

eChiller

R718 refrigeration system

The **eChiller** is the only chiller worldwide that uses **water (R718) as refrigerant**, is manufactured in series production, and is based on an innovative technology that allows **energy-efficient** operation. The eChiller is **exempted from the F-Gas-Regulation and refrigerant-related safety requirements**, offers sustainable refrigeration, and releases owners from time-consuming and costly operating obligations.



eChiller operators benefit directly on multiple fronts

- Chillers using water as its refrigerant are **exempted from** all of the **F-Gas environmental and safety guidelines** that apply to **fluorinated refrigerants**
- The appliance switches to free cooling mode when the cooling water temperature drops marginally beneath the required chilled water temperature. Depending on the application, this can sum up to **energy savings up to 80 %** in the course of a year, compared to other state-of-the-art technologies
- The eChiller not only **fulfils** the efficiency requirements of the first stage of the **Energy Related Products Directive EN2016/2281** which took effect in January 2018, but already today the **enhanced requirements** of the second stage, which will come into force from **2021**
- By using the **refrigerant water**, the extremely quiet and low-vibration eChiller can also be **installed outside machine rooms**, and it is **exempted from operators' safety-related obligations** for chillers under **DIN EN 378**
- **Refrigerant costs** are **limited to** filling the system once with **60 liters of drinking water**; if the system is taken out of service, the water can be unconditionally disposed of with regular wastewater
- The initial investment costs can also be reduced thanks to the eChiller's **eligibility for BAFA subsidies**

Safe and environmentally friendly cooling in various fields of application

The eChiller is optimally suited to **application areas** such as **server- and switch-room cooling, building cooling** – notably building-component activation and chilled ceilings – and **industrial-process cooling**.

The eChiller adapted to your application

The eChiller is designed for cooling processes with high chilled water outlet temperatures. Its optimal cooling capacity lies in a range from 16 °C to 22 °C, but outlet temperatures of between 10 °C to 28 °C are also possible – a spectrum that traditional chillers are only partially capable of covering.

The eChiller is available in four designs, with a nominal cooling capacity range of 20 kW to 45 kW, depending on the configuration of the chilled water outlet temperature, the compressor and the cooling water inlet temperature. Total capacity can be scaled to over 300 kW by combining several systems.

The standard equipment for easy integration into your application

- Centrifugal turbo compressor
- Open evaporator and condenser
- Plate heat exchangers as external connection
- Refrigerant water (R718)
- Integrated „Free Cooling“
- Communication interface to the higher-level control unit
- Control of peripheral components

Optional equipment

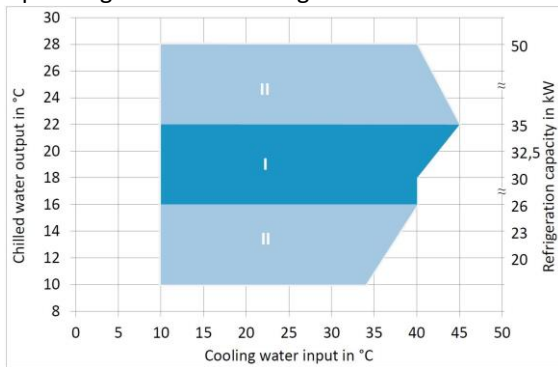
- Master-Slave-control
- Remote control
- Monitoring for e.g. BAFA

Capacity range and efficiency data

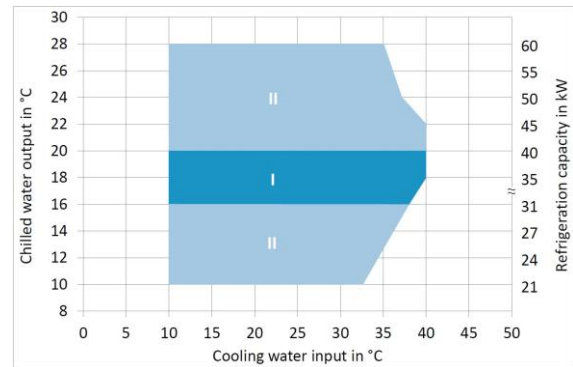
The following diagrams describe the areas of application of the two versions. As described in diagram "Type 35", for the required chilled water outlet temperature of 18 °C a maximum permissible cooling water inlet temperature of 40 °C is shown. The dark colored area marked "I" describes the optimum areas of application. The areas "II" are available on request. The lower diagram shows the efficiency characteristics of the respective systems as a function of the chilled water outlet- and cooling water inlet temperatures. The example "Type 35" shows an EER of "8" for a required chilled water temperature of 20 °C and a cooling water temperature of 25 °C.

eChiller Type 35

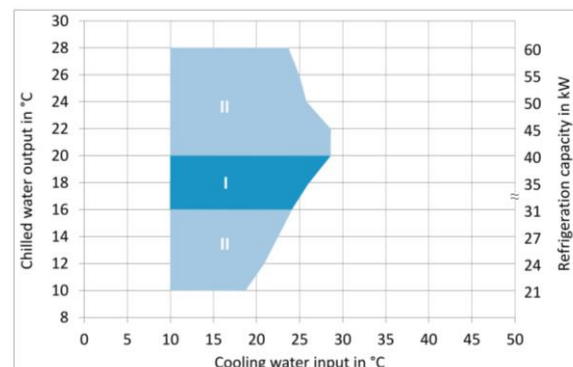
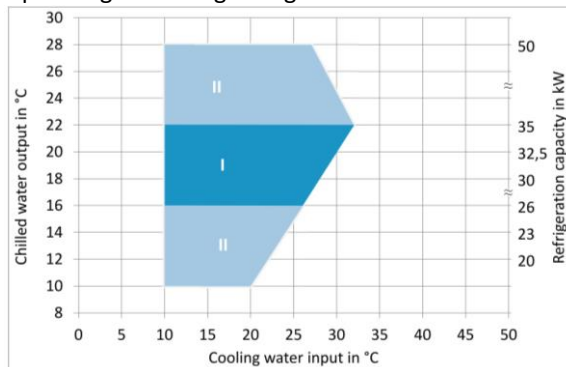
Operating limits double stage version



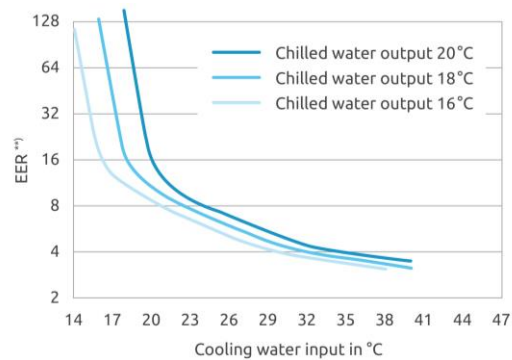
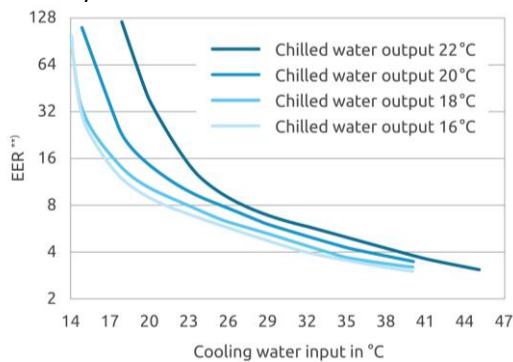
eChiller Type 45



Operating limits single stage version



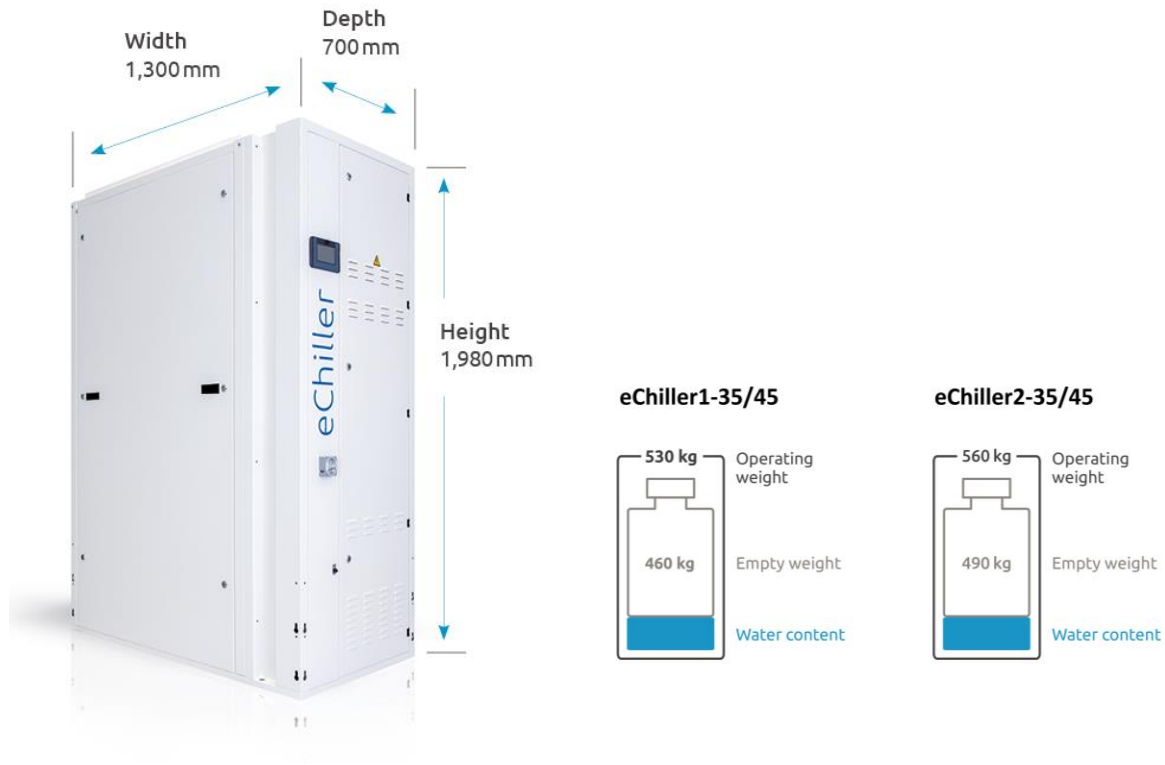
Efficiency data^{*)}



Envelope I: optimal operating limits (dark area)
Envelope II: the chilled water output temperature can be optionally adjusted (light area)

*) Efficiency values at full capacity
**) EER (energy efficiency ratio) defines the level of efficiency in terms of cooling capacity related to electric power input

Dimensions and Weight



Designation

Version:

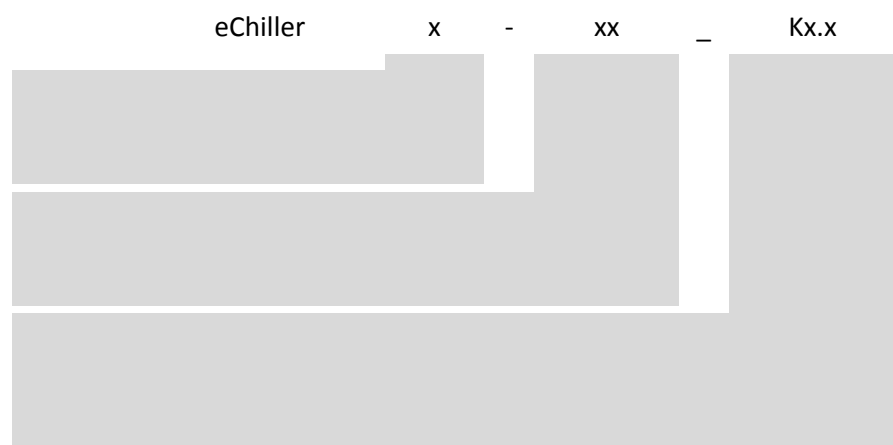
- 1: single stage
- 2: double stage

Type (compressor type):

- 35
- 45

Model:

- K3.1
- K3.2
- K3.3



Example Designation: eChiller2-45_K3.2

[Our Full-Service-Package for you](#)

The Efficient Energy GmbH in Feldkirchen near Munich is the developer, manufacturer and system supplier of the eChiller. Besides the chiller, we also offer modules comprising all hydraulic components needed for a turnkey installation. We will assist you in all eChiller-related matters and offer advice for integration of the eChiller into your application.

[More information](#)

efficient-energy.com or please contact us under:

Efficient Energy GmbH
Sales
Hans-Riedl-Str. 5
85622 Feldkirchen

Phone + 49 (0) 89 693369 500
E-Mail sales@efficient-energy.de