



Company profile



- Klagenfurt, University clinic
- 6 Super Power J Dry Coolers with Wet Fin System and AxiTop
 - Cooling capacity: 6000 kW



Doing business with ThermoKey is a pleasure.



REFRIGERATION



ENERGY AND
PROCESS COOLING



HVAC



OEM



DATA CENTRE

The challenges of the global market for a sustainable future

Every day we commit ourselves to be one of the most innovative and fastest companies in the market, thus satisfying the needs of our customers all over the world by providing effective, customized and reliable solutions. Indeed, to be protagonists in the HVAC & R market it is necessary to focus on an excellent product and service.

Why is ThermoKey the ideal partner?

In this scenario, for the last 30 years, ThermoKey has been developing and applying the best industrial performances which combine a mix of expertise, market knowledge, technological development and leadership in productive district to contribute to reduce the environmental impact and achieve the customer maximum satisfaction.

Current challenges



RISING TEMPERATURES

The average temperature increase is partly due to high gwp (global warming potential) refrigerants. Our microchannel technology helps fighting the problem, as it allows a reduction up to 65% of the fluid refrigerant.



WATER SHORTAGE

We propose closed circuit process cooling solutions as an alternative to the widespread cooling towers.



INCREASE IN DATA CENTER POWER CONSUMPTION

We offer heat disposal solutions in free cooling to significantly reduce cooling energy costs.



DEMOGRAPHIC INCREASE

ThermoKey is proud to be able to contribute - with its refrigeration product range - to a correct production and preservation of quality food and pharmaceutical products.



IMPROVING THE QUALITY OF LIFE

Our HVAC & R products ensure proper climate conditions in all environments, essential for everyone's daily life.



Drivers of our growth

DEEP KNOW-HOW

In partnering with companies, universities and research centers to develop knowledge in the HVAC & R market and find new, innovative solutions and patented products.



SUSTAINABILITY VISION

In designing high-quality and long-lasting solutions, which are made with recyclable materials, compatible with low GWP refrigerants and avoid unnecessary use of energy and water.



INLINE RESPONSE TIME

In delivery times, in technical support and in developing customized solutions, thanks to the direct management of our production plant, to our lean process and to the sound relationships with our supply chain.



CONTINUOUS INNOVATION

In our research activity and in the ability to identify the innovations which lead to real improvements for the application and for our customers.



BROAD PRODUCT MIX

30 years of experience in HVAC & R and Process Cooling market, 6300 standard solutions and 20 million possible configurations, still open to customization.



Purpose

Ensure people's wellbeing and productive performances with innovative and sustainable solutions.

We aim to manufacture products with the highest level of quality and we want them to be sustainable and reliable in order to benefit both people and the environment. Granting the maintenance of the cold chain in order to avoid waste, preserving the quality of air, ensuring proper data storage and transmission, supporting industries to reach optimal heat dissipation: we work to create added value for our partners, for their communities and for society at large.

This is why we develop heat exchangers that are made to last over time and ensure maximum efficiency. Built with easily recyclable materials, they have low maintenance costs and are designed to consume less energy and water, promoting and implementing low GWP solutions.



Giuseppe Visentini
Chief Executive Officer
ThermoKey Spa

Value proposition

We are driven by a single goal: satisfying our customers' specific needs.

Our long experience, our flexible IT and productive process, our sales and technical team oriented to the Customer's needs and our location at the centre of the European most important productive area in the heat exchangers market make us the ideal choice for any HVAC-R project.

All projects are supported by a dedicated manager and by a team of technical experts collaborating with the best universities, research institutes and laboratories. Each solution can be customized and provided with a wide range of accessories, special materials and surface treatments in order to meet every need.

Thanks to a fully-integrated value chain over 90% of our components are directly manufactured at our headquarters, allowing us to grant the fastest delivery times on the market.

🔹 Sustainability is a value we truly believe in and we put it into practice from the very moment we start designing our products.

We are committed to using recyclable materials and improving efficiency in order to reduce emissions and avoid water or energy waste. We also aim to become carbon neutral by 2030.

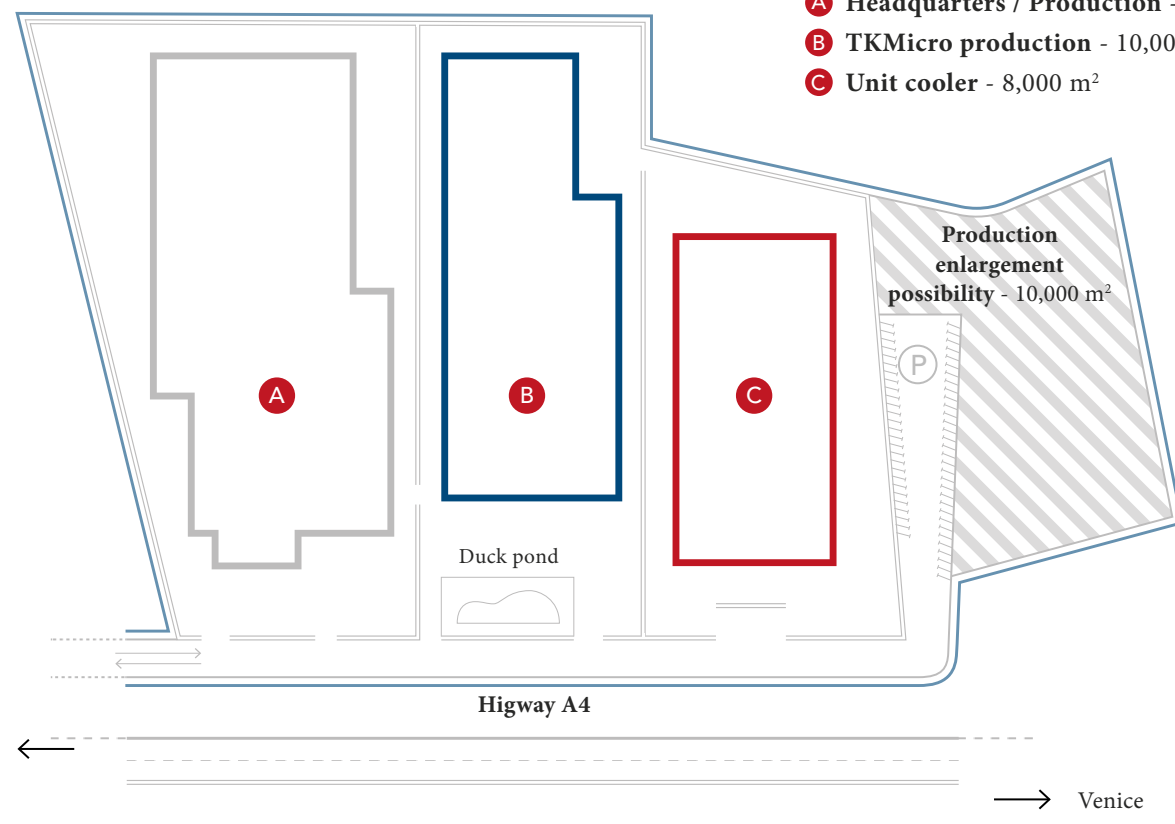
This is how we make our contribution to a greener HVAC-R sector and ultimately to a greener world.



A plant designed to be leader in the market

32,000 m² OF PRODUCTION SPACE

- A** Headquarters / Production - 14,000 m²
- B** TKMicro production - 10,000 m²
- C** Unit cooler - 8,000 m²



STRATEGICAL LOCATION

- 1** Corridor 5 - Lisbon→Kiev
- 2** Corridor 1 - Palermo→Berlin
- 3** Highway to Vienna
- 4** Port of Venice
- 5** Port of Trieste



NORTH-EAST ITALY INDUSTRIAL DISTRICT

- 80% chillers
- Know-how Hub
- Logistics platform



30 years of success

1991

ESTABLISHMENT

ThermoKey was founded to produce heat exchangers for commercial and industrial use, expanding continuously in the years its range of products.

1995

COILS IN STAINLESS STEEL TUBES

ThermoKey is the first company in Italy to produce coils in stainless steel tubes with TIG orbital welding technology. The Company understood the potential of using Ammonia and or the use in corrosive ambient / food processing rooms

2005

THERMOKEY SUBSIDIARIES

ThermoKey Deutschland GmbH, the German subsidiary company was founded to face at its best the most important and demanding market in terms of performance and volumes. In the same year we opened Representative Offices in Poland and France to follow directly the increasing demand on HVAC/R markets.

2008

"GREEN" REFRIGERANT R744

The refrigerant R744 (CO₂) was added to the range of natural refrigerants already used (amongst the others NH₃) through a new specific series of unit coolers.

2010

MICROCHANNEL HEAT EXCHANGER

The first company in the world able to braze a 6 metre long aluminium core with 32 mm MPE for HVAC&R using a controlled atmosphere brazing line furnace for microchannel heat exchanger. Development of our own **thermodynamic calculation software** for microchannel cores.

2013

NEW GOVERNANCE

Thanks to the entry of new investors and a renewed Governance, ThermoKey becomes independent and launches a new growth plan through the development of always more efficient and "green" products, using the well-known aluminium technology.

2014

TKMICRO25

ThermoKey starts the production of MCHX cores with 25 mm MPE. We also introduce the innovative adiabatic cooling system WFS, adding it at the previous developed system AFS (Air Fresh System).

2015

TKSMART: LIGHT REMOTE CONDENSERS

TKSmart bringing extreme lightness and flexibility for industrial applications. The choice of aluminum – 100% recyclable and highly corrosion-resistant for greater durability – and the special design of TKSmart, allowing it to use 60% less refrigerant.

2016

TKMICRO H₂O

ThermoKey starts the production of the innovative TKMicroH₂O, a Microchannel Core suitable for water. Introduction of a new adiabatic cooling system called Evaporative Panel System (EPS).

2017

NEW INDUSTRIAL DUAL FLOW UNIT COOLER

The new range of units feature high efficiency fans for the best air distribution, a capacity of up to 175 kW and coil frame made of aluminum magnesium alloy ensuring the maximum combination of lightness, mechanical strength and corrosion resistance.

2018

NEW POWER-J (V-TOWER) DRY COOLER

The new Dry Cooler equipped with Evaporative Panel System has been launched and presented at Chillventa, Nuremberg. The adiabatic cooling system does not generate aerosol in the air. We also expand our sales worldwide network by opening a new office in Chicago.

2020

POWERGEN RADIATOR FOR POWER STATION

To meet the needs of the electricity production, small biogas and geothermal plants, we introduce the powergen radiator (modular design 3-6 fans - diameter 1250 mm).

2021

NEW INDUSTRIAL CUBIC UNIT COOLER

ThermoKey designs the new Cubic unit cooler to meet the market needs:

1. All panels are made of AlMg3 magnesium aluminium alloy to ensure the maximum combination of lightness, mechanical strength and corrosion resistance;
2. Ceiling fixing brackets are made of stainless steel AISI 304 ensuring more structural safety over time;
3. Hinged panels for better cleaning maintenance.

2022

GAS COOLER AND PROCESS DUAL FLOW UNIT COOLER

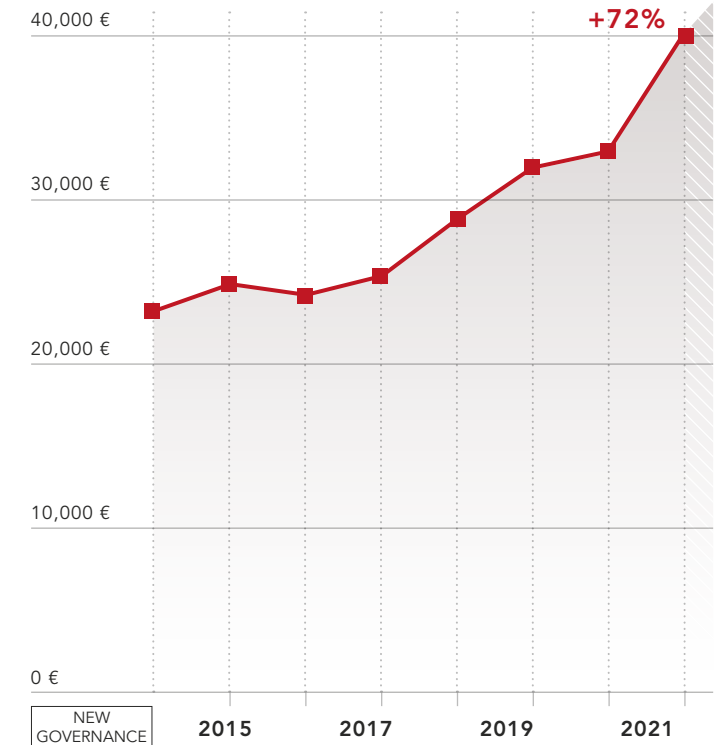
ThermoKey presents the Gas Cooler (CO₂ - green refrigerant) to meet the growing demand of the refrigeration market, which is increasingly attentive to reducing the greenhouse effect.

It also designs the Process Dual Flow Unit Cooler to ensure greater comfort in the processing rooms as the upper air intake does not generate the ascending current.

QUALITY CERTIFICATES

- Since 2000 TÜV Certificate on Industrial Unit Cooler
- Since 2002 UNI EN ISO 9001:2015 Quality Management System
- Since 2005 UNI EN ISO 9001:2015 Environmental Management System
- Since 2008 TÜV Certificate on Turbo-Line Condenser
- Since 2009 TÜV Certificate against Legionella for ThermoKey Air Fresh System
- Since 2015 EAC Declaration and Certificate
- Since 2016 Wet Fin System Hygiene Certificate
- Since 2018 Adiabatic Evaporative Panel System Hygiene Certificate
- Since 2019 Ped Cat2
- Since 2021 UNI ISO 45001:2018 Occupational Health and Safety Management System

THERMOKEY GROWTH



ThermoKey solutions

Hundreds of customers have been choosing us for years for our expertise on several fields of application in all sectors (food, energy, health...) thanks to our wide range of products.

	ENERGY & PROCESS COOLING	AIR CONDITIONING	REFRIGERATION	DATA CENTRE
POWER-LINE DRY COOLERS	█			
POWER-J DRY COOLERS	█			
SUPER POWER-J DRY COOLERS	█			
POWER-J (V-TOWER) DRY COOLERS	█			
H ₂ O MODULAR LIQUID COOLERS	█			
POWERGEN RADIATOR	█			
TURBO-LINE CONDENSERS		█		
TURBO-J CONDENSERS		█		
GAS COOLER			█	
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			█	
PROCESS DUAL FLOW UNIT COOLER			█	
HEN UNIT COOLER			█	
ROUND TUBE COILS	█			
MICROCHANNEL CORES	█			

Needs

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

Needs

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

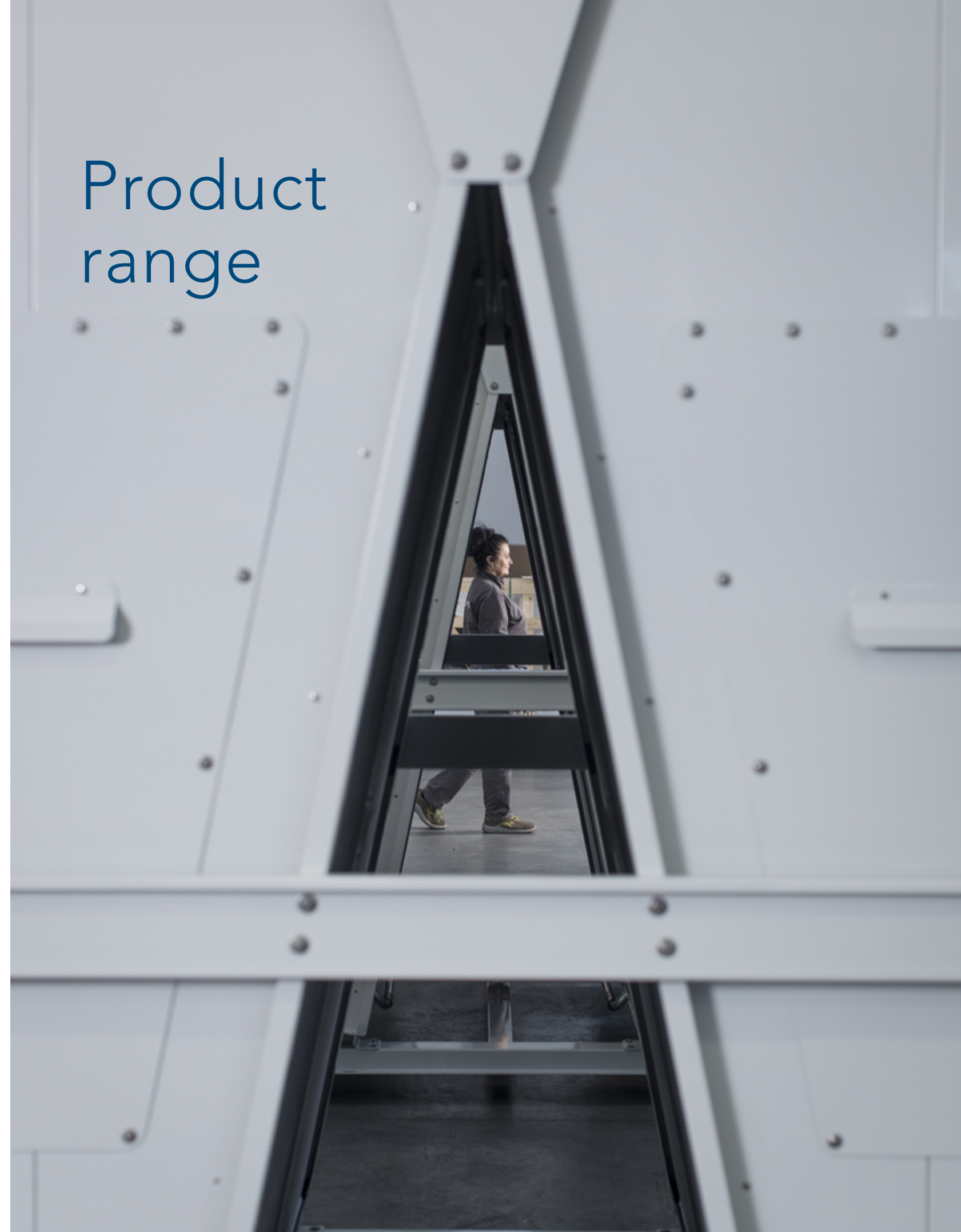
Needs

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

Needs

- Reliability
- To keep constant the temperature

Product range



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.



POWER-LINE DRY COOLERS

- Area of use** Heat rejection
- Performance range** Capacity from 8 to 1100 kW
(Ethylene glycol 35%, Tw1= 40 °C, Tw2= 35 °C, T1= 25 °C)
- Fans** Diameter Ø 500, 630, 800, 900, 1000 mm, AC or EC motor
- Benefits** High efficiency geometry
Modular design, 1-16 fans
8 sound levels
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 70 to 1600 kW
(Ethylene glycol 35%, Tw1= 40 °C, Tw2= 35 °C, T1= 25 °C)
- Fans** Diameter Ø 800, 900, 1000 mm, AC or EC motor
- Benefits** High efficiency geometry
Modular design, 2-16 fans
8 sound levels
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), WFS (Wet Fin System) available upon request
Casing in galvanized steel, powder painted



ENERGY & PROCESS COOLING Power plant

Cooling the Deutz TBD 620 V16 engine at the power plant on the island of Favignana in Sicily.

NEED specific materials and treatments for very high durability in particularly aggressive marine environments.

SOLUTION Dry Cooler, model GH2690.DNYVQRAFS, with stainless steel 304 casing, heat exchange coils with copper pipes and fins and C5M category anti-corrosion treatment (ISO12944).
Power: double circuits, LT=233 kW + HT=933 kW



ENERGY & PROCESS COOLING Food processing

Fluid temperature control at the requested maximum temperature is guaranteed thanks to EPS.

NEED to maintain the fluid temperature for the perfect functioning of the production plants.

CAPACITY REQUIRED 1670 kW + 1369.30 kW

SOLUTION 5 Super Power-J Dry Coolers model SJGH21090CN/04Q2EAF(EC)(EPS)S and 6 Super Power-J Dry Coolers model SJGH2890C1/04Q2EAF(EC)(EPS)S



SUPER POWER-J DRY COOLERS

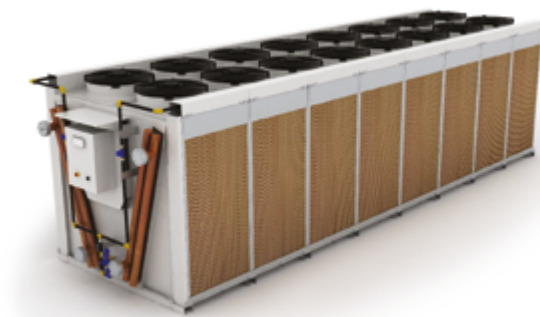
- Area of use** Heat rejection
- Performance range** Capacity from 290 to 2220 kW
(Ethylene glycol 35%, Tw1= 40 °C, Tw2= 35 °C, T1= 25 °C)
- Fans** Diameter Ø 800, 900, 1000 mm, AC or EC motor
- Benefits** Maximum performance, minimum footprint
High efficiency geometry
Modular design, 8-20 fans
8 sound 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

TKMICRO H₂O MODULAR LIQUID COOLER



- Area of use** Heat rejection
- Performance range** Capacity of each module up to 120 kW**
- Fans** Diameter Ø 800 AC and EC motor
- Modules** From 1 to n
- Benefits** Modularity
Compactness (maximum length 2245 mm)
Low installation costs
Regulation or partialisation of the whole unit
Lower environmental impact
Less weight
Less fluid use
Easy-to-clean microchannel core
Core coating possibility in case of aggressive ambient

(**) **Standard conditions** - ΔT = 15k ethylene glycol 35%, Tw1=40°C, Tw2=35°C, T1=25°C



POWER -J (V-TOWER) DRY COOLER

- 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
8 sound levels
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



COOLING | Data centre

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

NEED precisely control the temperature of data centre servers to improve their efficiency.

CAPACITY REQUIRED total 11.8 MW.

SOLUTION 31 Power-J Dry Coolers model JGH2390CZ2/6QIEMAF(EC)(AFS)S and 2 V-Type model JWQ1290A3/8QIEMAF(EC)(AFS)S with electronic fans, adiabatic and self-cleaning system.

Radiators

ThermoKey air cooled Radiators have been designed for heavy industrial cooling applications to cool various process liquids, even in the most extreme conditions. Our radiators can be custom designed for each project and offer the best possible match for every facility. Applications include: diesel and gas engine cooling, turbine cooling, oil cooling.

POWERGEN RADIATOR

Area of use Electricity production market, small biogas plants, geothermal plants

Performance range Capacity up to 3MW at ambient temperature 35°C

Fans Diameter Ø 1250 mm

Benefits Plug & play units for short assembly time on site
 Containerizable
 Robust construction
 Energy efficient – low total cost of ownership
 Great capacity
 Reliability for industrial application



Located in Bangladesh, the radiators are equipped with high-efficiency fan motors for energy saving.

NEED engine cooling.

CAPACITY REQUIRED 1665KW for HT circuit and 980KW for LT circuit.

SOLUTION PowerGen Radiators designed as an upgrade of old pre-existing radiators, allowing a quick plug & play replacement and cost saving for shipping and installation.

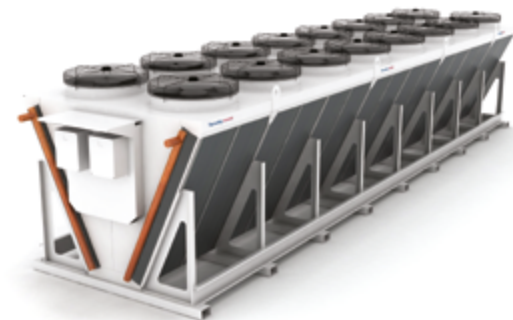
Remote condensers and gas coolers

Used as condensing external units in HVAC&R they contribute to the optimization of air-conditioning systems in hospitals, hotels, shopping centres, data centres, supermarkets and cold rooms.



TURBO-LINE CONDENSERS

- Area of use** Gas condensation
- Performance range** Capacity from 10 to 1249,8 kW (R404A, Tc= 40 °C, T1= 25 °C)
- 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, 8 sound levels
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 (R404A, Tc= 40 °C, T1= 25 °C)
- 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
Finned pack available in a wide range of materials
Complete range of accessories, 8 sound levels
AFS (Air Fresh System), WFS (Wet Fin System) and EPS (Evaporative Panel System) available upon request
Casing in galvanized steel, powder painted

GAS COOLER

- Area of use** commercial refrigeration (supermarkets) and industrial refrigeration (production, packaging and distribution)
- Performance range** V-type double row range from 4 to 12 fans, capacity up to 1200 kW
Table-type range to 10 fans, capacity up to 600 kW
- Fans** 800-910 diameter EC fans
- Benefits** V-shaped structure allows to reduce the installation dimensions.
Evaporative panel system increases capacity and efficiency of transcritical CO₂ systems.
Adiabatic cooling for effective operation also in regions with high ambient temperatures.
Management of the adiabatic system to minimize water consumption.



Wind farm

An offshore wind farm (a wind power project) in the north of Europe.

NEED The wind farm and substation includes 78 wind turbines with a total capacity of 312 MW. It produces green electricity for around 320,000 households every year.

SOLUTION 19 Turbo line condensers model KH1150, which are completely (fans, tubes, casing etc.) in stainless steel 316L and equipped with C5M fans.

TKMicro

TKMICRO V-TYPE MODULAR REMOTE CONDENSER



- Area of use** Gas condensation
- Performance range** Capacity for each module:
TKMicro 25: 148 kW
TKMicro 32: 160 kW
- Fans** Diameter Ø 800 mm, AC or EC motor
- Modules** Diameter Ø 800 mm, AC or EC motor
- Benefits** Modularity
Compactness (maximum length of 2245 mm)
Low installation costs
Regulation or partialisation of the whole unit
Lower environmental impact
Less weight
Less fluid use
Easy-to-clean microchannel core
Core coating possibility in case of aggressive ambient

MICROCHANNEL CONDENSERS (MPE 25mm, 32mm)



- Area of use** Gas condensation
- Performance range** Capacity from 5 to 560 kW (R404A, Tc= 40 °C, T1= 25 °C)
TKSmart Capacity from 13 to 98 kW (R404A, Tc= 40 °C, T1= 25 °C)
- Fans** Diameter Ø 300, 400, 450, 500, 630, 800, 900 mm, AC or EC motor
TKSmart Diameter Ø 400, 500, 630 mm, AC or EC motor
- Benefits** 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)
TKSmart Modular design, 1-3 fans (mpe 25 mm)
TKSmart Accessories: wiring, shock absorber



REFRIGERATION

Wine sector

High-performance refrigeration system for Capetta Winery.

NEED Doubling the cooling capacity for the refrigeration of the musts - about 20,000 litres/hour from 28 °C to 0 °C.

CAPACITY REQUIRED cooling capacity of 581kW at 50Hz.

SOLUTION R290 (propane) TKMicro V-Type Modular Remote Condensers with high efficiency and low refrigerant charge.



REFRIGERATION

Meat production facility

Food freezing and storing for a leading company in Poland.

NEED 31 cold rooms with a total surface of 3500 m² for the whole meat production process.

CAPACITY REQUIRED cooling capacity of 910 kW.

SOLUTION 23 Unit Coolers and 4 Microchannel V-Type Remote Condensers.

Unit coolers

Used for food preservation in cold rooms, fast freezing tunnels, greenhouses temperature control and other applications.

INDUSTRIAL DUAL FLOW UNIT COOLERS



Area of use Medium and large cold rooms and large refrigerated warehouses to preserve fresh or frozen products. Medium and large processing rooms.

Performance range **Direct Expansion operation:** capacity up to 115 kW (R404A, Te= -8° C, T1= 0° C, RH = 85%)
Brine Operation: capacity up 160 kW (Glycol 30%, TW1= -10 °C, T1= 0 °C, RH = 85%)
Ammonia Operation: capacity up 170 kW (NH3, Te= -8 °C, T1= 0 °C, RH = 85%)

Fans Diameter Ø 500-560-630 mm, AC motor.

Benefits Modular design, 1-5 fans
 Piping in copper or in AISI 304 stainless steel
 Finned pack available in a wide range of materials
 Fin spacing: 4.5 mm - 7 mm
 Various defrosting systems available
 Casing available in AISI 304 stainless steel or RAL 9010 painted aluminium

INDUSTRIAL UNIT COOLERS



Area of use Medium and large cold rooms

Performance range **Direct Expansion operation:** capacity from 7 to 209 kW (R404A, Te= -8° C, T1= 0° C, RH = 85%)
Brine Operation: capacity from 8 to 262 kW (Glycol 30%, TW1= -10 °C, T1= 0 °C, RH = 85%)
Ammonia Operation: capacity up 170 kW (NH3, Te= -8 °C, T1= 0 °C, RH = 85%)
ICC carbon dioxide Operation: capacity from 6 kW to 150 kW (R744, Te= -8° C, Tr= 0°C, RH= 85%)

Fans Diameter Ø 500-560-630 mm, AC motor.

Benefits Modular design, 1-5 fans
 Piping in copper or in AISI 304 stainless steel
 Finned pack available in a wide range of materials
 Fin spacing: 4.5 mm - 7 mm
 Various defrosting systems available
 Casing available in AISI 304 stainless steel or RAL 9010 painted aluminium

BLAST FREEZER UNIT COOLERS



Area of use Fast freezing applications

Performance range Capacity from 14 to 107 kW (Te = -40 °C, T1 = -35 °C, RH = 90%)

Fans Diameter Ø 630 mm

Benefits External static pressure of 100 Pa (standard) can arrive at 400 Pa with special tubular fans
 Piping in copper or in stainless steel AISI 304
 Finned pack available in a wide range of materials
 Fin spacing 12 mm
 Various defrosting systems available
 Casing: aluminium, available in stainless steel AISI 304 or painted RAL 9010 on request



Cold rooms

Cold rooms for the preservation of apples in Poland.

NEED Keeping a constant temperature and preserve the freshness of 14,000 tons of apples (40 cold rooms).

CAPACITY REQUIRED 3,680 kW

SOLUTION 80 Brine Unit Coolers model BFT550.66PA.



REFRIGERATION

Food freezing

Fast Freezing systems for meat processing industry in Vietnam. The plant will be able to process 1.4 million pigs per year.

NEED Processing cold storage or fast cooling plants where high capacity and high air flow are needed.

SOLUTION 70 industrial unit coolers with stainless steel tube and AlMg 2.5 fins. The system uses NH3 refrigerant.



FRUIT COOLERS

- Area of use** Fruit and vegetables storage
- Performance range** Capacity from 21 to 50 kW (R404A, Te= -8 °C, T1= 0 °C, RH= 85%)
- Fans** Diameter Ø 400 and 450 mm
- Benefits** Modular design, 3-6 fans
Fin spacing: 6.0 mm
Electric defrosting system available on request
Solid frame in galvanized steel painted RAL9010



RADIAL UNIT COOLERS

- Area of use** Air ducting
- Performance range** **Direct Expansion operation:** capacity from 10 to 115 kW (R404A, Te= 2 °C, T1= 12 °C, RH= 75%)
Brine Operation: capacity from 7 to 135 kW (Glycol 30%, Tw1= 0 °C, Tw2= 4 °C, T1= 12 °C, RH= 75%)
- Fans** Radial ducted fans, Diameter Ø 560, 630 mm
- Benefits** Fin spacing: 4.5 - 7.0 mm
Piping in copper or in stainless steel AISI 304
External static pressure of 150 Pa
Modular design, 1-4 fans
Electric defrosting system available on request
Casing in aluminium, available in galvanized steel painted RAL 9010 on request



COMMERCIAL DUAL FLOW UNIT COOLERS

- Area of use** Small and medium cold rooms
- Performance range** Capacity from 1,5 to 20 kW (R404A, Te = -8 °C, T1= 0 °C, RH = 85%)
- Fans** Single phase, Ø 350 mm
- Benefits** Modular design, 1-4 fans
Fin spacing: 3,0 mm 6,0 mm
Electric defrosting system available on request
Casing in aluminium, available in stainless steel AISI 304 or painted RAL 9010 on request



LIGHT CUBIC UNIT COOLERS

- Area of use** Small and medium cold rooms
- Performance range** **Direct Expansion operation:** capacity from 1,44 to 47 kW (R404A, Te= -8° C, T1= 0° C, RH= 85%)
Brine Operation: capacity from 1 to 20 kW (Glycol 30%, TW1= -10 °C, T1= 0 °C, RH = 85%)
- Fans** Diameter Ø 300, 350, 400 and 450 mm
- Benefits** High efficiency in compact sizes
Modular design, 1-4 fans
Fin spacing: 4 mm, 6 mm or 8mm
Solid frame in galvanized steel, cowlings in ABS (on request complete unit in galvanised steel) RAL 9010
Electric defrosting system available on request



COOLING All climate green-house

The center “World Horti Center” offers educational, research and presentation services for anyone active in the international greenhouse horticulture sector.

NEED Precisely controlling the temperature in a greenhouse to recreate any type of cultivation condition.
SOLUTION 4 Brine Unit Coolers equipped with radial fan with External Static Pressure (ESP) and prepainted blue fins.



REFRIGERATION Fast freezing

Plant to freeze 40 tons of fish per day.

NEED high capacity and high air flow units for the use of natural refrigerants.
SOLUTION 3 Industrial Blast Freezer Unit Cooler for NH3 with highly resistant structural casing and with stainless steel heat exchangers (total capacity over 270kW, with over 1500 sqm heat exchange surface and 375.000 mc/h air capacity).



HEN UNIT COOLERS

Area of use Potato and vegetables storage

Performance range Capacity from 40 to 143 kW
(R404A, Te = -5 °C, T1= 0 °C, RH = 90%)

Fans Diameter Ø 800 high prevalence with differents ESP value

Benefits Modular design, 2-4 fans
Fin spacing 7 mm
Electric defrosting system available on request
Solid frame in galvanized steel



NEW

PROCESS DUAL FLOW UNIT COOLER

Area of use processing rooms

Performance range **Direct Expansion operation:** capacity up to 115 kW
(R404A, Te= -8° C, T1= 0° C, RH = 85%)

Brine Operation: capacity up 160 kW
(Glycol 30%, TW1= -10 °C, T1= 0 °C, RH = 85%)

Ammonia Operation: capacity up 170 kW
(NH3, Te= -8 °C, T1= 0 °C, RH = 85%)

Fans Diameter Ø 500-560-630 mm, AC motor.

Benefits Fans on top to improve working comfort.
The upper air intake does not generate the ascending current.



REFRIGERATION

Strawberry plant preservation

Coldroom for strawberry plants preservation in France.

NEED Preserve strawberry plants at controlled temperature around 0°C.

SOLUTION HEN480.86+4D6W(EC)S model with upwards airflow for ducts. High prevalence EC fan for redirect airflow. Crossed circuit defrost system to save energy for defrost cycles.



REFRIGERATION

Sustainable fisheries

Processing and sale of fresh and chilled fish products from sustainable fisheries in Belgium. Execution by Fieuw Koeltechniek.

NEED Coldrooms around 0°C for processing fish.

SOLUTION CO₂ pump process dual flow unit cooler 100% stainless steel 316L. Used in processing coldrooms for draft-free air distribution to improve working conditions of workers. Stainless steel welding passivation using generators, semi-automatic orbital TIG welding torches in controlled atmosphere.

TK Accessories

TREATMENTS AND COATINGS

ThermoKey offers to its customers a wide range of treatments of the finned pack in order to protect the fins from corrosion (when needed) and to maintain the constant energetic efficiency.

- Cataphoresis
- Thermoguard
- Blygold
- Heresite
- Tinning treatment
- Double layer fins
- Hydrophobic fins
- Prepainted fins
- Electrofin

SCS SPRAY J CLEANING SYSTEM

ThermoKey offers the “Spray J” cleaning system for its V-type condensers and Dry Coolers (J) which allows the safe and easy cleaning of the finned pack. A system of nozzles which guarantees a uniform cleaning.

ELECTRICAL PANEL AC AND EC FANS

ThermoKey offers a wide range of electrical panels that allow to meet all needs, from the most standard to the more complete ones.

- E - Wiring in junction box
- Q - Wiring with electrical
- W - Wiring with electrical
- W1E - Electric box for EC fans with plastic casing
- W2E - Electric box for EC fans with plastic casing
- W3E - Electric box for EC fans with plastic casing
- W4E - Electric box for EC fans with plastic casing
- Q1E - Electrical panel for EC fans with paint coated metal casing
- Q2E - Electrical panel for EC fans with paint coated metal casing
- Q3E - Electrical panel for EC fans with paint coated metal casing
- Q4E - Electrical panel for EC fans with paint coated metal casing

REGULATION FOR DRYCOOLERS AND CONDENSERS - EC FANS AND AC FANS

A wide range of regulations are available for fan units that allow the adjustment of the operating parameters such as power consumption, fan speed and noise level, adiabatic operating systems.

- R - Phase cut speed controller
- R - Single phase cut speed controller
- G - Step fan speed controller (on demand)
- Z - Inverter speed controller with sinusoidal filters installed
- P - Special cut phase fan speed controller (on demand)
- EB - EC basic speed controller
- EC - EC plus speed controller
- UN - Unicon EC speed controller

SHOCK ABSORBERS

Vibrations are generated by the rotation of the fan motors or due to the plant, from industrial or natural phenomena. The vibrations are harmful waves and may cause problems. They can also be very dangerous in the case of resonance phenomena.

The shock absorber can considerably reduce the vibratory disturbance, as well as the noise, since it is installed between the source of vibration and the mechanical anchoring.

It is possible to select this standardized accessory or require special dampers for high-seismicity environments.

FLANGES

It is possible to select slip-on aluminium or stainless steel flanges. The unit is supplied with a nitrogen pre-charge of about 3 bars displayed on the pre-installed manometer.

CONTAINER VERSION

ThermoKey is able to supply units with dimensions suitable for container loading, with rails for the handling and protection during transport.

ADIABATIC SYSTEMS

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. It is therefore essential to use the most correct system in relation to the installation needs.

ThermoKey offers three different solutions:

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.

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 1000).

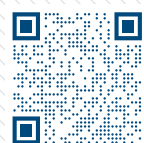
EPS EVAPORATIVE FIN SYSTEM

The evaporative panel system completes ThermoKey's offer for adiabatic cooling. Thanks to an 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).

For more details on ThermoKey accessories look at our brochure on our website.

Software di selezione

All ThermoKey accessories are available on our TKArchimede and TKCardano selection softwares.



You can download them for free from the site: www.thermokey.com in the Download area.



Round tube coils

ThermoKey has been designing and manufacturing finned pack heat exchangers (coils) for 30 years, both for its own units and for the most important chiller manufacturers in the HVAC&R field.

The latest product in which the company has invested are coils dedicated to gascooler.

GEOMETRICAL FEATURES

Staggered geometry	28	20	30	32	42	46	52	56	
External tube diameter	5/16"	3/8"	3/8"	12 mm	12 mm	5/8"	12 mm	5/8"	
Tube spacing [mm]	25	25	30	30	42	42	50	50	
Row spacing [mm]	21.65	21.65	25.98	25.98	36.4	36.4	43.3	43.3	
Fin spacing	Min [mm]	1.6	1.6	1.6	1.6	1.8	1.8	2.1	2.1
	Max [mm]	4	4	4	4	4	4	12	12
N°of tubes in height	Max	97	97	80	80	58	58	48	48
N°of rows	N°	12	12	12	12	12	12	12	12
Copper round tube		ok	ok	ok	ok	ok	ok	ok	ok
Stainless steel round tube							ok	ok	

AVAILABLE SOFTWARE

TK Coil for the thermodynamic calculation of coil.

AVAILABLE SURFACE TREATMENTS

- Cataphoresis
- Thermoguard
- Blygold
- Heresite
- Tinning
- Electrofin

FIN MATERIAL

- Aluminium
- Copper
- Double layer
- Hydrophobic
- Pre-painted
- Stainless steel
- AlMg 2,5

MODE

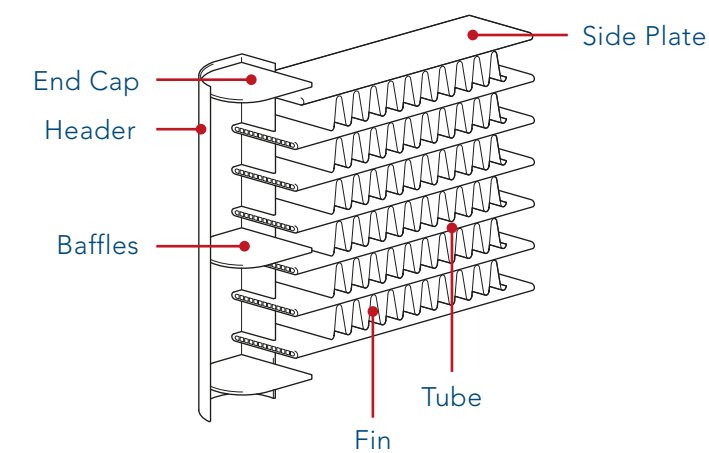
- Reversible (heat pump)
- Steam
- Water
- Direct expansion
- Condensing

STAINLESS STEEL

ThermoKey has been producing stainless steel heat exchangers since 1995. This material (both for tubes and fins) turns out to be the best choice when the refrigerant used is ammonia or CO₂.



TKMicro technology



MULTI PORT EXTRUDED (MPE)

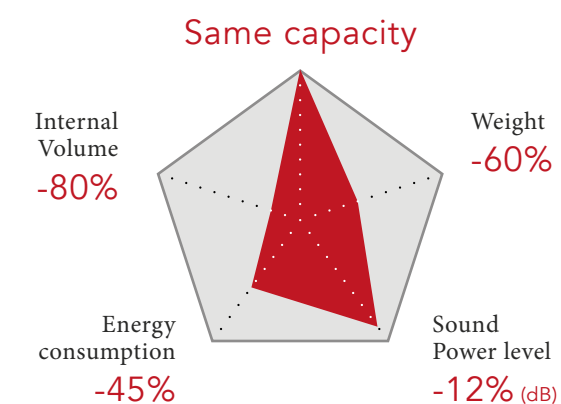
MPE tubes allow the best heat transfer with the minimum dimensions. We provide three different types of MPE tubes to better meet the needs of our customers.

MICROCHANNEL TECHNOLOGY COMPARISON WITH ROUND-TUBE TECHNOLOGY

TKMicro offers a great advantage in terms of performances.

Compared to a traditional tube and fin coil with the same capacity TKMicro offers great advantages in terms of performance: customers.

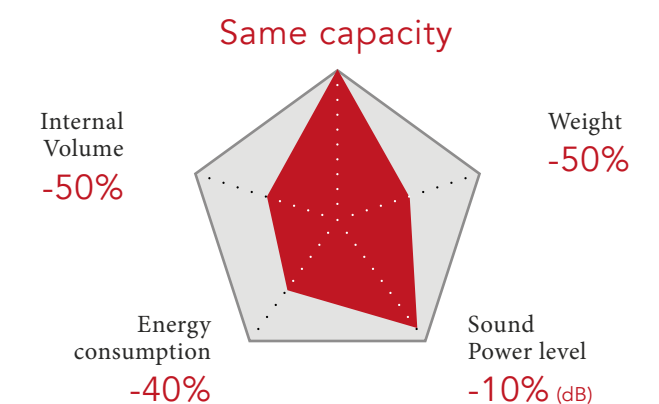
Condensing unit



TKMicro

Round Tube Cu/Al

Water unit



PRODUCTION LINE

ThermoKey's semi-continuous line is manufactured to fit a wide range of dimensions: it can manufacture cores with length from 500mm to 5400mm and height from 350mm to 1300mm.

THERMOKEY MICROCHANNEL TECHNOLOGY

ThermoKey has chosen the top class materials available to ensure the maximum quality for its TKMicro technology.

All core details are developed together with the best suppliers in the market in order to answer to the specific requirements of the HVAC&R market.

FIN

Using Finite Element Analysis (FEA) technique and our Wind Tunnel facility, we have optimized louvered angles, fin pitch and the number of louvers in order to achieve minimum air side pressure drops and, at the same time, maximize the air heat transfer.

We produce fins that fit both the 32mm tube and the 25mm tube.

The brazing process ensures a perfect and permanent contact between tubes and fins.

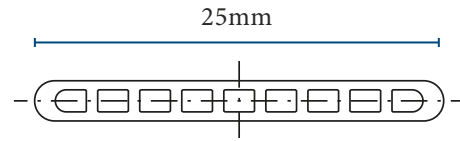
For particularly aggressive environments various types of surface/treatments are available.

TKMicro Condenser



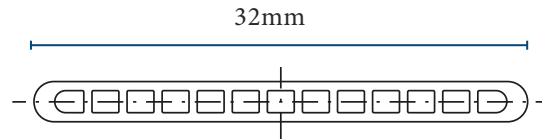
HEADER D-shape header

- For its most demanding customers ThermoKey also provides the D-shape header with 3mm wall thickness. The D-shape has lower pressure drops and is specifically designed for chiller manufacturers.
- Best distribution of refrigerant inside the core.
- Lower pressure drops.
- Best performance of the core.



CONDENSER MULTI PORT EXTRUDED (MPE) TKMicro25 condensers: 25mm width*

The best compromise between performance and lightness. Microchannel cores with a 25mm tube have a slightly higher capacity than a traditional tube and fin 3 Row 3/8" tube coil.



CONDENSER MULTI PORT EXTRUDED (MPE) TKMicro32 condensers: 32mm width*

Ideal for the low pressure drops and maximum heat transfer. Particularly suitable for application with high air flow rate. Microchannel cores with a 32mm tube have clearly a higher performance than a traditional tube and fin 4 Row 3/8" tube coil.

(*) Up to 45 Bar Ps

TKMicro Liquid Cooler



HEADER Round header

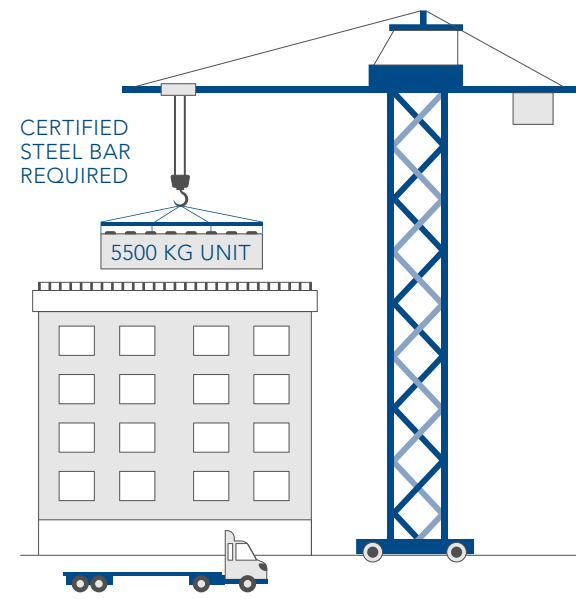
ThermoKey has developed an MPE and a header dedicated the liquid coolers with the aim of achieving very low pressure drops (liquid side). Cores are equipped with victaulic plugs that are user-friendly. TKMicro H₂O (% glycol ≥ 35%) with high water flow is comparable to a 4 row round tube coil.

The new TKMicroH₂O, the water microchannel core, is lighter, smaller and more robust than the equivalent tube&fin traditional core. It has also low pressure drops on the air side (consequent suction energy saving).

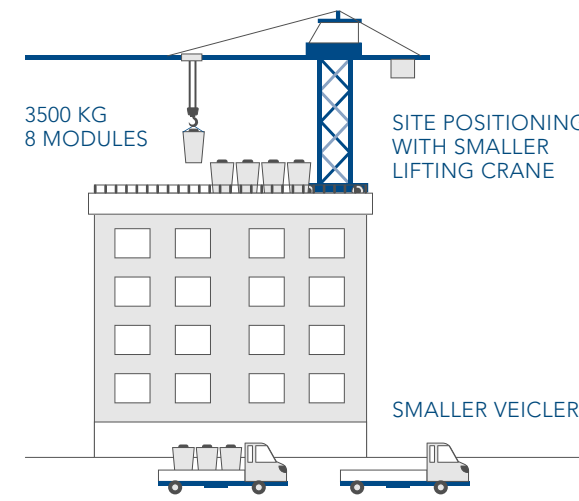
TKMicroH₂O is equipped with flanges and diameter headers and is ready to be installed on ThermoKey Dry Coolers, whereas the Freecooling version (microchannel condenser plus TKMicroH₂O) is the ideal solution for Chiller manufacturers.

TKMicro Modular solution

TKMicro modular remote condenser and liquid cooler allows, dividing the power into modules, to reach the same powers of larger units. The microchannel solution does not need special transport or high cube/open top containers, therefore it can also be installed in city centres where handling is often more difficult.



Traditional method



Modular method

ADVANTAGES:

Up to 40% less installation costs
reduce overall costs of setup, crane renting and operations.

Up to 40% less load on the roof
alluminium modules: less wight, less load on the roof (3.500 Kg-8 modules Vs 5.500 Kg-traditional unit).

Easily increase power when needed
in case of capacity request change, the modular system can adapt over time.

**THE ADVANTAGE OF CO-DESIGNING WITH THERMOKEY:
TECHNOLOGICAL OPTIMIZATION, ON-DEMAND PRODUCTION,
HIGH CUSTOMIZATION**

ThermoKey has been working alongside OEMs and chiller manufacturers for more than 30 years and, for more than 10 years now, it has been committed to the diffusion of a technology with a reduced environmental impact - the aluminum microchannel -.

With an established know-how and state-of-the-art production plants we can offer to co-design each product with our customers based on their specific requirements.



Condensing part to the Industry & Power markets



Founded in 2008 in Munich, Orcan Energy offers simple and flexible second-generation ORC solutions turning unused energy from engines and industrial facilities into valuable electricity. Orcan Energy has become a leading European CleanTech company for energy solutions based on ORC technology and just last January it ranked as the second most used supplier of waste heat solutions worldwide.

The Organic Rankine Cycle (ORC) is a key technology to achieve the internationally shared goal of increasing energy efficiency. Thanks to a system based on a closed-cycle thermodynamic cycle, it allows to recover a part of the waste heat produced by industrial processes by converting it into electricity, which is then immediately reused for the same production site.

ThermoKey is proud to have been chosen as a partner for the production of the condensing part in the Efficiency Pack dedicated to the Industry & Power markets.

NEED

Convert the excess heat from the geothermal plant into electricity. Flexible operation due to fluctuating heat loads.

SOLUTION

Co-engineering 6 customized microchannel condensers.

Custom-made solutions for specific needs

ThermoKey, in its 30 years of experience, has been developing and applying the best industrial custom-made solutions for chiller manufacturers and installers, combining expertise, market knowledge and innovation to deliver optimal results in terms of reliability, durability, delivery time, environmental sustainability and reduction of consumption.

Flexibility in finding intelligent solutions and quick response time stand us out from our competitors and has allowed us to design and supply customized plants all over the world, even for the most demanding conditions.

Every detail, even the smallest one, is designed to achieve the best result and guarantee the best performances.



OUR TECHNICIANS ASSIST THE CUSTOMER IN THE CHOICE

Our technical staff is at your complete disposal: we individually analyze your specific needs and the environment in which the heat exchanger will be installed in order to provide the best solution granting optimization of performances and reduction of consumption.



AFTER SALES

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



COOLING

Heating for different buildings

The installation site requires an innovative solution with several units for the heating of different buildings for residential installation in Switzerland.

NEED a low noise solution for residential installation, the possibility of heating fluids in case of low temperature and the reduction of CO₂ emissions and gas cost.

SOLUTION based on **heat pump systems** installed outdoors combined with heat pump/compressors located indoors. 4 Dry Coolers model s WQ1480.C 8/04 V W4EIUnAF(EC)S and 2 Dry Coolers model GQ1780. C 8/04 V W4EIUnAF(EC)S.

ADVANTAGES specific feet allowing water to flow down the side. **Special design** allowing to incline the unit on both sides.



ENERGY & PROCESS COOLING

Power plant

Serven Power is a new 824 MW gas-fired generation station at Uskmouth, near Newport South Wales.
Contractor: Siemens

NEED cooling down auxiliary circuits of Serven Power, a natural gas-fired power plant.

CAPACITY REQUIRED total 824 MW.

SOLUTION 40 Dry Coolers V-Shape, model JGL1690BY/4EIFS.



REFRIGERATION

Fishing processing

Newly rebuilt plant in Poland of a world leader company in fish processing.

NEED units resistant to an atmosphere with salt and marinades, strongly present in fish plants and the need to often clean them.

SOLUTION 728 kW stainless steel **Unit Coolers**

ADVANTAGES 100% stainless steel solution ensures long life operation.



ThermoKey®

Heat Exchange Solutions

ThermoKey Spa
via dell'Industria, 1 - 33061
Rivarotta di Rivignano Teor (UD) - Italy

T. +39 0432 772300
F. +39 0432 779734
info@thermokey.com
www.thermokey.com

