

CASE STUDY: LATEST BUILDING SERVICES ENGINEERING PROTECTS HISTORIC VEHICLES



PROJECT:
Depot3 Classic Car Centre

LOCATION:
Mühlheim-Kärlich, Germany

COMPLETION:
2017

APPLICATION:
Surface heating and cooling

PRODUCT:
aquatherm black system

THE CHALLENGE

The client was looking for an intelligent solution for uniform and energy-efficient room temperature control of a sales room, a workshop and a garage for classic cars.

THE SOLUTION

aquatherm black system provides an ideal working environment and an optimally usable workplace without a spatial barrier and prevents rust on valuable cars.

CLASSIC CAR CENTRE DEPOT3 RELIES ON ENERGY-SAVING AIR CONDITIONING

Oldtimers are by no means just a transportation, they are a lifelong dream of many people. However, the professional accommodation of such vehicles presents vintage dealers with major challenges: after all, the "oldies" need constant temperatures of about 15 degrees Celsius to prevent condensation in the cavities of the bodies – and thus damage to the vehicle – due to temperature fluctuations. Dipl. Ing. Ralph Grieser paid particular attention to this in the construction of his oldtimer centre Depot3 in Mühlheim-Kärlich and decided in favour of a very special product in the area of air conditioning.

The Depot3 complex, built in the style of the historic paddock on the Nürburgring, offers everything that makes the heart of true automobile enthusiasts beat faster on an area of 2,600 square metres. In the showroom between 15 and 20

automobile classics are continuously waiting for potential buyers. Besides the purchase and sale of vehicles, the team around founder and owner Ralph Grieser offers numerous services: From partial and full restorations including all necessary body work to the acceptance of the classic car in the independent TÜV station, all work is carried out by Depot3 employees. The vintage car experts attach particular importance to the preservation of the existing original parts. The result is an authentic and value-preserving restoration, which is completely documented by photos and videos.

ACCOMMODATION OF CLASSIC CARS REQUIRES HIGHEST COMPETENCE OF HUMANS AND TECHNOLOGY

"To store the classic cars in the best possible conditions, a reliable temperature control of the vehicle hall was of enormous importance to me," explains Ralph Grieser.



Looking for an intelligent solution for a constant and energy-efficient room temperature control, the owner of the classic car centre came across the aquatherm black system. Thanks to its low panel thickness, the system can be integrated into the floor, wall, or ceiling. Including collectors, mounting rails and connections, the installation height is only 24.5 millimetres.

“The fact that the grids can be heated or cooled, depending on the chosen water temperature, convinced me of the system,” says Grieser.

aquatherm black system can be operated with much lower flow temperatures than typical underfloor heating systems. Comparable to the sun, the radiant heater first heats the occupied space envelope in a two-dimensional manner, and only in the second step does it heat the room air. Radiation exchange with the heated surface (for example, the floor) also changes the temperature of the room-enclosing surface. The temperature of the room air remains relatively low, creating a natural, pleasant indoor climate, and energy losses are minimized by short-term opened hall doors in this particular application. The simple control technology and the automatic switchover from heating to cooling operation also qualified the grids as the ideal climate control system for the vehicle hall in Depot3.

ONE SYSTEM FOR MANY APPLICATIONS

For the paddock and workshop hall, the planner decided to insert aquatherm black system panels into the 20 cm high concrete layer of the base plate. The panels, with a length of up to five metres, were custom fabricated at the aquatherm headquarters. The connection of the surface heating and cooling system was realized by Tichelmann manifolds consisting of 40 mm aquatherm blue pipes. The product was designed for the transport of cooling and heating media in closed systems and is therefore well-suited for various industrial applications. In the classic car centre Depot3, aquatherm blue pipe was also installed for supplying the individual workplaces with compressed air. The material used in the blue connection system – as well as in the black grids – is fusiolen® PP-R. The physical properties of the plastic are tailored to the specific needs of the heating and cooling sector. The heat-fusion connection method offers maximum safety and durability. The material is also characterized by high temperature- and pressure-resistance.

HIGH DEGREE OF PREFABRICATION ENSURES SHORT INSTALLATION TIMES

The corrosion-resistant and diffusion-tight aquatherm blue pipe manifolds for Depot3 were created in aquatherm’s industrial prefabrication department. From the request to the site-specific delivery, aquatherm prefabrication offers support in the field of supply engineering at any



time. No manifold or special component leaves the factory without leakage testing and functional testing. The aquatherm black system panels could be connected very quickly on site and with lowest use of tools thanks to their high prefabrication degree.

“I was stunned that in a period of only two weeks, a total area of 1,800 square metres was equipped,” recalls Ralph Grieser.

The grid elements were connected to eight manifolds in the Tichelmann method. In the heart of Depot3, the workshop, aquatherm black system offers the additional advantage of industrial floor heating. Since the total output is achieved by two-thirds radiation and one-third convection, no drafts are created in the sensitive working area by the surface heating and cooling system and thus there is no increased dust load.

FUTURE-ORIENTED AIR CONDITIONING ALSO IN THE MODERN SHOWROOM

In the showroom of Depot3, aquatherm black system grids were additionally mounted on a steel frame suspended from the hall ceiling. The low weight of the panels of 4.1 kg per square metre (including water) was essential for this solution.

In contrast to aquatherm black system elements lying in the ground which were connected by socket welding, the grids in the ceiling area were connected with the help of a connecting corrugated pipe and a plug-in socket. The corrugated pipe allows a flexible but unobtrusive connection, while the quick connector with safety clip creates a completely solid yet detachable connection.

Thanks to aquatherm black system, Ralph Grieser and his classic car experts enjoy an ideal working

environment and an optimally usable workplace without a spatial barrier.

“No indoor fan limits the height of the lifts and no radiators interfere with manoeuvring the valuable vehicles. That excites my team and me every day,” says the Depot3 owner.

The surface heating and cooling system performs its work completely invisibly and will also prevent rust in the future from these valuable contemporary witnesses of automotive history.



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