHORT LOOP AIR VOLUME, SCALABLE AND MODULAR 100%



HPAC UNITS

CLIMAVENETA HPAC SOLUTIONS COMPRISE A WIDE RANGE OF UNITS FROM 6 TO 220KW ALL OF THEM INTEGRATING LEADING EDGE TECHNOLOGY TO ACHIEVE THE MOST SOLID RELIABILITY AND THE HIGHEST EFFICIENCIES

COOLING DOORS



35 kW
Suitable for 600mm wide racks.

RACK COOLERS



Side cooling 20 to 35 kW

CRCX:
Direct expansion version

- EC fans
- R-410A
- DC Inverter compressor

CRCC:
Chilled water type

- EC fans
- 3 way modulating valve

REMOTE CONDENSERS



Remote condenser with axial fans

BRE 13,4-140 kW

BRC 13-120 kW



Remote condenser with centrifugal fans

ARCC 14-116 kW

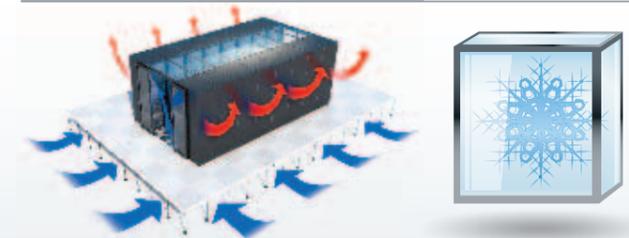
DRY COOLERS



Dry Cooler with axial-type fan(s).

BDC 14-135 kW

HOT & COLD AISLE CONTAINMENT



Adaptable to different sizes/necessities.



ACCURATE CLOSE CONTROL AIR-CONDITIONERS

INVERTER DRIVEN DIRECT EXPANSION



ACCURATE Full range Upflow - Downflow unit with R410A & inverter driven scroll compressor from 6 to 90 kW, air/water cooled.

i-AX 6-150 kW
Air cooled



i-AD 11-130 kW
Dual Fluid, air cooled



i-AW 6-150 kW
Water cooled



i-AT 11-130 kW
Dual Fluid, water cooled



i-AF 6-130 kW
Free Cooling



DIRECT EXPANSION - ON/OFF



ACCURATE range unit with R410A scroll compressor from 6 to 90 kW, air/water cooled.

AX 6-90 kW
Air cooled

AW 6-100 kW
Water cooled

AD 11-100 kW
Dual fluid air cooled

AT 11-100 kW
Dual fluid water cooled

AF 6-100 kW
Free cooling

CHILLED WATER



AC 8-220 kW
Chilled Water



AB 20-140 kW
Chilled Water
Double Circuit





20 YEARS EXPERIENCE FREE-COOLING WATER CHILLERS



NECS-FC

Free-Cooling chillers with scroll compressors, optimised for Data Center application.

HFC R-410A



FOCS-FC

Screw compressors Free-Cooling chiller, solid, reliable, efficient.

HFC R-134a



40 400

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 kW

NECS-FC
Acoustic versions

B base version
SL super-low noise version



350 1200

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 kW

FOCS-FC
Acoustic versions

B base version
SL super-low noise version



CHILLERS WITH MAGNETIC LEVITATION COMPRESSORS



TECS VISION 2.0

Air and water cooled chiller with magnetic levitation compressors. World's Top Technology in refrigeration industry.

EER up to
15!

12i
EER nb 10



230 1200

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 kW

Acoustic versions

- SL-CA Super Low noise version, Class A of efficiency
- XL-CA eXtra Low noise version, Class A of efficiency
- SL-CA-E Super Low noise version, very high efficiency, Class A enhanced

CONTROLLERS AND SUPERVISION DEVICES

A full range of controllers, supervision and metering devices complete the Climaveneta High Density Data Center Cooling Solutions, and allow enhancing efficiencies, synergies among all the components, and the reliability of the system.

Control Devices

MANAGER 3000
Group regulation device



Supervision solutions

Dedicated supervision software for complex cooling plants including multiple redundancies.



FWS3000

Metering devices

DEMETRA

Essential for
True PUE Metering



"BY FAR THE BEST PROOF IS EXPERIENCE"

Sir Francis Bacon *British Philosopher (1561 - 1626)*

CLIMAVENETA SOLUTIONS FOR DATA CENTER COOLING, WITH THEIR UNBEATABLE ADVANTAGES IN TERMS OF EFFICIENCY, QUALITY AND RELIABILITY, ARE ALREADY THE PREFERRED CHOICE IN THE MOST CHALLENGING AND PRESTIGIOUS DATA CENTER PROJECTS, ALL AROUND THE WORLD AND WITH ALL THE MAJOR BRANDS.

TMC - TRANSPORT MANAGEMENT CENTRE

South Africa - Cape Town
 Installed Machines: 5 AD 070 Close Control Units,
 1 AD 030 Close Control Units

WILLIS BUILDING

United Kingdom - London
 Office Buildings
 Total cooling capacity: 6000 kW
 Installed Appliances: 7 TECS

IKEA

Italy - Rimini
 Retail
 Total cooling capacity: 2800 kW
 Total heating capacity: 3000 kW
 Installed Appliances: 7 TECS

SHELTER VODAFONE

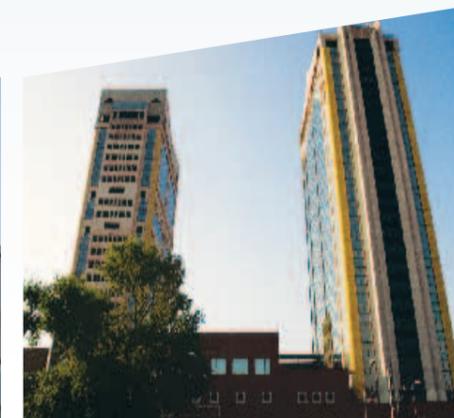
Italy
 Telecommunications
 Total cooling capacity: 700 kW
 Installed Appliances: Several HPAC units,
 ACCURATE range

SAMEL 90

Bulgaria - Samokov
 Industrial Process
 Total cooling capacity: 19,1 kW
 Installed Machines: 1 AX 18
 Close Control Units

TORRI GARIBALDI

Italy - Milan
 Office Buildings
 Total cooling capacity: 1900 kW
 Total heating capacity: 2000 kW
 Installed Machines: 2 ERACS-WQ



BOUYGUES TELECOM

France - Paris
 Telecommunications
 Total cooling capacity: 1000 kW
 Installed Machines: 2 condenserless units

PARTIKELTHERAPIEZENTRUM

Germany - Kiel
 Healthcare & Hospitals
 Total cooling capacity: 900 kW
 Installed appliances: Several HPAC units,
 ACCURATE range

ALPHA BANK

Romania - Bucharest
 Financial Institutions
 Total cooling capacity: 548 kW
 Installed Appliances: 4 AT 60 Close Control
 Units, 4 AT 77 Close Control Units

APORTI PALACE

Italy - Milan
 Business Districts
 Total cooling capacity: 2600 kW
 Installed Machines: 4 ERACS-Q/LT-SL-S-2722,
 1-MANAGER 3000, 1-DEMETRA

SONY ERICSSON

Sweden - Lund
 IT Industry
 Total cooling capacity: 1200 kW
 Installed Appliances: 2 air cooled
 chiller with EC-fans

SHELTER TIM

Italy
 Telecommunications
 Total cooling capacity: 1125 kW
 Installed Appliances: Several HPAC units,
 ACCURATE range

CLIMA VENETA ONENAMEONESTORY

**WITH 40 YEARS
LEADING EXPERIENCE
CLIMAVENETA IS A
MAJOR WORLD PLAYER
IN THE AIR
CONDITIONING,
HEATING AND PROCESS
COOLING INDUSTRY.**

Based on 6 hub factories and present in over 100 countries of the world, Climaveneta manufactures a full range of high efficiency solutions for any kind of building and cooling requirement.

Its systems are the preferred choice by the most demanding customers for the most challenging projects all around the world. These achievements are the result of an unbeatable know-how and a strong focus on R&D, proven also by its many patents in many different technologies and applications. With this background Climaveneta has approached the challenges of the cooling for Data Centers, developing a complete range of high efficiency leading edge solutions that have already set the new echnology milestone in this field.

SOMETIMES NUMBERS SAY MORE THAN A THOUSAND WORDS



**1° EUROPEAN AND
5° WORLD MANUFACTURER,**

**2 TO 2.400 KW
COOLING POWER RANGE**

**17 TEST LABORATORIES
OVER 70 PEOPLE IN R&D**

40 YEARS EXPERIENCE

90.000 M² PRODUCTIVE AREA

**1971 ESTABLISHED IN
BASSANO DEL GRAPPA (ITALY)**

**1994 ENTERS IN
THE DE'LONGHI GROUP**

203 MILLIONS € TURNOVER 2010

Head offices and foreign branches

- Climaveneta SpA in Italy
- Climaveneta France
- Climaveneta Deutschland
- Climaveneta España
- Climaveneta Poland
- Climaveneta Chat Union Refrig. Equipment Co Ltd in China
- Climaveneta India Climate Technologies (P) LTD

Distributors

Over 55 distributors in more than 100 countries of the world for a truly complete market coverage.

Service

Service is assured in all countries through the assistance networks of our subsidiaries and distributors with highest expertise, a wide range of after sales service contracts for a truly complete support.

6 HUB FACTORIES ORGANIZED ACCORDING TO LEAN MANUFACTURING PRICIPLES



Bassano del Grappa (Vicenza - Italy)
Headquarters
Productive area: 12.500m²
Employees: 230

Production of:

- Chillers: air and water cooled, from 30 to 700kW
- Reversible units: air and water cooled, up to 400kW
- Multipurpose up to 400KW
- Chillers with free-cooling up to 300kW



Pieve d'Alpago (Belluno - Italy)
Climaveneta Training centre
Productive area: 7.000 m²
Employees: 50

Production of:

- Air handling units



Pieve d'Alpago (Belluno - Italy)
Productive area: 25.000 m²
Employees: 210

Production of:

- Chillers: air and water cooled, from 200 to 1700kW
- Heat pumps air and water cooled, up to 2400KW
- Multipurpose up to 700KW
- Chillers with free-cooling up to 1250KW
- Shell & tube evaporators
- Roof-top units up to 500kW



Mignagola (Treviso - Italy)
Productive area: 20.000m²
Employees: 160

Production of:

- Split systems, multisplit
- Chillers and Heat pumps up to 150KW
- Hydronic fan coils from 1 to 30kW
- Close control units
- Telecommunications units



Shanghai (China)
Sales department for China and far east
Productive area: 25.000 m²
Employees: 330

Production of:

- Air cooled chillers & heat pumps from 40 to 1700KW
- Water cooled chillers & heat pumps from 10 to 3070KW



Paret del Valles (Spain)
Productive area: 2.500 m²
Employees: 45

Production of:

- Direc expansion units
- Compact units
- Rooftop units for small and medium applications

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