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state of the pipe

CASE STUDY: PREFABRICATION ENSURES TIGHT SCHEDULE IS MET

Photo: University Hospital Cologne

PROJECT:
Center for Integrated Oncology
(CIO)

LOCATION:
Cologne, Germany

COMPLETION:
2019

APPLICATION:
Refrigeration

PRODUCTS:
aquatherm blue pipe
Prefabrication

THE CHALLENGE

The construction of the Center for Integrated Oncology required a tight schedule, including the installation of the refrigeration system.

THE SOLUTION

aquatherm prefabrication delivered ready-to-install connection distributors to the construction site and thus ensured smooth installation and operation.

READY-TO-INSTALL CONNECTION MANIFOLDS FROM AQUATHERM EXCEL IN NEW CENTER FOR INTEGRATED ONCOLOGY

Germany's largest hospital for cancer patients was built on the campus of the University of Cologne – the Center for Integrated Oncology (CIO). Every year, renowned experts treat around 24,000 patients who come to the University of Cologne with cancer. All the clinics and institutes that used to live in different locations on the campus now work together centrally in one building, forming a strong alliance against cancer.

The CIO, with its seven upper floors and two lower floors, provides sufficient space for the diagnosis, treatment and research of tumour diseases on a total area of more than 13,500 square metres. The building is grouped around two atriums, one of which is covered as an entrance atrium. This allows a maximum of naturally exposed and ventilated surfaces. Tunnels and bridges connect the CIO directly to the central hospital. A special feature is the cladding of the building: Red and green slats, which were mounted on the facade, give passersby the impression that the building changes its colour as they pass by.

The building technology had to meet many requirements.

“In order to be able to heat and cool the building in an economically and ecologically sustainable manner, we have used a heat pump with a four-compressor system, which generates almost 1 MW of heating power with relatively compact dimensions of 3,117 x 1,974 x 991 mm (W x H x D)”, explains Frank Euteneuer, Managing Director of Metternich Haustechnik GmbH.

The company, based in Windeck-Rosbach, was responsible for the planning and implementa-

tion of the heating and cooling system in the CIO.

The system is quadruple redundant and designed to meet the high security requirements of a hospital. The entire system consists of four independent systems: a well system with up to 800 kW, a district heating system with up to 700 kW, a district cooling system with approx. 300 kW, and the heat pump system with 924 kW and a recoler with around 450 kW. Thus, the continuous supply of heat and cold of the building complex is guaranteed at all times.

The other components installed are also real giants: The recoler, which carries up to 450 kW, weighs 6.3 tons and the heat exchangers have a

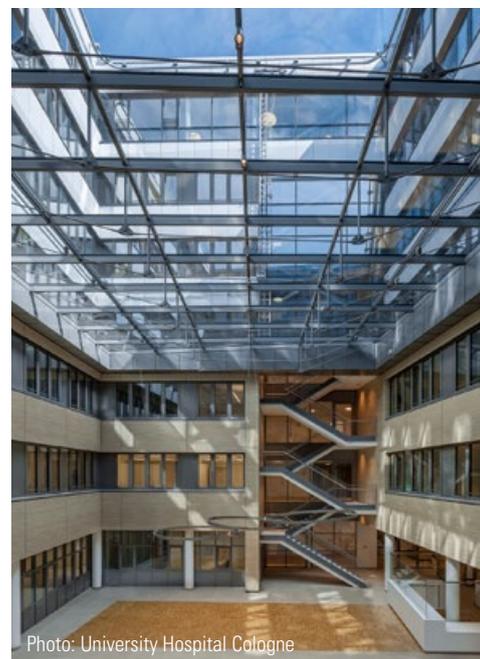


Photo: University Hospital Cologne

weight of up to 2 tons. All technology can be accommodated in a technical room measuring 20 x 3.50 x 7.70 metres.

EXTREMELY TIGHT TECHNICAL ROOM PRESENTED INSTALLERS WITH CHALLENGES

A challenge lay in the area of cold piping.

“We had to keep a tight timetable so as not to collide with upstream or downstream trades. This required a special solution,” says Euteneuer. “In addition, the engineering room was extremely narrow, so we would have problems installing conventional piping systems.”

That is why Metternich relied on aquatherm GmbH. The manufacturer of polypropylene piping systems provided the prefabrication solution for the time and space problems at the CIO construction site.

Not only was the entire cooling station equipped with the piping system aquatherm blue pipe made of the corrosion-resistant material polypropylene in dimensions between 32 and 200 mm, but in addition the connection manifolds were manufactured at the aquatherm headquarters in Attendorn in the southwest of Germany. In total, six single manifolds between three and six metres in length and up to 2.20 metres in height were produced here. These were supplied ready to install in eleven sections to the construction site, where they only had to be put together. The supply lines to the twelve heat exchangers were also prefabricated and delivered to fit.

SIMPLIFIED HANDLING THROUGH LOW WEIGHT

The planning team of aquatherm prefabrication supported the on-site work in order to rule out mistakes and to be able to deliver a fitting product, even in a very narrow technical room.

“Thanks to aquatherm prefabrication, we have kept to the tight timetable,” said the managing director of Metternich Haustechnik GmbH. “We would not have



been able to afford the man-hours that would have been necessary to make the manifolds in parallel with other projects. Our workload was therefore significantly reduced by outsourcing to aquatherm.”

Metternich Haustechnik GmbH has been installing aquatherm products for many years.

“We particularly appreciate the low weight of the pipes compared to metal piping systems,” the managing director said. “This greatly simplifies handling on the construction site. The processing technology also convinces us every time.”

The pipe and fitting are briefly heated using the tools provided for this purpose and then simply joined together. The plastic melts into a homogeneous, cohesive unit and thus offers maximum safety. In addition, the fibre composite technology ensures high pressure and dimensional stability as well as minimum length expansion with temperature changes. Thus, nothing stands in the way of a decades-long operation in the CIO.



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