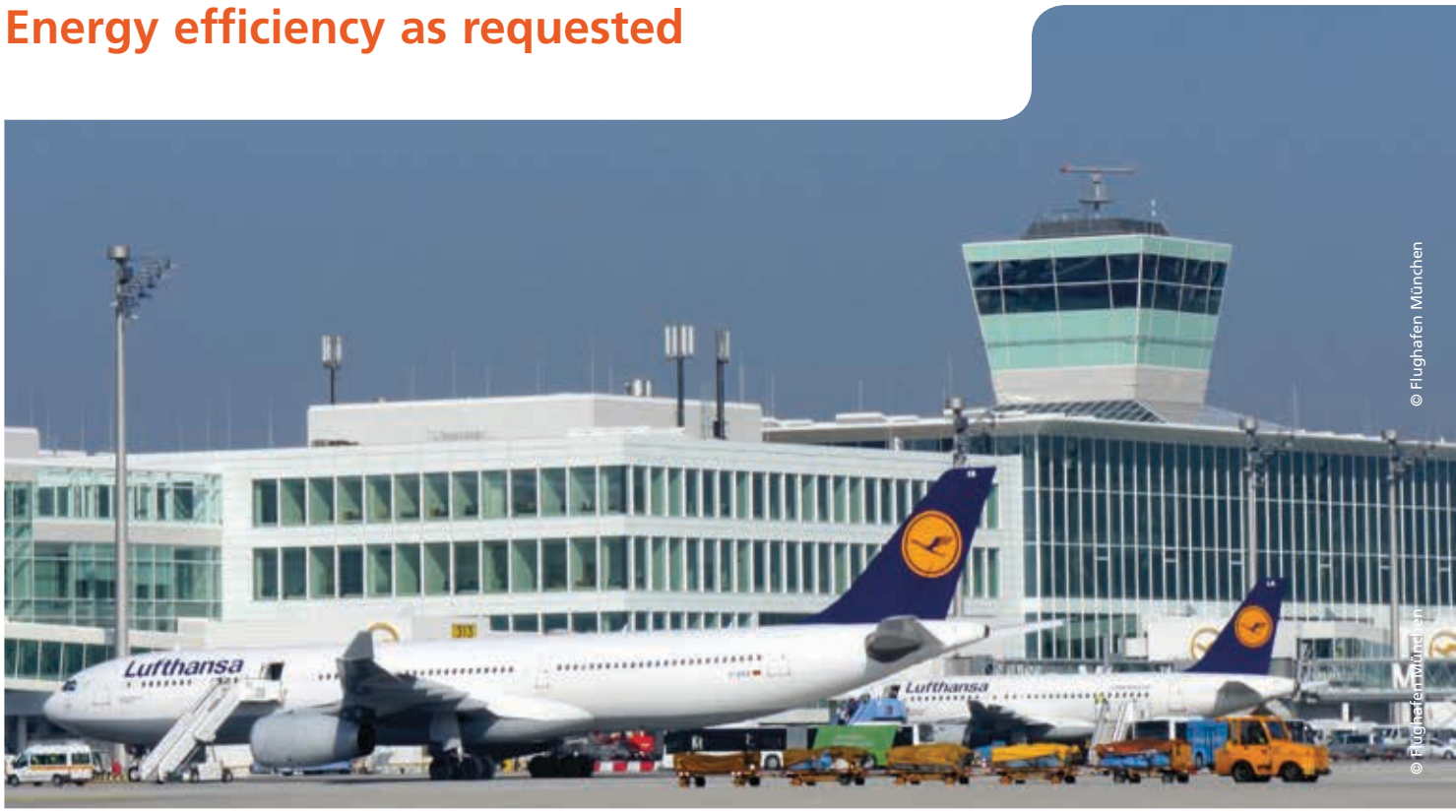
# Heating and cooling to flight schedule – Energy efficiency as requested

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The satellite, built from 2013 until its inauguration in April 2016 as an addition to Munich Airport terminal 2, is fitted with KSB pump systems controlled in line with demand to ensure efficient distribution of heating and cooling energy

**Terminal 2 Gesellschaft mbH & Co oHG**
**85356 München-Flughafen**

The new Munich Airport was inaugurated on 17 May 1992. Today it is one of the ten biggest airports in Europe in terms of passenger numbers with a 5-Star Airport quality rating. The two terminals including the new satellite have an overall capacity of more than 50 million passengers per year. With a total of 35,000 employees Munich Airport is one of the largest employers in Bavaria. The satellite terminal has expanded terminal 2 by vertically and horizontally adding to the existing baggage sorting hall, located to the east of the terminal building.

## Munich Airport: Satellite building for Terminal 2

The satellite building, in use since April 2016, has increased the airport's processing capacity by 11 million to a total of 36 million passengers per year. With the inauguration of the satellite terminal, which covers an area of more than 125,000 square metres, Munich Airport has raised the bar in service quality, passenger comfort and sustainability. Designed as a midfield terminal, the satellite offers 27 plane parking positions close to the building, enabling flight guests to board their plane without requiring a bus transfer.

### International hub airport sets high benchmarks for environmental standards and energy efficiency

The energy-efficient operation of heating and cooling systems is taken care of by variable speed in-line and high-efficiency pumps of the Etaline and Calio series. The pumps' variable speed systems respond to fluctuations in flow rate by automatically adjusting the power input. This results in pump power savings of up to 60 %. In addition, the pumps are fitted with matching KSB valves with low individual losses that ensure optimum flow properties.

For even further savings, the pumps are driven by KSB SuPremE® IE4 motors. This motor technology brings the benefit of a high efficiency at part load. The synchronous reluctance motor developed by KSB is an environmentally friendly, sustainable choice. Apart from having a low power input, it is made without any magnetic materials and rare earths – a perfect fit for Munich Airport's concept of a „green satellite". The Calio circulator pumps are used for small flow rates in heating and cooling water distribution. Their integrated interfaces allowing easy integration in the building management system were particularly popular with the decision makers.

**Pump deliveries to schedule for construction work during active operation**

Implementing this project meant physically extending the existing baggage s orting hall to the east of terminal 2, with business as usual at the airport. During the project period KSB coordinated its pump deliveries with the site management and the company for building services systems Caverion Deutschland GmbH to fine-tune delivery times to the progress made on the building site. KSB was also in charge of commissioning the pump systems as part of the service contract. The KSB service centre in Munich further conducts ongoing maintenance and service work for pump and automation systems in terminals 1 and 2 and serves as the operator's point of contact for matters such as operating reliability and optimised economical operation.

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| Scope of supply | Technical data |
|---|---|
| Etaline in-line pumps with KSB SuPremE motor, (motor-mounted) PumpDrive 2 and PumpMeter | Pump sizes ETL 032-032-160 to ETL 150-150-250 |
| Calio high-efficiency pumps | Pump drives 175 W - 800 W with connection to building management system |
| BOAX butterfly valves | |
| BOA-H, BOA-C globe valves | |
| BOA-S strainers | |
| SERIE 2000 check valves | PN6/10/16, DN 20 – DN 200 |
| BOA-Control IMS balancing valves | |

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