

Company profile



ThermoKey

- Refrigeration
- Energy and process cooling
- Conditioning

Doing business with ThermoKey
is a pleasure.



3.5 billion apples

Our unit coolers preserve every year more than 500 thousand tons of apples in the world: 1 apple every 2 inhabitants of the planet.

32,263 Megawatt

Our Dry Coolers installed all around the world could cool down the temperature of 5 degrees of the Po, the longest river in Italy.

1.0 billion € market

The heat exchangers represent an important market which is globally continuously growing. They influence the environmental resources and the quality life level. Every kW used to cool daily living locations, 4 kW are for food cold storage and transportation and for the industry.

Performance for global wealth

We are a state-of-the-art company playing an active role in the sector. We are committed to increase the performance in terms of energy consumption, use of recyclable materials, safety, always maintaining the highest certificated standards of quality.



The market complexity is solved with intelligence, with the capacity of identifying the most efficient solution in the time at your disposal. Our strength is to work with smart people; our value is to put each single person in the conditions of expressing at their best their own personal talent.

Giorgio Visentini
— CEO, ThermoKey Spa



VISION / AMBITION

We want to be recognised as a dynamic company which invests and takes on ambitious projects in terms of reliability, environmental sustainability and reduction of consumption.

Thanks to our experience and technological expertise in the field of heat exchangers, we want to be a reference point for the quality of the offered solutions and an example for the innovation level of our products.

In the markets all around the world our professionalism is becoming more and more strategic.

The role of ThermoKey's technological leadership is consolidating, thus creating a long-lasting value for all of our stakeholders: for our customers, for our collaborators and suppliers, but also for the territory.

MISSION / ROLE

We are driven by a desire: the satisfaction of our customers' specific needs.

For this reason we have adopted a flexible manufacturing and computer process, well-placed in one of the most important districts of the heat exchange in the world. Our technical and sales team focus on the customers' needs, from the attention to the “total cost of ownership”. All this makes ThermoKey the ideal partner for all the operators in the market of heat exchangers.

Each of our products is the most effective solution and the ideal answer to our customers' business success, from every point of view: customized solutions to be delivered in the shortest possible time.

PRODUCT
DEVELOPMENT

TECHNICAL ELECTRICAL
CUSTOMER SUPPORT

TECHNICAL
CUSTOMER SUPPORT

AREA MANAGER

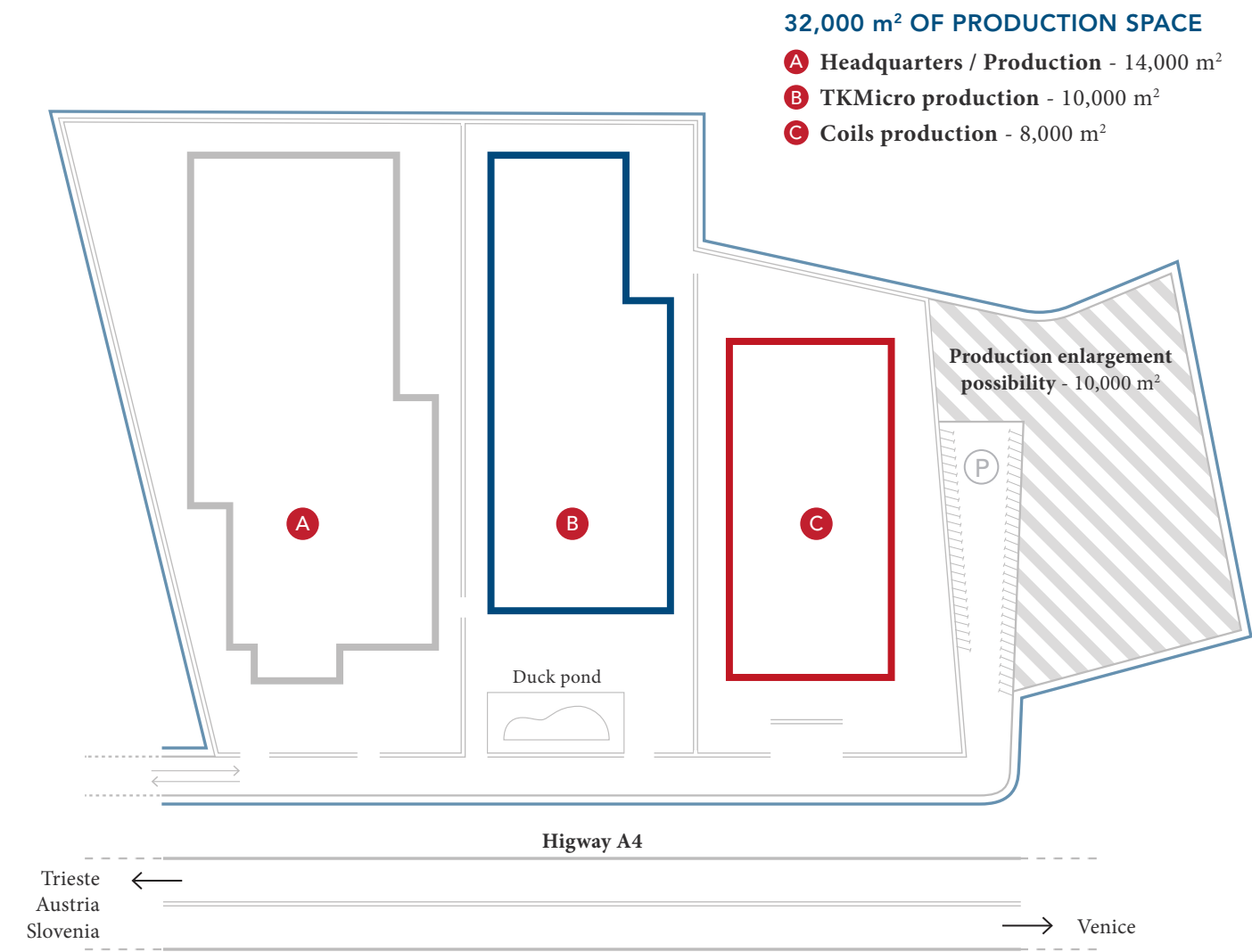
PROCESS & QUALITY
CONTROL

TECHNICAL PRODUCTION
SUPPORT

SALES
ASSISTANT



A plant designed
to be leader in the market



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



DISTINGUISHING FACTORS

- Thanks to our experience, we are able to offer the best solutions for air conditioning, refrigeration, energy and process cooling, Data Centre cooling.
- We can offer “taylor made” solutions.
- We produce microchannel liquid coolers.
- We are the only manufacturer in Europe that produces microchannel cores both for OEM and for our own units.

QUALITY CERTIFICATES

- Since 2000 TÜV Certificate on Industrial Unit Cooler
- Since 2002 UNI EN ISO 9001:2008 Quality System
- Since 2005 UNI EN ISO 14001:2004 Environmental Management System
- Since 2008 TÜV Certificate on Turbo-Line Condenser
- Since 2009 TÜV Certificate against Legionella for ThermoKey Air Fresh System
- Since 2010 BS OHSAS 18001:2007 Occupational Health and Safety Management System
- Since 2015 Certificate of Conformity of the Custom Union (Tr Ts Certification)
- Since 2015 Certificate of Compliance for CSA (TKMicro MPE 32)
- Since 2015 EAC Declaration and Certificate
- Since 2016 Wet Fin System Hygiene Certificate

25 years of success

ESTABLISHMENT

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

CORES IN STAINLESS STEEL TUBES

First company in Italy able to produce cores in stainless steel tubes with TIG orbital welding technology.

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 manufacturing quality. Opening of Representative Offices in Russia, Poland and France.

“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.

INDUSTRIAL DRY COOLER

A new range was created for the disposal of the heat process generated from the power plants. For this application a “new Internal Cleaning System” has been specifically developed for a safe and fast cleaning of the finned pack of the industrial coolers.

1991

1995

2005

2008

2009

MICROCHANNEL HEAT EXCHANGER

The first company in the world able to braze a 6 meter long aluminium core for HVAC/R by a controlled atmosphere brazing line furnace for microchannel heat exchanger (TKMicro). Development of our own thermodynamic calculation software for microchannel cores.

NEW INVESTMENTS

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

INNOVATION AT THERMOKEY

ThermoKey starts the production of MCHX cores with 25 mm MPE and introduces an innovative adiabatic cooling system called Wet Fin System (WFS).

TK SMART NEW INDUSTRIAL DUAL FLOW UNIT COOLERS

ThermoKey has developed a new range of Microchannel Condensers (TKSmart) and a new range of Industrial Dual Flow Unit Coolers.

TKMICRO H₂O

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

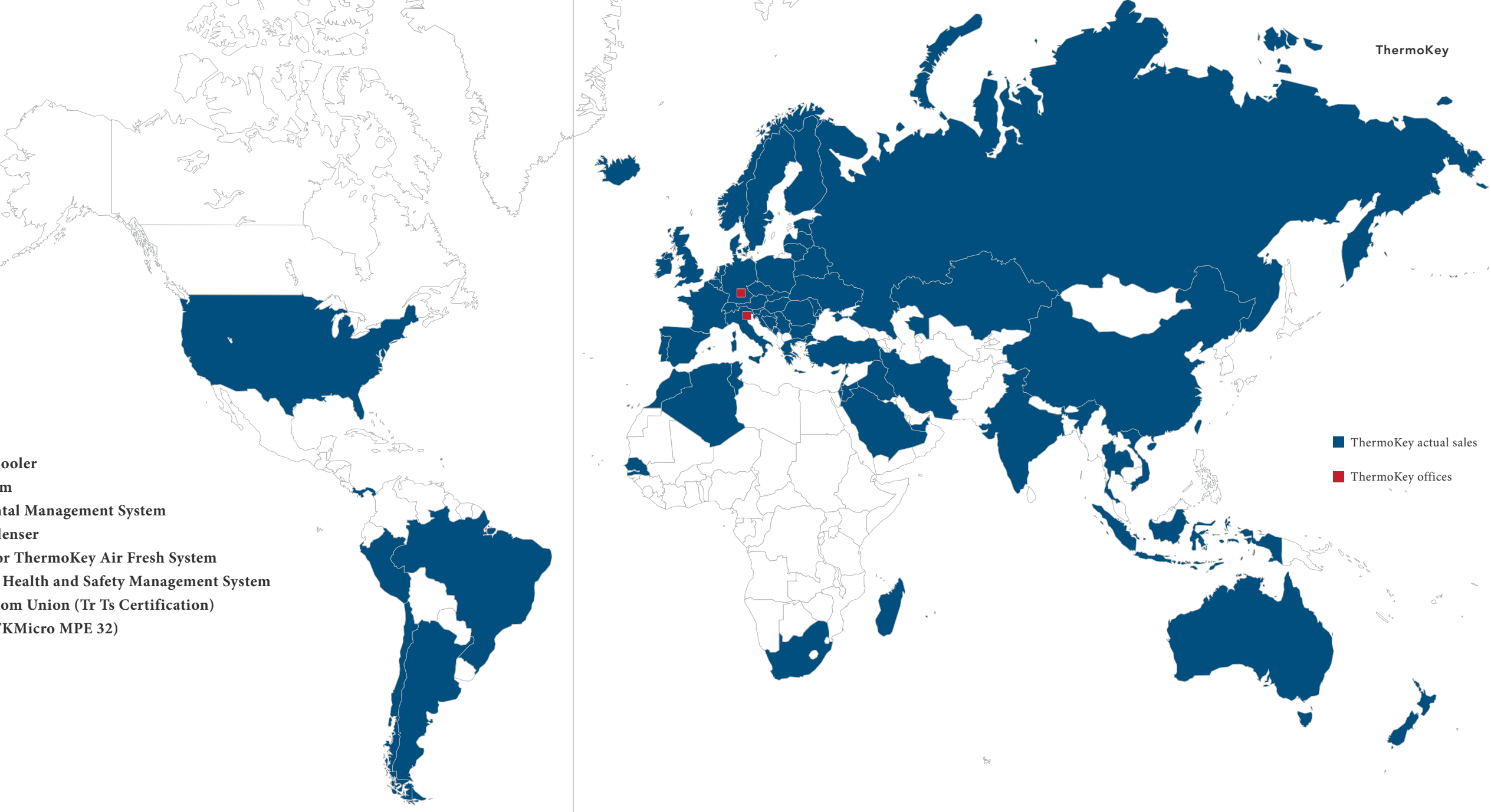
2010

2013

2014

2015

2016



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
POWER-LINE DRY COOLERS			
POWER-J DRY COOLERS			
SUPER POWER-J DRY COOLERS			
TKMICRO H ₂ O MODULAR LIQUID COOLER			
MICROCHANNEL CONDENSERS - TKSMART			
TKMICRO V-TYPE MODULAR REMOTE CONDENSER			
TURBO-LINE CONDENSERS			
TURBO-J CONDENSERS			
LIGHT CUBIC UNIT COOLERS			
COMMERCIAL DUAL FLOW UNIT COOLERS			
INDUSTRIAL UNIT COOLERS			
INDUSTRIAL DUAL FLOW UNIT COOLERS			
BLAST FREEZER UNIT COOLERS			
FRUIT COOLERS			
RADIAL UNIT COOLERS			
ROUND TUBE COILS			
MICROCHANNEL H ₂ O CORE			

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

Product range

DRY COOLERS
Every detail, even the smallest one, is designed to achieve the best Dry Cooler solution which meets the customer's needs.



Dry Coolers



Through the ambient air and a closed circuit — without wasting water — they dissipate the heat generated and 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) and EPS (Evaporative Panel System) available upon request Casing in galvanized steel, powder painted

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 for each module up to 120 kW**
Fans	Diamter Ø 800 AC and EC motor
Modules	From 1 to n
Benefits	Modularity Compactness (maximum lenght of 2245 mm) Low installation costs Regulation or partialisation of the whole unit Lower enviromental 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 plant

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

NEED

Cooling down auxiliary circuits of Seven Power, a natural gas-fired power plant.

SOLUTION

ThermoKey has provided SPX with **40 Dry Coolers V-Shape**, model JGL1690BY/4EIFS

Remote condensers

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

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 lenght of 2245 mm) Low installation costs Regulation or partialisation of the whole unit Lower enviromental 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

TURBO-LINE CONDENSERS



Area of use	Gas condensation
Performance range	Capacity from 10 to 1200 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 1915 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



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 is producing green electricity for around 320,000 households every year.

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

Unit coolers



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%) Fin spacing: 4,5 -7,0-11,0 mm Brine Operation: capacity from 7 to 240 kW (Glycol 30%, TW1= -10 °C, T1= 0 °C, RH = 85%) Fin spacing: 4,5 -6,0-8,0 mm Ammonia Operation: capacity from 8 to 262 kW (NH3, Te= -8 °C, T1= 0 °C, RH = 85%) Fin spacing: 4,5 -7,0-11,0 mm
Fans	Diameter Ø 500, 560, 630 and 800 mm, AC or EC motor
Benefits	Modulary design, 1-5 fans Piping in copper or in stainless steel AISI 304 Finned pack available in a wide range of materials Various defrosting systems available Casing: aluminium, available in stainless steel AISI 304 or painted RAL 9010 on request



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). Required capacity: 3,680 kW.

SOLUTION
80 **Brine Unit Coolers** model BFT550.66PA.



Green-house

Greenhouse of orchids, installation in Bleiswijk, Holland.

NEED
Controlling precisely the temperature in a greenhouse with a total surface of 23,500 m² for the growth of 2 million orchid plants.

SOLUTION
21 **Brine Unit Coolers** model BHT250.310P6AS equipped with Ec fans.



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	Diametery 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



Fast Freezing systems for fish processing industry in Bushehr, Iran. The plant will be able to freeze 40 tons of fish per day.

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

SOLUTION
3 **industrial Blast Freezer** unit cooler for NH3 with highly resistant structural casing and with stainless steel heat exchangers



Plant for ice-cream deep-freezing in Austria.

NEED
Fast freezing ice-cream temperature from -6 °C to -15 °C. Deep-freezing capacity: 1,400 Kg/h. Work cycle: about 16 hours. Average treatment time: 120 min. Required capacity: 90 kW.

SOLUTION
Blast Freezer Unit with electric defrosting system and 150 Pa external static pressure.

Round tube coils

ThermoKey has been designing and manufacturing finned pack heat exchangers (coils) for more than 20 years, both for its own units and for the most important chiller manufacturers in the HVAC/R field.

GEOMETRICAL FEATURES

<u>Staggered geometry</u>		28	20	30	32	42	46	52	56
<u>External tube diameter</u>		5/16"	3/8"	3/8"	12 mm	12 mm	5/8"	12 mm	5/8"
<u>Tube spacing [mm]</u>		25	25	30	30	42	42	50	50
<u>Row spacing [mm]</u>		21.65	21.65	25.98	25.98	36.4	36.4	43.3	43.3
<u>Fin spacing</u>	<u>Min [mm]</u>	1.6	1.6	1.6	1.6	1.8	1.8	2.1	2.1
	<u>Max [mm]</u>	2.8	2.8	4	4	4	4	12	12
<u>N°of tubes in height</u>	<u>Max</u>	97	97	80	80	58	58	48	48
<u>N°of rows</u>	<u>N°</u>	12	12	12	12	12	12	12	12
<u>Copper round tube</u>		ok	ok	ok	ok	ok	ok	ok	ok
<u>Stainless steel round tube</u>									ok

AVAILABLE SOFTWARE

TK Coil for the thermodynamic calculation of coil.

AVAILABLE SURFACE TREATMENTS

- Cataphoresis
- Thermoguard
- Blygold
- Heresite
- Tinning

FIN MATERIAL

- Aluminium
- Copper
- Double layer
- Hydrophobic
- Pre-painted
- Stainless steel

MODE

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

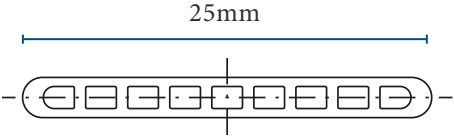


TKMicro Condenser



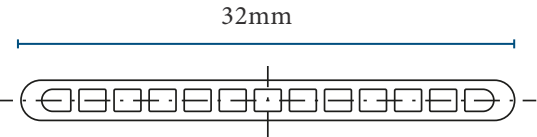
HEADER
D-shape header

- 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.



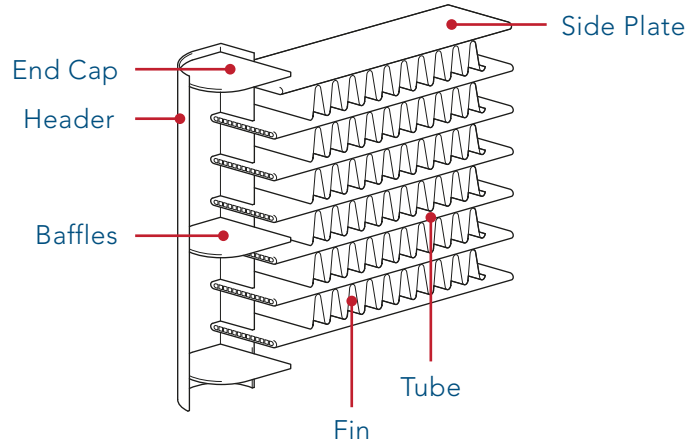
CONDENSER MULTI PORT EXTRUDED (MPE)
TKMicro32 condensers: 32mm width*
(UL/CSA certificated)

Ideal for the low pressure drop 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 technology



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.

TKMicro Liquid Cooler



HEADER
Round header

ThermoKey has developed an MPE and a header dedicated to the liquid cooler with the aim of achieving very low pressure drops (liquid side). Cores are equipped with victaulic plugs that are user-friendly. TKMicro H2O 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 traditional tube&fin 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 in ThermoKey Dry Coolers, whereas the Freecooling version (microchannel condenser plus TKMicroH₂O) is the ideal solution for Chiller manufacturers.

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.

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.

TKAccessories

ELECTRICAL PANEL EC FANS



W1E - JUNCTION BOX FOR 400V-3-50HZ EC FANS
Electric box for EC fans with plastic casing.



W2E - JUNCTION BOX FOR 400V-3-50HZ EC FANS
Electric box for EC fans with plastic casing and fan switches (1x2).



W3E - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS
Electrical panel for EC fans with plastic casing, fuse protection for groups of fans and external control 0-10V.



Q1E - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS
Electrical panel for EC fans with paint coated metal casing. Protected by automatic switches (circuit breakers) connected to groups of fans, external control 0-10V.



Q2E - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS
Electrical panel for EC fans with paint coated metal casing, controller mounted inside the box, protected by automatic switches (circuit breakers) connected to groups of fans, fan regulation control MODBUS RS485.



Q3E - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS
Electrical panel for EC fans with paint coated metal frame, controller mounted inside the box, protected by automatic switches (circuit breakers) connected to groups of fans, fan regulation control MODBUS RS485, internal anti condensate heating element.



Q4E - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS
Electrical panel for EC fans with paint coated metal casing, controller mounted inside the box, protected by automatic switches (circuit breakers) connected to groups of fans, fan regulation control MODBUS RS485. Panel-mounted switches (1 switch every 2 fans) (1x2).

REGULATION FOR DRYCOOLERS AND CONDENSERS EC FANS

EB - EC BASIC SPEED CONTROLLER
The EC BASIC Eb is a multifunction and multiple-input unit for the regulation of speed of three-phase electronically commutated motors installed on axial fans, which is designed to regulate different EC motors, in a simultaneous and coordinated way, using programmable input signals.

EP - EC PLUS SPEED CONTROLLER
The EC PLUS Ep is a multifunction and multiple-input unit for the regulation of speed of three-phase electronically commutated motors installed on axial fans, which is designed to regulate different EC motors, in a simultaneous and coordinated way, using programmable input signals.

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 (MI-STING effect) and a specially designed electronic control system represent the innovative principle of AFS system. It uses only the quantity of water necessary to obtain the desired adiabatic effect.

Tüv Certified: “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 1000).

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 hygienically 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 completely disassembled for cleaning and maintenance operations. Thanks to the evaporation contained in the panel there is no need of any protective treatment for the heat exchanger. It is possible to use the water distributed by the common water supply network.

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

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.

REGULATION FOR DRY COOLERS AND CONDENSERS - AC FANS

- **R** It is regulator that works as a voltage controller according to the cup phase principle (control over the three phases) in order to continuously increase and reduce the value of voltage supplied to three-phase AC motors mounted on the units.
- **P** Controller P is a multifunction and multiple-input unit for the regulation of speed of asynchronous three-phase motors installed on axial fans.
- **G** Controller G is an electronic three-phase control unit designed according to the voltage step technology for accurate regulation, totally free of sound electrical and electromagnetic disturbance.
- **Z** It is designed for the regulation of three-phase asynchronous motors mounted on heat exchangers.

ARCHIMEDE SOFTWARE

Based on the user's given operating conditions (desired refrigerant or coolant, ambient humidity, evaporator and condenser temperatures) and required accessories, the software will perform an exact thermodynamic calculation (even for unusual applications).

CARDANO

It develops the best remote condenser solution with microchannel cores (range from 10kW to 870kW).

Direction
Acrobatik
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CP0717EN

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