



ACR CHILLER RENT PROJECT FOR THE FACTORY OF AUDI AG

Water-cooled rental solution with concentrated cooling capacity

A sound-optimised rental refrigeration solution with an additional capacity of 3 MW was required on the Audi AG factory site to support the existing 35 MW cooling capacity in coping with peak loads. The acr concept was based on a water-cooled rental chiller in combination with externally installed cooling towers.

When Audi AG Ingolstadt awarded the contract for a rental refrigeration solution to acr chiller rent GmbH, an upper sound level limit was at the top of the list of

specifications for good reason: to keep noise emissions as low as possible during the planned rental period of 20 weeks in total, the outdoor cooling towers were not

allowed to exceed a sound power level of 85 dB(A) at any time. This was a particular challenge even for the experienced rental refrigeration provider acr, and it had to come up with a sophisticated concept. It was based on the combination of a water-cooled chiller with sound-optimised cooling towers, which not only made it possible to comply with the sound emission values, but also resulted in energy advantages and a lower technical outlay for connection and integration into the operator's ring cooling network.



Water-cooled chiller with 3 MW cooling capacity

Sound-optimised cooling towers provided re-cooling

As the core element in the technical implementation of the rental refrigeration solution, acr chiller rent GmbH chose an ACR-M-3000-1-W water-cooled centrifugal chiller with a cooling capacity of 3 MW. For soundproofing reasons, the chiller was installed inside the building of the energy centre and hydraulically integrated into the customer's cold water network via flexible hose lines with flange connections. Direct connection to the operator's electrical sub-distribution system was also possible at the chosen installation site. In contrast to air-cooled chillers with integrated recirculation cooling, the recirculation cooling of the water-cooled chiller in this 2-component solution was carried out by two ACR-KT-1650-1 cooling towers installed outside the building. Two acr cold and cooling water pump modules connected in par-

allel generated the required volume flows. The two cooling towers positioned on the factory premises have a housing with an integrated water collection tray made of stainless steel sheets. The silencer baffles work according to the absorption principle and

are made of perforated aluminium sheeting that is resistant to seawater. One cooling tower filled with water weighed in at 6,080 kg and generated a sound power of 81dB(A). The scope of delivery of the sophisticated rental refrigeration installation also included further accessories such as pipe distributors, joints, adapters and sealing sets.



ACR-PM-25-245 pump module



ACR-KT-1650 Cooling towers



Delivery and installation of the machine components was carried out entirely by acr. A mobile crane was used to bring in the centrifugal chiller and erect the cooling towers. Following completion of assembly of the liquid

chiller in the factory and its internal hosing and wiring, the fully installed rental refrigeration system was put through its paces in a test run. Under the real operating conditions of the structurally prescribed heat load,

logs of measurement data were created and the operating personnel on the Audi site were instructed in the ongoing operation of the system by our acr service technicians.

High efficiency also reduced operating costs

acr chiller rent Managing Director Benjamin Trost commented on the reliable rental refrigeration supply provided to Audi Ingolstadt throughout the 20-week rental period: "The combination of a water-cooled chiller with cooling towers was beneficial to the customer in several respects: the

system was much quieter than an air-cooled compression chiller and achieved higher performance in terms of energy consumption and thus lower operating costs." The straightforward integration of the system variant into the existing hydraulics and the customer's power grid also resulted in

savings. For acr, the project management and the preceding technical planning posed a significant challenge, not least because of the heavy transport weight of the complex refrigeration solution of more than 25 tonnes – which was repeated in reverse at the end of the rental period during dismantling, loading and removal of the system.

About the company: acr chiller rent GmbH

Ever since the company was founded in Munich in 2004, acr chiller rent has specialised in the rental of chillers and accessories. What was at first a regional business partner for industrial refrigeration soon became a leading provider of rental and leasing of refrigeration machines throughout Germany and in Austria and Switzerland. The air-conditioning expertise and experience of the company has grown with customer requirements. There is a suitable solution

for every requirement. The comprehensive expertise of our team of technicians, who undergo continuous training, is complemented by the modern acr rental machines with up to 3 MW of nominal cooling capacity per unit. Chillers are available in all categories and performance levels: with heat pumps, recirculation chillers, air-cooled and water-cooled chillers (liquid coolers), recirculating air coolers, heat exchangers, hydraulic modules, low tem-

perature units and special applications, together with an extensive range of accessories, temporary cooling capacity can be delivered wherever it is needed. From initial consultation to commissioning of the system, acr provides seamless support to customers throughout the entire rental period. The rental products of acr chiller rent GmbH include not only cooling and air-conditioning solutions, but also heat generation and temporary power supply equipment. Further information can be found at www.acr-rent.de