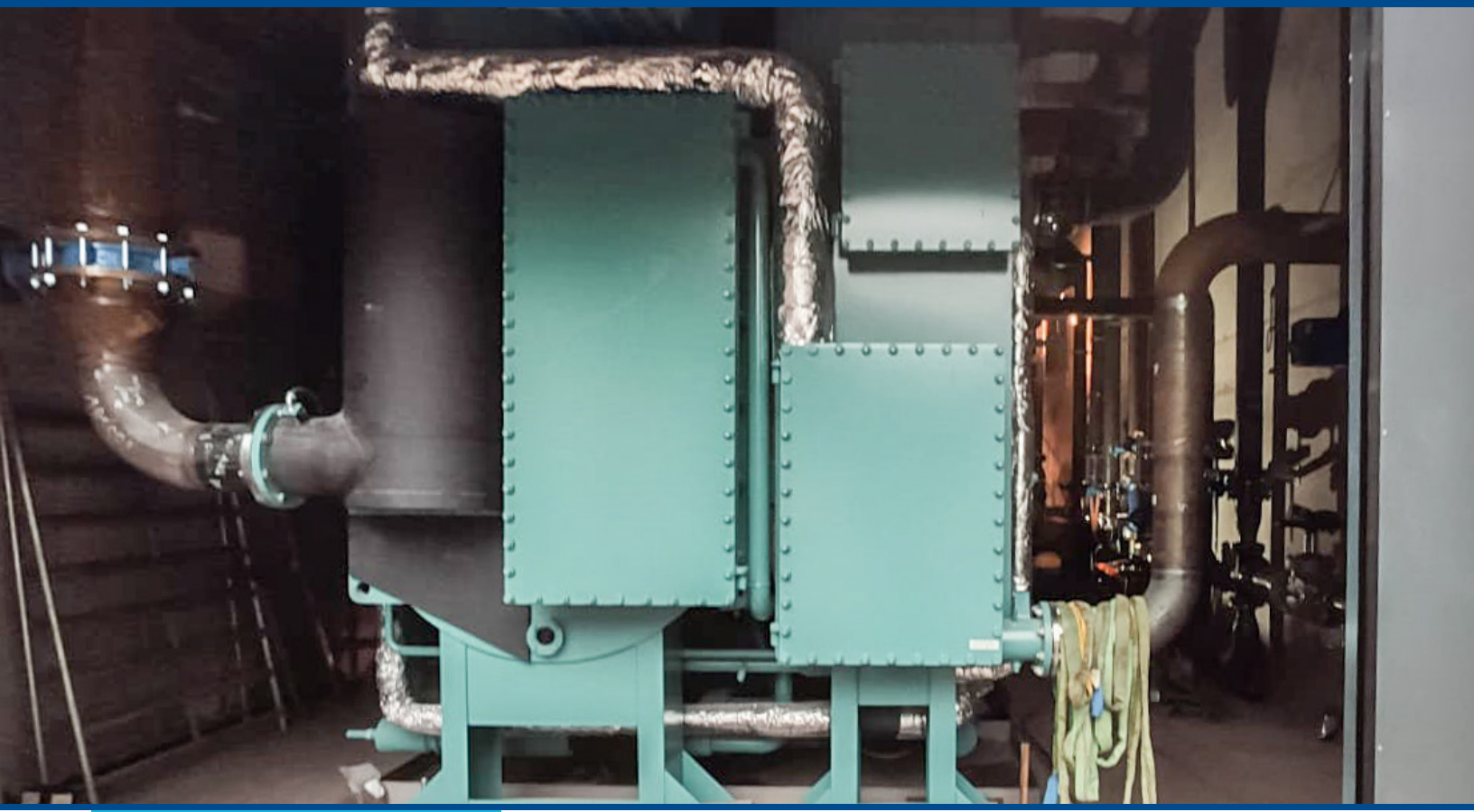
APPLICATION REPORT

ABSORPTION CHILLERS



Pharma / Biotechnology

“Flexim’s non-intrusive measurement technology made it easy to retrofit flow measurement points without any disruption to the cold supply. The customer benefits from an optimal hydraulic balance and improved control of their chillers.“

Marcus Arlt,
Managing Director,
Optima Energietechnik und Anlagenbau GmbH

Measuring Task

Recording of the volume flows in the inflow to three absorption chillers of a large pharmaceutical plant

In times of rising energy costs, the conscious use of energy in a company is a decisive pillar for cost optimization. As experienced project engineers in the field of energy generation and distribution, the experts at Optima Energietechnik und Anlagenbau GmbH are competent and sought-after partners when it comes to the planning and construction of new systems or the optimization of existing systems. They helped to optimize the cold supply in a large pharmaceutical plant.

The pharmaceutical plant draws its energy from two wood-fired combined heat and power plants built in the immediate vicinity of the company premises. While hot water and steam are generated in the existing wood-fired heat and power plant, the new ORC wood-fired heat and power plant supplies hot water, which is converted into cold by absorption chillers and used for air conditioning and process cooling with an output of 6 MW. Furthermore, 2 MW are made available for space heating from the power plant.

Originally, when the systems were planned, no devices for measuring the

hot water quantities in the inlet to the chillers were provided. In operation, however, it became apparent that flow measurements are necessary in order to be able to optimally adjust the system hydraulically. Furthermore, flow measurements enable the optimized and needs-based operation of the chillers. Therefore, the power plant operators turned to the energy experts from Optima with the job to retrofit the supply lines to the chillers with flowmeters.

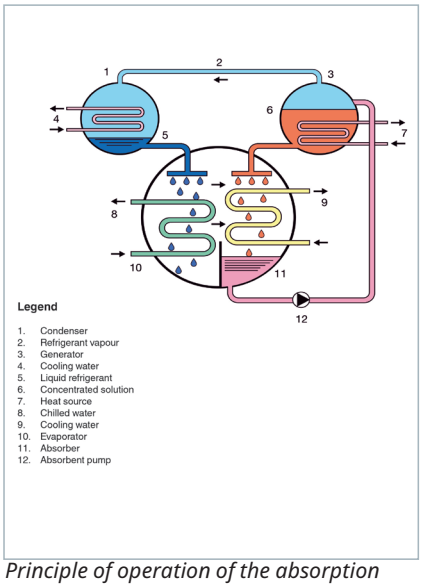
Solution

Optima has had very good experience with the non-intrusive flow measurement technology from Flexim for a long time. The engineering company has several portable ultrasonic systems for non-intrusive flow and heat flow measurement. Optima identified the stationary FLUXUS® F721 as the ideal solution for the measurement task.

Like all FLUXUS® flowmeters from Flexim, the FLUXUS® F721 also works with non-intrusive clamp-on ultrasonic technology. Because the ultrasonic transducers are simply mounted on the outside of the pipe, setting up a measuring point does not affect normal plant operation in the slightest. To install the transducers, the insulation only has to be briefly removed from hot water pipes.

In this way, Optima fitted flowmeters in a total of four lines – 3 x 8“ and 1 x 8“ – in the feed to the chillers and in the flow of the heating line. These measurements not only allowed the hydraulic balance of the system, but also an efficient and needs-based control of the entire hot water generation of the power plant. For this purpose, the flow measurements were switched to the higher-level control technology.

Due to the positive experience with the non-intrusive ultrasonic flow measurement technology from Flexim, two 14“ cooling water lines are now also to be retrofitted with FLUXUS®.



Principle of operation of the absorption chiller© Carrier

Measuring point with the clamp-on ultrasonic transducers mounted in the Variofix L transducer attachment device on the DN200 hot water pipe.

An excellent team: Heiko Hupfeld, managing director of Optima and Ralf Nolte, field sales engineer for Flexim, at a FLUXUS® F721 measuring transmitter. Flow measuring point in the background.

Measuring Points and Instrumentation

Pipelines	8“,6“steel
Medium	hot water, ~ 175 – 195 °F
Measuring Devices	4 stationary clamp-on ultrasonic flowmeters for liquids FLUXUS® F721
	4 pairs of CDQ2N52 clamp-on ultrasonic transducers, each mounted in Variofix L transducer attachment devices

Advantages

- Simple retrofitting without disrupting the cooling supply
- Flow measurements create the basis for hydraulic balancing
- Improved process transparency allows optimised operational management

Customer

Optima Energietechnik und Anlagenbau GmbH, Spangenberg, Germany www.optima-energietechnik.de

„Advise, plan, optimise” – the motto of Optima Energietechnik und Anlagenbau GmbH also describes its three main business areas. The company, founded in Kassel in 1981, is represented by the two managing directors Heiko Hupfeld and Marcus Arlt, who, with their many years of experience in the areas of plant planning and project management, are available to their customers as competent contacts for all questions relating to the topic of energy. In addition to the planning of new systems, the focus is primarily on the optimisation of energy production systems and heating networks in existing and, therefore, grown structures of industrial or commercial companies. In 2019, the company moved to Spangenberg in North Hesse.

For more information, visit
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