

 **thermofin**[®]
heat exchangers - GERMANY

Industrial Refrigeration





THE COMPANY

Bernd Löffler, supported by his father Willy Löffler, founded **thermofin GmbH** in Heinsdorfergrund in June 2002. The first finned heat exchangers left the company in autumn 2003. Our product range comprises components for industrial and commercial appli-



cations in the field of storing and processing foods, for deep freezing plants and distribution centres, for process and industrial cooling as well as for large computer centres and ice rinks. Since 2007, we are also active in the sector of energy and power plant cooling.

FLEXIBILITY

In addition to well-engineered standard series, our service range also comprises design, construction and manufacture of heat exchangers according to customers' specifications and in special designs.

COMPREHENSIVE ACCOMPANYING SERVICE PORTFOLIO



Our technical sales team is happy to support you already during projecting of your systems. Our in-house developed selection software based on thermodynamic algorithms facilitates an exact designing and optimisation of the heat exchangers, also for special applications and mediums.

Our own test stand provides the opportunity to confirm the results by measurements. Following the current developments in the industry, we extended the stand by the refrigerant NH_3 in 2016. An extension of the existing test stand for dry coolers is planned in the near future. On request, we offer factory approvals and effect measurements and test runs in order to prove the performance of our units in accordance with customers' requirements. We can also supplement the order-related documentation with results of material examinations, x-ray analyses, vibration tests as well as wind and snow load calculations and on demand, we additionally provide calculations according to other regulations and standards such as ASME.

QUALITY

It is the ultimate objective of our quality policy to preserve the satisfaction of our customers. The quality management system of **thermofin GmbH** is certified according to the standards of DIN EN ISO 9001:2015.

By further developing our quality management, the process reliability within the company improves continuously. Thanks to the application of modern manufacturing processes and in consideration of permanent quality-ensuring examinations, we are able to guarantee the reliability of our products at any time. At the same time, all materials and components employed in our production process, meet the highest quality standards guaranteed by quality certificates of our suppliers.

We offer the certainty of a manufacture in compliance with the following standards and guidelines:

- **Quality management system:**
Certificate according to DIN EN ISO 9001:2015
- **Welding quality requirements:**
Certificate according to DIN EN ISO 3834-3
- **Manufacture of pressure equipment according to Directive 2014/68/EU:**
Certificate according to AD 2000-instructions HP0
- **Internal manufacturing checks with monitoring of the final assessment (Module A2) according to Directive 2014/68/EU:**
Certificate according to module A2-Directive 2014/68/EU



Evaporators and air coolers PRODUCT OVERVIEW



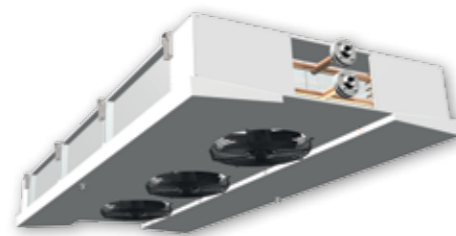
■ CEILING-MOUNTED EVAPORATOR/AIR COOLER industrial line 8|9

TEN/L	HFC evaporator
TAN/A/S	NH ₃ evaporator
TON/L	CO ₂ evaporator
TGN/L	glycol air cooler



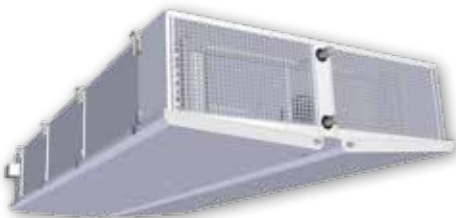
■ CEILING-MOUNTED EVAPORATOR/AIR COOLER agricultural storage 10|11

TENA	HFC evaporator
TANA	NH ₃ evaporator
TOLA	CO ₂ evaporator
TGNA	glycol air cooler



■ EVAPORATOR/AIR COOLER WITH DOUBLE COIL industrial line 12|13

TEDN	HFC evaporator double coil
TADN	NH ₃ evaporator double coil
TODN/L	CO ₂ evaporator double coil
TGDN	glycol air cooler double coil



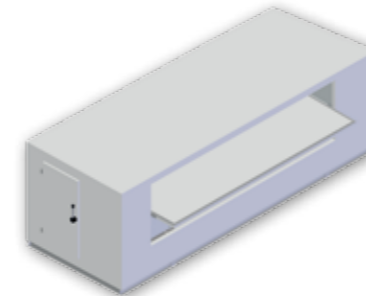
■ EVAPORATOR/AIR COOLER FOR PROCESS ROOMS 14|15

TEP	HFC evaporator for process rooms
TAP	NH ₃ evaporator for process rooms
TOP	CO ₂ evaporator for process rooms
TGP	glycol air cooler for process rooms



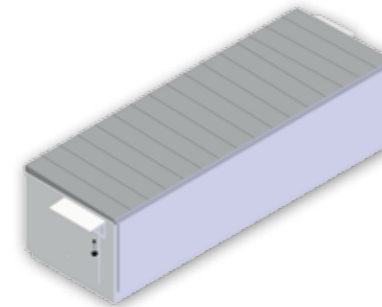
■ BLAST FREEZER 16|17

TFN	HFC blast freezer
TAFN/A/S	NH ₃ blast freezer
TOFL	CO ₂ blast freezer
TGFN	glycol blast freezer



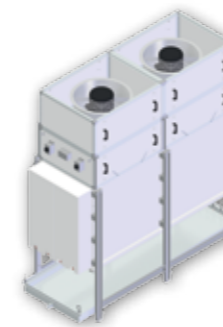
■ INSULATED COOLER 18|19

TIE	HFC insulated cooler
TIA	NH ₃ insulated cooler
TIO	CO ₂ insulated cooler
TIG	glycol insulated cooler



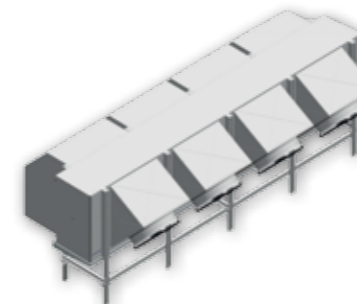
■ PENTHOUSE COOLER 20|21

TPE	HFC penthouse cooler
TPA	NH ₃ penthouse cooler
TPO	CO ₂ penthouse cooler
TPG	glycol penthouse cooler



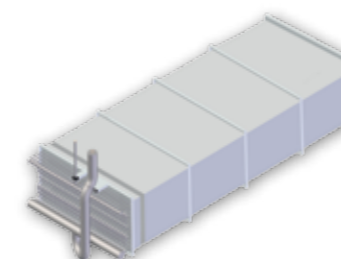
■ FLOOR-MOUNTED EVAPORATOR/AIR COOLER 22

TEFM	HFC floor-mounted evaporator
TAFM	NH ₃ floor-mounted evaporator
TOFM	CO ₂ floor-mounted evaporator
TGFM	glycol floor-mounted evaporator



■ HEAT PUMP EVAPORATOR/AIR COOLER 23

TWN	HFC heat pump evaporator
TAWN	NH ₃ heat pump evaporator
TOWN	CO ₂ heat pump evaporator
TGWN	glycol heat pump evaporator



■ HEAT EXCHANGER COIL 24|25

TB...	heat exchanger coil
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Evaporators and air coolers

DESIGN OVERVIEW

thermofin® evaporators and air coolers are used for both commercial and industrial cooling.

Depending on the application, different series for different airflows are available. For every type of application, the suitable material combinations can be selected from a wide range of possible materials.

Units of the "industrial line" are characterised by a high flexibility for the positioning of the medium connections as well as by comprehensive options in design and accessories. Depending on the series, HFC, NH₃ or CO₂ can be used as refrigerant for evaporators. Water and every type of cooling brine can be used as operating fluid for air coolers.



HEAT EXCHANGER COIL

- tube Ø 12, 16, 20 mm, smooth or inner-grooved
- in-line tube arrangement and large surfaces for sensitive applications
- staggered tube arrangement for an effective heat transfer in case of higher room temperatures
- fin spacing 4-12 mm or split spacing for a long operating time between defrost cycles
- operating pressures up to 55 bar (copper), > 60 bar (stainless steel)

materials:

tubes: copper, stainless steel 304/316, hot-dip galvanised steel, aluminium alloy
fans: aluminium, aluminium epoxy resin coated, AlMg, stainless steel 304/316, copper, hot-dip galvanised steel



CASING

- for possible designs refer to the respective series
- connection elements made of stainless steel

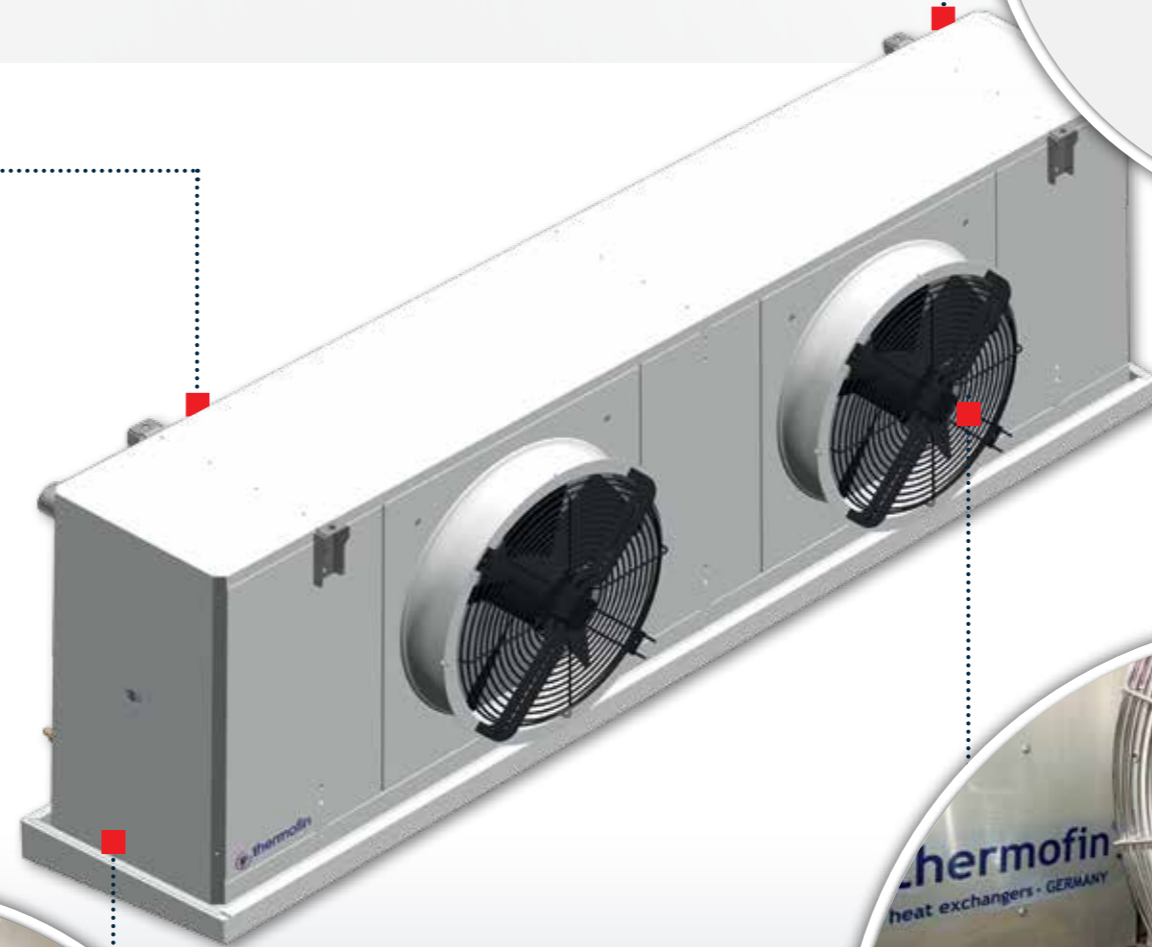
materials:

AlMg or galvanised steel, powder coated (standard colour RAL 9010)
 stainless steel 304 (1.4301)
 stainless steel 316 (1.4404)
 optional: GRP tray



CONNECTION SYSTEMS

- flexible arrangement of the cooling medium connections, horizontal or vertical
- optional: insulation end plate, junctions to steel or stainless steel tube



FANS

- Ø 400-910 mm, standard IP54 (optional IP55 for EC)
- draw-through or blow-through design
- AC or optional energy-saving EC fans, directly controllable via 0-10 V, 4-20 mA or Modbus signal
- silent, slowly running fans in case of critical sound requirements
- protective grid with cathodic dip-paint coating or made of stainless steel
- industrial fans with norm motors for a high external pressure drop (e. g. for fast freezing)
- all motors according to EuP 2015 guideline
- extensive options for wiring and control

Ceiling-mounted evaporator/air cooler

industrial line

for cold stores, storage and distribution centres, normal and deep-freezing



medium	series
HFC:	TEN, TEL
NH ₃ :	TAN, TAA, TAS
CO ₂ :	TON, TOL
glycol:	TGN, TGL
airflow:	draw-through

ACCESSORIES

- heating coil
- defrosting: electrical, hot-gas, brine, water
- electric fan ring heaters
- double and insulated tray
- defrost dampers
- shut up with draw-in hoods
- draw-in/blow-out hoods
- legs (feet)
- insulation end plates
- tiltable fans
- CIP system for cleaning
- streamers for an increased air throw
- air hose connections
- EC fans
- pre-wired fans
- repair switch
- "wireless" fan control

OPTIONS



EFFICIENCY

- defrost dampers combined with hot-gas or brine defrost system
- design possible with different materials
- motor-driven or air-actuated damper design



AIRFLOW

- precise airflow for the focused cooling of certain areas



CLEANING AND HYGIENE

- tilting functions for fans and defrost trays allow the easy access for cleaning inside of the units



Ceiling-mounted evaporator/air cooler agricultural storage

for the efficient cooling of fruits and vegetables with optimised airflow
for minimal dehumidification



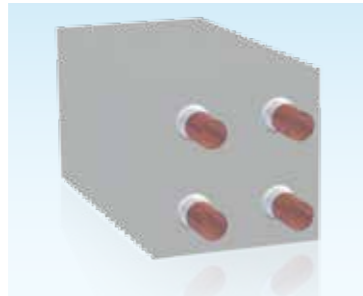
medium	series
HFC:	TENA
NH ₃ :	TANA
CO ₂ :	TOLA
glycol:	TGNA
airflow:	blow-through



ACCESSORIES

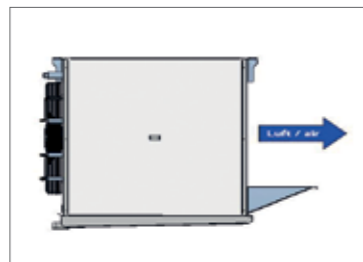
- defrosting: electrical, hot-gas, brine, water
- double and insulated tray
- blow-out hoods
- legs (feet)
- CIP system for cleaning
- tiltable fans
- EC fans
- pre-wired fans
- repair switch
- "wireless" fan control

OPTIONS



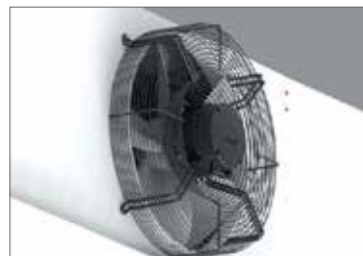
EFFICIENCY

- in-line tube arrangement and large surfaces for sensitive applications
- high efficiency thanks to low pressure losses



AIRFLOW

- minimal dehumidification of the products thanks to blow-through fans
- support of the "Coanda effect" by a guiding sheet on the air outlet



OPTIMIZED ENERGY CONSUMPTION

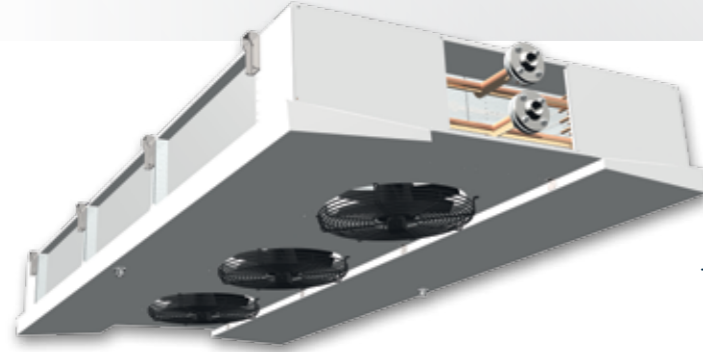
- use of EC fans
- highly efficient speed control
- adjustment of air volume flow depending on cooling load



Evaporator/air cooler with double coil

industrial line

space saving thanks to particularly flat design



medium	series
HFC:	TEDN
NH ₃ :	TADN
CO ₂ :	TODL, TODN
glycol:	TGDN
airflow:	blow-through, blowing out on both sides <i>(option draw-through, blowing out downwards)</i>

ACCESSORIES

- heating coil
- defrosting: electrical, hot-gas, brine, water
- double and insulated trays and fan plates
- legs (feet)
- insulation end plates
- tiltable fans
- CIP system for cleaning
- EC fans
- pre-wired fans
- repair switch
- "wireless" fan control

OPTIONS

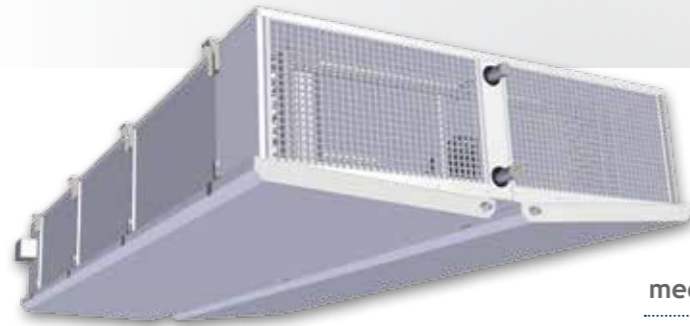
CLEANING AND HYGIENE

- tilting functions for fans and drip trays allow the easy access for cleaning inside of the units



Evaporator/air cooler for process rooms

with a draught-free airflow and a low sound level

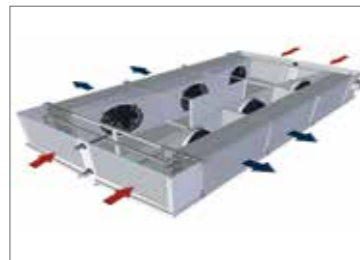


medium	series
HFC:	TEP
NH ₃ :	TAP
CO ₂ :	TOP
glycol:	TGP
airflow:	drawing in laterally, blowing out through the coil

ACCESSORIES

- heating coil
- air filters
- defrosting: electrical, hot-gas, brine
- double and insulated drip trays
- EC fans
- pre-wired fans
- repair switch
- "wireless" fan control

OPTIONS



PATENTED AIRFLOW

- patented design with a "draught-free" airflow for the application in process and working rooms
- flat unit design
- silent, slowly running fans



PRE-FILTERS

- for the protection against soiling, the unit can be equipped with air filters mounted to the air inlet



CLEANING AND HYGIENE

- tilting functions with quick-fit fasteners on the drip trays allow the easy access for cleaning works inside of the units
- direct assembly to the ceiling prevents dirt accumulation on the upper side of the unit
- trays are inclined to length-side towards the condensate water discharge
- condensate discharge pump to avoid a condensate water piping in the room



Blast freezer

with high freezing performance for a quick conservation of different products



medium	series
HFC:	TFN
NH ₃ :	TAFN, TAFA, TAFS
CO ₂ :	TOFL
glycol:	TGFN
airflow:	draw-through or blow-through

ACCESSORIES

- defrosting: electrical, hot-gas, brine
- electric fan ring heaters
- double and insulated tray
- defrost dampers
- legs (feet)
- insulation end plates
- tiltable fans
- pre-wired fans
- repair switch

OPTIONS



FLEXIBILITY

- variable designs according to customers' requirements



EFFICIENCY

- defrost dampers combined with hot-gas or brine defrost system
- design possible with different materials
- motor-driven or air-actuated damper design



LONG SERVICE LIVES FOR EVAPORATORS

- split fin spacings extend the operating time between the defrost processes and ensure an efficient operation of the unit

AIRFLOW

- precise airflow for the focused cooling of defined areas



Insulated cooler

effective use of the building thanks to the installation on the external wall of the cold room



medium series

HFC:	TIE
NH ₃ :	TIA
CO ₂ :	TIO
glycol:	TIG

DESIGN

- steam-proofed insulation cell with insulation wall thicknesses from 80-200 mm, RAL 9010
- steam-proofed, lockable access door, door frame electrically heated
- accessible water-proof floor plate made of stainless steel
- indoor illumination
- automatic damper control via TFC-thermofin® flap control
- AC axial fans or EC radial fans depending on application
- control cabinet and bus capable connection

ACCESSORIES

- heating coil
- defrosting: electrical, hot-gas, brine
- cell made of stainless steel
- weather resistant roof in case of an outside installation

OPTIONS



AIRFLOW

- for different airflow options, the units can be designed with radial or axial fans
- optimal use of the cold room thanks to the unit positioned laterally outside of the cold room



EFFICIENCY

- the damper separates the cold room from the insulated cooler, with it, no heat enters the cold room during the defrost process
- efficient and quick defrosting with closed damper thanks to the circulation mode inside of the unit



CLEANING, HYGIENE AND SERVICE

- the access door allows a perfect cleaning of all areas inside of the unit
- patented service-friendly arrangement of fans and electrical components
- service and cleaning at normal ambient temperature



Penthouse cooler

effective use of the building thanks to the installation on the roof of the cold room or in false ceilings



medium	series
HFC:	TPE
NH ₃ :	TPA
CO ₂ :	TPO
glycol:	TPG

DESIGN

- steam-proofed insulation cell with wall thicknesses from 80-200 mm, RAL 9010
- steam-proofed lockable access door, door frame electrically heated
- draw-in area along the floor with access grid
- indoor illumination
- electrically actuated defrost damper
- AC axial fans
- control cabinet for damper control and repair switch

ACCESSORIES

- heating coil
- defrosting: electrical, hot-gas, brine
- EC fans
- weather-resistant roof in case of an outside installation

OPTIONS



AIRFLOW

- the air is drawn in upwards through the roof of the cold room and blown out through an air duct
- optimal use of the cold room thanks to the unit positioned on the suspended ceiling or the roof



EFFICIENCY

- patented damper arrangement ensures an optimal airflow through the heat exchanger coil
- defrost dampers mounted to the heat exchangers prevent a heat entry to the cold room during the defrost process



SERVICE

- service-friendly arrangement of fans and electrical components



Floor mounted evaporator/air cooler

optimal use of the cold room thanks to a duct-guided airflow



medium	series
HFC:	TEFM
NH ₃ :	TAFM
CO ₂ :	TOFM
glycol:	TGFM
airflow:	vertical, blowing out upwards

DESIGN

- galvanised steel casing, not painted
- air-actuated defrost dampers
- duct connections
- AC axial fans for a high external pressure drop

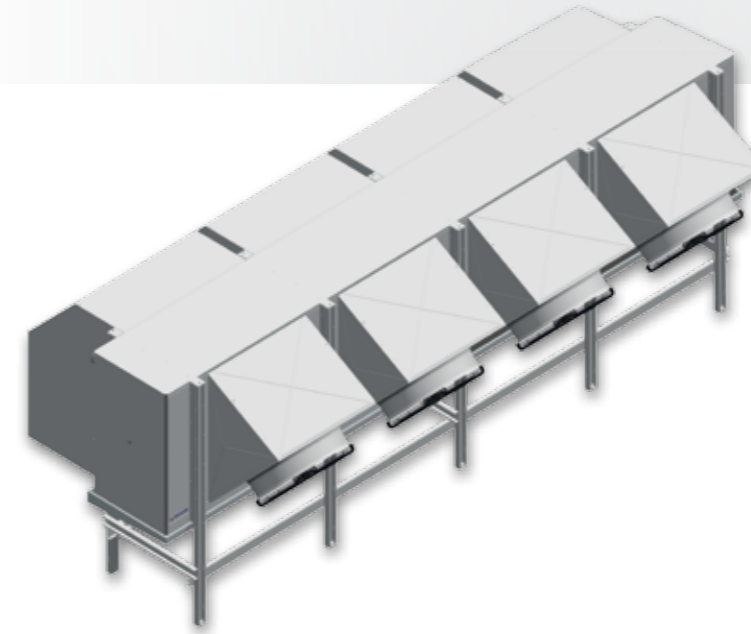
ACCESSORIES

- defrosting: electrical, hot-gas, brine
- electrical coil and/or tray edge heaters
- electric fan ring heaters
- pre-wired fans
- repair switch



Heat pump evaporator/air cooler

optimal defrost cycles thanks to reduced heat losses during defrost process



medium	series
HFC:	TWN
NH ₃ :	TAWN
CO ₂ :	TOWN
glycol:	TGWN
airflow:	draw-through

DESIGN

- external installation
- weather protection thanks to draw-in and blow-out hoods for long operating times

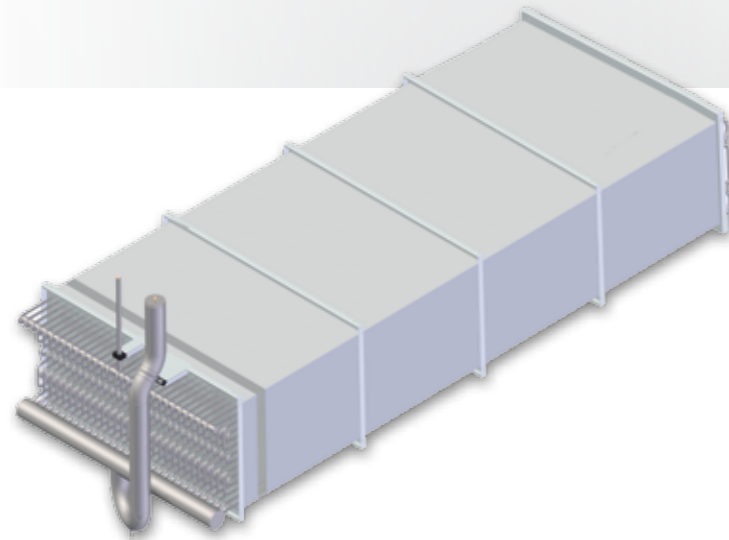
ACCESSORIES

- defrosting: electrical, hot-gas, brine
- electric fan ring heaters
- double and insulated tray
- defrost dampers
- draw-in/blow-out hoods
- legs (feet)
- insulation end plates
- EC fans
- pre-wired fans
- repair switch
- "wireless" fan control



Heat exchanger coil

optimised dimensioning for different cases of application



series

TB...

for different refrigerants such as HFC, NH₃, CO₂, propane, as well as cooling mediums such as water and water-glycol mixtures

DESIGN

- tube arrangement, tube diameter, fin spacing and materials are selected according to application
- fin designs:
 - AlMg, stainless steel 304/316
 - optional: reinforced fin thickness for particular cleaning works

ACCESSORIES

- defrosting: electrical, hot-gas, brine, water
- legs (feet)
- drip tray
- casing on air inlet/outlet
- insulation end plates
- optional: 1 mm fins on air inlet for cleaning

OPTIONS



FLEXIBLE DIMENSIONS

- thermodynamically optimised designs
- freely configurable: **thermofin**[®] optimises the heat exchanger coils according to customers' requirements



INCREASED CORROSION PROTECTION - COATING

- cathodic dip-paint coating
- heresite



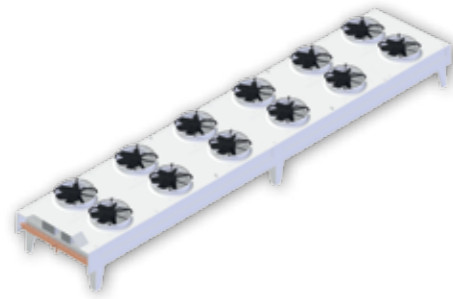
LONG OPERATING TIME OF EVAPORATORS

- split fin spacings extend the operating time between the defrost processes and ensure an efficient operation of the unit



Condensers and gas coolers PRODUCT OVERVIEW

■ CONDENSER/GAS COOLER horizontal 30|31



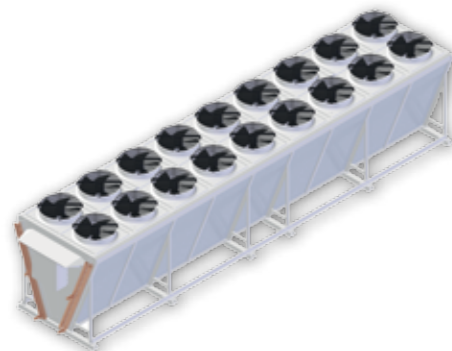
TCH	HFC condenser
TCFF	condenser "Free Flowing"
TACH	NH ₃ condenser
TOCH	CO ₂ gas cooler

■ CONDENSER/GAS COOLER vertical 30|31



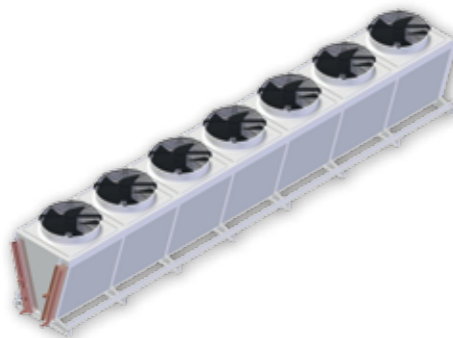
TCV	HFC condenser
TACV	NH ₃ condenser
TOCV	CO ₂ gas cooler

■ CONDENSER/GAS COOLER V-shape, double-row 32|33

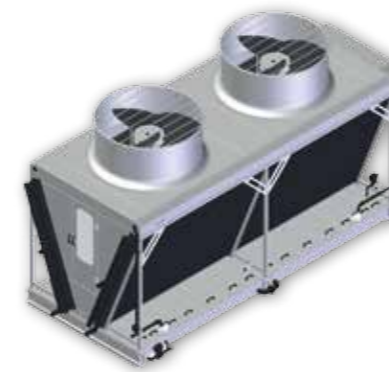


TCD	HFC condenser
TACD	NH ₃ condenser
TOCD	CO ₂ gas cooler

■ CONDENSER/GAS COOLER V-shape, single-row 32|33



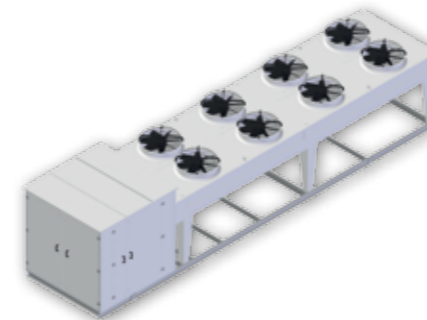
TCW	HFC condenser
TACW	NH ₃ condenser
TOCW	CO ₂ gas cooler



■ HYBRID CONDENSER 34|35

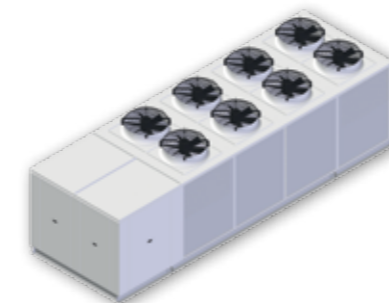
THCD/THCW	hybrid HFC condenser
THACD/THCAW	hybrid NH ₃ condenser

■ CONDENSER/GAS COOLER with housing 36|37



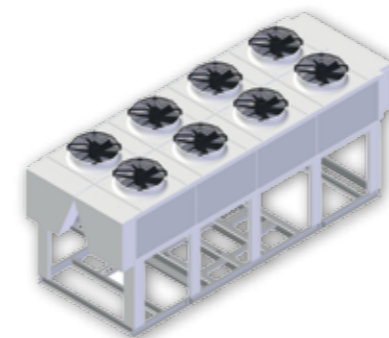
TCHH	HFC condenser horizontal
TCDH	HFC condenser double coil "V-shape"
TACHH	NH ₃ condenser horizontal
TACDH	NH ₃ condenser double coil "V-shape"
TOCHH	CO ₂ gas cooler horizontal
TOCDH	CO ₂ gas cooler double coil "V-shape"

■ COMPACT CONDENSER/GAS COOLER 36|37



TCK	HFC compact condenser
TACK	NH ₃ compact condenser
TOCK	CO ₂ compact gas cooler

■ CONDENSER/GAS COOLER WITH DOUBLE COIL W-shape 36|37



TCDW	HFC condenser
TADW	NH ₃ condenser
TODW	CO ₂ gas cooler

Condensers and gas coolers

DESIGN OVERVIEW

thermofin® condensers are available in a wide performance range between 0.5 and 2,000 kW.

Depending on the application, you can select between different series within the "industrial line". Mounted empty housings

are just as possible as pre-wired controllers for the fans, coated fins or modified leg (foot) heights. All thermofin® condensers are available in different sound levels and of course suitable for outside installation. Depending on the series, HFC, NH₃, CO₂ or propane can be used as refrigerant.



HEAT EXCHANGER COIL

- tube Ø 9.52 or 12 mm, smooth or inner-grooved
- efficient staggered tube arrangement
- standard fin pitch 2.0, 2.2, 2.4 or 3.0 mm, smooth surface
- operating pressures up to 43 bar (copper), 120 bar (stainless steel) for CO₂

materials:

tubes: copper, stainless steel 304/316
fins: aluminium, aluminium epoxy resin coated (UV resistant), AlMg, stainless steel, copper



CONNECTION SYSTEMS

- connection diameter is optimised to the respective case of application



OPERATIONAL RELIABILITY

- high leakage protection - core tubes without contact to the casing
- heat exchanger coils are float-mounted inside of the casing
- fluid-containing tubes without bearing function



CASING

- standard casing material galvanised steel
- powder coating standard colour RAL 7035 (optional special colours)
- corrosion protection class C3 (optional C4, C5I, C5M)
- all connection elements made of stainless steel
- different versions of accessories



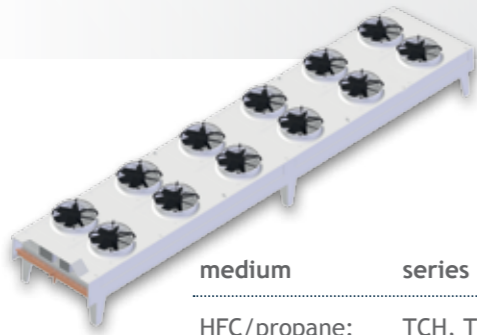
FANS

- Ø 450-1,000 mm, standard IP54 (optional IP55 for EC fans)
- AC or optional energy-saving EC fans, directly controllable via 0-10 V, 4-20 mA or Modbus signal
- optimised to specific sound requirements
- all motors according to EuP2015 guideline
- extensive options for wiring and control

Condenser/gas cooler

horizontal/vertical

optimal system component thanks to the wide range of performance



medium	series
HFC/propane:	TCH, TCFF <i>(for refrigeration units without collector with integrated oil separator)</i>
NH ₃ :	TACH
CO ₂ :	TOCH
airflow:	vertical



medium	series
HFC/propane:	TCV
NH ₃ :	TACV
CO ₂ :	TOCV
airflow:	horizontal

ACCESSORIES

- circuit partition
- inspection openings
- extended legs (feet)
- shortened legs (feet)
- special colours
- spraying system
- vibration dampers
- streamers for an increased air throw
- diffusers
- EC fans
- K65-joint for gas coolers

OPTIONS



EFFICIENCY

- spraying system for peak loads in case of high ambient temperatures
- low water consumption
- improved COP of the system
- hygiene and frost protection thanks to the fully-automated drain system
- control with TCS controller (max. 4 spraying zones)



SERVICE AND CLEANING

- smooth fin surfaces prevent soiling and facilitate cleaning
- longer operating times
- optional: tiltable fans



ELECTRIC DESIGN

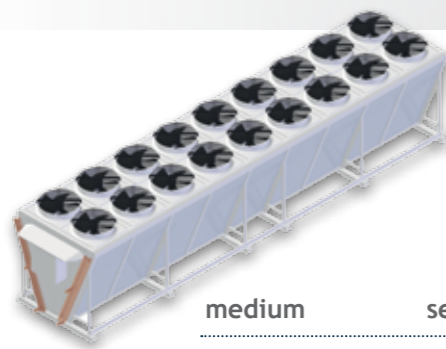
- repair switch/motor protection switch (wired individually or pair-wise)
- wiring to terminal box
- TPD - thermofin® power distribution
- TCS - thermofin® control system
- control cabinet for the integration of all electrical components
- speed controller (phase control or frequency converter for AC motors)



Condenser/gas cooler V-shape

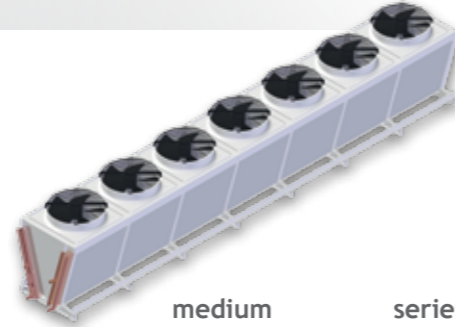
double-row/single-row

ideal for high power requirements with small installation surface, groupage of units to a field



medium series

HFC/propane: TCD
 NH₃: TACD
 CO₂: TOCD



medium series

HFC/propane: TCW
 NH₃: TACW
 CO₂: TOCW

airflow: drawing in laterally, blowing out vertically upwards

ACCESSORIES

- circuit partition
- special colours
- spraying system
- vibration dampers
- streamers for an increased air throw
- diffusers
- EC fans
- K65-joint for gas coolers

OPTIONS



EFFICIENCY

- spraying system for peak loads in case of high ambient temperatures
- low water consumption
- improved COP of the system
- hygiene and frost protection thanks to the fully-automated drainability
- control with TCS controller (max. 4 spraying zones)



SERVICE AND CLEANING

- smooth fin surfaces prevent soiling and facilitate cleaning
- longer operating times
- optional: tiltable fans



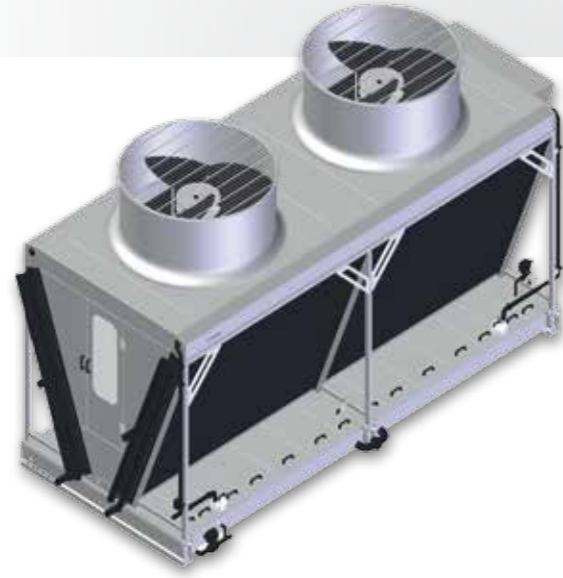
ELECTRIC DESIGN

- repair switch/motor protection switch (wired individually or pair-wise)
- wiring to terminal box
- TPD - thermofin® power distribution
- TCS - thermofin® control system
- control cabinet for the integration of all electrical components
- speed controller (phase control or frequency converter for AC motors)



Hybrid condenser

with an outstanding performance potential thanks to the interaction between wet and dry cooling



medium	series
HFC:	THCD, THCW
NH ₃ :	THACD, THACW
airflow:	drawing in laterally, blowing out vertically upwards

DESIGN

- parts with contact to water made of stainless steel
- fans Ø 800 to Ø 2,000 mm
- fan selection optimised to sound values and energy efficiency
- continuous speed control of the fans
- completely piped water circuit
- water collection tray
- filling level sensor
- submersible pump for water circuit
- automatic deluging system
- automatic conductivity measurement



HEAT EXCHANGER COIL

- high protection against corrosion thanks to cathodic dip-paint coating



SERVICE

- access door with automatic fan stop
- all valves and water-side service points are accessible from the outside



ELECTRIC DESIGN

- complete system with TCS mounted into a control cabinet for the regulation of all unit functions
- regulation of summer/winter mode with draining
- continuous regulation of the fan speed
- regulation of the deluging water circuit
- regulation of the desludging and refilling function
- connection to upstream control

WATER CIRCUIT

- deluging of the finned surface for an increased performance and a decreased medium temperature

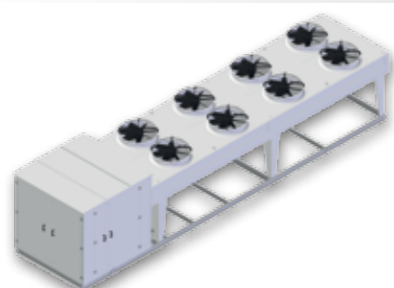


**Condenser/
gas cooler
with housing**

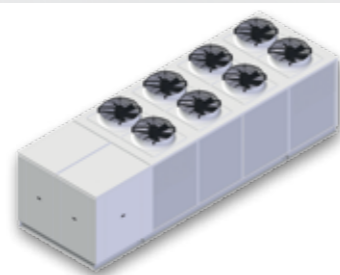
**Compact condenser/
gas cooler**

**Condenser/
gas cooler
double coil
W-shape**

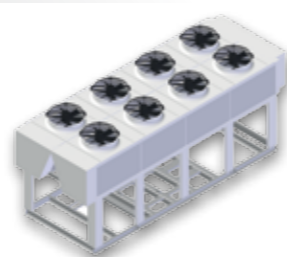
in different versions for receiving customised components



medium	series
HFC/propane:	TCHH, TCDH
NH ₃ :	TACHH, TACDH
CO ₂ :	TOCHH, TOCDH



medium	series
HFC/propane:	TCK
NH ₃ :	TACK
CO ₂ :	TOCK



medium	series
HFC/propane:	TCDW
NH ₃ :	TADW
CO ₂ :	TODW

ACCESSORIES

- circuit partition
- inspection opening
- special colours
- spraying system
- vibration dampers
- tiltable fans
- streamers for an increased air throw
- diffusers
- EC fans
- K65-joint for gas coolers

OPTIONS



HOUSING

- dimensions according to customers' requirements
- galvanised steel or stainless steel
- powder coating standard colour RAL 7035
- optional: special colours and increased corrosion protection
- casing in simple or double wall, sound optimised design
- door design (quantity, size) according to customers' requirements
- base frame
- connection elements made of stainless steel



HIGH QUALITY STANDARD

- powder-coated casing parts



ELECTRIC DESIGN

- repair switch/motor protection switch (wired individually or pair-wise)
- wiring to terminal box
- TPD - thermofin® power distribution
- TCS - thermofin® control system
- control cabinet for the integration of all electrical components
- speed controller (phase control or frequency converter for AC motors)

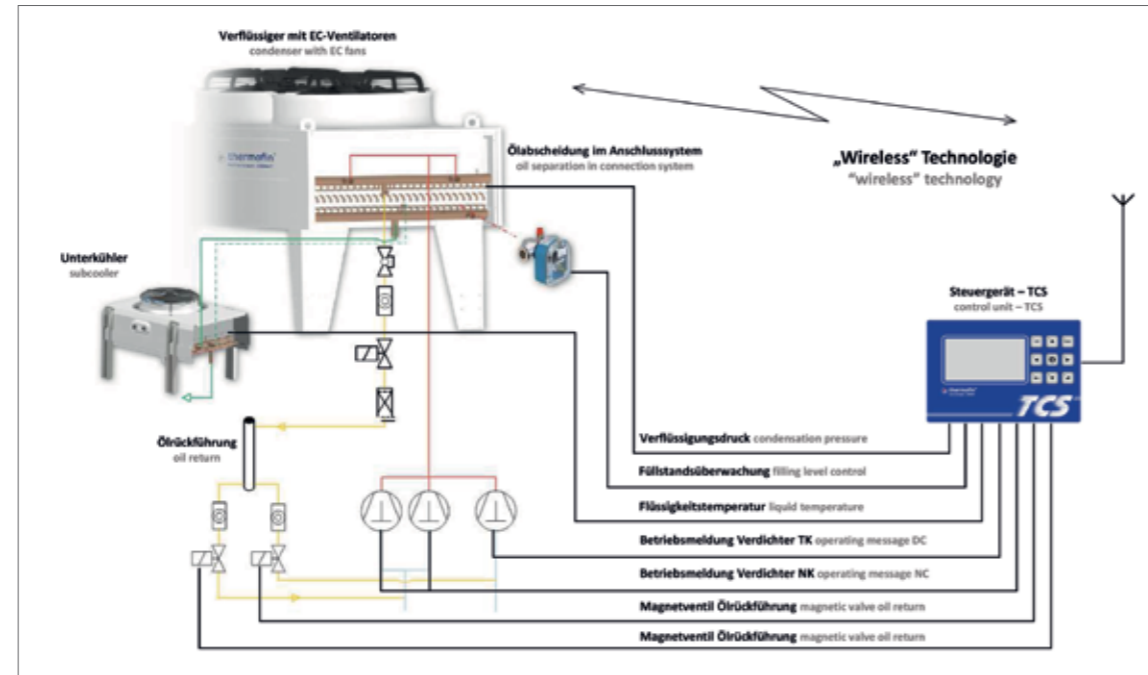


Controls as system solution

CONTROL TECHNOLOGY AND SYSTEM CONCEPTS

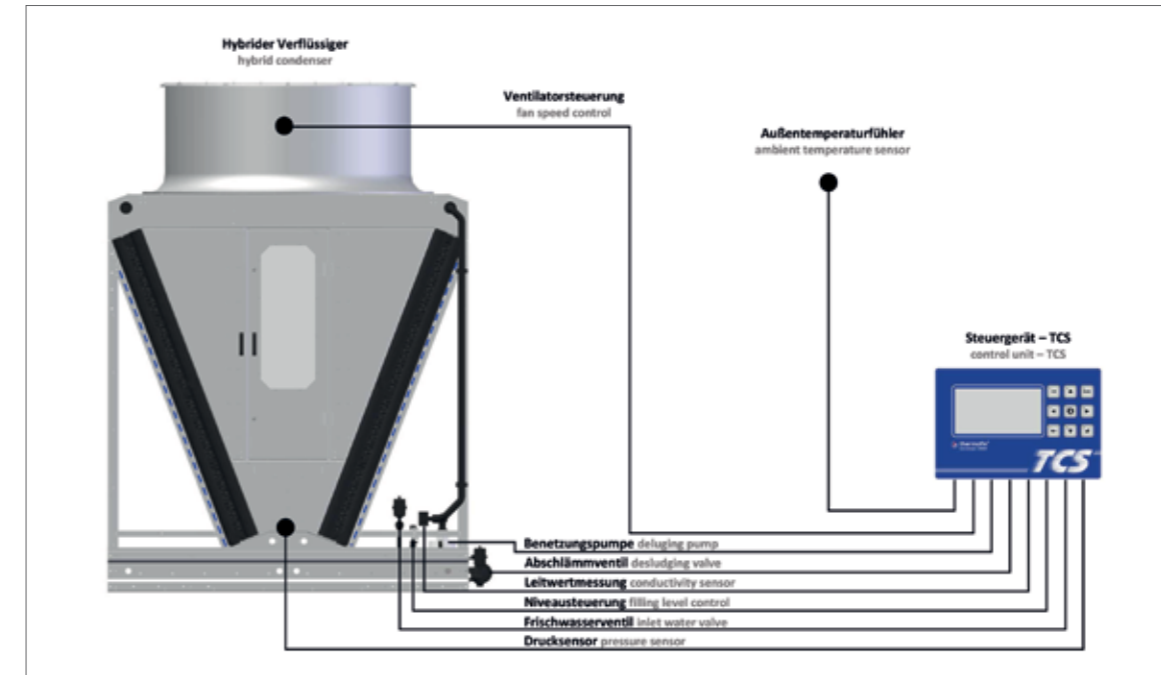
CONDENSER WITH OPTIONS FOR "SYSTEMS WITHOUT RECEIVER"

- condenser with downstream controlled subcooler
- integrated oil separator and oil return
- controlled EC fans
- integrated filling level sensor
- "wireless" fan control



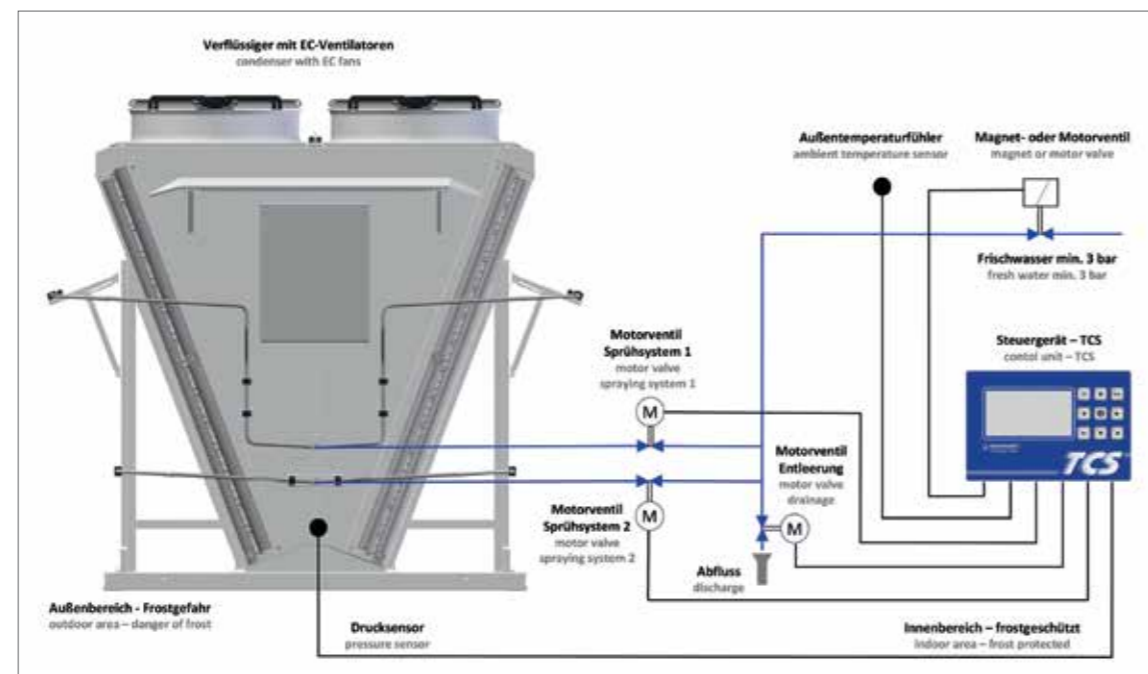
HYBRID CONDENSER

- deluging depending on the condensation pressure, ambient temperature and fan speed
- max. 2 separate deluging zones
- frost protection thanks to a fully-automated drainage



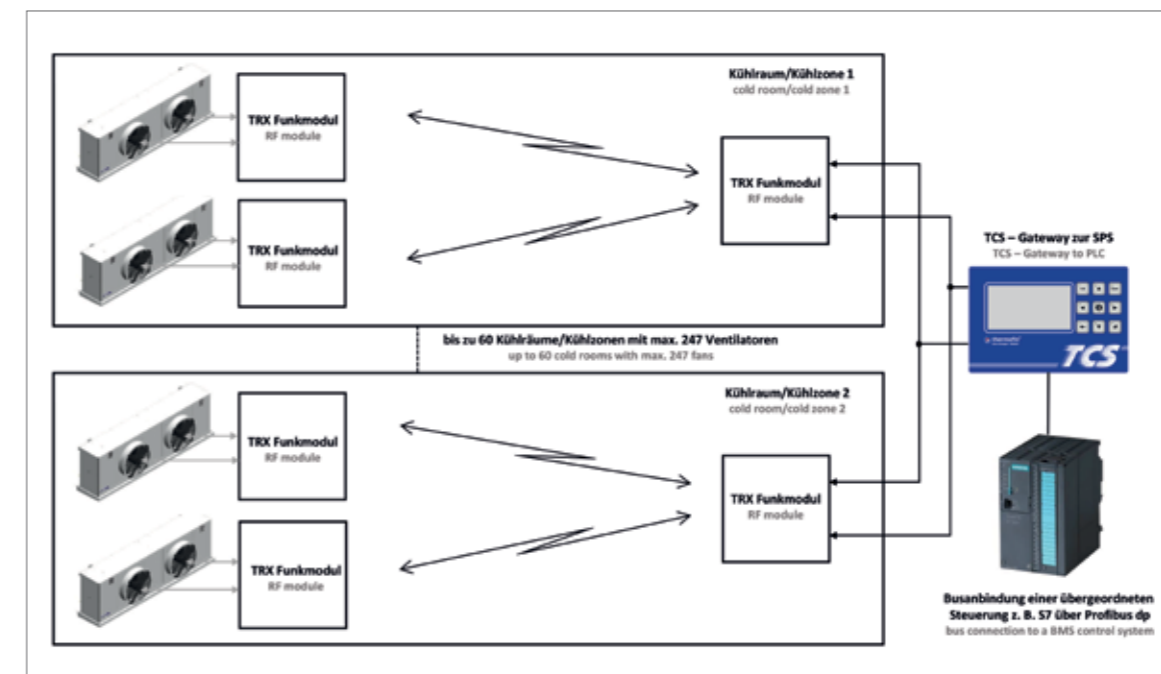
CONDENSER WITH SPRAYING SYSTEM

- spraying system depending on the condensation pressure, ambient temperature and fan speed
- max. 4 separate spraying zones
- hygiene and frost protection thanks to a fully-automated drainage



EVAPORATOR/AIR COOLER WITH EC FANS

- "wireless" connection via RF modules to each EC fan (up to 247 fans)
- multi-room and/or multi-zone control up to 60 rooms/zones
- connection to an upstream control via Modbus/Profibus/CANbus/BACnet
- all data of a fan are available from the upstream control





heat exchangers - GERMANY

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