

## eChiller120 – Clean cooling system with water as a refrigerant now available with three times the cooling capacity

*Efficient Energy GmbH is now offering its next generation of eChillers with 200 percent increase in cooling capacity and a 25 percent efficiency improvement.*

**Feldkirchen, 29. October 2020.** Efficient Energy GmbH, the maker of sustainable refrigeration technology based in Feldkirchen near Munich, is presenting the next generation of its eChiller chilled water units. The latest model – the eChiller120 – offers 120 kW cooling capacity with 0 percent direct CO<sub>2</sub> emissions. With its Blue<sup>zero</sup>® technology that uses water as a refrigerant, the company is a pioneer in the field of clean cooling. By scaling its new products, Efficient Energy GmbH has now made clean cooling viable for applications requiring higher cooling capacities.

### Higher refrigeration capacity with the same exceptional climate friendliness

The eChiller120 is ideally suited for process cooling, machine cooling and technical air conditioning and can therefore be used in e.g. mechanical engineering, the automotive, rubber and plastics industries or for cooling data centres, control cabinets and server rooms.

The principle behind the refrigeration process of the new eChiller120 is identical to that of the smaller eChiller35/45. Before going into operation, it is filled once with softened tap water as a refrigerant, which is then used in a closed circuit for refrigeration. New, however, are the entirely redesigned construction and an improved compressor concept. The turbo compressor, which was developed by Efficient Energy GmbH in house, has been enlarged and integrated directly into the braze plate heat exchanger module, thereby significantly increasing the efficiency of the refrigeration system. Despite its higher performance, the eChiller120 achieves a comparably low noise level, like its “kid brother” – the eChiller35/45. A further innovation is the strategic introduction of various configuration options, including, e.g. an optional housing and free cooling module, a module for extending the part load and other possibilities for controlling system peripherals. The eChiller120 can be easily connected to an existing cooler and supports energy-optimised cooling control. Combined with an adiabatic cooler, Efficient Energy GmbH’s clean cooling system qualifies for a high rate of BAFA funding. For even greater cooling requirements, the eChiller120 can be configured in a cluster, with its modular, scalable design and an optionally integrated cluster control system making cooling capacities of over 500 kW achievable. Delivery of the eChiller120 will commence in summer 2021. The first advance orders have already been placed.

### Starting shot for further product developments

The development of a single-stage refrigeration system with greater refrigeration capacity was the next logical step for Efficient Energy GmbH. But this is only the starting shot for the diversification of the company’s product range. “The market potential for Blue<sup>zero</sup>® technology is far from exhausted and we’re already working on further developments. For 2020/2021, we again invested heavily in laboratory infrastructure and development to establish clean cooling on the market as quickly and broadly as possible,” says Efficient Energy GmbH’s CEO and Managing Director, Georg Dietrich. At the same time, the company continues to expand its distribution network and intends to conclude further OEM partnerships. “This is the only way we can further exploit the market potential of Blue<sup>zero</sup>® and play an active role in the fight against climate change”, Dietrich continues.

## FACTS & FIGURES

### Refrigeration industry in a climate context:

- Refrigeration and air conditioning equipment accounts for approximately 8 percent of global CO<sub>2</sub> emissions.  
Global air traffic, by comparison, accounts for the generation of only a slightly larger share of all climate-damaging gases.
- Under the EU's F-Gas Regulation (Regulation No. 517/2014), the use of fluorinated greenhouse gases (F-gases) is to be reduced in stages by almost 80 percent by 2030.  
The goal is to reduce emissions by 70 million tons of CO<sub>2</sub> equivalent.  
A complete ban on F-gases seems likely after 2030.
- The Kigali Accord of 15 October 2016 kicked off the conscious reduction (phasedown) of climate-damaging refrigerants worldwide. In the EU, the F-Gas Regulation has been implementing the phasedown since 2015 with a gradual reduction of partly fluorinated hydrocarbons (HFCs).
- According to the Green Cooling Initiative (GCI) of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH Proklima, around 9.5 billion cooling appliances will be in use worldwide by 2050. This is more than 2.5 times the current number. If the refrigeration industry fails to achieve significant improvements in energy efficiency, it will result in a 90 percent increase in energy consumption by refrigeration appliances.
- If conventional refrigerants and refrigeration technology are not replaced, the annual emission of greenhouse gases attributable to refrigeration will more than triple by 2050.

For further information and facts about the refrigeration industry please visit:

<https://insights.efficient-energy.de/en/8-things-you-should-know-about-the-refrigeration-industry/>

### The product: eChiller

- The eChiller is the only series product worldwide to use water as a refrigerant (R718).
  - The benefits of water as a refrigerant:
    - Odourless, non-flammable, not toxic – and thus much safer (other natural refrigerants exist, such as ammonia, but these are flammable and toxic)
    - Economical and highly available\*
    - Power-saving
    - CO<sub>2</sub>-neutral
    - Future viability of business model not jeopardised by stricter legislation
- \* Use of small amounts in the eChiller with one-time filling of 60 to 100 litres of regular, softened tap water without additives in a closed circuit.
- A conventional refrigeration system with a commercial (synthetic) refrigerant and 30 kW cooling capacity generates 24 metric tons of CO<sub>2</sub> a year through refrigerant leakage and power consumption. The eChiller, by contrast, generates only around 7 metric tons\*\* through electricity consumption. This is equivalent to a reduction in emissions of over 70 percent – which also translates into financial savings for your company.
  - \*\* Total of direct and indirect emissions with the assumed synthetic refrigerant R410A.
  - Industrial applications of the eChiller:
    - Machine and technology cooling, e.g. for component moulding and lasering
    - Process cooling, e.g. for rollers and cooling basins

## PRESS RELEASE

- Technical air conditioning / waste heat solutions in buildings, data centres, server rooms and control cabinets

Relevant industries: automotive, plastic and rubber, chemicals and pharmaceuticals etc.

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### About Efficient Energy GmbH

Efficient Energy GmbH is an innovative manufacturer and system supplier of environmentally friendly refrigeration technology, based in Feldkirchen near Munich, Germany. The company uses pure water (R718) as the refrigerant in its eChiller product range, and thereby entirely avoids fluorinated refrigerants. Efficient Energy helps its customers overcome the increasing regulatory challenges of refrigeration technology, and offers them long-term, sustainable solutions with its eChiller model range. With its outstanding cost efficiency and low CO<sub>2</sub> footprint, companies benefit on many fronts. The pioneering technology has also been noticed by politics and the media, and has received multiple awards for the eChiller. These include: the Deutscher Rechenzentrumspreis 2017, the RAC Cooling Industry Award 2017, the Partslife Umweltpreis 2017, the Deutscher Kältepreis 2016, the European Business Award for the Environment 2018/2019 from the EC and the Red Herring Top 100 Europe in 2020.