

AirChiller

eChiller with LUMI-Cooler

Compact Refrigeration with the
Safety Refrigerant Water (R718)
and Glycol-free Cooling

Tomorrow's guidelines – already fulfilled today

- ✓ F-Gas Regulation
N° 517/2014
- ✓ Ecodesign Directive
EN 2016/2281
- ✓ EN 378 not applicable
- ✓ Certified as hygienic
under VDI 2047, Sheet 2
- ✓ Glycol-free
- ✓ Chemical-free

AirChiller – air-cooled refrigeration system for outdoor installation

The AirChiller combines efficient energy's eChiller, a highly energy-efficient chilled water unit that uses the safety refrigerant water (R718) and the Michelbach group's glycol- and chemical-free LUMI-Cooler. A win-win combination that will help you to overcome today's refrigeration challenges.

LUMI-Cooler
100 % glycol-free
100 % chemical-free
100 % certified as hygienic

- Environmentally friendly
- Adiabatic cooling with 100 % fresh water
- Efficient use of water by means of high-pressure humidification
- Fully adjustable control



✓ Cost efficiency and operating safety

- Outstanding operating safety combined with maximum operating cost savings
- No time- and cost-intensive operator duties
- Environmentally friendly and low noise emissions
- Low cooling water temperature at high ambient temperatures
- Retrofit – sustainable conversion of legacy systems
- Eligible for BAFA funding

A future-proof refrigeration system that sets new standards



eChiller –
energy-efficient with
the safety refrigerant
water (R718)

- Water as refrigerant (R718)
- Totally F-Gas free
- High energy efficiency
- Fully adjustable, integrated free cooling
- Oil free
- Low vibration, low noise emissions

✓ Regulatory requirements are fulfilled

- Certified as hygienic under VDI 2047, Sheet 2
- F-Gas Regulation does not apply
- Ecodesign Directive EN 2016/2281 fulfilled
- EN 378 not applicable

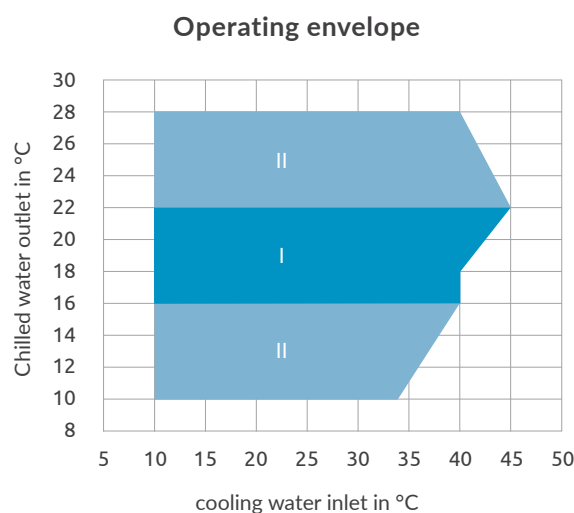
AirChiller – Sustainable refrigeration technology

Energy optimised and environmentally friendly

The AirChiller is ideally suited for cooling of industrial processes, data centres and buildings.

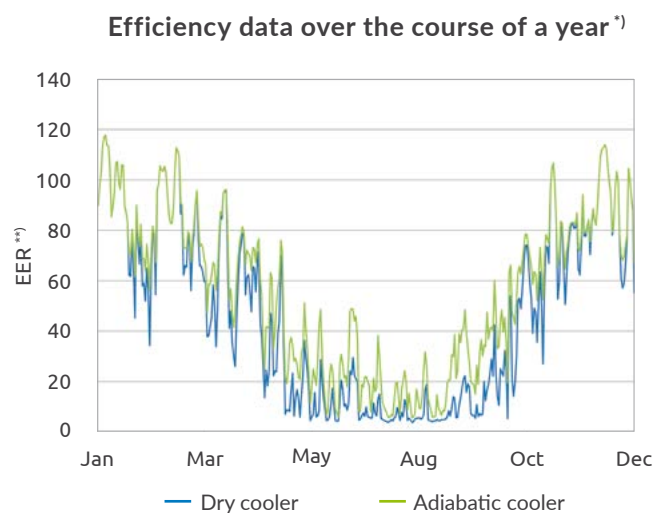
- The AirChiller is the optimal combination of a chilled water unit and a cooler which operates entirely free of chemicals, using only water.
- Full integration of the eChillers and LUMI-Cooler into an overall system for energetically optimised control at any stage of operation.
- The frost-proof version of the integrated unit allows outdoor installation using water as a refrigerant, even during winter.

Operating envelope and efficiency data



Envelope I: optimal operating limits (dark area)

Envelope II: optional adjustment of the chilled water outlet temperature (light area)



^{*)} Efficiency values at full capacity and 18 °C chilled water temperature

^{**)} The EER (energy efficiency ratio) defines the level of efficiency in terms of cooling capacity related to electric power input

AirChiller – Plug ‘n’ Play

Easy to integrate into your overall system

The unit is delivered as a complete module. All what's needed is a suitable power and water supply.

Technical data

	AirChiller (adiabatic)	AirChiller (dry)
Description		
Nominal refrigeration capacity	70 kW	
Chilled water inlet/outlet	24/18 °C	24/18 °C
Ambient temperature	35 °C	
Fully adjustable performance control	(20) ¹⁾ 50 – 100 %	
¹⁾ Using a buffer tank		
Turbo compressor		
Construction type	Direct-drive radial turbo compressor	
RPM, max.	88,000 min ⁻¹	
Quantity	2 x 1	2 x 2
Electrical data		
Power consumption (for nominal refrigeration capacity)	14,8 kW	24,9 kW
Electrical connection	Terminal block, fixed power cable	
Dimensions & weight		
Height x Width x Depth	2.350 x 2.350 x 4.200 mm	
Operating weight	ca. 3.000 kg	

(Subject to change)

Overview of our services



Consulting – Together with you, we check the feasibility of integrating the AirChiller into your overall system, and advise you on obtaining BAFA funding if applicable.



Maintenance – We offer the option of remotely monitoring your systems in accordance with the maintenance contract.



Planning – We support you and your consultant with respect to the AirChiller. If required, we take responsibility for planning the integration of the AirChiller into your application.



Spare parts – You can order any necessary spare parts directly from us.



Commissioning – One of our service technicians will commission your AirChiller on site.



Profitability estimates
TCO – Total cost of ownership
LCC – Life cycle costs

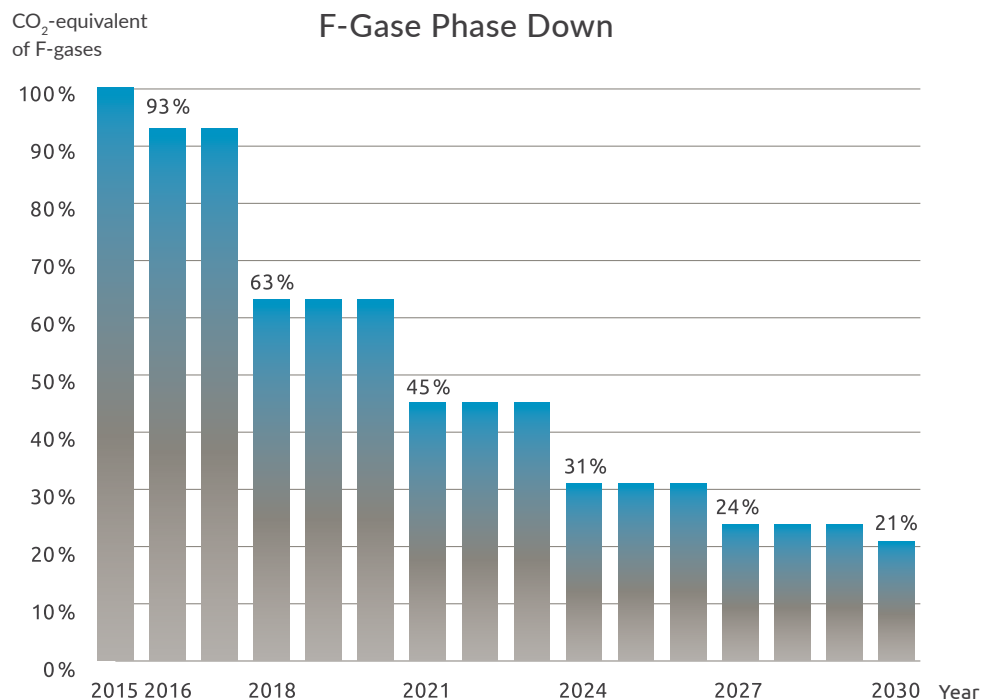
AirChiller – a refrigeration system offering long-term compliance with fundamental statutory requirements

Over the next few years, many chillers will cease to fulfil the statutory requirements. The scarcity of HFC refrigerants and associated uncertainty in price developments, as well as constantly rising electricity costs, will burden refrigeration operations. This playing field makes it all-the-more important to invest in new technologies today.

✓ Climate protection requirements for refrigerants

F-Gas Regulation (EU) N° 517/2014

The F-Gas Regulation will reduce stepwise the CO₂-equivalent of fluorinated refrigerants brought into the market by almost 80% up to 2030. It is accompanied by a ban on new systems that use high CO₂-equivalent refrigerants.



The CO₂-equivalent is a measure of the global warming potential of the refrigerant in relation to CO₂.



F-Gas Regulation does not apply

The CO₂-equivalent value for the global warming potential of water (R718) is „0“. As such, the refrigerant water supports the EU's climate goals.

✓ Hygiene conformity certifications pursuant to VDI 2047, Sheet 2



The 42nd Federal Emissions Protection Regulation (BImSchV) is orientated towards the VDI 2047 guidelines which demand the hygienic operation of evaporative cooling systems (coolers). The LUMI-Cooler has already been successfully certified and been given the official hygiene label.

✓ Energy efficiency requirements for chillers



The Ecodesign Directive sets out the requirements for the environmentally-friendly design of energy-related products (ErP) across the EU, and also prescribes minimum efficiency values for chillers.

In the category “comfort cooling”, the AirChiller not only fulfils the requirements of the Ecodesign Directive EN 2016/2281, but also beats the even stricter threshold values that will take effect from 2021.

✓ Safety requirements for chillers (operator duties)



The DIN EN 378 norm (Installation, Operation & Monitoring) does not apply to systems that use water (R718).

Statutory leakage tests and maintenance of gas sensors are not necessary. These systems can be installed in attended areas without any restrictions.

✓ Predictable investment and operating costs



Ask us! We'd be happy to advise you.

The AirChiller's high energy efficiency ensures long-term savings in operating costs, while use of the safety refrigerant water (R718) eliminates the cost of refrigerant-related statutory maintenance duties. Finally, the AirChiller's eligibility for BAFA funding results in lower overall investment costs.

AirChiller

Your decision today will result in
tomorrows benefits for your business

Have we sparked your interest?
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