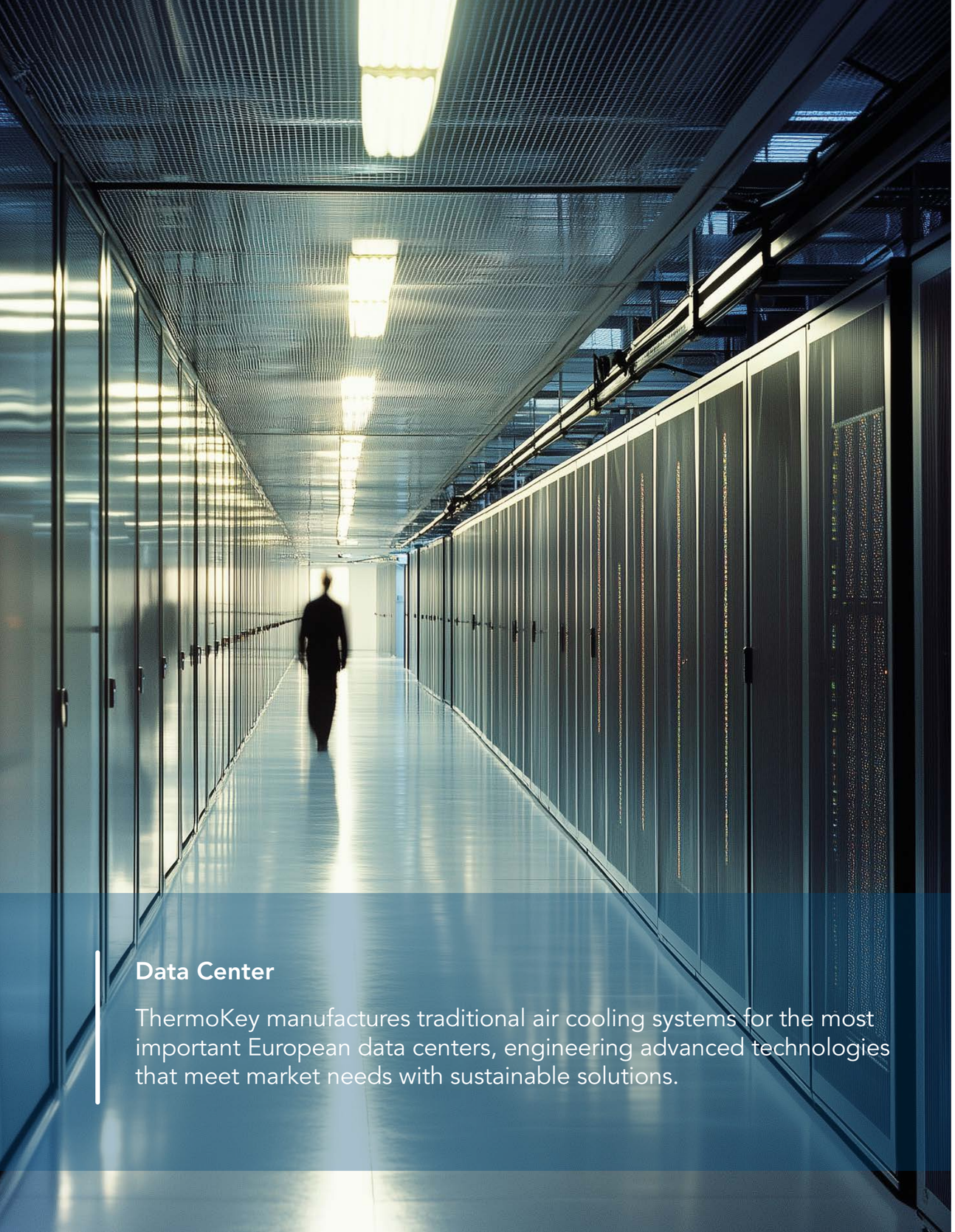
ThermoKey®

Heat Exchange Solutions

Data Center

Cooling solutions



Data Center

ThermoKey manufactures traditional air cooling systems for the most important European data centers, engineering advanced technologies that meet market needs with sustainable solutions.

The Data Center Challenge

The global data center market is expected to reach **USD 536.28 Billion by 2030** with an electricity use estimated to increase to **848 TWh** due to the increasing demand for cloud computing services, big data analytics, IoT devices, and the growing application of AI.

This rapidly expanding market currently faces **4 essential challenges:**

GRANT IMPROVED ENERGY EFFICIENCY

Data centers are extremely complex and energy-consuming infrastructures.

ENSURE BUSINESS CONTINUITY

Companies' services are critical to many organizations and sectors.

COMPLY WITH THE NEW AND EVOLVING GOVERNMENT COMPLIANCE MANDATES

As of May 2024 it will be mandatory for most data centers to report on energy consumption, PUE (power usage effectiveness), and other crucial aspects.

REDUCE WEIGHT AND DIMENSIONS OF THE COOLING UNITS

To optimize transport and installation costs, save space, and place less strain on the structures.

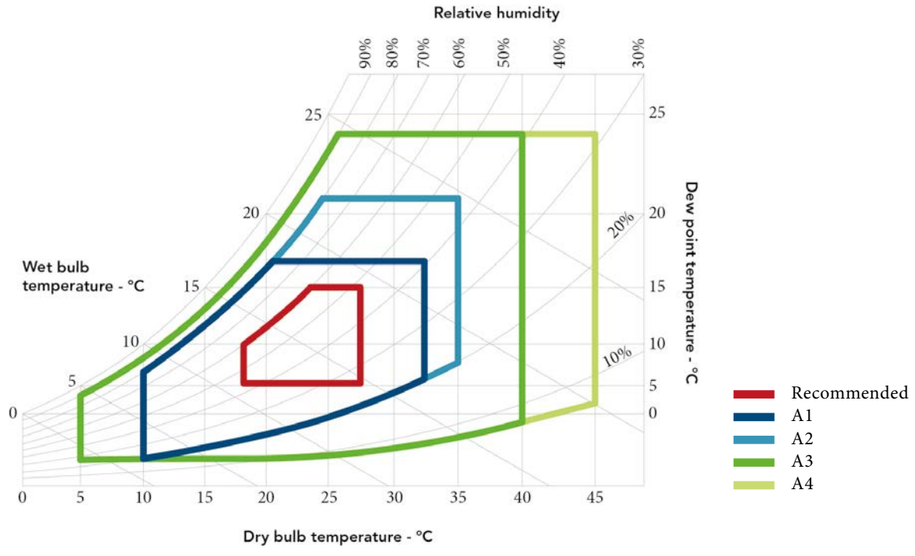
Product features

Data Centers (also referred to as server rooms or IT rooms) and Data Center Cooling have undergone significant developments since the first introduction of the ASHRAE recommendations and “Thermal Guidelines for Data Processing Environments” in 2004.

The **ASHRAE recommendations** are the current standard for thermal management in the Data Center industry. Continuous guideline updates aim to support a more energy efficient cooling of IT equipment without compromising reliability.

ASHRAE Ideal Working Conditions for All Informatics Devices

2011 ASHRAE environmental classes for Data Center applications.

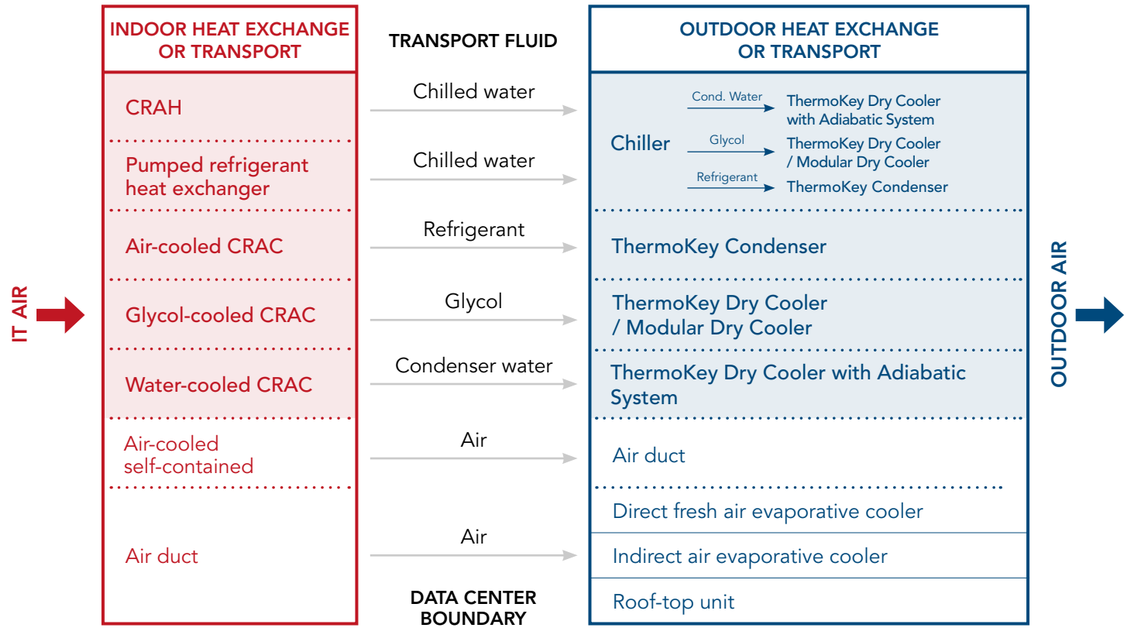


Heat Removal Methods in Data Centers

Every element of IT equipment that consumes power produces an equivalent amount of heat in return.

The removal of hot air could be as simple as an air duct, but it is generally achieved by using a heat exchanger to transfer heat from one state to another (e.g. from air to water).

One or more methods can be used to cool computer rooms and Data Centers.



Product range

	ENERGY & PROCESS COOLING	AIR CONDITIONING	REFRIGERATION	DATA CENTER
POWER-LINE DRY COOLERS				
POWER-J DRY COOLERS				
SUPER POWER-J DRY COOLERS				
POWER-J (V-TOWER) DRY COOLERS				
MODULAR DRY COOLERS				
TK MICRO LIQUID COOLERS				
POWERGEN RADIATOR				
TURBO-LINE CONDENSERS				
TURBO-J CONDENSERS				
GAS COOLER				
TKMICRO V-TYPE MODULAR REMOTE CONDENSER				
MICROCHANNEL CONDENSERS - TKSMART				
INDUSTRIAL DUAL FLOW UNIT COOLERS				
INDUSTRIAL UNIT COOLERS				
BLAST FREEZER UNIT COOLERS				
FRUIT COOLERS				
RADIAL UNIT COOLERS				
COMMERCIAL DUAL FLOW UNIT COOLERS				
LIGHT CUBIC UNIT COOLERS				
HEN UNIT COOLER				
PROCESS DUAL FLOW UNIT COOLER				
ROUND TUBE COILS				
MICROCHANNEL CORES				

NEEDS

- Tailor-made products
- Reliability and easy maintenance
- High capacity

NEEDS

- People wellness
- Proper practicality of equipment by removing generated heat
- High energy efficiency

NEEDS

- Preservation of food freshness and properties
- Continuous performance over time
- Sanitisable products

NEEDS

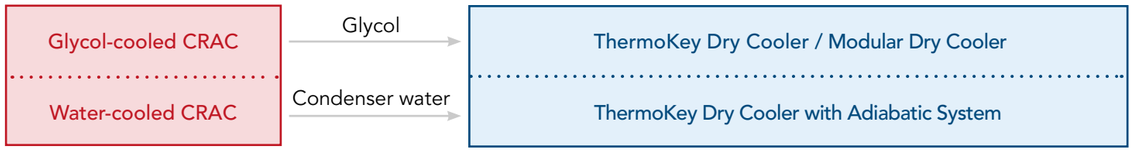
- Reliability
- Maintain a constant temperature

Data Center Cooling Solutions

Dry Coolers

> Through the ambient air and a closed circuit – without wasting water – they dissipate the heat not usable by production processes, power plants, engines, moulds

Dry Coolers without chiller



Example: Glycol (or water) cooled CRAC with a pump. Heat removal from the server room using a dry cooler installed outside. Instead of the dry cooler, an adiabatic cooler can be used when the external ambient conditions or efficiency allows it.

Application of use: In IT rooms and medium Data Centers (30-1000 KW)

Dry Coolers with chiller

Example: Computer Air Handling Unit (CRAH) combined with a Chiller Water System that can be accordingly connected to a dry cooler, an hybrid cooler or a condenser. Instead of CRAH it is also possible to use a Pumped Refrigerant System with a Cooling Unit Installed in the ceiling.

Application of use: In a 200KW or larger Data Center

Power-Line Dry Coolers

AREA OF USE	Heat rejection
PERFORMANCE RANGE	Capacity from 8 to 1100 kW (*)
FANS	Diameter Ø 500, 630, 800, 900, 1000 mm, AC or EC
BENEFITS	High efficiency geometry Modular design, 1-16 fans Many sound levels configuration, including selection with silencers if necessary Piping in copper or stainless steel AISI 304 or AISI 316L Finned pack available in a wide range of materials Complete range of accessories Casing in galvanized steel, powder painted

Power-J Dry Coolers

AREA OF USE	Heat rejection
PERFORMANCE RANGE	Capacity from 8 to 1100 kW (*)
FANS	Diameter Ø 500, 630, 800, 900, 1000 mm, AC or EC motor
BENEFITS	High efficiency geometry Modular design, 1-16 fans Many sound levels configuration, including selection with silencers if necessary Piping in copper or stainless steel AISI 304 or AISI 316L Finned pack available in a wide range of materials Complete range of accessories Casing in galvanized steel, powder painted

Super Power-J Dry Coolers

AREA OF USE	Heat rejection
PERFORMANCE RANGE	Capacity from 290 to 2220 kW (*)
FANS	Diameter Ø 800, 900, 1000 mm, AC or EC motor
BENEFITS	Maximum performance, minimum footprint High efficiency geometry Modular design, 8-20 fans 8 sound levels Piping in copper or stainless steel AISI 304 Finned pack available in a wide range of materials Complete range of accessories AFS (Air Fresh System) or WFS (Wet Fin System),available upon request Casing in galvanized steel, powder painted

(*) Ethylene glycol 35%, Tw1= 40 °C, Tw2= 35 °C, T1= 25 °C

Power-J (V-Tower) Dry Coolers

PERFORMANCE RANGE	Capacity from 290 to 2219 kW (*)
FANS	Diameter Ø 800, 900, 1000 mm, AC or EC motor
BENEFITS	EPS (Evaporative Panel System) Maximum performance, minimum footprint High efficiency geometry Modular design, 8-20 fans Many sound levels configuration, including selection with silencers if necessary Piping in copper or stainless steel AISI 304 or AISI 316L Finned pack available in a wide range of materials Complete range of accessories AFS (Air Fresh System) or WFS (Wet Fin System) available upon request AlMg frame

TKMicro Modular Liquid Coolers

AREA OF USE	Heat rejection
PERFORMANCE RANGE	Capacity of each module up to 120 kW (**)
FANS	Diameter Ø 800 AC and EC motor
BENEFITS	Modular design Compactness (maximum lenght 2245 mm) Low installation costs Regulation or partialisation of the whole unit Lower enviromental impact Less weight Reduced volume charge Easy-to-clean microchannel core Core coating possibility in case of aggressive ambient

Modular Dry Coolers

PERFORMANCE RANGE	Capacity from 200 to 1000 kW (*)
FANS	Diameter Ø 800, 900 mm, EC motor
BENEFITS	Single module with 4 cores and 2 fans provides 200 kW Available from 1 to 5 modules (up to 1000 kW) Low installations and transportation cost (2 MW in one container) Easily increase power High reliability and high redundancy Individual module isolation valves available on request Easy and quick maintenance and core cleaning High corrosion resistance due to same tube and fin material High efficiency, minimal footprint Lower environmental impact Lower internal volume and less weight Tier3 and Tier4 design available on request Multi System Dual Flow patented solution available on request

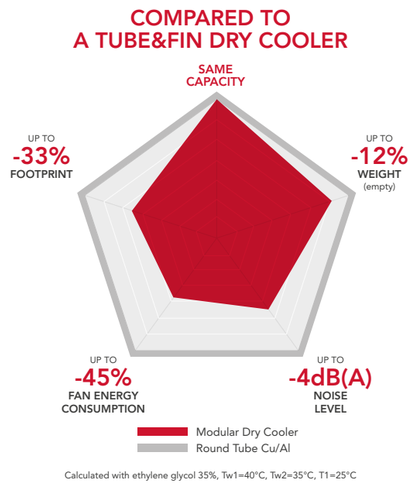
(*) Ethylene glycol 35%, Tw1= 40 °C, Tw2= 35 °C, T1= 25 °C

Hundreds of customers have been choosing us for years for our expertise and know-how combined with the wide range of products and customization options we offer

NEW Modular Dry Cooler

ThermoKey's innovative Modular Dry Cooler is designed to deliver maximum energy efficiency, operational continuity, flexibility, and power scalability — ensuring outstanding performance while reducing transport and management costs.

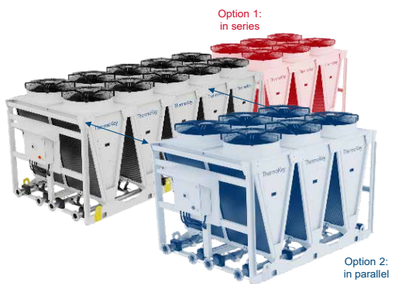
- HIGH ENERGY EFFICIENCY
- OPERATIONAL CONTINUITY
- LONG-TERM RELIABILITY
- POWER SCALABILITY
- REDUNDANCY
- EASY AND QUICK MAINTENANCE
- LOW NOISE LEVEL
- HIGH CORROSION RESISTANCE
- LOW FOOTPRINT, SIZE AND WEIGHT
- LOW INSTALLATION COSTS



Energy efficiency and scalability

> The Modular Dry Cooler is specifically engineered to meet the critical demands of Data Center and IT Cooling systems

Modular architecture enables scalable capacity expansion to meet growing demand, integrating plug-and-play modules in series or in parallel.



The advanced microchannel cores ensure superior heat transfer efficiency with lower air-side pressure drops. This directly reduces fan energy consumption by up to -45%, improving the overall PUE index.

Modular Dry Cooler is engineered to guarantee high system resilience and greater redundancy, requiring fewer units. It fully aligns with any data center Tier requirements while lowering overall CAPEX.

Operational continuity

> The innovative design is engineered to ensure no service interruption, even during maintenance

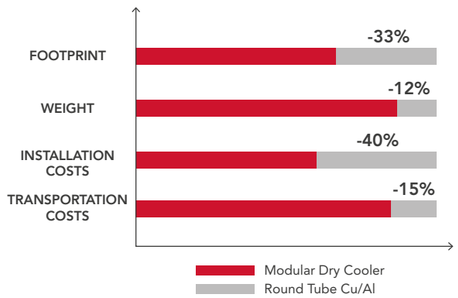
Thanks to the hot-swappable components and manual valve system, each half-module can be isolated for quick and safe cores replacement in less than one hour.

This guarantees continuous operation, maximum uptime, and simplified maintenance, with no need for specialized training.

Low size and costs

The aluminium based microchannel technology offers a highly efficient approach to transport and installation.

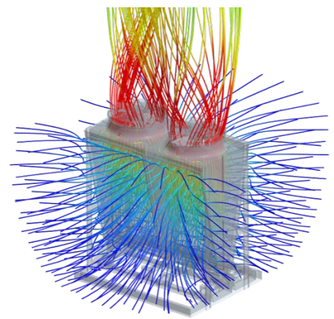
Compared to a same capacity traditional round-tube unit, the Modular Dry Cooler offers measurable benefits:



Low noise level

The design ensures low air-side pressure drops and high airflow uniformity, improving aerodynamic efficiency.

This reduces fan power consumption and achieves noise reduction of up to -4 dB(A).



Remote condensers

> Designed for efficiency and sustainability, ThermoKey remote condensers dissipate process heat through ambient air in a closed circuit — ensuring reliable performance without water waste.

Air-cooled CRAC → Refrigerant → ThermoKey Condenser

Example: Air coled CRAC with integrated compressor. Heat removal from the server room using a Remote Condenser installed outside.

Application of use: Medium and small network racks, computer rooms and Data Center with moderate requirements (lower than 200KW)

Turbo-Line Condensers

AREA OF USE	Gas condensation
PERFORMANCE RANGE	Capacity from 10 to 1249,8 kW (*)
FANS	Diameter Ø 500, 630, 800 mm, AC or EC motor
BENEFITS	High efficiency geometry Modular design, 1-16 fans Piping in copper or stainless steel AISI 304 Finned pack available in a wide range of materials Complete range of accessories, many sound levels configuration Premium series available for fans Ø 500 and 630 mm Casing in galvanized steel, powder painted

Turbo-J Condensers

AREA OF USE	Gas condensation
PERFORMANCE RANGE	Capacity from 100 to 1933 kW (*)
FANS	Diameter Ø 900 mm, AC or EC motor
BENEFITS	Maximum performance, minimum footprint High efficiency geometry Modular design, 2-16 fans Piping in copper or stainless steel AISI 304 or AISI316L Finned pack available in a wide range of materials Complete range of accessories, many sound levels configuration AFS (Air Fresh System), WFS (Wet Fin System) and EPS (Evaporative Panel System) available upon request Casing in galvanized steel, powder painted

(*) R448A, Tc= 40 °C, T1= 25 °C

TKMicro Microchannel Condensers (MPE 25mm, 32mm)

AREA OF USE	Gas condensation
PERFORMANCE RANGE	• V-Type: capacity from 5 to 560 kW • Table-type: up to to 10 fans, capacity up to 600 kW • TK Smart: capacity from 13 to 98 kW
FANS	• Diameter Ø 300, 400, 450, 500, 630, 800, 900 mm, AC or EC motor • TK Smart: diameter Ø 400, 500, 630 mm, AC or EC motor
FANS	Innovative high efficiency microchannel heat exchanger +30% Capacity vs same footprint traditional condenser Modular design, 1-8 fans (mpe 32 mm) Reduced dimensions and weight No galvanic corrosion through long-life-alloy Reduced refrigerant charge Low noise and low electrical power consumption Complete range of accessories (mpe 32 mm) TK Smart: modular design, 1-3 fans (mpe 25 mm); Accessories: wiring, shock absorber

> The advantage of co-designing with ThermoKey: technological optimization, on-demand production, high costumization

Adiabatic systems

AFS AIR FRESH SYSTEM

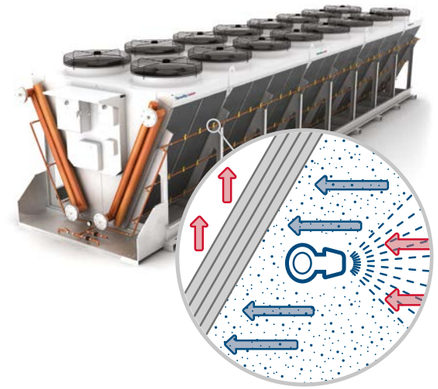
WFS WET FIN SYSTEM

EPS EVAPORATIVE PANEL SYSTEM

The adiabatic system applied to Dry Coolers and large remote condensers are activated in order to increase the air relative humidity that passes through the heat exchanger so as to reduce the temperature and increase the heat exchange.

The physical principle is namely the latent heat evaporation: by evaporating water absorbs heat from the air enters in the heat exchanger and lowers its temperature.

ThermoKey has developed different adiabatic systems to be effective and efficient under certain environmental conditions.



AFS AIR FRESH SYSTEM

ThermoKey adiabatic cooling system equipped with special high-pressure nozzles, which allows to compensate for the peaks of power to be dissipated, with minimum water consumption for a maximum of 500 hours per year.

The combination of high pressure water, the nebulization effect of nozzles (MISTING effect) and a specially designed electronic control system represent the innovation of AFS system. It uses only the quantity of water necessary to obtain the desired adiabatic effect.

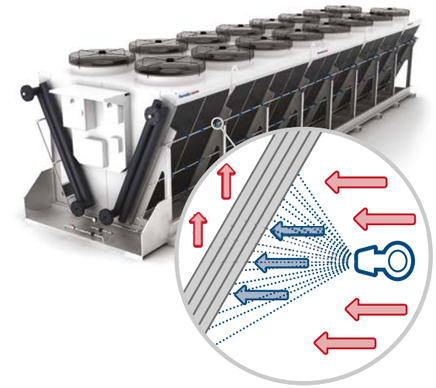
Tüv Certificated: "No danger in correlation with the risk of legionnaires' disease".

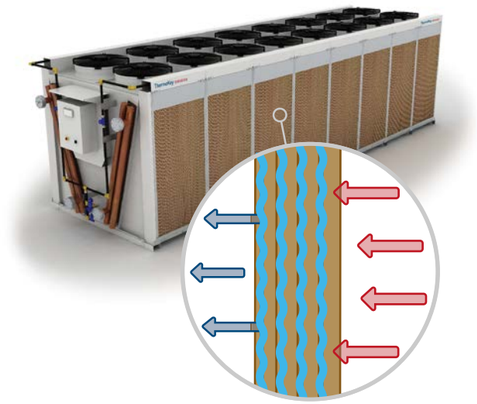
WFS WET FIN SYSTEM

It is ThermoKey hybrid cooling system which allows a complete flexibility of operation, working at low pressure (2-3 bars) and for a very high number of hours per year (up to 100 0).

The user can choose whether to prioritize the consumption of water or electricity. Thanks to the misting effect and to the increased exchange efficiency, the WFS system allows to reach higher saturation levels. Since WFS systems use water for a high number of hours per year, a black double-layer fin is provided in order to improve the protection of the finned pack.

Mainz Universitätsmedizin Laboratory certifies that the WFS meets the standard VDI 2047 part 2 securing hygenically sound operation.





EPS EVAPORATIVE PANEL SYSTEM

The evaporative panel system completes ThermoKey's offer for adiabatic cooling. Thanks to a homogeneous and adjustable distribution of water on the panels this system allows to reach a high saturation level and therefore an efficient capacity increase with low water consumption (hours per year 8000).

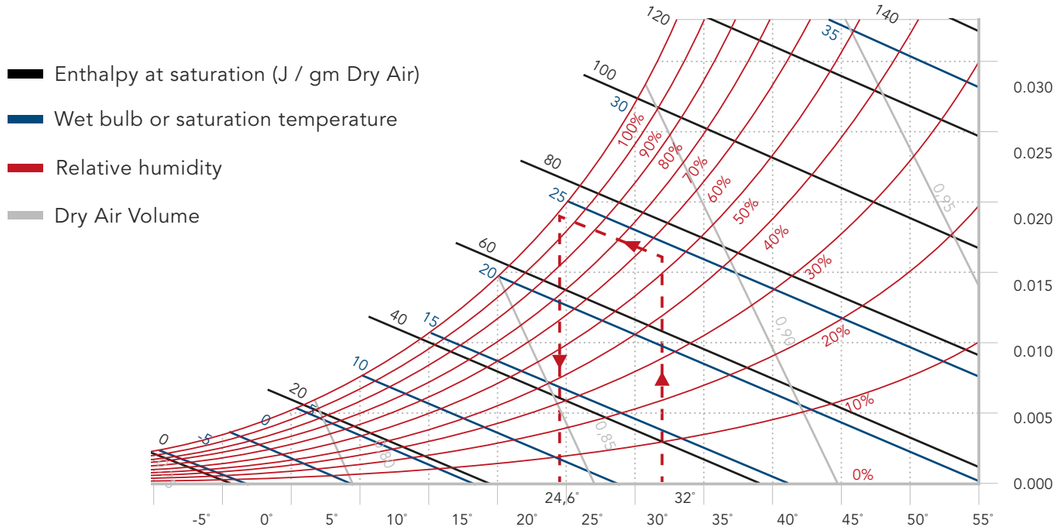
EPS has been designed for seasonal working cycles without any specific time limitation and can be easily disassembled for cleaning and maintenance operations.

There is no need of any protective treatment for the heat exchanger since the evaporation is contained in the panel. It is also possible to use the water distributed by the common water supply network.

Mainz Universitätsmedizin Laboratory certifies that the EPS meets the standard VDI 2047 part 2 securing hygenically sound operation.

Adiabatic systems comparison

Psichrometric diagram



Comparison chart

	AFS	WFS	EPS
MOIST AIR SATURATION	80%	100%	90%
STANDARD AIR TEMPERATURE REDUCTION	7K	10K	8K
WATER CONSUMPTION	LOW	MEDIUM	LOW
WATER TREATMENT	NECESSARY	NECESSARY	NOT NECESSARY
DIRECT ENERGY CONSUMPTION	HIGH	LOW	LOW
ENVIRONMENTAL INFLUENCE	HIGH	LOW	LOW
COIL PROTECTION	HYDROPHOBIC	DOUBLE-LAYER	NOT NECESSARY
FUNCTIONING HOURS	500/Y	1000/Y	CONTINUOUS
MAINTENANCE COSTS	LOW	LOW	LOW
CERTIFICATION	LEGIONELLA FREE	HYGIENIC	HYGIENIC

Operating modes of the adiabatic systems

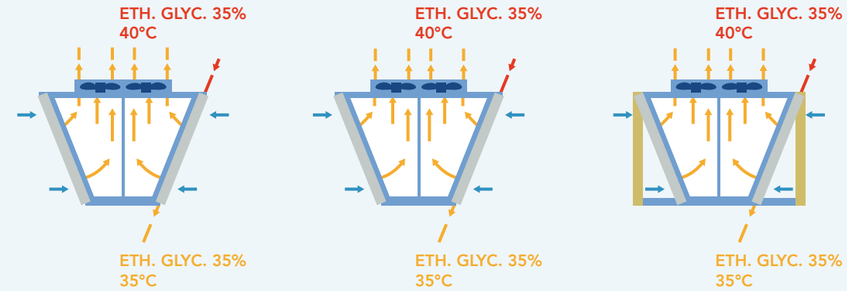
AFS AIR FRESH SYSTEM

WFS WET FIN SYSTEM

EPS EVAPORTIVE PANEL SYSTEM

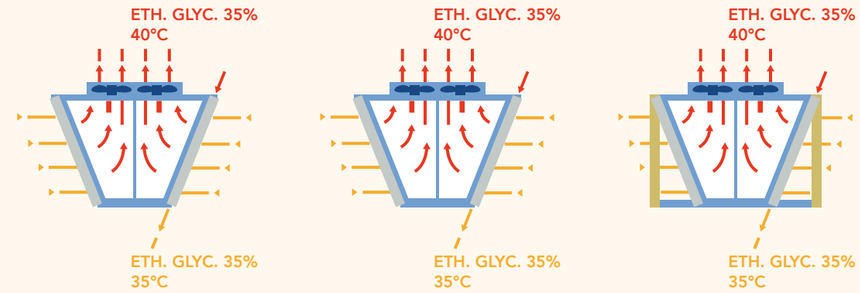
AMBIENT TEMPERATURE 8°C - 40%RH

DRY CONDITION
with low ambient temperature, below the switch-point temperature, with fans at minimum.



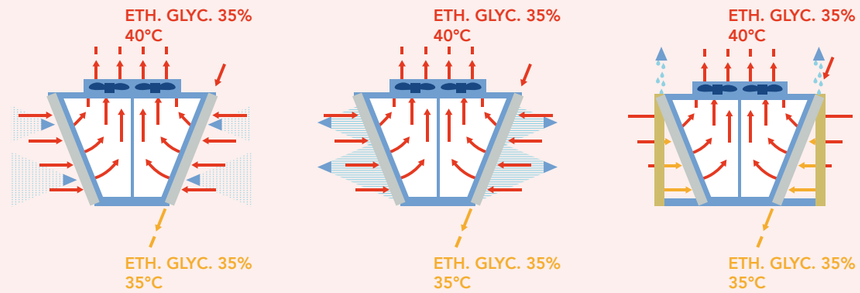
AMBIENT TEMPERATURE 20°C - 40%RH

DRY CONDITION
with high ambient temperature, below the switch-point temperature, with fans at maximum.



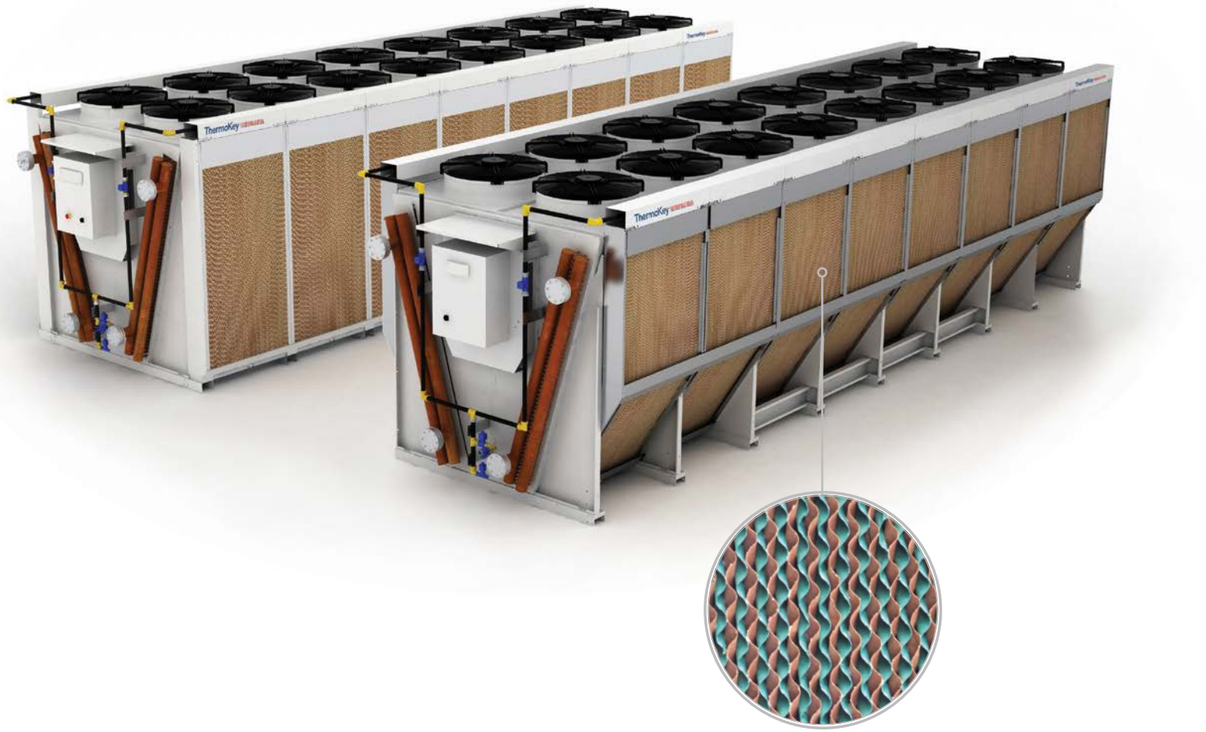
AMBIENT TEMPERATURE 37°C - 40%RH

WET CONDITION
with ambient temperature above the switch-point temperature. Fans at maximum to save water or fans in regulation to save energy.



(*) Fans at 1.100 RPM (Jumbo for fans 910 mm)

EPS EVAPORATIVE PANEL SYSTEM



Exceptional design increases savings while minimizing operational costs

No continuous water usage

No bacterial growth (Legionella-free)

BENEFITS

- No corrosion
- No continuous chemical treatment
- No sludge accumulations in piping
- No organic gases
- No fouling nor contamination
- No acids for pH control
- No shut-downs to clean heat exchangers
- No constant maintenance
- No ice formation
- No sewage
- No evaporation of process water
- No process temperature variations
- No fan motor maintenance
- No pulleys & no belts
- No drift eliminator panels

Energy efficiency of cooling

In order to optimise consumption and efficiency of the Chiller it is possible to adopt different solutions by using an external Dry Cooler.

LOWEST POSSIBLE CONDENSING TEMPERATURE

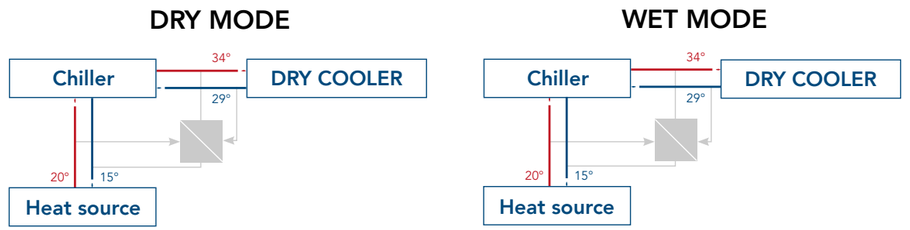
By using a high capacity or efficiency Dry Cooler it is possible to obtain a lower outside fluid temperature.

THE BENEFIT OF AMBIENT TEMPERATURES

Using a Dry Cooler with high capacity or efficiency in order to minimise or even switch off the Chiller during the free cooling mode.

CHILLER OPERATION

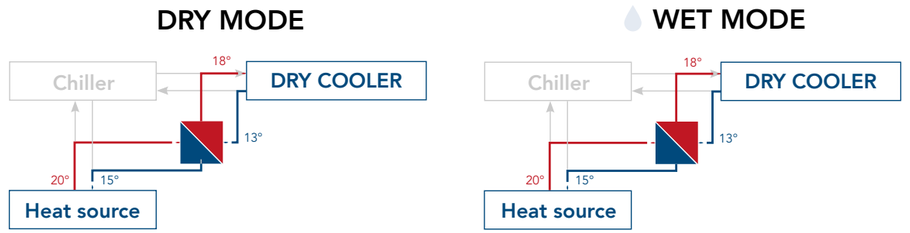
When the **ambient temperature is high,** the refrigeration chiller works in combination with the adiabatic system that works in dry mode.



CHILLER OPERATION with ThermoKey adiabatic system Dry Cooler.

FREE COOLING MODE

When the **ambient temperature is low,** the refrigeration chiller can be switched-off and the Dry Cooler will dissipate the entire capacity.



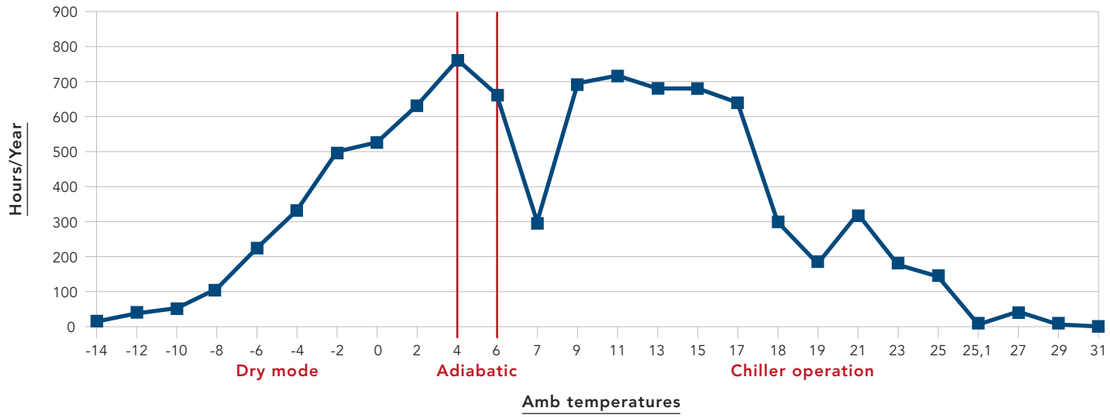
FREE COOLING OPERATION with ThermoKey adiabatic system Dry Cooler.

- **Energy saving**

Simulation

Considering a typical range of temperatures at a Data Center in London and combining a 166KW Chiller and a 1000KW Power J. Dry Cooler (our model: JGQ2790B1 with wet fin system), it is possible to distinguish the free cooling mode and chiller mode throughout the year.

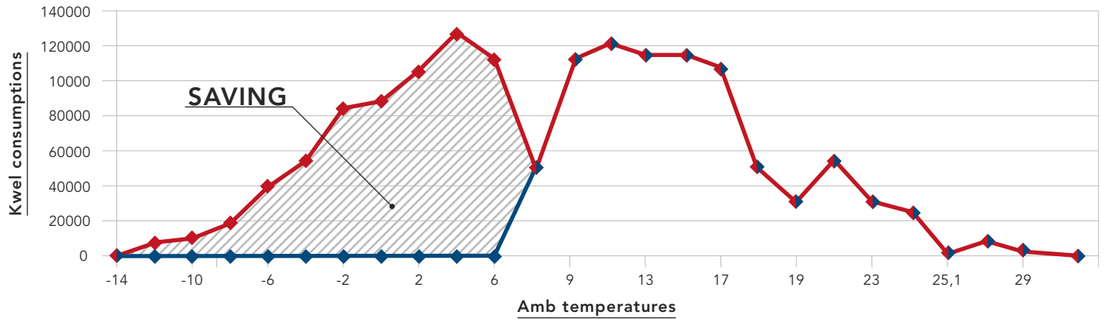
					Dry Cooler			Chiller		
Dry Cooler mode	Ambient condition London	Cooling water in	Cooling water out	Hours/year	Make up water	Fan velocity	Energy consumption	Energy consuption (Chiller with free cooling)	Energy consuption (Chiller without free cooling)	
JGQ2790B1 (EC)(WFS)	°C	°C	°C	h	m3	RPM%	Kwh	Kwh	Kwh	
dry	-14	18	13	14	0	31%	13	0	2324	Winter/Free Cooling period 18-13° C
dry	-12	18	13	39	0	36%	47	0	6474	
dry	-10	18	13	53	0	40%	79	0	8798	
dry	-8	18	13	105	0	44%	194	0	17430	
dry	-6	18	13	227	0	49%	522	0	37682	
dry	-4	18	13	329	0	56%	1151	0	54614	
dry	-2	18	13	500	0	65%	2700	0	83000	
dry	0	18	13	527	0	87%	4796	0	87482	
dry	2	18	13	632	0	98%	10681	0	104912	
wet	4	18	13	764	1960	65%	4126	0	126824	
wet	6	18	13	666	1709	87%	6061	0	110556	
dry	7	34	29	296	0	36%	414	49136	49136	Summer/Chiller Operation 34-29° C Dry Cooler
dry	9	34	29	695	0	42%	1181	115370	115370	
dry	11	34	29	721	0	47%	1529	119686	119686	
dry	13	34	29	682	0	54%	2182	113212	113212	
dry	15	34	29	682	0	63%	3342	113212	113212	
dry	17	34	29	643	0	76%	5337	106738	106738	
dry	18	34	29	297	0	100%	10395	49302	49302	
wet	19	34	29	180	462	40%	270	29880	29880	
wet	21	34	29	323	829	44%	610	53618	53618	
wet	23	34	29	179	459	51%	465	29714	29714	
wet	25	34	29	144	369	58%	562	23904	23904	
wet	25	34	29	4	10	59%	16	664	664	
wet	27	34	29	45	115	69%	288	7470	7470	
wet	29	34	29	10	26	84%	113	1660	1660	
wet	31	34	29	3	8	0%	0	498	498	
Year total consumption				**8760**	**5947**		**57074**	**814064**	**1454160**	



Temperatures distribution London

-20% cost reduction

Chiller consumptions in free cooling mode at standard London temperatures.



KWEL CONSUMPTION
CHILLER YEAR

Energy consumption (Chiller with Freecooling)
Energy consumpion (Chiller without Freecooling)
Energy savings in free cooling model

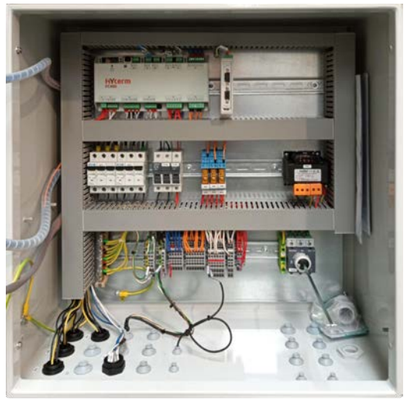
The lower the average annual temperatures are, the higher the annual savings can be.

Partial Free Cooling. Depending on ambient temperature, plant configuration, and required cooling capacity, the system can operate in a **combined mode — using both the chiller and the free cooling units** — optimizing performance and energy savings to reduce overall operating costs.

TK Accesories

ThermoKey offers various electrical devices and control solutions to meet the customer needs in terms of energy efficiency water consumption for PUE and WUE limitation, and to facilitate the integration and the data exchange of ThermoKey units with building automation and management systems of data centers.

Electrical panels



Q2Y - Electrical panel for EC fans

Q2Y - ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS

- Electrical panels for EC fans with paint coated metal casing.
- FC400 controller mounted inside the box.
- Fans power supplies lines protected by circuit breakers (a group of fans).
- RB100 User friendly TFT display mounted on the panel door.
- Fans – FC400 communication via Modbus RTU to allow the fans data control and the special functions to reduce the energy consumation an the fin pack cleaning; connectable with mobile devices on App via Bluethoot, on request possibily to integrate a varius accessories scuch is Ultracapacitor – UPS to mantain the power supply of the FC400 in case of black out – Energy meter to monitorate the energy consumption.
- Possibility to manage the adiabatic systems AFS-WFS-EPS and the water saving consumption with its expansion SC400.
- Monitoring from BMS Monitoring from BMS via Modbus RTU or Modbus TCP-IP (on request Bacnet IP – Lonwork - SNMP).

Q3Y - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS

- Electrical panels for EC fans with paint coated metal casing, with anti-condense heating element and FC400 controller mounted inside the box.
- Fans power supplies lines protected by circuit breakers (a group of fans), user friendly TFT display on the controller.
- Fans – FC400 communication via Modbus RTU to allow the fans data control and the special functions to reduce the energy consumption an the fin pack cleaning; connectable with mobile devices on App via Bluethoot, on request possibily to integrate a varius accessories scuch is Ultracapacitor – UPS to mantain the power supply of the FC400 in case of black out – Energy meter to monitorate the energy consumation.
- Possibility to manage the adiabatic systems AFS-WFS-EPS and the water saving consumption with its expansion SC400.
- Monitoring from Monitoring from BMS via Modbus RTU or Modbus TCP-IP (on request Bacnet IP – Lonwork - SNMP).

Q4Y - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS

- Electrical panels for EC fans with paint coated metal casing, with repair switch on the panel door.
- FC400 controller mounted inside the box.
- Fans power supplies lines protected by circuit breakers (a group of fans).
- RB100 user friendly TFT display mounted on the panel door.
- Fans – FC400 communication via Modbus RTU to allow the fans data control and the special functions to reduce the energy consumation an the fin pack cleaning; connectable with mobile devices on App via Bluethoot, on request possibily to integrate a varius accessories scuch is Ultracapacitor – UPS to mantain the power supply of the FC400 in case of black out – Energy meter to monitorate the energy consumption.
- Possibility to manage the adiabatic systems AFS-WFS-EPS and the water saving consumption with its expansion SC400.
- Monitoring from BMS via Modbus RTU or Modbus TCP-IP (on request Bacnet IP – Lonwork).

Controllers

FC400 - ADVANCE EX SPEED CONTROLLER

FC400 is an advanced controller designed for the speed regulation of electronic fans mounted on dry coolers or remote condensers, specifically developed for the efficient and reliable thermal management of Data Centers.
FC400 extends free-cooling oper ation and maximized efficiency ensured by our expanding module, designed for the control of all types of adiabatic systems (AFS-WFS-EPS)

Features

- Digital regulation Modbus (RTU).
- Connection PID or Proportional regulation.
- Direct and Reverse regulation.
- Set-point position selection (Min – Middle – Max of the proportional band)
- Set-up and programming of analog and digital I/O by the operator panel.
- User-friendly menu navigation.
- Remote access via Bluetooth for tablets and smartphones with the associated TK Control app (iOS and Android).
- Service menu
- Factory restore function and System reboot

SC400 - FC400 EXPANSION FOR ADIABATIC SYSTEMS

SC400 is the expansion of the FC400 controller used on the Q2Y/Q3Y/Q4Y electrical panels, designed for the control and regulation of the adiabatic systems mounted on finned pack heat exchangers.
It is connected directly at FC400 controller with a dedicated serial line, and use the same interface of the FC400 through a menu page dedicated to the adiabatic system.

Features

- Humidity ambient reading
- Adiabatic system Water pressure reading
- Pump management
- Energy saving function or Water saving function selection
- Maintenance menu
- Reboot system
- Water antilock – Humidity check – Water pressure check

KEY FEATURES

User-friendly interface

- Backlit Graphic TFT display with 6 buttons.
- User-friendly menu navigation.

Flexibility

- Set-up and programming of analog and digital I/O from the operator panel.
- Customization of special applications.

Special functions

Night Limit - Speed Jump - Unlock – Feedback – Threshold – Boost – Cutoff - Emergency speed - Eco modality - Slave safety - Floating Setpoint - Setpoint Adjust.

Connectivity

Remote access via Bluetooth for tablets and smartphones with the associated TK Control App (iOS and Android).

ACCESSORIES ON REQUEST

- Uninterruptible power supply (UPS) or ultra-capacitor installed inside the electrical panel;
- 7” Touch screen display
- Energy meter and water meter
- Bacnet IP, SNMP and LonWorks protocol converter
- Dual power supply or automatic transfer switch (ATS) installed in separated own electrical panel (QATS)
- Temperature and humidity sensor for evironmental monitorig

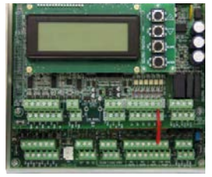
Accessories for North America and Canada market

QUL - ELECTRICAL PANEL FOR 480V-3-60HZ EC FANS

Electrical panels UL LISTED for EC fans with paint coated metal casing, ECM controller mounted inside the box, Fans power supplies lines protected by fuse (each fans), fans – ECM communication via Modbus RTU to allow the fans data control and special functions to reduce the energy consumation, fin pack cleaning.
Possibility to manage the adiabatic systems (AFS-WFS-EPS) with the adiabatics controllers AFS / EPS controller.
Monitoring from BMS via Modbus RTU (on request Bacnet IP – Modbus TCP-IP).

ECM - CONTROLLER

ECM Controller Is a multifunction and multiple-input unit for the regulation of electronically commutated motors installed on axial fans, which is designed to regulate different EC motors in a simultaneous and coordinated way.
The temperature measurement unit is in °F (for dry coolers) and the pressure measurement unit inPSI (for condensers).



EPS - CONTROLLER

The EPS controller is a digital microprocessor unit designed to measure the amount of water supplied to the adiabatic panels (A.P.)
used with the ventilated heat exchangers. It is controlled by the analog 1-10 Vdc signal proportional to the fan speed, generated by ECM.
The water flow rate is regulated by two modulating valves A and B, one on each side of the exchanger, depending on the fan speed;
one or two constant flow values are supplied, which can be modified by the operator.
Some relay ON/OFF outputs allow you to control solenoid valves and pump for supply and drain.

AFS/WFS - CONTROLLER

The AFS controller is a device for the control of the solenoid valve and counter of the water pump used with “AIR FRESH SYSTEM” equipment.
Module for the command of a complementary solenoid valves and the power relay of the water pump, for a system of cooling to water spray AIR-Fresh System (AFS) applied on a heat exchanger air-fluid.
The cotroller receives a 1..10Vdc control signal from a ECM controller.

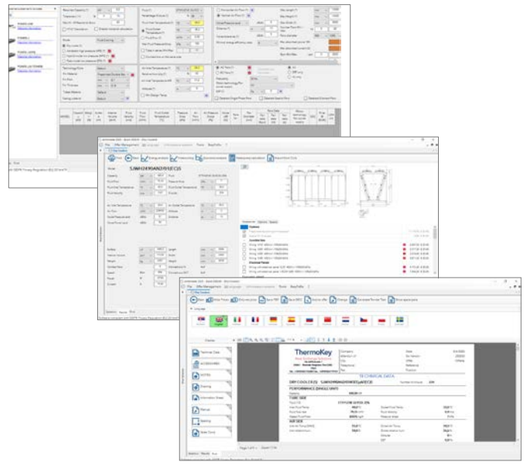
c UL us LISTED

Electrical panel certified cULus
(UL508A - CSA C22.2-14)

TKArchimede

Archimede is ThermoKey’s advanced configuration software, designed to assist customers in selecting the most suitable units for their applications.

The tool offers fast and precise configuration across the entire product range, combining a user friendly interface with comprehensive technical support from our expert team.



Precision and reliability

FREE DOWNLOAD

Scan the QR code or use the website link to download the Archimede software from www.thermokey.com

+ User friendly
+ Complete customization
+ Analysis and simulation
+ Data sheet and pricing
+ Bid management

Echelon LCY 10 Data Center

Echelon LCY 10 is the data center built in London by Echelon Data Centers, an international data center infrastructure developer.

SOLUTION

- 11 units SJGL2090DN5-02 Q4EAF(EC)(EPSELV)S
- 2870 kW of heat rejection at 40 °C ambient design per unit
- 9 units for duty + 2 for standby
- Evaporative Panel System with recirculation tanks to minimise water consumption.

Server in Basel (Switzerland)

ThermoKey Dry Coolers have been produced to ensure durability and reduced energy consumption.

NEED

Cooling down 4.5 MW Total Capacity in a small footprint area.

SOLUTION

3 JGL2790BY AFS, V-Type Dry Coolers with AFS adiabatic system, corrosion protection of finned pack, electronic fans and electrical parts and 1 JGL2790BY, V-Type Dry Cooler with electronic fans and electrical parts.

Data Center 6.1 MW

The Dry Coolers have been specifically designed to provide the best and most efficient solution.

NEED

Cooling down one of the largest Data Centers (6.1 MW) in a particularly aggressive environment like the coastal one.

SOLUTION

16 V-Type Dry Coolers model JGH2390CZ2/6QIEMAF(EC)(AFS)S and 2 V-Type Dry Coolers model JWQ1290A3/8QIEMAF(EC)(AFS)S with electronic fans, adiabatic and self-cleaning system.

Vantage Data Center in Newport

SOLUTION

- 5 Units SJGH2090.CN5/02 Q2EIF(EC)S
- 4 units running + 1 standby
- 1348 kW of heat rejection each at a 35 °C ambient

We design customized products to meet every need

We at ThermoKey know that specific environments require specific solutions, we are happy to help you to identify the best solution to your needs.

Our technicians assist the customer in the choice

Our technical staff is at your complete disposal to identify the best heat exchanger for you. We individually analyze your specific needs and the environment in which the heat exchanger will be installed for your needs.

After sales

ThermoKey stays at your side throughout the product life cycle for spare parts replacement and technical assistance

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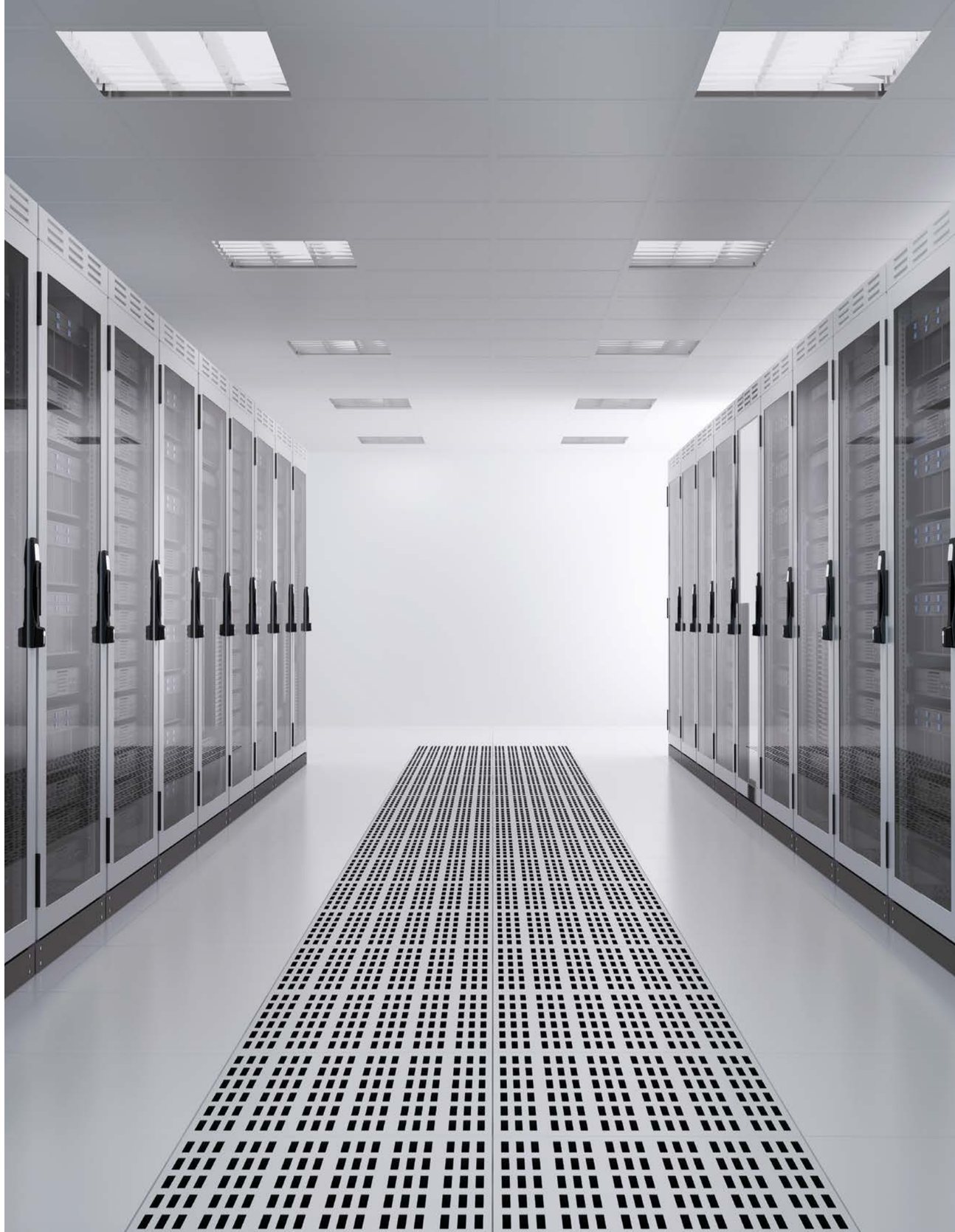

ThermoKey®

Heat Exchange Solutions

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