

Cool heads from the pitched roof

Dresden's Altmarkt Gallery has been a significant commercial and social centre for the city for almost ten years. It is named after the city's old market street and runs parallel to its length on the western side, behind the building complex at Altmarkt 13 – 25.



View of the drycoolers after installation of the sight screen

Line of Business:	Air conditioning
Application:	Air conditioning
Country / City:	Germany / Dresden
Fluid:	Water
Product:	Drycooler GFH

Back in 1993, the design for what became the Altmarkt Gallery was declared the winner of the competitive tender for the rebuilding of the old marketplace. After its completion in 2002 the shopping centre gained a further prize: the Saxony State Ministry for Environment and Agriculture awarded it first prize in the competition "Gardens in the City 2000 – 2004".

Since then the three-building complex has become an important commercial and social centre. In view of its commercial success the shopping centre was extended by a further 18,000m², completed in March 2011, so that it now has 48,000m² retail space available. In addition to enlarging the shopping centre, the alterations included the construction of a hotel over the mall plus additional office space.



In keeping with the expansion of the building complex it also became necessary to enlarge the existing cooling system. The planning office IPRO Dresden contacted GÜntner. Together we found a solution for the rather unusual positioning of the drycoolers that was made necessary by the design of the building. The contracted plant construction company, YIT Germany GmbH, Dresden branch, then implemented this plan.

Twenty drycoolers were required to provide the necessary 4740kW of drycooling power, and these were not set up on a horizontal surface but tilted 25° to the left to match the inclination of the roof. The GFH series drycoolers were positioned on broad-based substructures to ensure an adequate air supply. The entire roof surface was used for air intake and outlet. The drycoolers supply two cold water chillers that are installed in the basement.

The visual aspect of the installation was also a consideration in this case, because the hotel that was built when the shopping centre

was extended has a number of its rooms facing the drycoolers. A sight screen was therefore constructed to conceal the equipment without spoiling the view of the historic city.



The 20 drycoolers installed in the pitched roof; in the background you can see the towers of Dresden's Kreuzkirche and the town hall



View of the roof after installing the sight screen

Another important consideration for the additional plant was its energy efficiency: The decision to use EC fans for the drycoolers resulted in marked energy savings. The power consumption of each motor is 290W less than for comparable asynchronous motors. For the total number of 80 fans that amounts to a reduced power consumption of 23.2kW. Assuming the fans to be in operation for 4000 hours per year, that is a total annual saving of 92,800 kWh.



Key figures for refrigeration plant

Two CLIMAVENETA FOCS W 8404 refrigeration units are installed, each with a capacity of 1752kW, plus one CLIMAVENETA NECS C 0152/ B radial refrigeration plant with a capacity of 36kW as a partial load unit for the server rooms
Cold water temperature 12°C / 6°C
Cooling water temperature 44°C/ 49°C
Four refrigeration circuits on each machine
One continuously controlled CSH 9581-210 screw compressor per circuit
20 Güntner S-GFH 102B/2x2-LS drycoolers each with a capacity of 237kW