FUTRON

ECO COOLING SYSTEMS

NATURAL - EFFICIENT

Shaping the future – with combined forces.

Our collaboration with companies in the fields of heating, air conditioning and building services engineering, as well as sustainable refrigeration and air conditioning concepts, combines comprehensive expertise, many years of experience and high-quality, reliable production – regional, efficient and qualitative.

This results in significant added value for customers: natural refrigerants with very low fill quantities, well-thought-out safety concepts and a wide range of applications – from cold water systems and hot water supply to heating solutions for small and large output ranges, including infinitely variable control. Numerous installed systems demonstrate the practicality and reliability of these technologies.

Technology that inspires and takes responsibility. It is underpinned by values that unite all those involved – genuine cooperation, active sustainability and maximum safety.

Cool naturally, sustainable investment

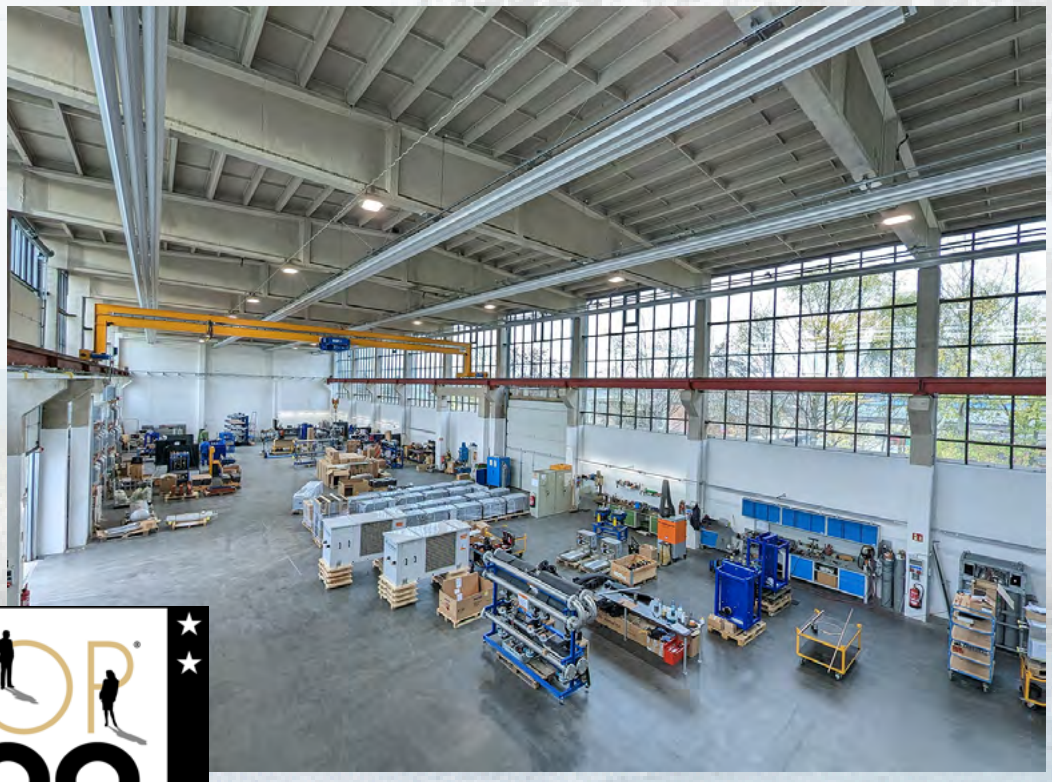
At FUTRON, we combine technical excellence with sustainable thinking. Our experienced team develops durable refrigeration systems – thanks to well-thought-out design, high-quality components and a clear commitment to the environment.

With up to five years‘ warranty, we set standards in reliability and customer loyalty. Our customers appreciate not only the quality, but also our responsible use of resources.

FUTRON consistently uses natural refrigerants such as propane, ammonia or CO2 – an environmentally friendly alternative to synthetic substances with high global warming potential.

Made in Germany

BAFA - eligible



TOP 100
top100.de
Top-Innovator 2022

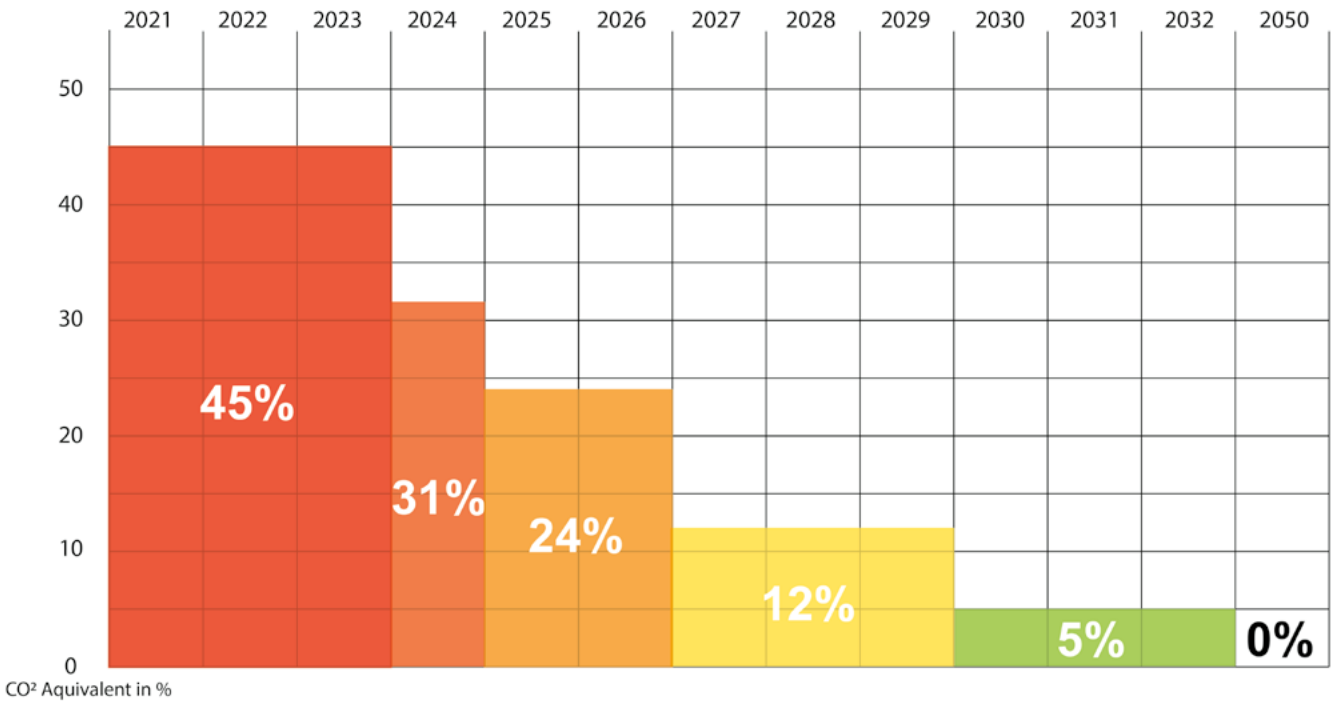

Because we
are the future!

One step ahead of the F-gas Regulation.

The new F-Gas Regulation 2024 (EU 2024/573) is shaking up the world of refrigeration technology – and we are ready! As a leading manufacturer of refrigeration systems, we are already focusing on future-proof solutions that are not only efficient but also compliant with regulations.

Our systems are already designed for natural refrigerants – e.g. propane, CO2. We develop systems that can still be operated and maintained tomorrow – without expensive conversions. With our solutions, you can meet the new operator obligations and reduce your operating costs at the same time.

We guide you through the new legislation – with technology that delivers what it promises. Reliable. Efficient. Sustainable.



Reduction in the quantity of HFC refrigerants that may be placed on the market in the EU each year.

Many years of experience with

Futron GmbH was founded in 2009. Since then, we have been designing and manufacturing refrigeration systems with natural refrigerants. We draw on the extensive experience and technical expertise of our parent company, Weska Kälteanlagen GmbH, which has been building large-scale refrigeration systems with natural refrigerants with a capacity of up to 5 megawatts for over 25 years and is now one of Germany‘s leading companies in this field.

Our annual production capacity comprises over 300 refrigeration systems and heat pumps with propane in the 40 to 700 kW output range. Thanks to our loyal customers, we are proud to be one of the leading companies in the field of refrigeration system construction with a focus on propane refrigeration systems.

Quality is our top priority. That is why all our products are not only developed and manufactured in-house, but also comprehensively tested and inspected. To ensure the highest standards, we only use industrial components from renowned manufacturers. Most of our systems undergo special measurement and performance tests on our test bench before they are put into operation at the customer‘s site.

To control our refrigeration systems and the modular components from our Futron modular system (MultiChiller Kit), we rely on customised PLC controls with specially developed software. We also manufacture the associated switch cabinets ourselves, enabling us to respond flexibly to customer-specific requirements and circumstances.

Our team consists of highly qualified employees who receive regular training in their specialist areas. They have extensive experience in handling natural refrigerants, particularly flammable ones. In close cooperation with WESKA Kälteanlagen GmbH, we also train their apprentices in our own production facility.

MADE IN GERMANY

natural refrigerants

At Futron GmbH, our focus is on the indoor installation of refrigeration systems, which allows us to offer maximum flexibility in planning and assembly – even in complex structural conditions. Our systems are specially designed for indoor use and enable compact, maintenance-friendly and safe integration into existing building structures.

Guiding principles

As an innovative and forward-looking company, Futron GmbH puts people first – whether they are customers or employees. Our daily work is characterised by our commitment to developing tailor-made refrigeration solutions using natural refrigerants that meet the highest quality standards and are also sustainable.

Fieldwork

In order to always offer our customers the best possible solutions, we continuously invest in research and development. Working closely with universities and research institutions, we create innovations that set new standards. With numerous patents and a clear focus on future technologies, we are one of the most innovative companies in Germany.

Unity

We are committed to protecting the environment and have therefore used only natural refrigerants since the company was founded. Our products are optimised for durability and sustainability and are manufactured in a resource-efficient manner. We offer up to a 5-year warranty on our products and provide maintenance-free* system designs.

Team

Team spirit is alive and well in our company. The relationship of trust with our employees is important to us. We treat each other with friendliness, respect and openness, thereby creating a good working atmosphere. Our managers serve as role models and cultivate a cooperative management style with flat hierarchies.

* except for the safety system and gas sensor

the Futron

We are convinced that true innovation arises where satisfaction, security and trust are actively practised. That is why we focus on trusting customer relationships, individual advice and a working environment in which our employees can safely and effectively develop their potential.

Rules

Discriminatory or criminal behaviour – such as bullying, racism, sexism or corruption – has no place in our company. Violations of the rules are consistently punished, as ensured by our compliance management system. Our actions are characterised by responsibility and awareness: we know that our decisions have an impact on people and the environment – and we act accordingly in a mindful and sustainable manner.

Organisation

We are highly motivated and distinguished by our reliability and professional competence. We do what we do right – with high standards and responsibility. We only accept assignments if we are confident that we can carry them out to the fullest satisfaction. Continuous training and further education ensure our expertise and keep our knowledge up to date.

Necessity

Our systems not only impress with their high performance values, but also offer sustainable and eligible added value for energy-efficient applications.


Naturalness in detail

INTERIOR LAYOUT

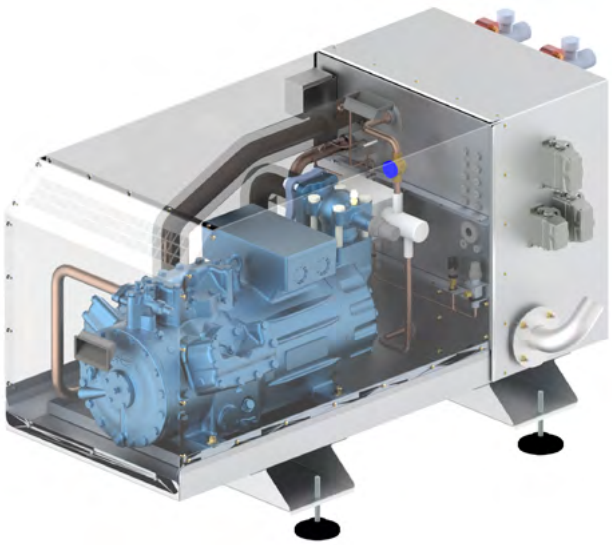
Series products

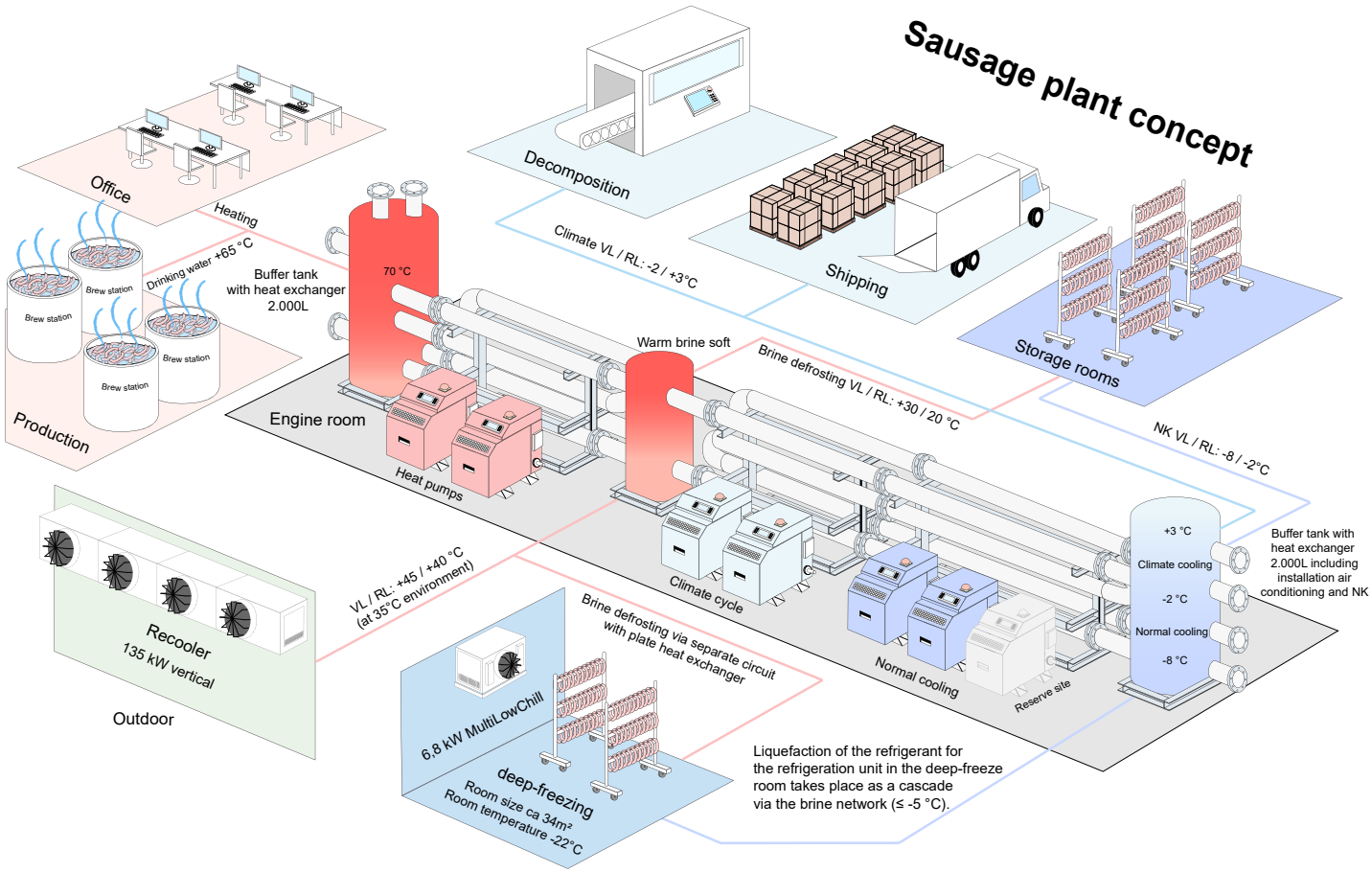
MultiChiller series

The MultiChiller is the versatile all-rounder among refrigeration systems and heat pumps. It is suitable for a wide range of applications in normal and air conditioning cooling. The waste heat generated during the cooling process can be fully utilised. Depending on the refrigerant used, outlet temperatures of up to 90 °C are possible in heat pump mode.

- Cooling capacities from 5 kW to 70 kW
- Heating capacities from 9 kW to 90 kW
- Use of R290, R1270 or R600a
- Integrated control based on in-house software
- Maintenance-free refrigeration circuit*
- Exhaust air system with gas sensor (ATEX)

* except for safety technology




Sausage plant concept
Office
Heating
Decomposition
Climate VL / RL: -2 / +3°C
Shipping
Storage rooms
Drinking water +65 °C
Buffer tank
with heat exchanger
2.000L
70 °C
Brew station
Brew station
Brew station
Brew station
Production
Engine room
Warm brine soft
Brine defrosting VL / RL: +30 / 20 °C
NK VL / RL: -8 / -2°C
Heat pumps
Climate cycle
+3 °C
Climate cooling
-2 °C
Normal cooling
-8 °C
Buffer tank with
heat exchanger
2.000L including
installation air
conditioning and NK
Normal cooling
Reserve site
Recooler
135 kW vertical
Outdoor
VL / RL: +45 / +40 °C
(at 35°C environment)
Brine defrosting via separate circuit
with plate heat exchanger
6.8 kW MultiLowChill
deep-freezing
Room size ca 34m²
Room temperature -22°C
Liquefaction of the refrigerant for
the refrigeration unit in the deep-freeze
room takes place as a cascade
via the brine network (≤ -5 °C).

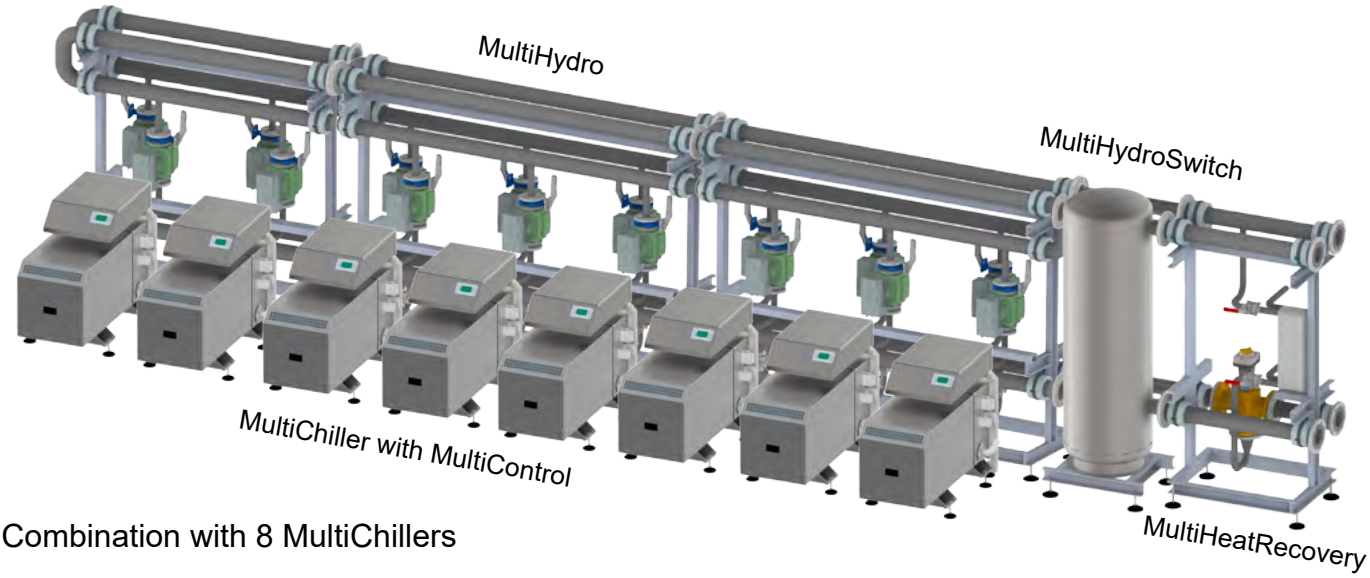

FUTRON
FUTRON

Customised refrigeration technology:

The MultiChiller Kit creates an individually configured cooling system that flexibly meets a wide range of requirements in terms of performance, heat recovery and cooling consumers. No specialist refrigeration personnel are required for commissioning – only the installation of the components should be carried out by a specialist company on site.

All elements of the MultiChiller Kit are connected to each other via brine or water networks to form a complete system. Thanks to its simple structure, this system can be expanded at any time and easily adapted to new requirements. This offers decisive advantages over conventional refrigeration systems.

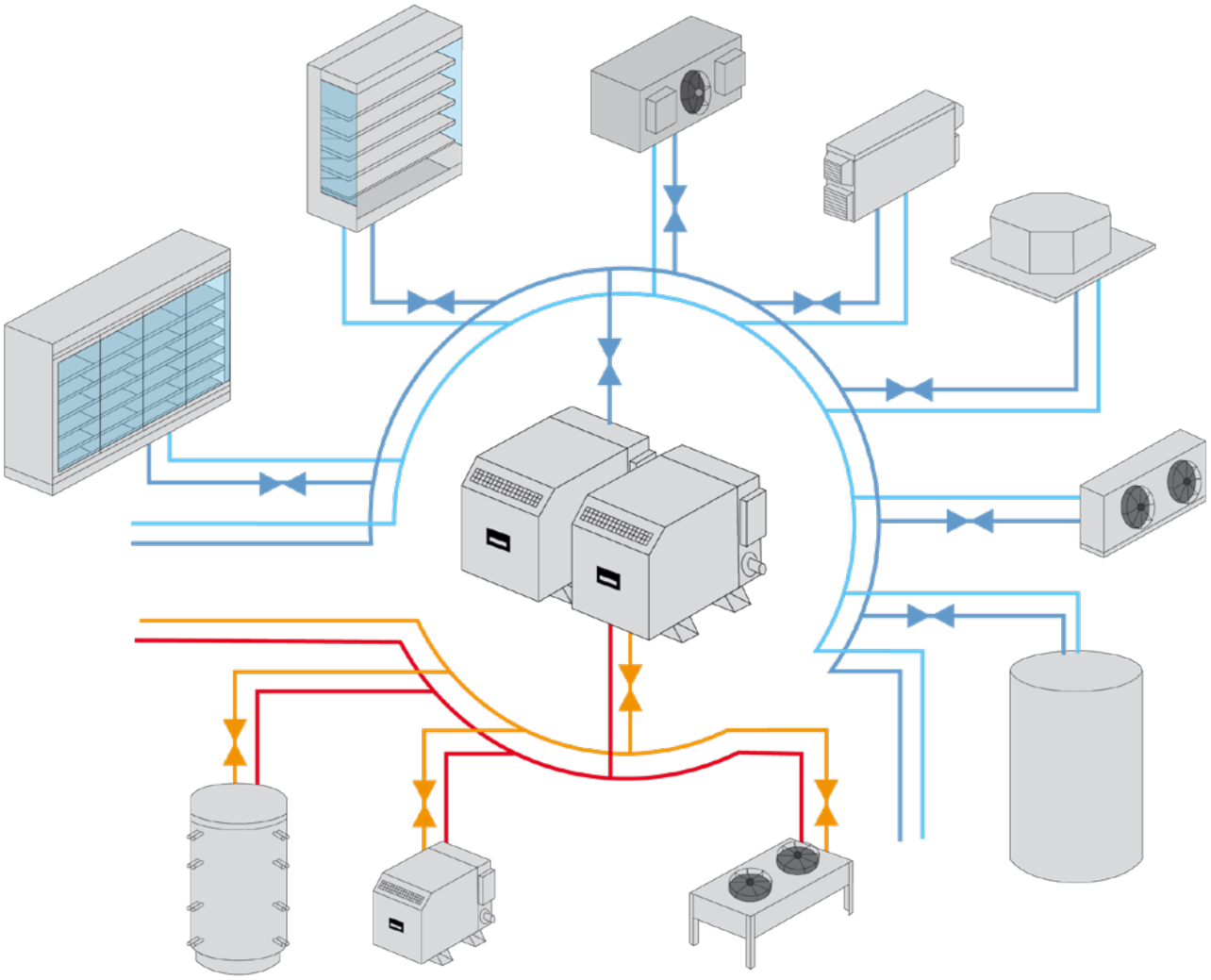
- No refrigeration piping required on site
- Low refrigerant fill quantities of less than 2.4 kg
- Maintenance-free refrigeration circuit
- Redundancy through individual separate refrigerant circuits
- TÜV-approved safety concept with two-stage ATEX gas sensor and extraction system
- No repeat inspection by ZÜS
- Up to 5-year warranty extension possible
- Waste heat utilisation from heat recovery
- Modular design — can be expanded as required with additional modules
- Easy replacement of components in the event of servicing — plug-in system
- Systems are delivered filled
- Easy installation (no machine room required)



Combination with 8 MultiChillers

As simple as a modular system.

The use of eight MultiChiller units enables an impressive total cooling capacity of up to 500 kW and a heating capacity of 600 kW to be achieved. The modular system offers maximum flexibility and scalability – ideal for demanding applications in industry, commerce and food cooling. Thanks to the intelligent networking of the individual modules, a powerful overall system is created that can be efficiently adapted to individual requirements as needed.



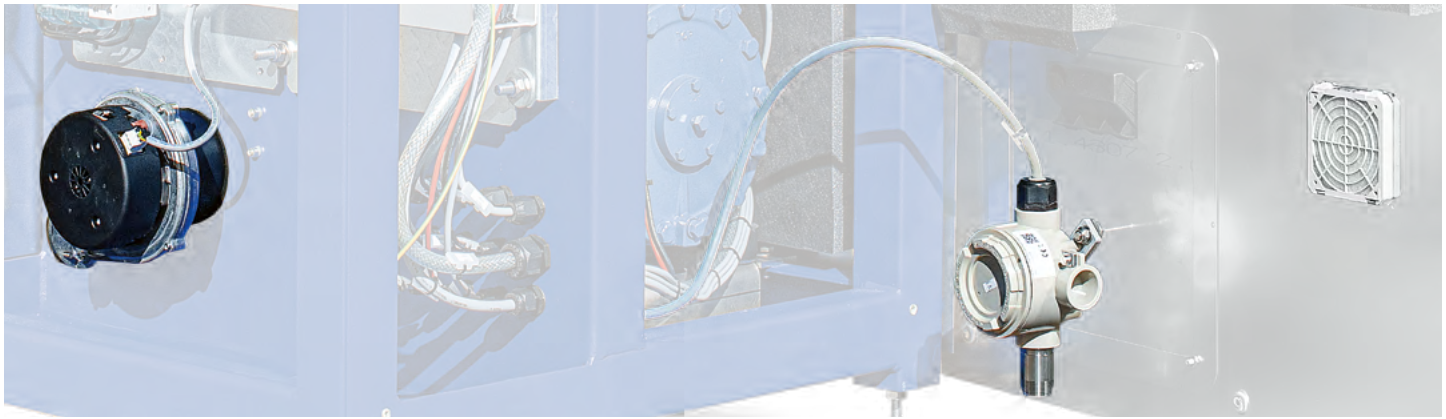
The system offers maximum flexibility in application and can be easily combined with a wide range of brine-based cooling and heating devices. This creates a modular structure that can be individually adapted to the requirements of a wide variety of building and usage concepts. Whether heat pump, chiller or ground heat exchanger – integration is efficient and reliable, while at the same time offering high energy efficiency and operational safety.

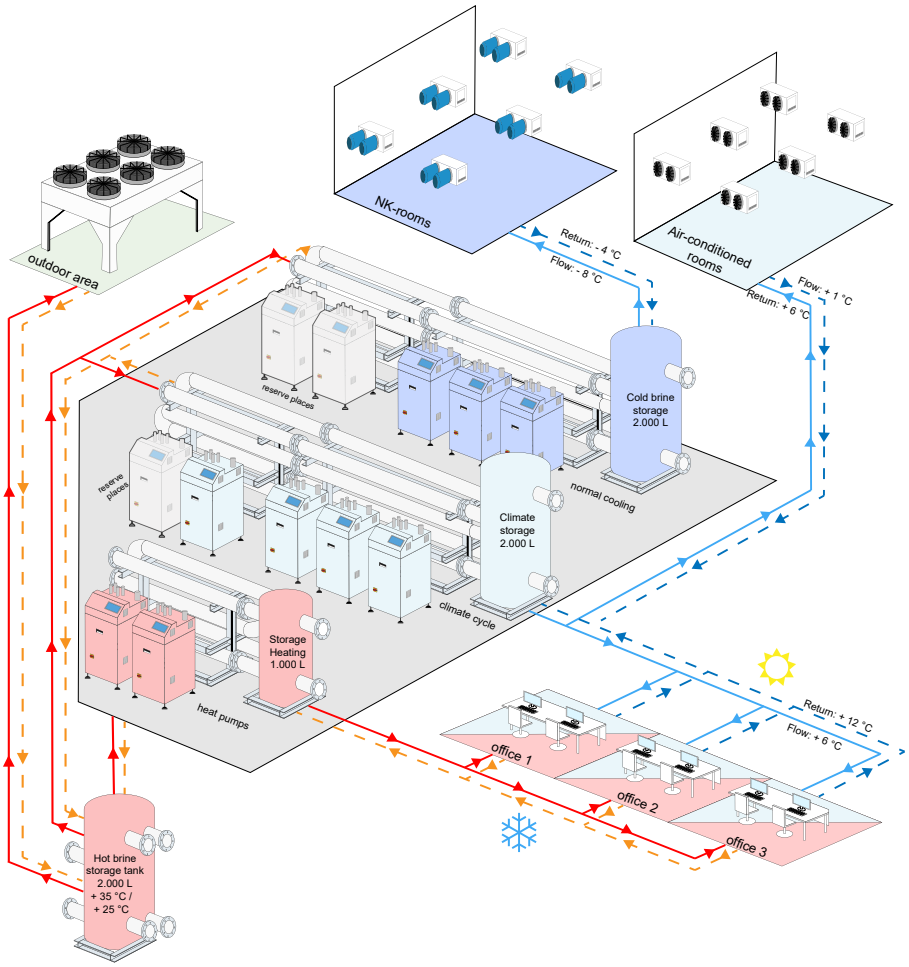
MultiChiller V series / HeatPump

The MultiChiller V with integrated control system is the ideal solution for indoor installation. The V series impresses with its compact integration of refrigeration technology and control electronics (Siemens) in a single housing. All that is required for commissioning is to connect the hot and cold fluid lines and the electrical supply. Heat recovery can be decoupled as an option. The system is also available as an HPR version – for applications with heating and cooling functions using water indoors and brine outdoors.

The MultiChiller V-Series HPR offers the advantage of being able to be used for both cooling and heating (reversible) with just one device – without any complicated switching between water and glycol.

- Cooling capacities from 5 kW to 70 kW
- Heating capacities from 9 kW to 90 kW
- Use of R290, R1270 or R600a
- Refrigerant charge < 40 g/kW
- Maintenance-free refrigeration circuit
- Exhaust air system with gas sensor (ATEX)




outdoor area
NK-rooms
Air-conditioned rooms
Return: - 4 °C
Flow: - 8 °C
Flow: + 1 °C
Return: + 6 °C
reserve places
Cold brine storage 2.000 L
normal cooling
reserve places
Climate storage 2.000 L
climate cycle
Storage Heating 1.000 L
heat pumps
Return: + 12 °C
Flow: + 6 °C
office 1
office 2
office 3
Hot brine storage tank 2.000 L + 35 °C / + 25 °C

MultiChiller V series XL

The MultiChiller V-Series XL has two redundant cooling circuits and offers a heat output of 50 to 200 kW (100 kW per circuit) and a cooling capacity of 50 to 150 kW. The use of two plate heat exchangers with a low temperature gradient ensures particularly high efficiency. Whether in food processing, laboratories or industrial applications, with a wide temperature range from - 20 °C to +90 °C, this system is a universal solution for a wide range of cooling and heating requirements.

A maximum of 3.6 kg of propane is used per refrigeration circuit. At the same time, the unit is equipped with two frequency converters that enable the compressors to start up smoothly, thus avoiding power peaks. The compressors are mounted on a rail system, allowing for quick and easy replacement at any time.

The powerful PLC control system, combined with our in-house software, enables precise adaptation of the device control to the individual requirements of our customers. The generous 7-inch touch panel allows all relevant system parameters to be clearly displayed and conveniently operated.

- Cooling capacities from 50 kW to 200 kW
- Heating capacities from 50 kW to 150 kW
- Use of R290, R1270 or R600a
- Refrigerant charge < 3.6 kg / circuit
- Exhaust air system with gas sensor (ATEX)
- Maintenance-free refrigeration circuit


FUTRON


RANGE
PZHH
1 bar=100 kpa=0.1 Mpa
bar
psi
Hochdruck-armatur

MultiLowChill deepfreezing

The MultiLowChill is the ideal solution for deep-freeze rooms. All components – including compressor, evaporator, desuperheater, condenser, expansion tank, and switching and safety devices – are compactly integrated into a single housing. The expansion tank prevents refrigerant from being blown out when the cold room heats up. This means that the system is always ready for operation. The refrigerant is condensed in a cascade via a customer-supplied brine system (≤ 0 °C) or alternatively via a MultiChiller. CO2 is used as the refrigerant. As a single unit, the MultiLowChill achieves a cooling capacity of up to 10 kW. When several units are used in a hydraulic network, higher total capacities and redundancy are available, depending on the number of units. The MultiLowChill is supplied with a separate, ready-to-use PLC control system. Access via Ethernet (HMI for Web via browser) is possible. The system has had a published patent since March 2018.

- Fluid-cooled compact refrigeration unit for deep-freeze applications
- With frequency converter
- Unique / patented design
- Ready for operation when filled
- Compact solution for deep-freeze rooms

Bundesrepublik Deutschland

Urkunde

über die Erteilung des
Patents Nr. 10 2016 111 292

Bezeichnung:
System zum Konditionieren von Luft eines Raumes und Anordnung des Systems

IPC:
F25B 7/00

Inhaber/Inhaberin:
Futron GmbH, 08491 Netzschkau, DE

Erfinder/Erfinderin:
Fuhrmann, Jörg, 08491 Netzschkau, DE

Tag der Anmeldung:
21.06.2016

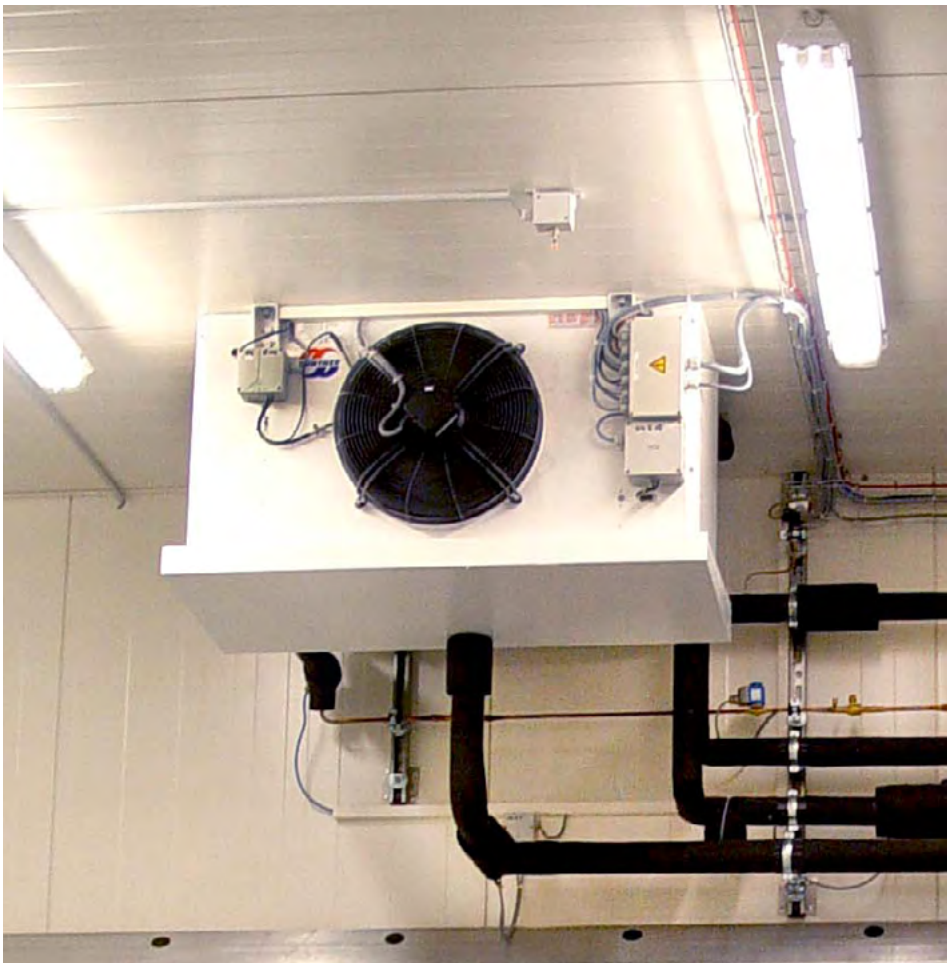
Tag der Veröffentlichung der Patenterteilung:
29.03.2018

Die Präsidentin des Deutschen Patent- und Markenamts

Cornelia Rudloff-Schäffer

München, 29.03.2018

Den aktuellen Rechtsstand und Schutzumfang entnehmen Sie bitte dem DPMAregister unter www.dpma.de.



Efficiency at the highest level

OUTDOOR INSTALLATION

Special design – customised

MultiAirChill singlecircuit

The MultiAirChill (MAC) is our proven refrigeration system for outdoor installation with direct condensation. It features a condenser with optimised fill quantity, which reduces the refrigerant fill quantity to a minimum. The liquid cooling unit is designed for high ambient temperatures above 40 °C and is delivered as a ready-to-connect unit. On request, the MAC can be designed for ambient temperatures down to -30 °C. The unit is equipped as standard with a two-stage gas sensor and a safety suction device – for maximum operational safety and reliable monitoring.

- Cooling capacities from 20 kW to 50 kW
- Use of R290, R1270 or R600a
- Frequency converter
- Safe system technology with two-stage gas sensor and spatial separation between switchgear and refrigeration technology
- Fill quantity-optimised condenser

IndustryChill

The IndustryChill (IC) is a powerful special design from Futron – designed for outdoor installation and individually tailored to customer-specific requirements. The unit can be used as a refrigeration system, heat pump or in a reversible configuration. Significantly higher overall performance can be achieved in a hydraulic network. The natural refrigerant propane used enables future-proof and environmentally friendly operation.

The condenser is individually dimensioned in width, depth, height and weight depending on the performance requirements and structural conditions. For outdoor use, the housing is finished with a high-quality powder coating and the pipes are made of robust stainless steel.

Generous inspection openings in the housing facilitate service and maintenance. A two-stage ATEX gas warning device with safety extraction is integrated as standard – a central component of our comprehensive safety concept.

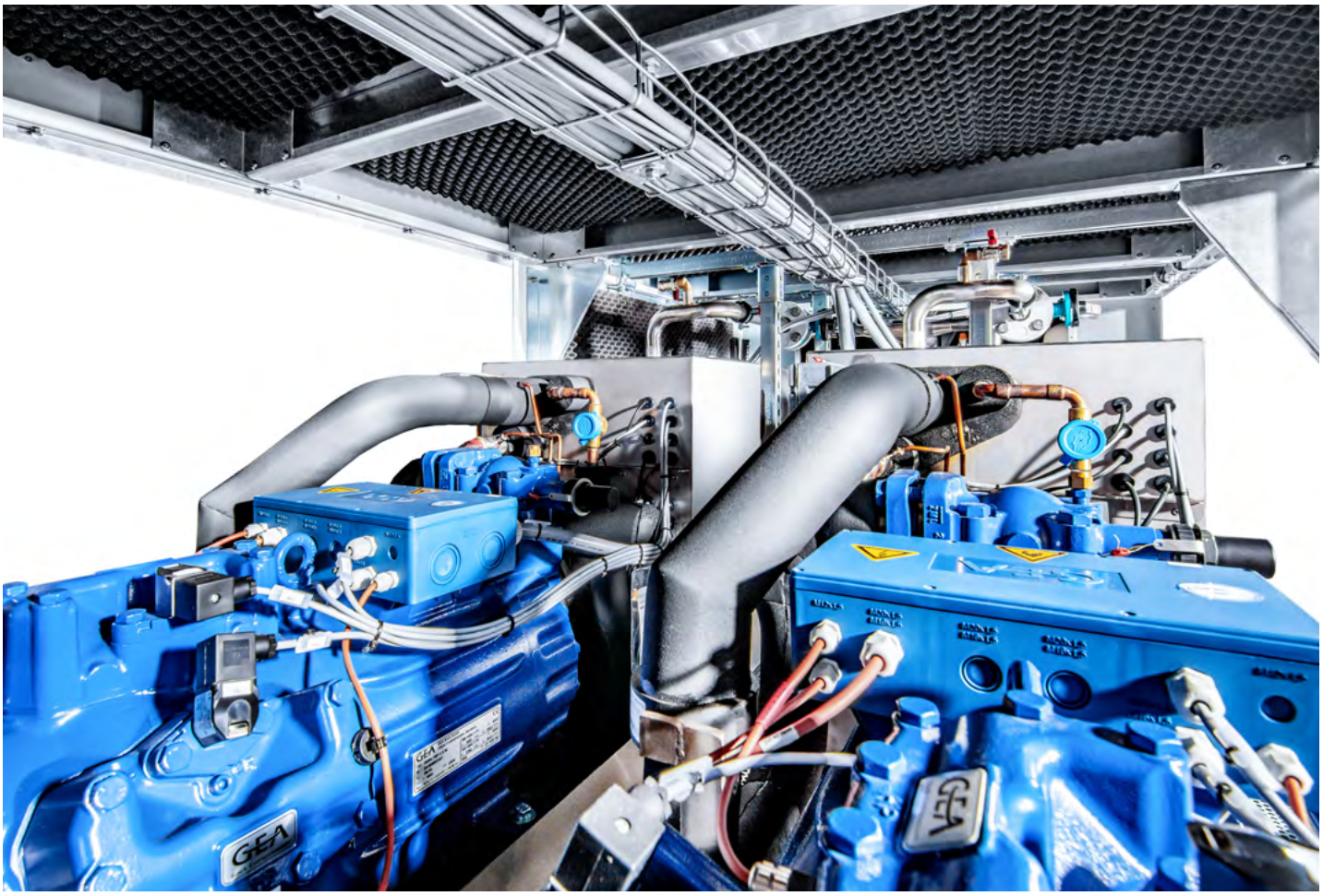
- Cooling capacity: 75 kW to 600 kW
- Heating capacity: 100 kW to 750 kW
- Powerful solution for outdoor installation
- Safe system technology with two-stage gas sensor and spatial separation between switchgear and refrigeration technology
- Maximum efficiency thanks to flooded evaporators and propane pump operation (where appropriate)
- Use of R290 and R1270

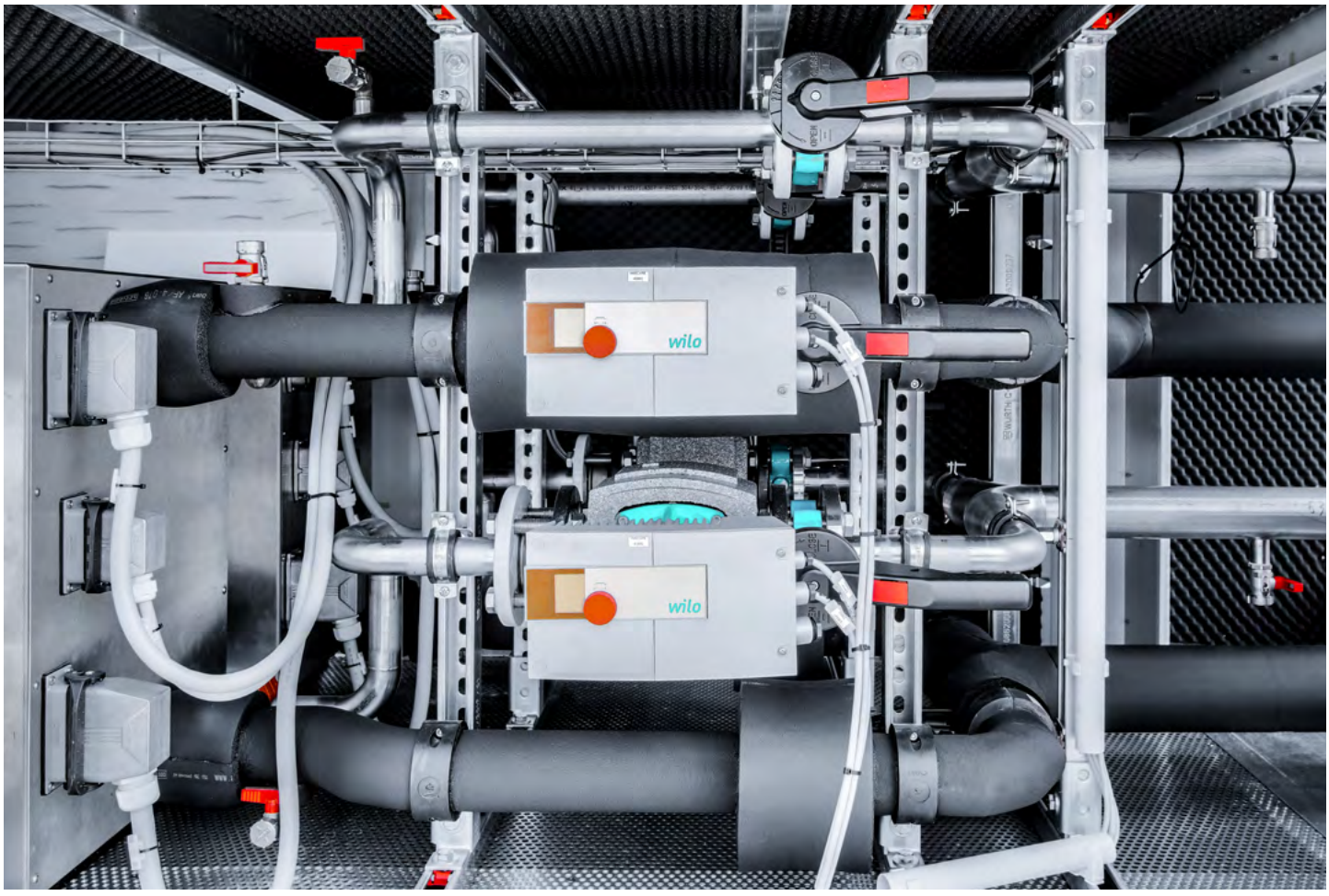
MultiEcoChill

The MultiEcoChill (MEC) is the ideal solution for installation in a wide variety of areas – from retail outlets, breweries and data centres to office complexes and process cooling applications. In the MEC, the MultiChiller forms the basis for refrigeration, enabling a wide range of individual configurations. Optional features include free cooling, redundant refrigeration circuits, heat recovery, hydraulic separators and the installation of consumer pumps.

- Cooling capacities from 20 kW to 130 kW
- Heat recovery capacities from 15 kW to 150 kW
- Use of R290, R1270 or R600a
- Powerful solution for outdoor installation
- Soft start for motor current limiters or frequency converters
- Safe system technology with two-stage gas sensor and spatial separation between switchgear and refrigeration technology
- Low refrigerant charges of less than 2.4 kg per circuit
- Maintenance-free refrigeration circuit
- Redundancy through individual separate refrigerant circuits
- Waste heat utilisation from heat recovery
- Easy replacement of the MultiChiller in the event of servicing thanks to plug--in system

* except for safety technology


GEA


wilo
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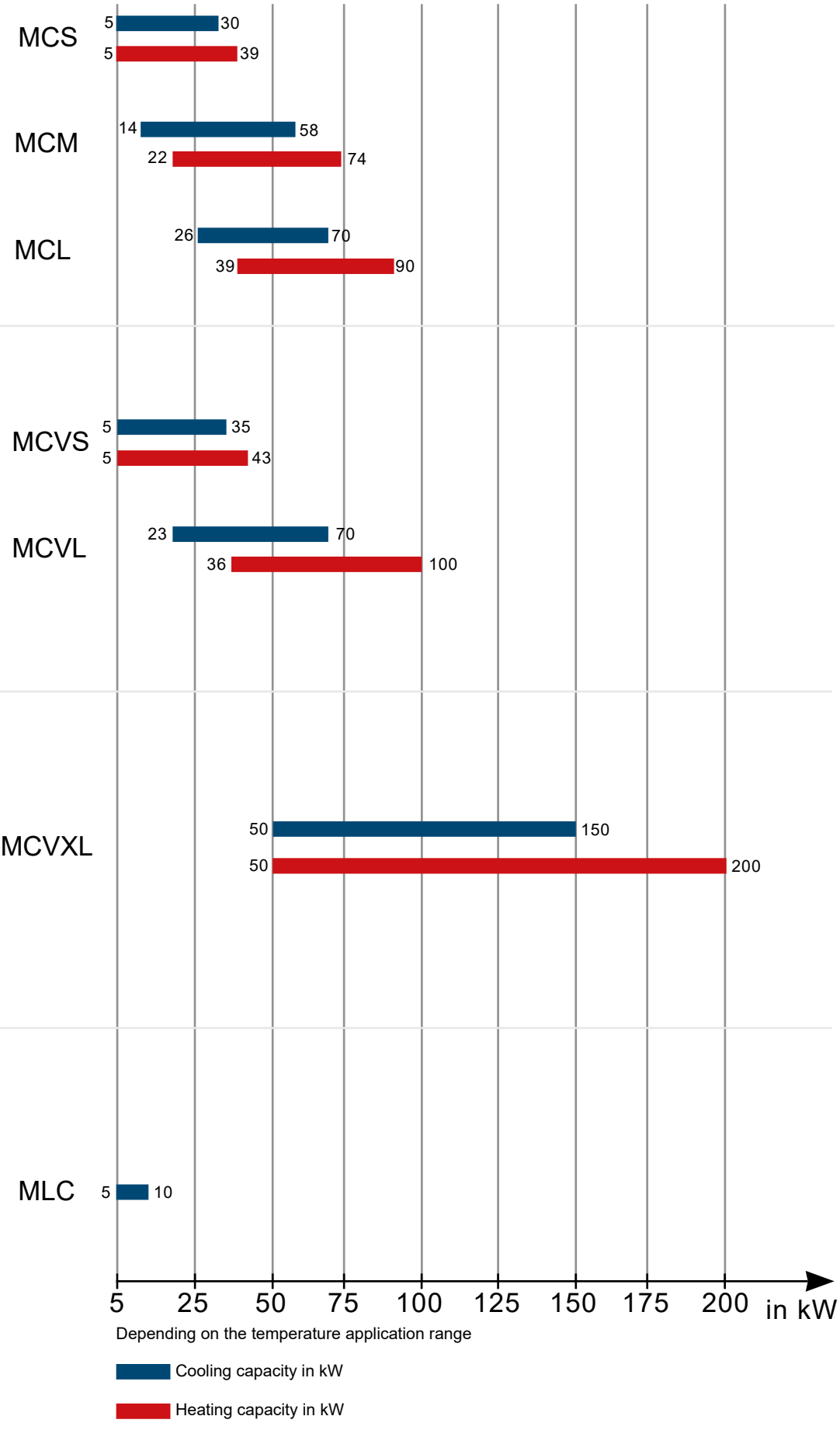
Services for indoor installation

MultiChiller S / M / L

MultiChiller V series

MultiChiller V series XL

MultiLowChill

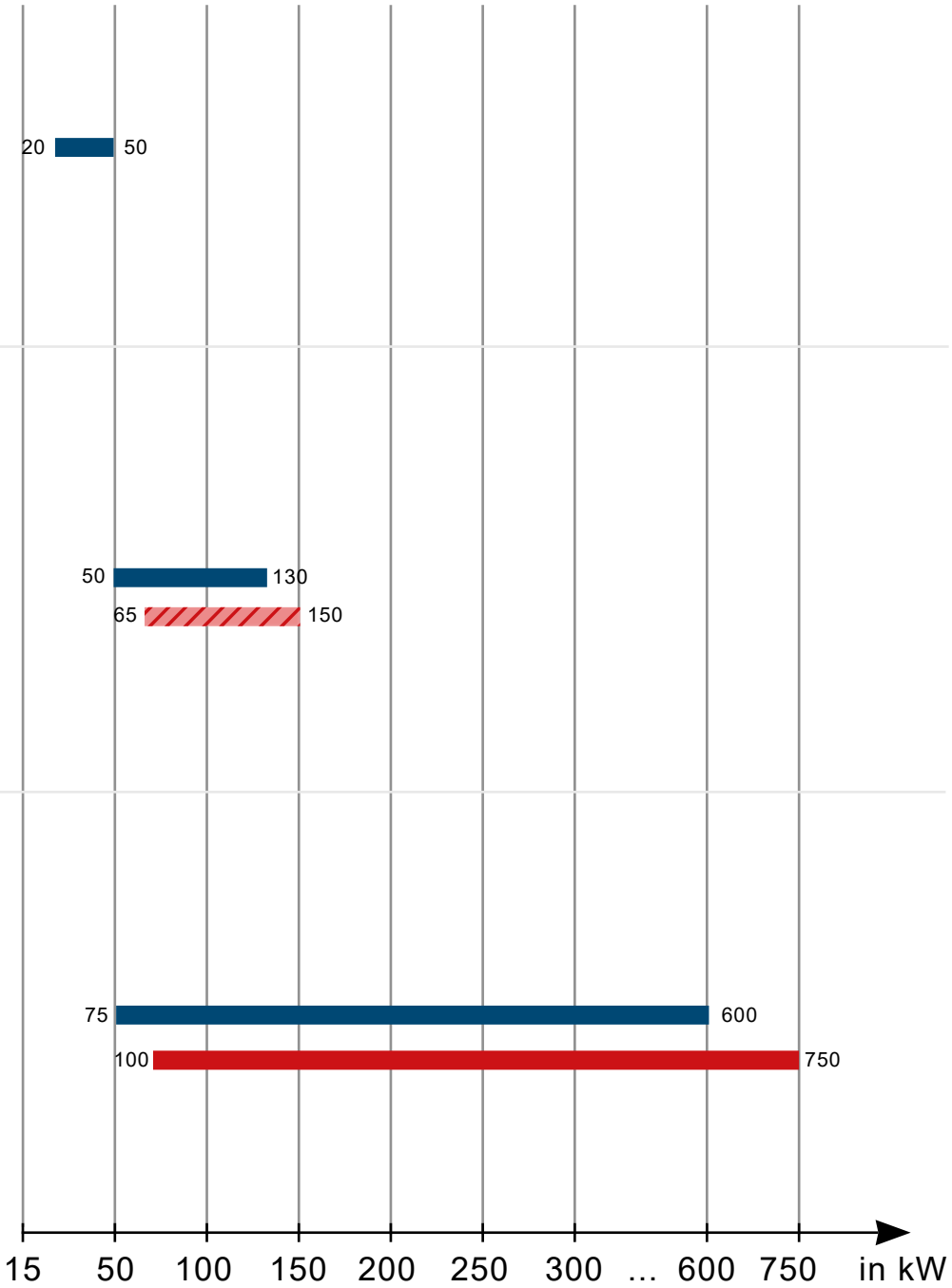


Performance
Outdoor installation

MultiAirChill single circuit

MultiEcoChill

IndustryChill



Depending on temperature application range

Cooling capacity in kW

Heating capacity in kW

Heating capacity in kW of heat recovery. A heat pump function is not available.

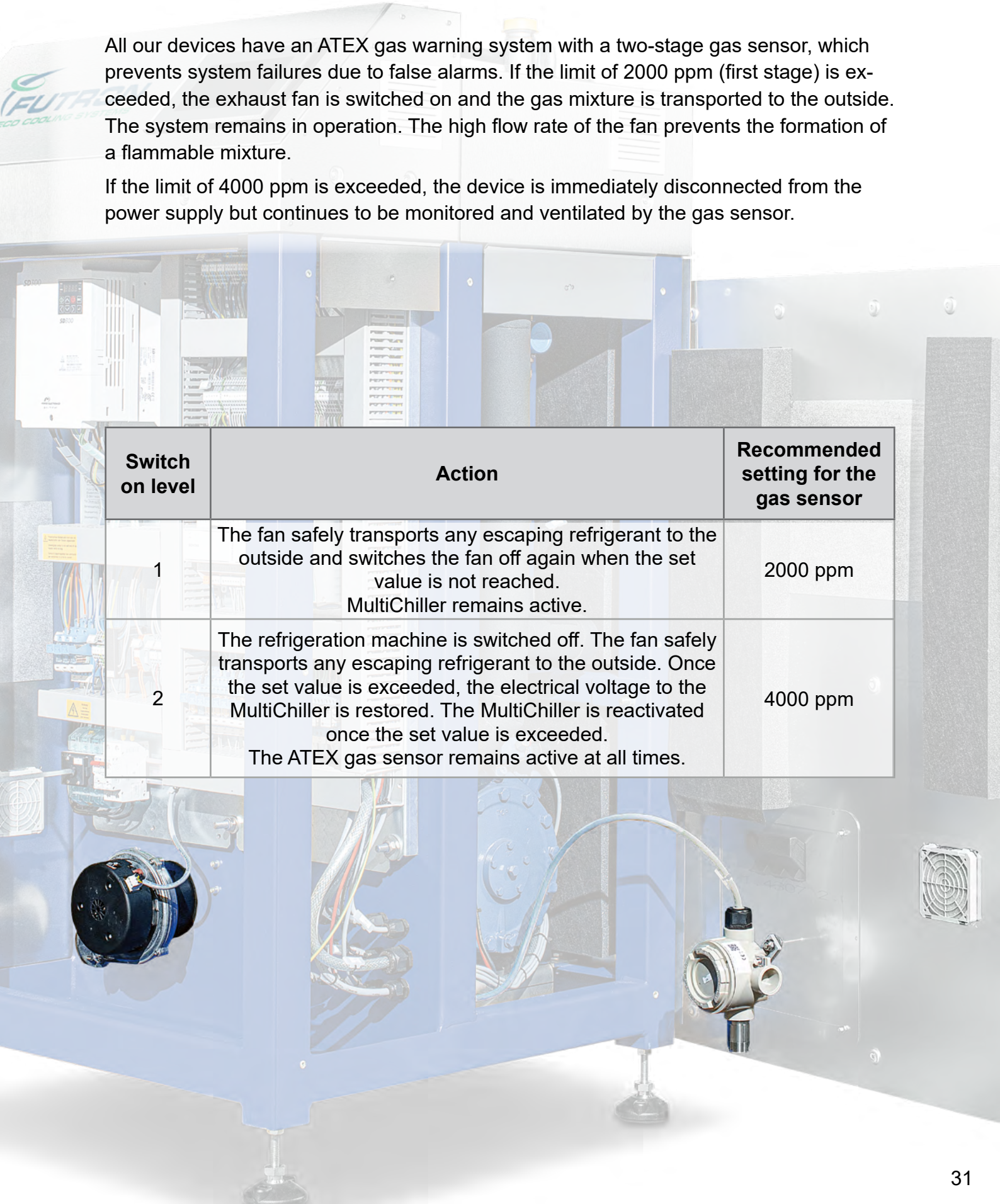
Well-designed safety

Operating with the natural refrigerant propane in the primary circuit (only inside the unit), our systems are highly regarded both ecologically and economically.

ATEX gas warning system

All our devices have an ATEX gas warning system with a two-stage gas sensor, which prevents system failures due to false alarms. If the limit of 2000 ppm (first stage) is exceeded, the exhaust fan is switched on and the gas mixture is transported to the outside. The system remains in operation. The high flow rate of the fan prevents the formation of a flammable mixture.

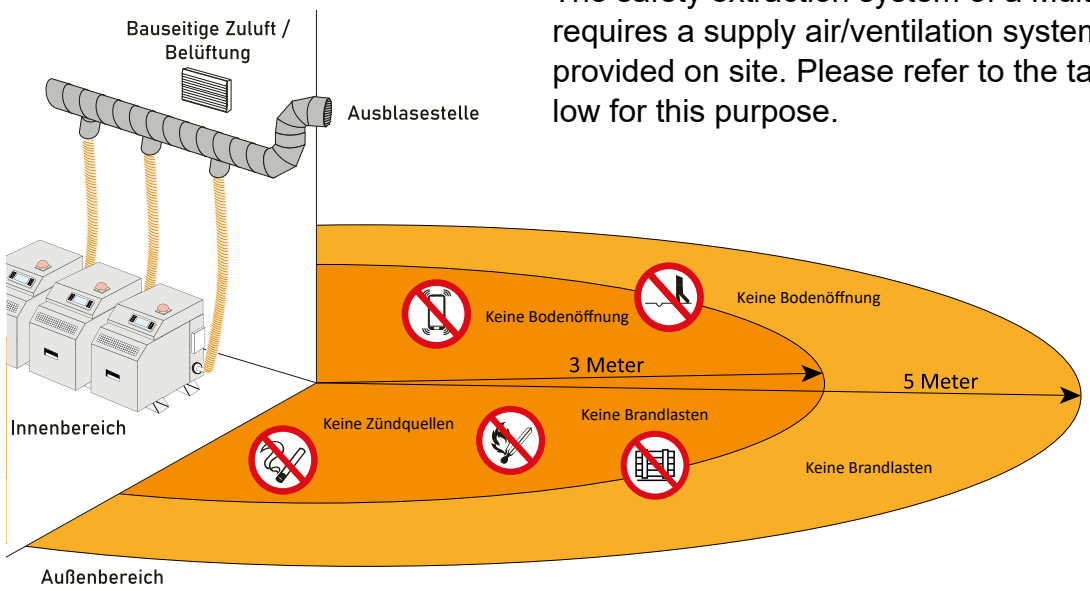
If the limit of 4000 ppm is exceeded, the device is immediately disconnected from the power supply but continues to be monitored and ventilated by the gas sensor.



Switch on level	Action	Recommended setting for the gas sensor
1	The fan safely transports any escaping refrigerant to the outside and switches the fan off again when the set value is not reached. MultiChiller remains active.	2000 ppm
2	The refrigeration machine is switched off. The fan safely transports any escaping refrigerant to the outside. Once the set value is exceeded, the electrical voltage to the MultiChiller is restored. The MultiChiller is reactivated once the set value is exceeded. The ATEX gas sensor remains active at all times.	4000 ppm

Indoor installation

The safety extraction system of a MultiChiller requires a supply air/ventilation system to be provided on site. Please refer to the table below for this purpose.



The MultiChiller is designed for indoor installation; no machine room is required. The entire refrigeration circuit is located in a ventilated enclosure (in accordance with DIN EN 378-1). The system is designed to be technically leak-proof in the long term. The housing is adequately ventilated mechanically so that an explosive atmosphere cannot develop in the event of a leak. No zoning is required.

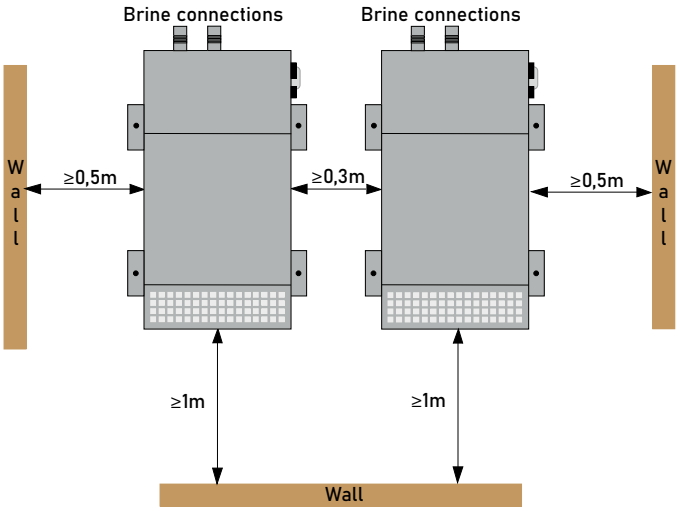
The refrigerants R290, R1270 and R600a are heavier than air. The safety extraction system of the MultiChiller must be connected via an antistatic hose and led to the outside. The maximum length of the hose can be found in the table below. Longer lengths require recalculation and, if necessary, support from a ventilation duct.

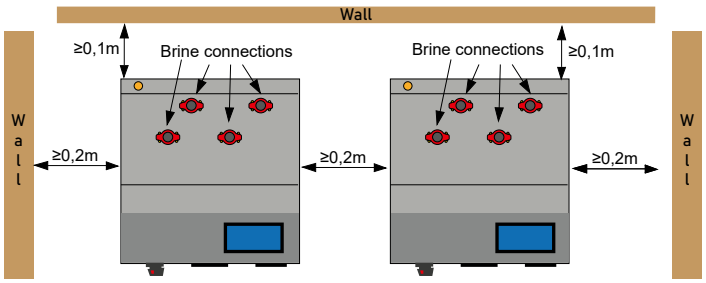
MultiChiller model	Flow rate [m³/h]	max. pressure loss for required on-site supply air [Pa]	max. lenght of exhaust air hose DN 50 [m]*
MC(V)S XX-2 E (HP)	19	100	20
MCS XX-4 E (HP)	28	100	20
MCVS XX-4 E (HP)	33	100	20
MC(V)S XX-6 E (HP)	42	100	20
MCVL XX-8 E (HP) MCM/L XX-8 E (HP)	52	100	20
MCVL XX-10 E (HP) MCM/L XX-10 E (HP)	70	100	15
MCVL XX-12 E (HP) MCM/L XX-12 E (HP)	77	100	10
MCVXL XXX-11-14 R/L	112	100	10
MCVXL XXX-16-14 R/L	126	100	6

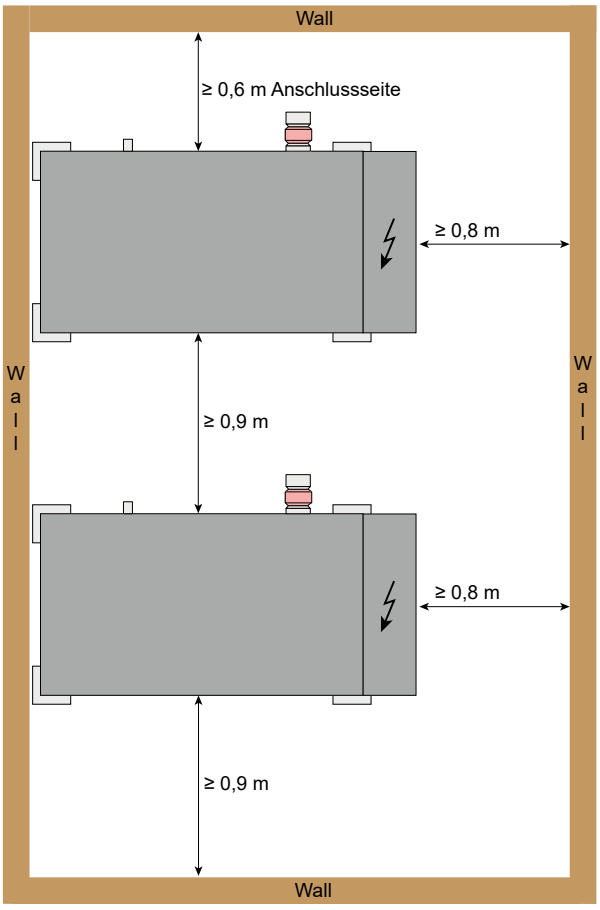
* The hose should be laid as straight as possible. Assuming 3x 90° bends and 3x 60° bends over the entire length.

The following information must be observed for the exhaust point:

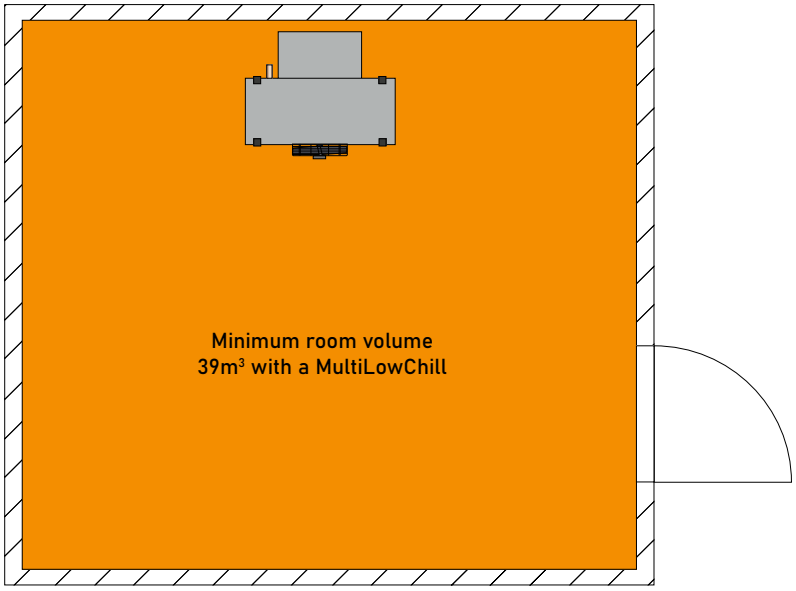
- There must be no floor drains, ventilation openings, floor flaps or similar openings in the immediate vicinity of the blow-off point. We recommend a distance of at least 5 m.
- Floor ledges and recesses where blown-out refrigerant can collect are not permitted.
- Leaked refrigerant must not be allowed to enter adjacent areas through openings (e.g. ventilation openings for fresh air, door openings, etc.). Air must not be allowed to flow through the installation room into an area where people are present.
- There must be no ignition sources at the MultiChiller extraction outlet.
- Sufficient ventilation must be provided for the installation room in the form of mechanical ventilation or a sufficiently large area to the outside. In the case of mechanical ventilation, the supply and exhaust air must be separated sufficiently far apart so that no exhaust air can be sucked in and the installation room is evenly ventilated. Note: The gas sensor is very sensitive to silicones.
- There must be no hydrocarbon compounds in the installation room, such as those found in solvents, adhesives or spray cans.
- There should be no excessive dust accumulation in the installation room.
- Adequate ventilation must be ensured during hot work such as welding and soldering.







Indoor installation
Deep-freezing



$$\text{Minimum room volume} = \frac{\text{Refrigerant charge}}{\text{ATEL / ODL}}$$

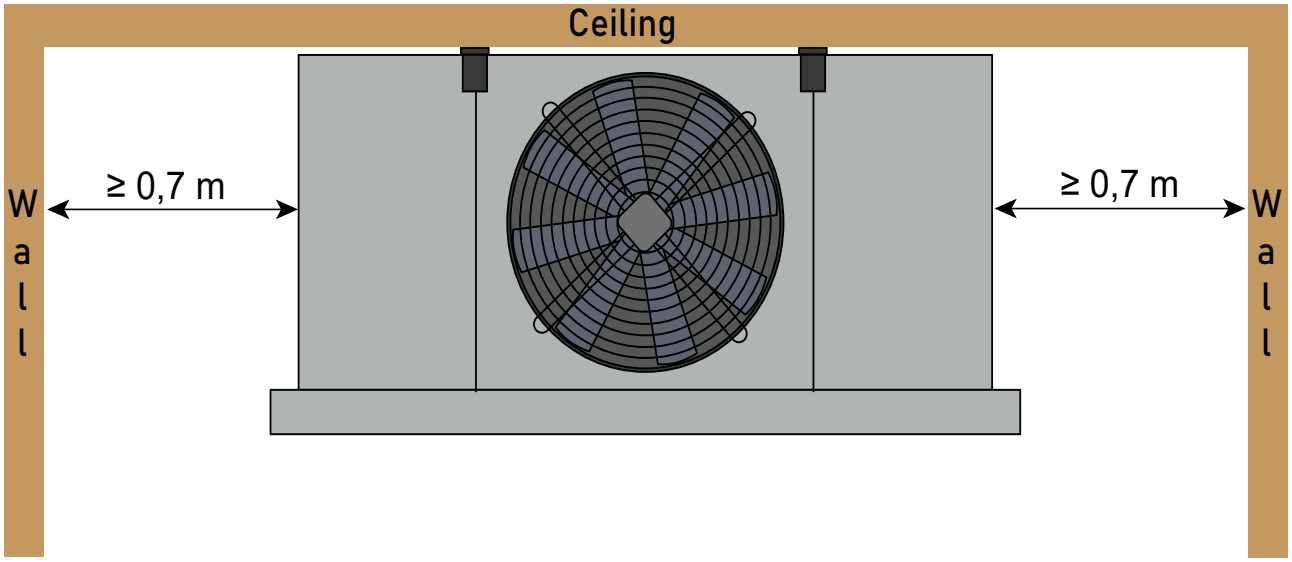
The MultiLowChill is a permanently sealed version of the system in accordance with DIN EN 378-1 and the Pressure Equipment Directive, which reliably prevents any danger from CO2 (R744). The operator is responsible for arranging the installation in accordance with local conditions.

Due to the anaesthetic and suffocating effect of high concentrations of CO2, the practical limit value in the cold room must be observed. If the practical limit value at the installation site can be exceeded due to the conditions there, gas warning sensors must be installed for monitoring purposes.

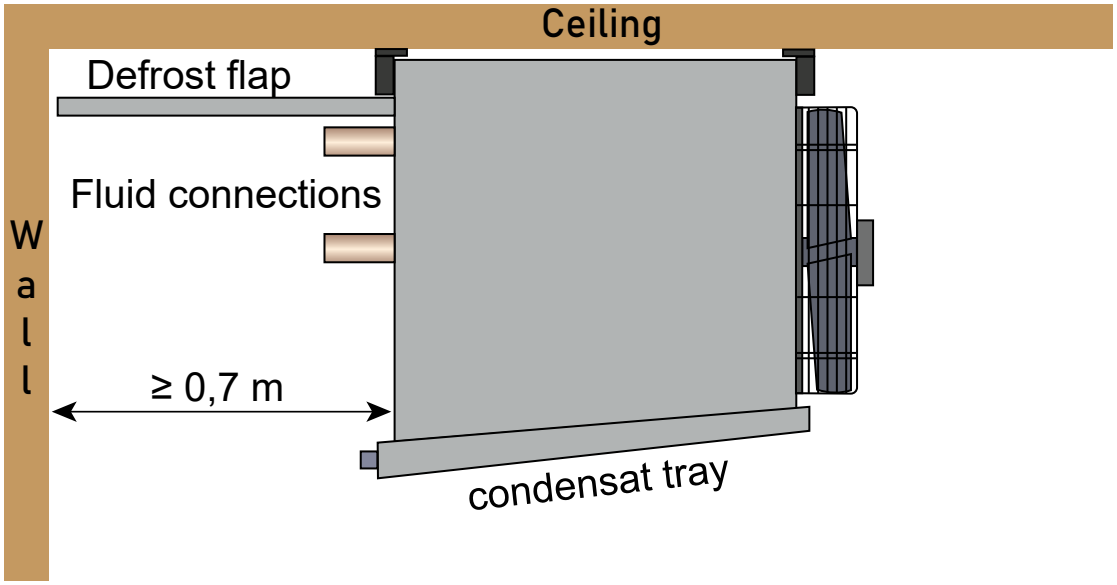
The practical limit value for carbon dioxide (CO2) according to DIN EN 378-1, Annex E, Table E1 (refrigerant number 744) is 0.1 kg/m³ and is based on empirical values; see the above-mentioned standard, Chapter 5.2 Designation and classification of refrigerants.

To calculate the minimum room volume, the ATEL / ODL (toxicity/limit value for oxygen deficiency) of 0.072 kg/m³ according to DIN EN 378-1, Annex E, Table E1 (refrigerant number 744) and the permissible concentration (RCL) according to Table C3 for refrigerant R744.

Depending on the model, the MultiLowChill contains a maximum refrigerant charge of 2.8 kg CO2. In order not to exceed the ATEL / ODL limit value, the minimum room volume must be 39 m3. If the room volume is below this minimum requirement, a gas warning system must be installed. Furthermore, the regulations listed in Annex D „Protection of persons in cold rooms“ according to DIN EN 378-1 must also be observed.

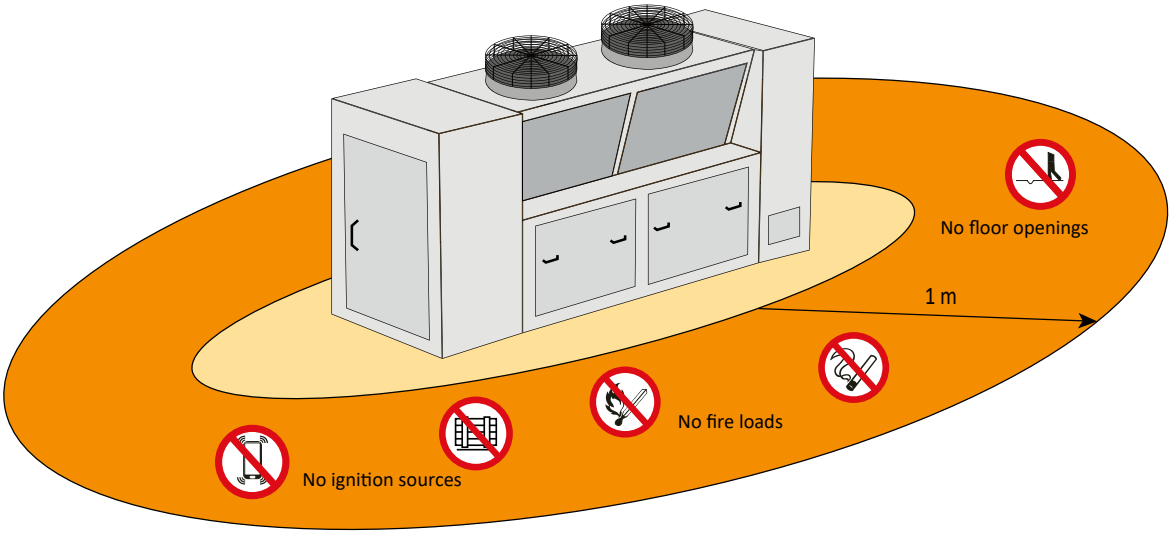


With Defrost flap



Outdoor installation

MultiEcoChill



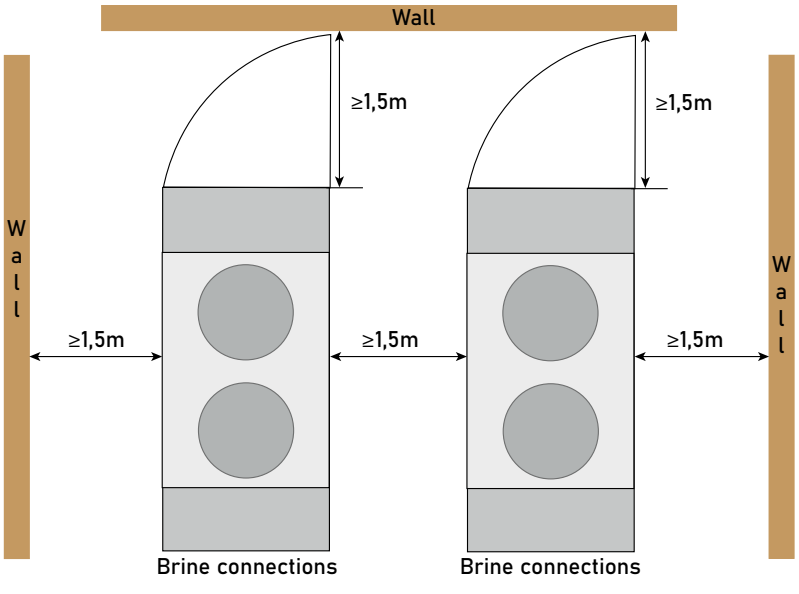
The housing is adequately ventilated so that no explosive atmosphere can develop in the event of a leak.

The refrigerants used are heavier than air. The refrigeration system must therefore be installed in such a way that no refrigerant can enter a building in the event of a leak.

Furthermore, in the event of a leak, refrigerant must not be allowed to enter ventilation openings for fresh air, door openings, floor flaps or similar openings.

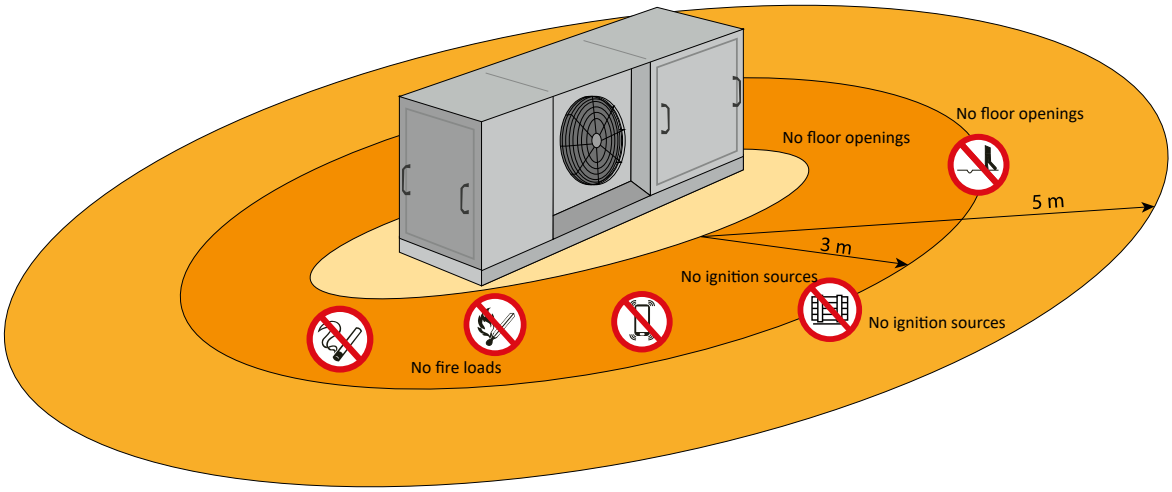
No persons or property may be endangered. The operator is responsible for checking the local conditions during installation.

- There must be no floor drains, ventilation openings, floor flaps or similar openings directly below the system. We recommend a distance of at least 1 m around the system.
- Floor depressions and recesses where leaked refrigerant can collect should also be avoided. If there are depressions in the installation area, gas warning sensors must be used.
- Ignition sources and fire loads must be avoided at a distance of 1 m.



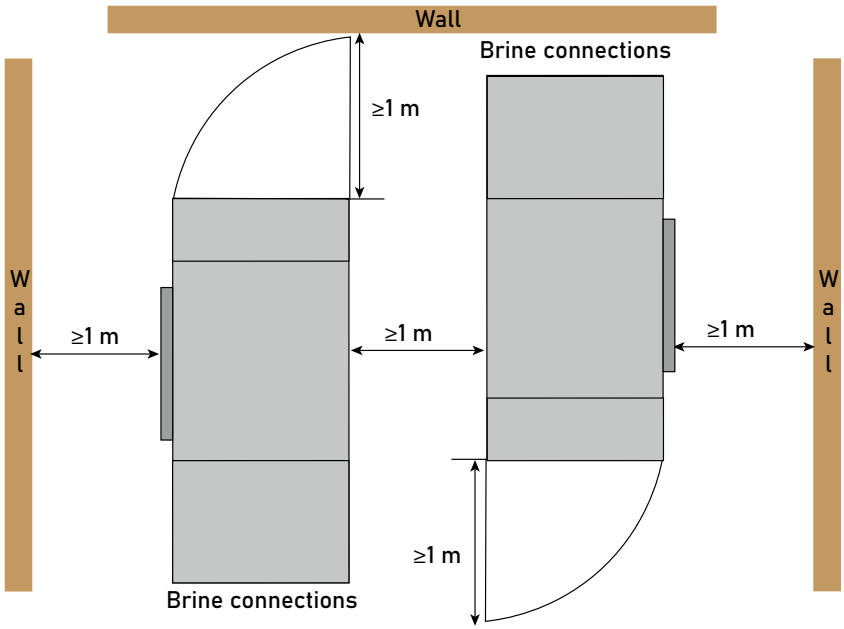
Outdoor installation

MultiAirChill



The MultiAirChill is designed for outdoor installation. The system is technically sealed for longterm use.

- There must be no floor drains, ventilation openings, floor flaps or similar openings in the immediate vicinity of the installation site. We recommend a distance of at least 5 m.
- Avoid floor ledges and recesses where leaked refrigerant can collect. If there are ledges in the installation area, gas warning sensors must be used.

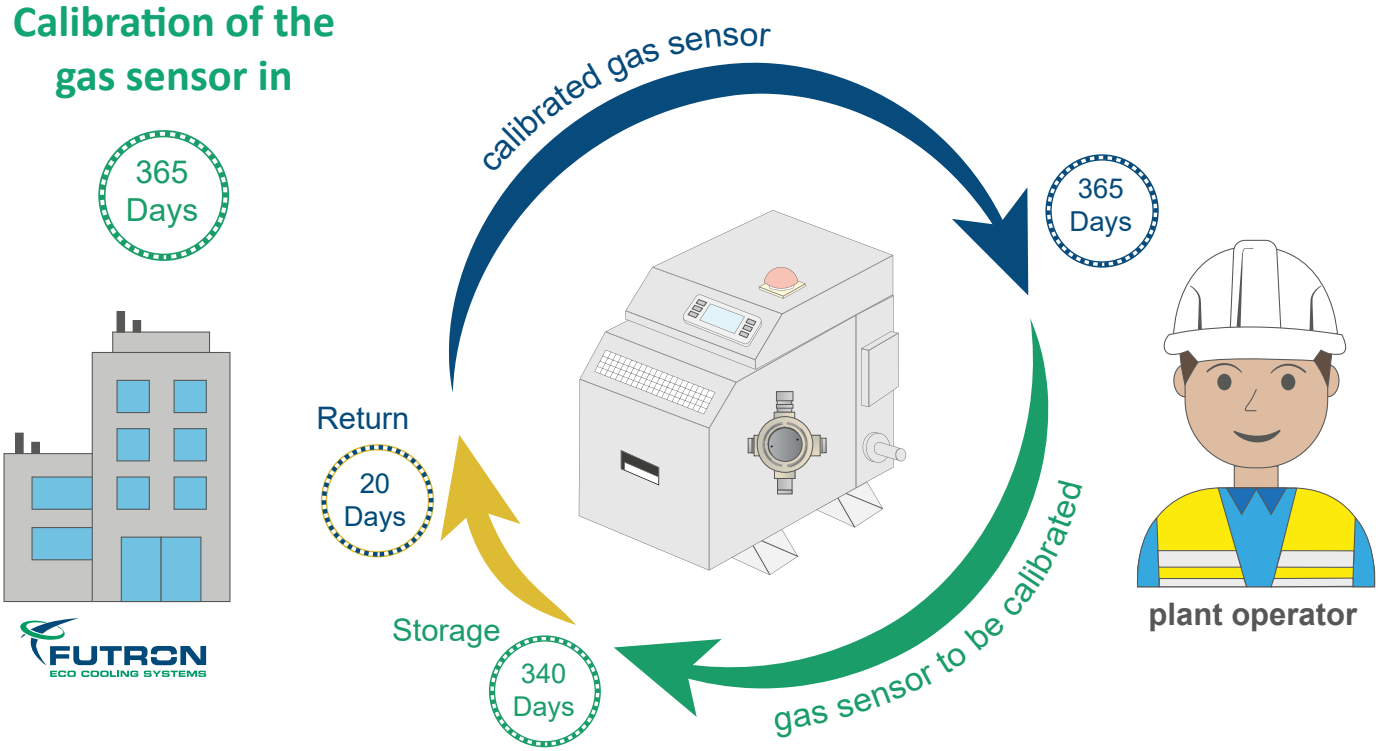


All-round carefree

Service tailored to your needs

The gas sensor must be calibrated every 365 days. With our gas sensor replacement procedure, you can replace the gas sensor yourself and at the same time have a competent contact person for calibration.

We are happy to take care of this for you. We check and document the measurement deviation (measurement accuracy), calculate the measurement uncertainty and issue you with a calibration certificate.



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