

Integral system for  
**cooling, airconditioning** and **heating**  
in supermarkets  
„blue cool concept“ with „CHANGE IT®“



# Wellcome to Cool Expert



Cool Expert is a creative, owner-managed company that is passionately committed to refrigeration technology. In our think tank, we develop technologies that optimise themselves in technical and economic terms. The most important goal for us is to ensure the quality of the refrigerated goods while at the same time saving energy costs.

Our aim is to be better than others, above all to understand our customers' requirements. We convince with safe, well thought-out system technology that lasts for decades. Unique is our digital service management that reduces the operating costs of your refrigeration systems to a minimum.

We take the overall responsibility:

- Calculation
- Project planning
- Production
- Delivery
- Construction
- Commissioning and handover

The special thing:  
Our assistance in service and cooperation with the craftsmen

# blue cool concept with natural refrigerants

## The complete solution for supermarkets

blue cool concept essentially consists of the CHANGE IT® compact chiller, a water-cooled cooling module in a class of its own. It can be operated as an individual unit or as a hydraulic network consisting of several cooling modules.



Replacement CHANGE IT compact chiller in 30 minutes  
[https://youtu.be/v8QgbvF\\_7sA](https://youtu.be/v8QgbvF_7sA)



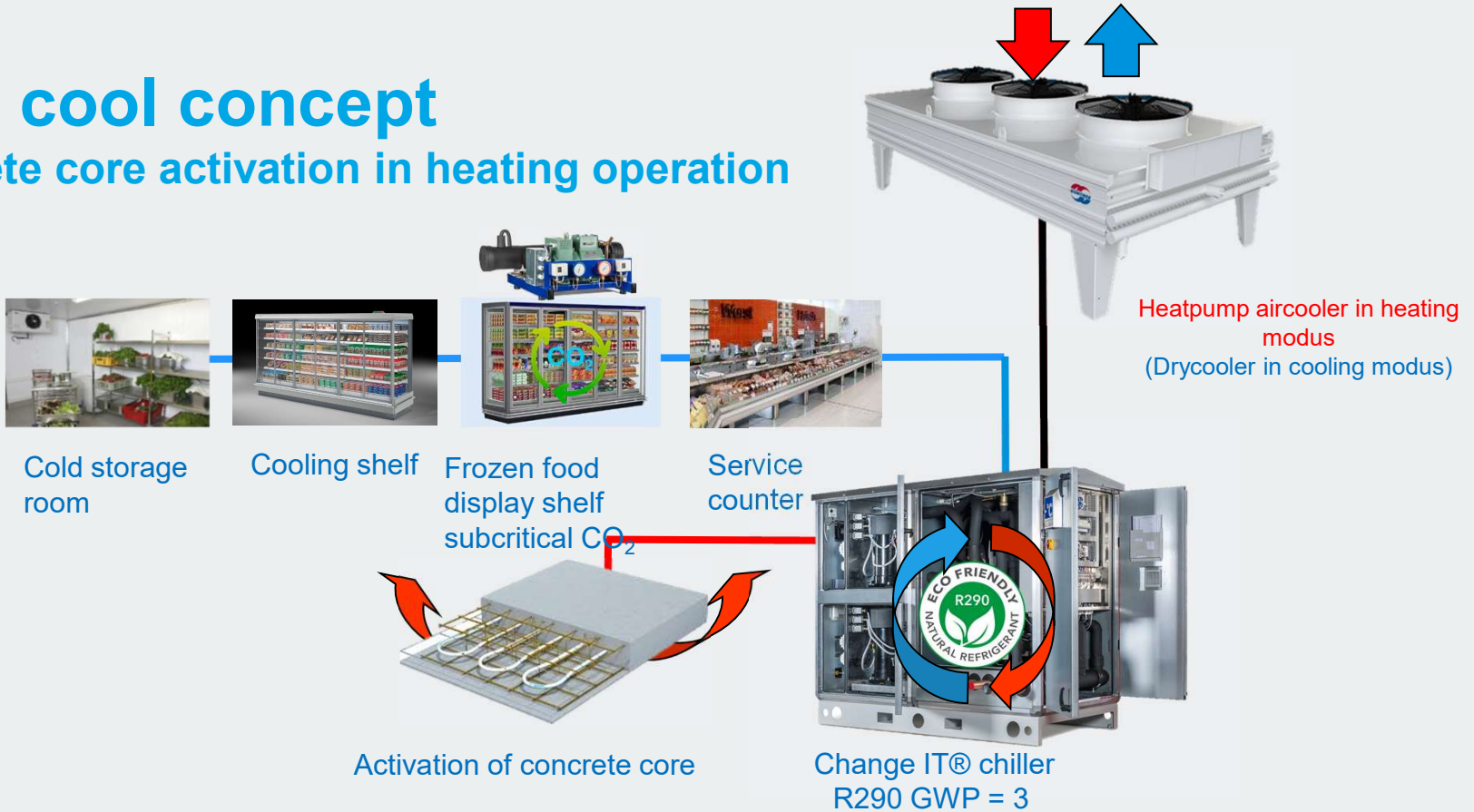
get video

Cold brine is used as the heat transfer medium in the secondary refrigeration circuit. CHANGE IT® is operated with the energy-efficient, natural refrigerant propane R290. The filling quantity is 1.45 kg for each module. If servicing is required, the CHANGE IT® compact chiller can be replaced within 30 minutes; revision is carried out exclusively at the Cool Expert factory in Allendorf (Eder).

blue cool concept is a unique ALL-in-ONE system whose outstanding features cover the entire application range of commercial refrigeration thanks to its modular design. This includes plus cooling and deep-freezing with simultaneous heat recovery, including heating in heat pump mode, through to air conditioning.

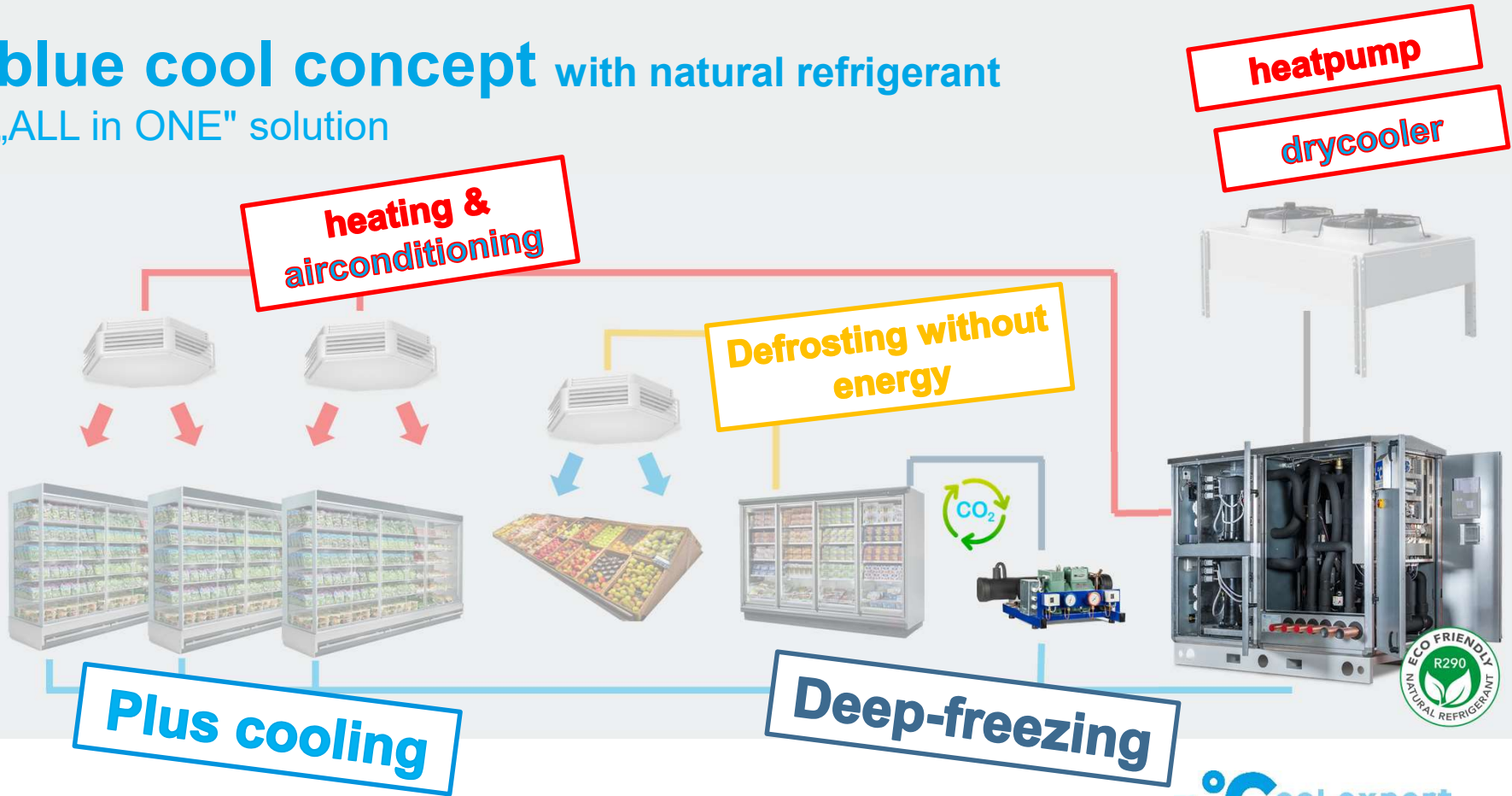
# blue cool concept

## concrete core activation in heating operation



# blue cool concept with natural refrigerant

„ALL in ONE" solution



# German Refrigeration Award 2018

"There are more than 120 million refrigeration and air conditioning systems in Germany. Energy consumption and refrigerant losses cause greenhouse gas emissions equivalent to almost 60 million tonnes of CO2 every year and thus have a considerable impact on the climate. In order to reduce their energy consumption and harmful refrigerant losses, the Federal Environment Ministry awards the German Refrigeration Award to particularly low-emission and forward-looking developments in refrigeration and air conditioning technology.,

Source: <https://www.bmu.de/pressemitteilung/der-kaeltepreis-ist-heiss/>



Foto: co2online

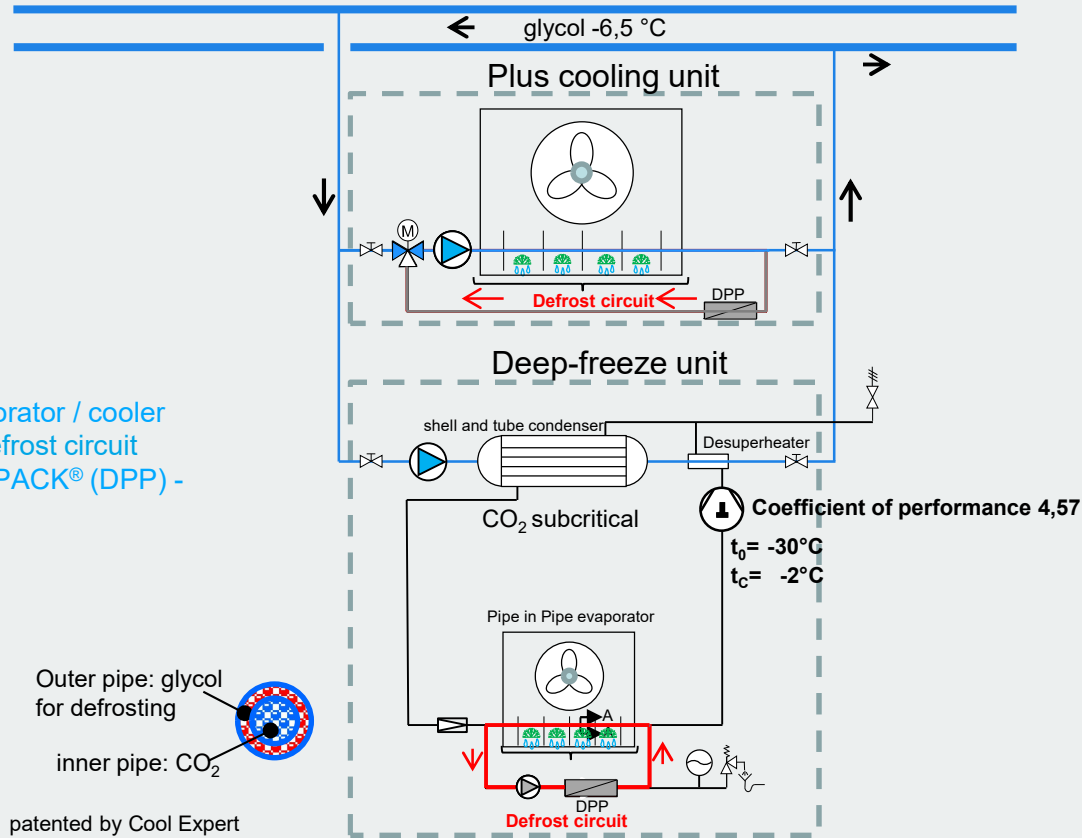
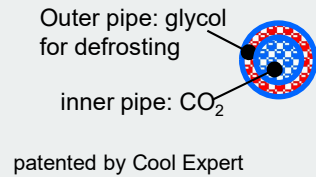
**Environment minister Svenja Schulze with Mr. Friedhelm Meyer and his youngest son**

**Award for Integral refrigeration and heat pump system with natural refrigerants**

**blue cool concept**

# R290 / glycol / CO<sub>2</sub>

Pipe in Pipe evaporator / cooler  
CO<sub>2</sub> with glycol defrost circuit  
DEFRO POWER PACK® (DPP) -



# DEFRO POWER PACK® AIR

DEFRO POWER PACK® AIR from Cool Expert is the defrosting process of the future, a milestone in the history of refrigeration technology and, at the same time, of epoch-making importance with regard to the conservation of our energy resources. Simple and ingenious.

**DEFRO POWER PACK® AIR** saves the operator of commercial refrigeration systems 98% and more in energy costs in the future.

**DEFRO POWER PACK® AIR** corresponds to our spirit of the times in every respect, is environmentally neutral and can be ideally applied in the supermarket refrigeration sector, in the deep-freeze as well as in the positive-cooling sector.

When defrosting is required in a refrigerated display shelf, it is separated from the cold glycol circuit and the glycol remaining in the cooler is heated via a connected warm glycol circuit until the heat exchanger in the unit has defrosted. The required heat is absorbed via a ceiling cassette, which can be used economically for the purpose of fruit and vegetable cooling.

98%  
energy saving



Foto: R.Handschuh



# DEFRO POWER PACK<sup>®</sup> AIR

## Efficiency

- 98% energy saving
- 100 % absorbed heat is used for defrosting
- Defrosting without power peaks



# DEFRO POWER PACK® AIR

- Our patented key technology is a milestone in supermarket refrigeration.  
It is an indispensable technology for the operator of commercial refrigeration systems in supermarkets.
- 98% savings on energy costs during defrosting.  
For each defrosting operation 70 W pump power instead of 3,500 W power for electrical defrost
- Save 11.58 t CO<sub>2</sub> with only one freezer (with 2 defrosts daily) within 10 years
- Amortisation under 6 months
- Defrosting without power peaks (lower connection costs)

# Market control Scope of services

Control system for **cooling**, **airconditioning** and **heating**

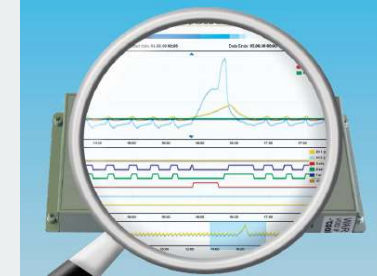
- HACCP (Hazard Analysis and Critical Control Points) logging
- Market control
- Heating, (air conditioning) and ventilation
- Monitoring
- Fault management



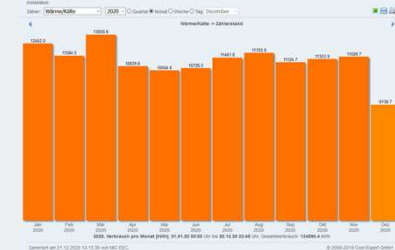
Cool Expert Refrigeration controller



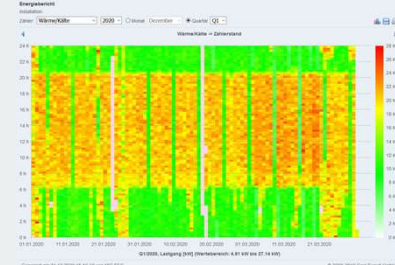
Cool Expert control cabinet



Cool Expert Temperature profile defrost temperature



Cool Expert Energy consumption evaluation



Cool Expert Load profile

# Reference

## Bio Supermarket

approx. 850 m<sup>2</sup> retail space

### Equipment:

- 15 m refrigerated shelves (with glass doors)
- 5 m Service counter
- 1 plus cold room
- 10 ceiling units heating / air conditioning and 1 door air curtain
- Fresh air with heat recovery

### Technical data:

- Commercial refrigeration: 20 kW ( $t_{\text{glycol, evap}} = -8 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )
- Airconditioning: 55 kW ( $t_{\text{glycol, evap}} = 7 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )
- Heat pump: 70 kW ( $t_{\text{glycol, evap}} = 7 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )
- Heat recovery: max. 26 kW ( $t_{\text{glycol, evap}} = -8 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )



Foto: R.Handschuh



Fotos: G.Pfeiffer

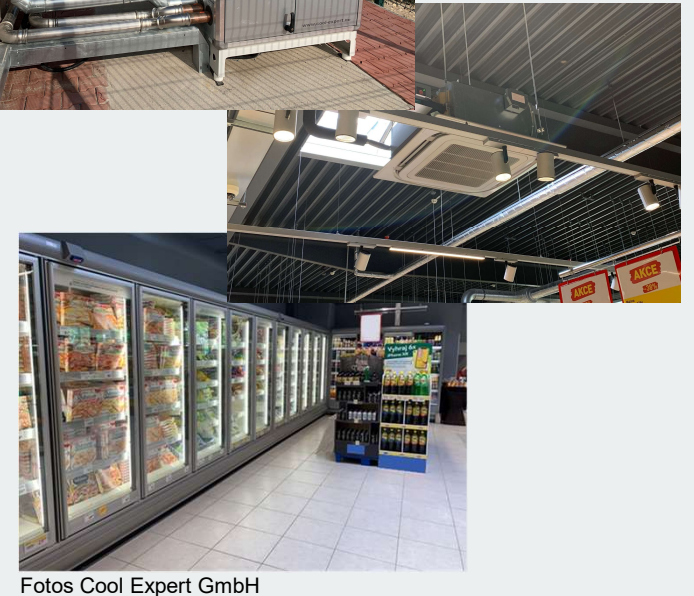
# Reference Supermarket

## Equipment:

- 40 m refrigerated shelves (with glass doors)
- 10 m Frozen food display shelf
- 12 m service counter
- 2 plus cold rooms
- 2 Deep-freeze rooms
- 9 Ceiling units heating / air conditioning
- 3 Door air curtains
- Fresh air with heat recovery

## Technical data:

- Commercial refrigeration: 60 kW ( $t_{\text{glycol, evap}} = -8 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )
- Airconditioning: 82 kW ( $t_{\text{glycol, evap}} = 7 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )
- Heat pump: 104 kW ( $t_{\text{glycol, evap}} = 7 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )
- Heat recovery: max. 79 kW ( $t_{\text{glycol, evap}} = -8 \text{ }^{\circ}\text{C}$ ;  $t_{\text{glycol, cond}} = +30 \text{ }^{\circ}\text{C}$ )



Fotos Cool Expert GmbH

# Service and monitoring portal

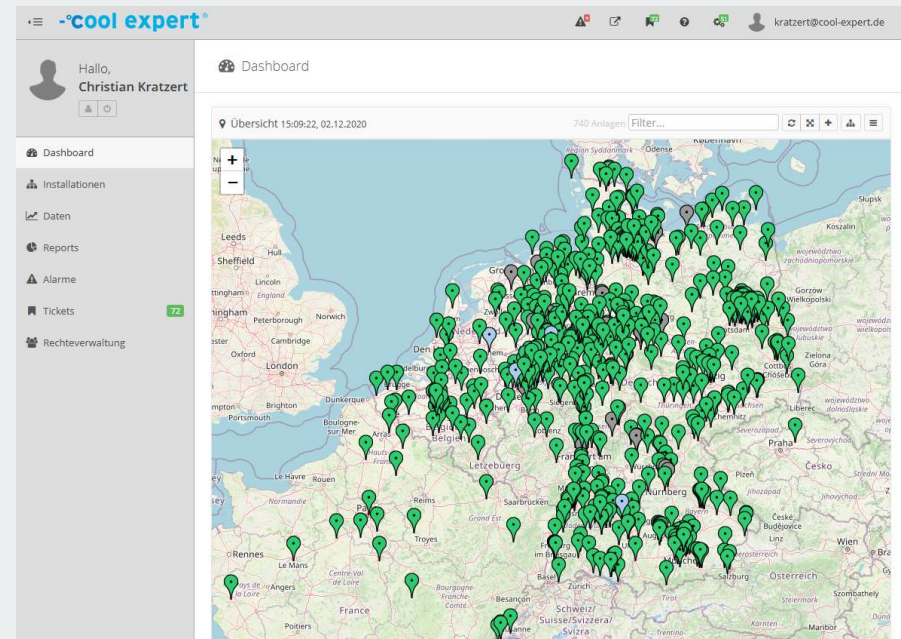
Over 800 systems with Cool Expert control and system technology are connected to the specially developed service and monitoring portal.

Cool Expert monitoring is the integrated solution for quality assurance of refrigerated goods, permanent status queries, recording and forwarding messages in the event of irregularities, service management and analysis of your objects.

- Maximum plant availability
- Efficient service management
- Economic energy management
- Transparency of the plant

## Additional benefit

- Training of service partners
- Technical support for the service partners



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