



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

Global market

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

Why ThermoKey?

In this scenario ThermoKey develops and applies 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 give the customer maximum satisfaction.



INCREASE OF THE PLANET TEMPERATURES

Average temperature increase caused by high gwp refrigerants (global warming potential): ThermoKey is the first European manufacturer of cores and air cooled units with microchannel heat exchangers in aluminium. Microchannel Technology allows a reduction of the fluid refrigerant up to 65% and is compatible with zero gwp refrigerant fluids such as ammonia and propane.



WATER SHORTAGE

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



INCREASING ENERGY CONSUMPTION IN THE DATA CENTRE

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

We contribute with our HVAC & R products to the realization of air-conditioned rooms.



The drivers of our growth

KNOW-HOW

In the continuous development of tube & fin and microchannel solutions for the most specific environments and applications, in being compliant with the most stringent regulations and certifications. In technical support to the customer throughout the customer's journey: from offer to delivery.

SPEED

In response times, in developing customised solutions, in delivery times. Time is a factor of competitiveness.

INNOVATION

In the ongoing research and development of the product, in new materials and new technologies, always updated compared to market standards.

PRODUCT MIX

Over 25 years of continuous product development in HVAC & R and Process Cooling market, 4500 standard solutions, 15 million possible configurations and still open to customization.

SUSTAINABILITY

In designing solutions made to last over time and consume less energy and water, in developing compatible solutions with low GWP refrigerants.

In our drive to use microchannel technology to reduce the use of refrigerant gases.

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.

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.



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.

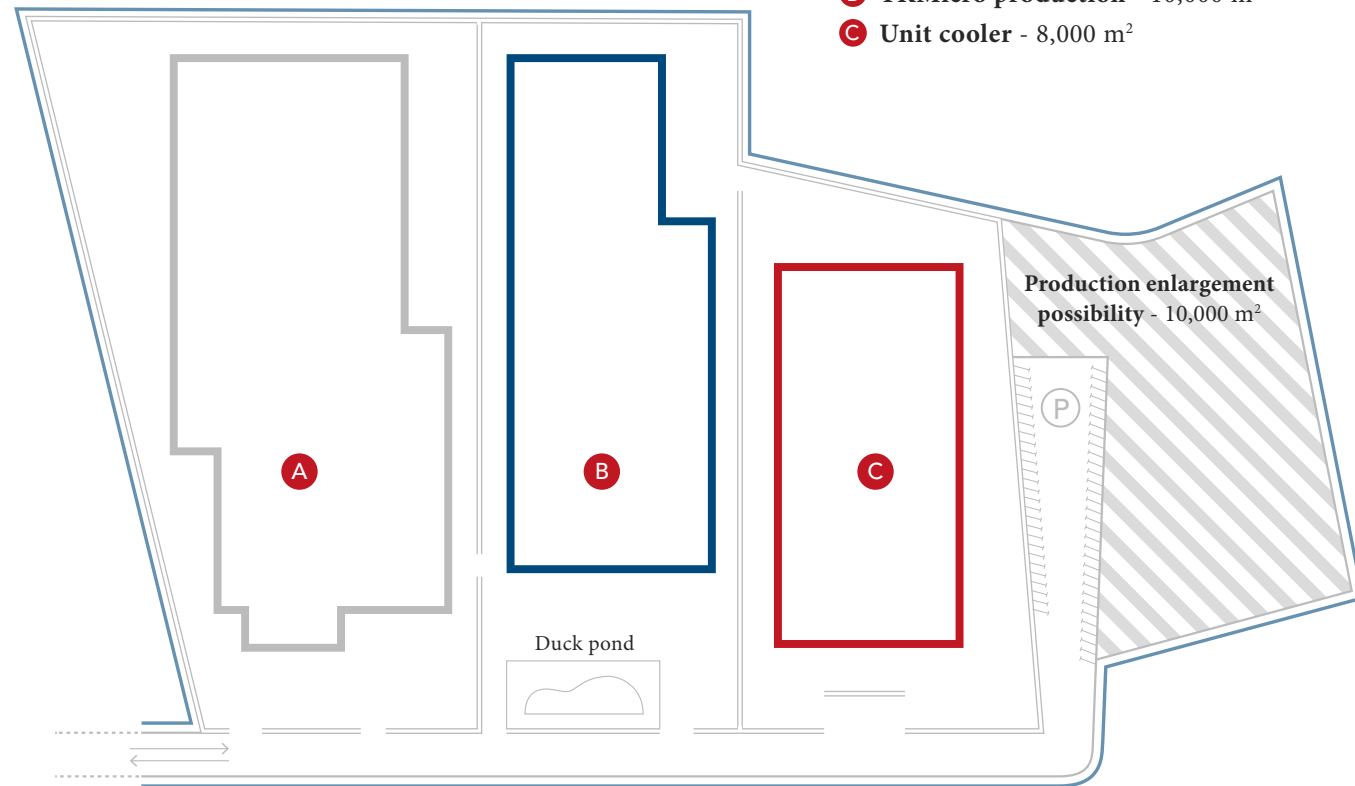
Giuseppe Visentini
— Executive Board Member, COO ThermoKey Spa



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





QUALITY CERTIFICATES

- Since 2000 TÜV Certificate on Industrial Unit Cooler
- Since 2002 UNI EN ISO 9001:2015 Quality System
- Since 2005 UNI EN ISO 14001:2015 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
- Since 2018 Adiabatic Evaporative Panel System Hygiene Certificate
- Since 2019 Eurovent - Certify All Dry Coolers
- Since 2019 Ped Cat2 certificate both for round tube coil and microchannel core

More than 25 years of success

ESTABLISHMENT	THERMOKEY DEUTSCHLAND GMBH	"GREEN" REFRIGERANT R744	INDUSTRIAL DRY COOLER	MICROCHANNEL HEAT EXCHANGER	NEW GOVERNANCE	INNOVATION AT THERMOKEY	TKMICRO H ₂ O	V-TOWER OFFICIAL LAUNCH	HIGHER STANDARDS
ThermoKey was founded to produce heat exchangers for commercial and industrial use, expanding continuously in the years its range of products.	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.	The refrigerant R744 (CO ₂) was added to the range of natural refrigerants already used (amongst the others NH ₃) through a new specific series of unit coolers.	A new range was created for the disposal of the heat process generated from 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.	The first company in the world able to braze a 6 meter long aluminium core for HVAC&R using a controlled atmosphere brazing line furnace for microchannel heat exchanger (TKMicro). Development of our own thermodynamic calculation software for microchannel cores.	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.	ThermoKey starts the production of MCHX cores with 25 mm MPE, introduces the innovative adiabatic cooling system WFS, develops a new range of Microchannel Condensers (TKSmart) and of Industrial Dual Flow Unit Coolers.	ThermoKey starts the production of the innovative TKMicroH ₂ O, a Microchannel Core suitable also for water. Introduction of a new adiabatic cooling system called Evaporative Panel System (EPS).	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.	ThermoKey has achieved new Eurovent certifications for Dry Coolers and PED Cat2 for Round Tube Coils and microchannel cores to confirm our compliance with the high quality standards and demands of HVAC&R market.



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 COOLERS	█		
V-TOWER DRY COOLERS	█		
MICROCHANNEL CONDENSERS - TKSMART		█	
TKMICROV-TYPE MODULAR REMOTE CONDENSERS		█	
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 CORES AND H ₂ O 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

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.

ThermoKey offers over 180,000 Dry Cooler solutions.

- More than 7,000 models
- 12 types of wiring
- More than 12 different types of fins and tubes material
- More than 40 fan types
- A wide range of fin spacing (from 1.6 mm to 4.5 mm)
- Various fins thicknesses



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.



EUROVENT CERTIFICATION

Eurovent certification confirms and guarantees that the performances of our Dry Coolers - Power Line table and V-Type - really correspond to the design conditions.



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



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

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

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



ENERGY & PROCESS COOLING

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.
CAPACITY REQUIRED total 824 MW.
SOLUTION 40 Dry Coolers V-Shape, model JGL1690BY/4EIFS.



ENERGY & PROCESS COOLING

Steelworks

Steelworks in the Middle East planned to produce 1.500.000 t/y of billets and placed in a desert area.

NEED cooling down the fume treatment plants. Water consumption: 150 m³/h (500 m³/h in normal plants).
CAPACITY REQUIRED total 103,710 kW.
SOLUTION 30 pcs Super Power-J Dry cooler model SJGH2910CDQF(INK)S with self-emptying drainable configuration, CE electrical panel and flanges.



COOLING

Data centre

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

NEED precisely controlling the temperature of data centre servers to improve their efficiency.
CAPACITY REQUIRED total 6.1 MW.
SOLUTION 18 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.



AIR CONDITIONING

Stadium

“Mordovia Arena” in Saransk guarantees additional comfort to organizers, sportsmen, participants and spectators during sport competitions.

NEED equipping the stadium’s technical rooms with air conditioning: medical stations, refreshment points, press conference rooms, mixed areas, children play rooms, toilets and changing rooms.
CAPACITY REQUIRED total 6184 kW.
SOLUTION 8 pcs JGH2590BZDQPAS.

Remote condensers

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



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 produces green electricity for around 320,000 households every year.

SOLUTION

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

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

Precisely controlling 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** 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



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.



Fast freezing

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

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]	2.8	2.8	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

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

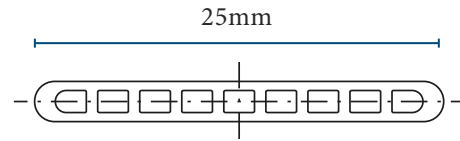


TKMicro Condenser



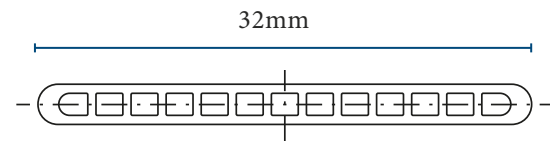
HEADER D-shape header

- 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.



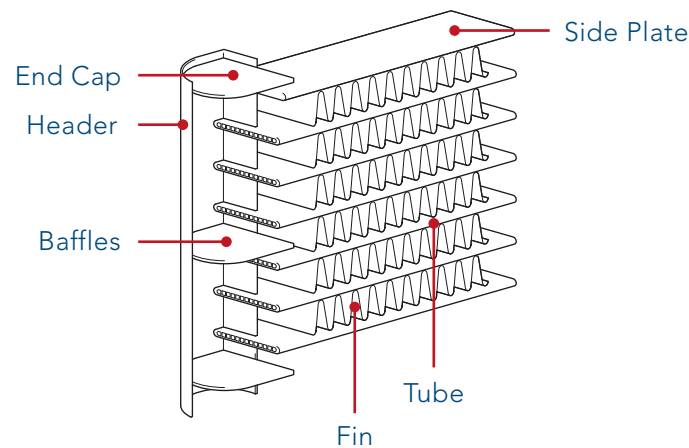
CONDENSER MULTI PORT EXTRUDED (MPE) TKMicro32 condensers: 32mm width* (UI/CSA certificated)

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 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 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.

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.

TK Accessories

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.



W4E - THREE-PHASE ELECTRICAL PANEL FOR 400V-3-50HZ EC FANS

Electrical panel for EC fans with plastic casing. Protected by automatic switches (circuit breakers) connected to 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 (MISTING 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 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).

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

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
- 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.

REGULATION FOR DRY COOLERS AND CONDENSERS - AC FANS

▪ **R** It is a controller 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).



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

