

Case study



BAELZ PRODUCT: Jetomat® Water jet pump 480
INDUSTRY: Wood / drying wood
COMPANY: wood processing plant in Kundl
COUNTRY: Austria

INITIAL SITUATION

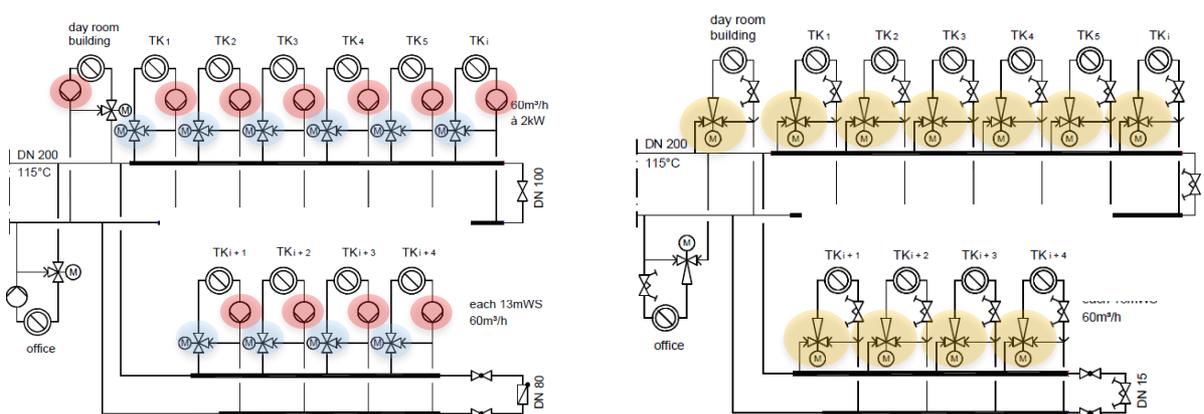
To increase the drying capacity, four additional drying ovens should be added to the 13 currently available to the customer. The current district heating grid was not designed for this number of drying ovens. This meant that it was only possible to increase the existing network, to create a parallel network, or to carry out a conversion to Baelz technology. Because options 1 and 2 would have meant significant increases in investment, the customer finally decided to convert the network to Baelz technology, in the form of Jetomat® water jet pumps.

Parameters

Annual operating time	8,760 hours
Thermal output	8,000 kW (8 MW)
Drying oven	17 pieces
Pump capacity, main pump	18.0 kW
Total capacity, circulation pumps	59.0 kW
Electricity price (acceptance)	€0.11/kWh
Total investment	€200,577

TECHNICAL MODIFICATIONS

Diagram before the modifications (figure similar) Diagram after the modifications (figure similar)



Standard design
 with main pump, circulation pumps (red)
 and mixing valves (blue)

Optimized design
 with main pump and Baelz water jet pumps (yellow)
without circulation pumps and mixing valves

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SAVINGS / PROFITABILITY

Through the removal of the circulation pumps and the use of Baelz Jetomat® water jet pump technology, optimized heat distribution could be achieved in the drying ovens. The conversion of the district heating grid was no longer necessary.

In addition, the following energy savings were achieved when the circulation pumps were removed and the Baelz Jetomat® water jet pump technology was installed:

Operating costs, standard design

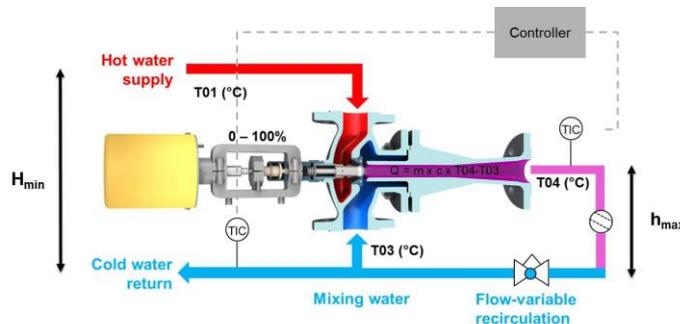
= Annual operating time x (capacity, main pump + capacity, circulation pumps) x electricity price
= 8,760 h x (18.0 kW + 59.0 kW) x €011/kWh
= approx. €74,200 per year

Operating costs, modified design

= Annual operating time x pump capacity, main pump x electricity price
= 8,760 h x 18.0 kW x €011/kWh
= approx. €17,400 per year

Savings / amortization

Saving approx. €56,800 per year
Amortization approx. 3 years



Overview of the technology

The jet pump technology is based on the Bernoulli equation. Reducing the cross-section within the jet pump leads to an increased rate. This also reduces the pressure, so that return water is aspirated. A mixing valve is no longer required.

Other advantages are:

- No circulation pumps necessary
- Only one main pump necessary
- Reduced cabling costs
- Reduced electricity costs
- Lower maintenance costs
- Fewer fittings
- Stable regulation
- High level of efficiency
- Shorter amortization period
- Optimized heat distribution
- Increased operational safety
- fewer data points on the superordinate building control system

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