–weishaupt–

product

Information on multi-boiler installations

Optimising multi-boiler plant

Weishaupt multi-boiler control system

Many multi-boiler installations are able to operate more efficiently, particularly at partial load, if the boiler output can be optimised to suit the heat demand. This is where the Weishaupt multi-boiler control system can provide an advanced and practical solution.

The principle

Weishaupt facilitates the modern, hydraulically optimised control of multi-boiler installations by measuring and regulating boiler flow rates. Variable-speed boiler pumps and modulating burners combine with the innovative control concept to form the ideal solution for multi-boiler plant.

The technology

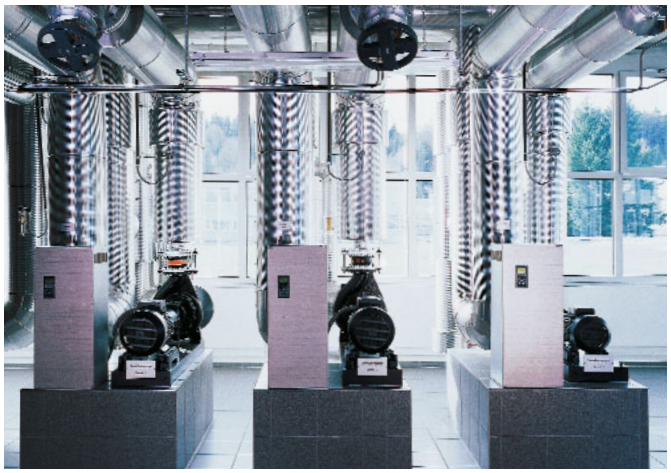
Flow rate is measured in the consumer pipeline and at every heat generator. Variable-speed pumps at every boiler provide a balanced water flow rate and correct any deviations before they have an effect on temperature. The ground-breaking properties of this patented system enable an outstanding degree of control, and the efficient and reliable operation of any size of plant.

The result

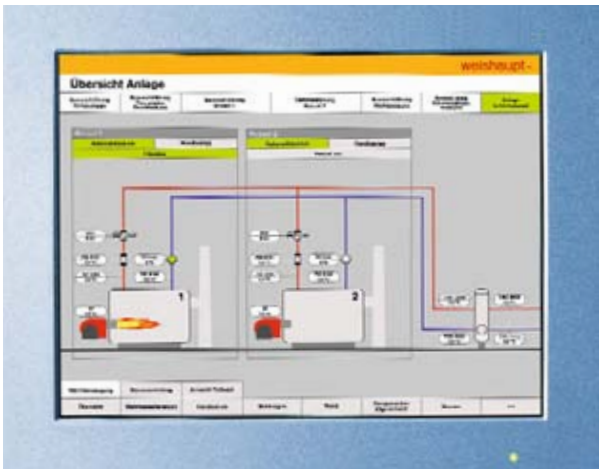
Measurable benefits compared to typical installations even with condensing boilers and combined heat and power plant, both in terms of control precision and energy consumption.

Products and efficiency technologies, such as the Weishaupt multi-boiler control system, are developed and tested at the Weishaupt Research and Development Centre.

Responsive control of multi-boiler plant: environmentally friendly and efficient



Bolier flow rates controlled by variable speed pumps



Control / visualisation

Variable speed pumps control boiler flow rate
When a reduction in load leads to a reduction of the circulation flow in the consumer circuit, the boiler pumps vary their speed to adapt the rate of flow to the heat exchanger. This reduces the number of burner starts to a minimum.

Therefore the Weishaupt system offers the same benefits to heat generation as have for so long been available to heat distribution: speed-controlled circulation pumps whose power consumption is considerably reduced by varying volume flow rate.

Condensing boilers with a low loss header operate without any loss of efficiency
Across the whole of the control range, flow-rate control prevents a rise in the return temperature to the boiler circuit at the low loss header. The Weishaupt system thus capitalises on all of the control benefits of the low loss header, without impairing the efficiency of the condensing technology or comparable applications.

Furthermore, balanced volume flow rates prevent overheating of the boiler or flow-rate-linked instabilities (e.g. all boilers on or all boilers off).

All of the installed boiler capacity is available to the consumer
With the Weishaupt system, the water circuit and the control strategy are tailored to one another.

The intelligent volume-flow-rate control sets the water flow rate so that a boiler can really transport its nominal capacity to the consumer circuit. This supports the optimal utilisation of an ecologically advantageous lead boiler, e.g. biomass or combined heat and power; the next boiler in sequence is only started when the lead boiler has reached full capacity.

Disruptions during boiler switching procedures are compensated for immediately
Outstanding control characteristics are achieved because changes in flow rate caused by boiler switch-on or switch-off procedures are detected and compensated for immediately, before they have an effect on temperature.

Gas demand peaks are levelled
The demand peaks in the gas supply that often occur with temperature-led controls are effectively reduced or often even avoided.

Alternative heat generators can be integrated
As well as boiler/burner sequencing with low and high-temperature hot-water plant, the Weishaupt system is also ideally suited to sequencing with alternative heat generators (e.g. biomass or CHP plant).

The well-thought-out volume flow rate management system can ensure the greatest possible utilisation of ecologically advantageous heat generators in both individual and sequenced operation. This considerably increases the ecological and economical value added.

Condensing boilers or DHW charging systems can be incorporated parallel to the low loss header without impairing their efficiency.

The Weishaupt multi-boiler control system has been proving itself in numerous installations

The Weishaupt service package: a one-stop solution

Bespoke control panels have been designed and built at the main works in Schwendi for more than 50 years

With more than 50 years' experience in the design and manufacture of control panels, primarily for burner and boiler controls, Weishaupt offers customers tailored, one-stop control solutions.

Consultation
Good hydraulic design underlies optimal operation characteristics. Alongside competent assistance, Weishaupt is also able to provide a comprehensive consultation service.

On-site analysis of the current state
Before design comes the analysis of the situation on site. It is possible to determine right at this initial stage whether a conversion to the Weishaupt system will be possible.

As individual as a finger print
The modular structure of the Weishaupt multi-boiler control system offers numerous options for meeting customer-specific requirements. The open bus communications system simplifies integration with existing building management systems. The text and graphics of the user interface are individually tailored.

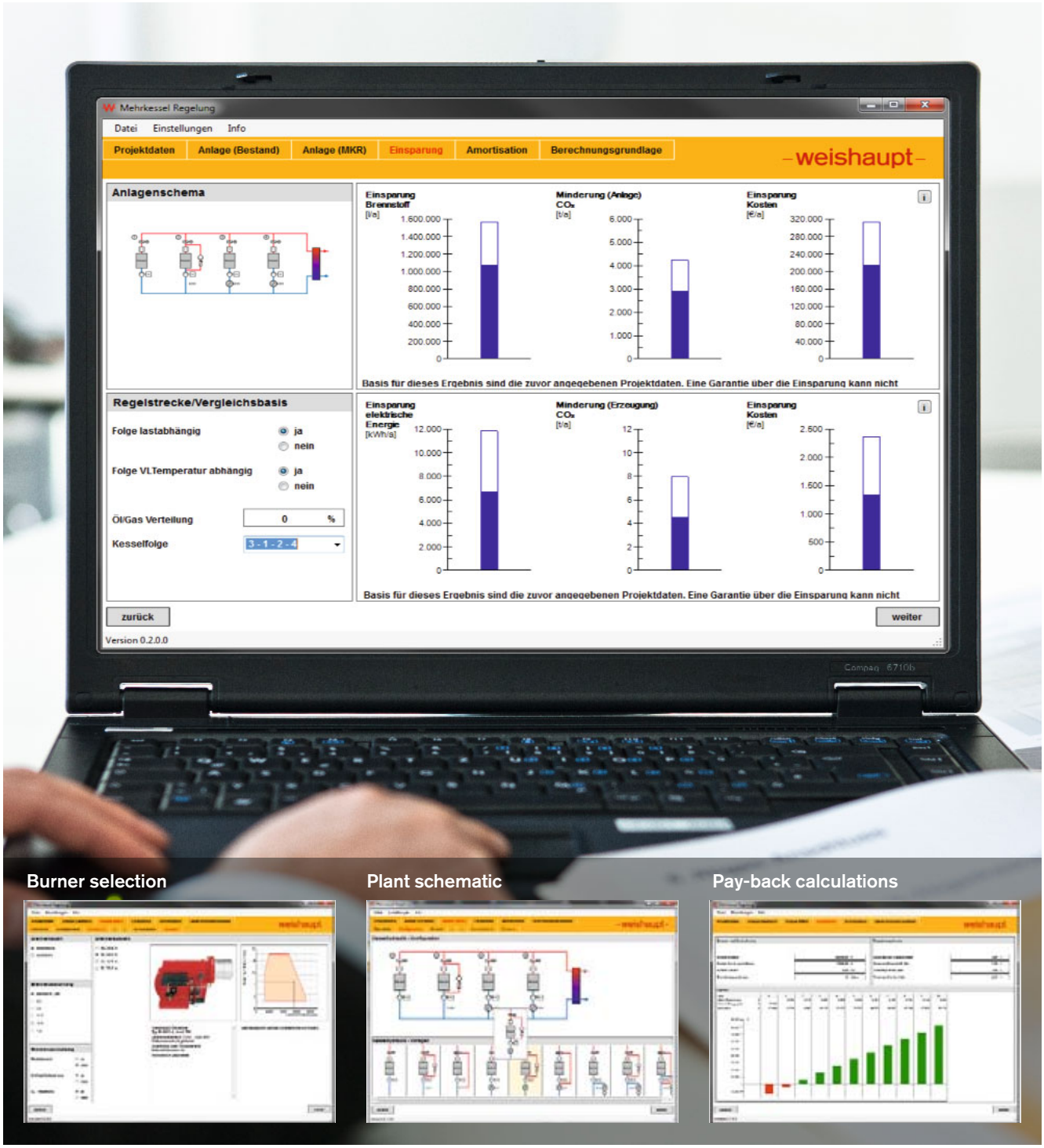
Forecasted energy savings
The efficiency calculator MKR developed by Weishaupt provides reliable data on the potential energy savings for a plant after conversion.

That enables you to consider the amortisation of the intended investment and plan with a high degree of certainty.

Round-the-clock service
As well as supplying and assembling all of the necessary components, the controls and software are tailored to your individual requirements. Comprehensive operator orientation/training takes place after commissioning.

To ensure your equipment remains problem-free in the future, Weishaupt provides round-the-clock service 365 days per year.

The efficiency calculator: Reliable projections of anticipated savings



The Weishaupt efficiency calculator can calculate the likely savings of the multi-boiler control system in advance

Some convincing examples: making visible savings

Production plant in Wahlstedt (picture courtesy of Grundfos)

Deutsche Energie-Agentur GmbH (DENA)'s Energy Efficiency Initiative has presented two Weishaupt projects as examples of efficient energy utilisation by trade and industry. These very impressive examples demonstrate the potential savings that can be made.

Example installation: Grundfoss
An extensive energy analysis at the production plant in Wahlstedt concluded that a modernisation of the heating system could realise potential energy consumption and cost savings. As part of the modernisation, older burners were replaced by new models. A new Weishaupt multi-boiler control system was also implemented, which ensures that only those boilers needed to meet demand are run. Now precisely the required volume flow rate is transported, so that the boilers are always operating at an optimal load point and with the maximum possible efficiency.

Results *

- Reduction in fuel consumption: 1,806,000 kWh/year
- Reduction in electrical consumption: 60,000 kWh/year
- Annual energy saving of 22 %
- Reduction in CO_2 emissions: 479 t/year
- Investment: €265,000
- Reduction in costs: €66,500 per year
- Return of investment: 25 %

* Full details can be found in DENA's "Initiative Energieeffizienz Industrie und Gewerbe" series of publications.

Production plant in Rittershausen (picture courtesy of Rittal)

Example installation: Rittal

The main source of heat in the factory are two boilers, each of which are fitted with efficient burners. Both burners are equipped with O_2 trim and VSD. The combined output of the two boilers amounts to 4.76 MW. Heat is also provided by a biodiesel-fired CHP plant rated at 420 kW, and two catalytic flue gas scrubbers. The main consumer of the heat produced is the paint shop, whose pretreatment tanks have to be kept at a constant temperature in summer and in winter. In winter, heating of the buildings consumes the largest amount of energy. The following measures were taken in order to optimise the plant:

- Installation of a multi-boiler control system and an efficient burner
- Installation of another burner, commissioning of the biodiesel-fired CHP plant. Conversion from thermal flue-gas purification to catalytic flue-gas purification with heat recovery
- Installation of flue gas heat exchangers in the existing boilers

Results *

- Reduction in gas consumption: 8,056,000 kWh/year
- Reduction in bio-oil consumption for heating: 6,720,000 kWh/year
- Reduction in energy consumption 1,337,000 kWh/year
- Saving of 9 %
- CO_2 reduction 1,095 t/year
- Investment: €620,000
- Cost reduction: €270,670 per year
- Return of investment: 44 %

* Full details can be found in DENA's "Initiative Energieeffizienz Industrie und Gewerbe" series of publications.

That's reliability

Boiler production in Sennwald, Switzerland

Neuberger building automation in Rothenburg

Borehole drilling by BauGrund Süd

The Weishaupt Group has over 3,000 employees and is a market leader for burners, condensing boilers, heat pumps, solar energy, and building automation.

Since 2009 the business, which was founded in 1932, has been structured as a holding for three companies operating in the fields of energy technology, energy extraction and energy management.

The core division is Max Weishaupt GmbH, which is located in the south-west German town of Schwendi, and which is where all burners are manufactured. It is also the group's administrative headquarters, and home to the group's own Research and Development Institute.

Heating systems are manufactured by Weishaupt's sister company Pyropac, which is located in the Swiss town of Sennwald.

Neuberger building automation, sited in Rothenburg ob der Tauber in Germany, has been a group subsidiary since 1995.

Bad Wurzach is home to the geothermal engineering company, BauGrund Süd, which has been part of the Weishaupt Group since 2009.

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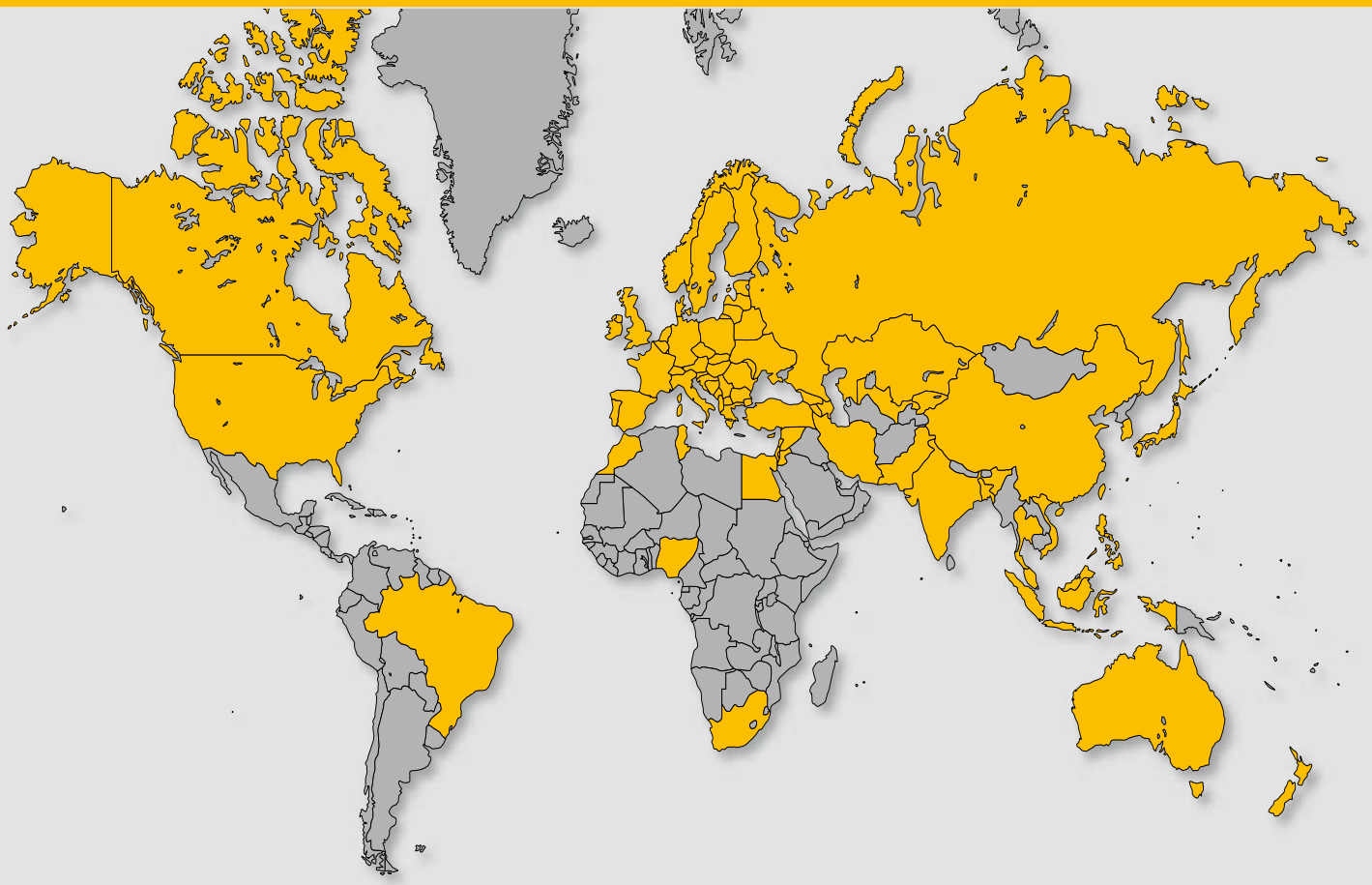

Weishaupt Service worldwide:

Weishaupt worldwide: The branch offices in Germany, and the various subsidiary companies, representatives and agents abroad, provide local competence.

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