

Case Study

weisstechnik designs and builds cleanroom environmental chambers for pharmaceutical production

WHY

Production of sensitive medicinal products in the cleanroom under specified climatic conditions

HOW

Turnkey solutions
Cleanrooms with different temperatures
Environmentally friendly, central cold water cooling system

WHAT

5 cleanroom heated chambers
1 cleanroom cold chamber
Cleanroom class 7 according to DIN EN ISO 14644-1

WHY – The Challenge.

A leading international pharmaceutical company ordered 6 cleanroom environmental chambers for the production of a drug that treats a very rare metabolic disease. The four cleanroom heated chambers for production and the cleanroom heated chamber for storing the inoculum must maintain a constant temperature of 37 °C. The cleanroom cold chamber must be air-conditioned to 4 °C and 40 % humidity. All cleanroom chambers are to be designed according to ISO class 7. The required production reliability calls for a particularly high degree of temperature accuracy and for the climate control components to be designed with redundant parts. To prevent the penetration of cold air from the outside, the heated chambers should be equipped with a temperature-controlled anteroom. Cooling should be provided by the existing central water cooling system.



HOW – The Idea.

Thanks to early participation in the project planning and the well-coordinated collaboration with the other project partners, it was possible to develop the best possible overall concept. The cleanrooms were integrated into environmental chambers in order to simultaneously realize the required air purity and the required climatic conditions.

The environmental chambers were fitted with false ceilings with filter fan units and integrated HEPA filters through which clean air is introduced into the chambers. The clean air is returned via cleanable wall returns and into compact cooling units, where it is reconditioned without ever leaving the cleanroom space. A chilled water cooling unit was connected to the on-site central chiller. The customized cooling unit ensures precise control and consistent temperatures.



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WHAT - The Solution.

The 4 cleanroom heated chambers for production are 54 sqm each, and the ante-rooms are 9 sqm each. The cleanroom heated chamber for the inoculum is 14 sqm and has an anteroom of 7 sqm. The cleanroom cold chamber measures 11 sqm. The walls of the cleanroom environmental chambers are made of easy-to-clean urethane foam insulating panels with 304 stainless steel surfaces both interior and exterior. Pharmaceuticals can be safely produced in the cleanroom heated chambers at a temperature of 37 °C. The cleanroom cold chamber is air-conditioned to a temperature of 4 °C and 40 % humidity.



Selected product: Life Science Walk-In Series with central water cooling system design basis

The cooling design was based upon the **weisstechnik** chilled water cooling unit (CWCU), which can regulate chamber temperatures between 4 and 60 °C. The cooling units are served by 11 °C water for the five cleanroom heated chambers and by -2 °C water for the cleanroom cold chamber. Redundant three-way valves and circulation pumps guarantee the extremely high operational reliability that is required.

Special design features

- **weisstechnik** turnkey services: Planning, installation, commissioning, service
- Vapor tight, corrosion-free climate chamber made of stainless steel with CFC-free insulation
- Cleanrooms with high or low room temperature
- Maximum spatial deviation of +/- 1 °C
- Environmentally friendly central water cooling for 6 cleanroom environmental chambers
- Redundant cooling system components for worry-free operation and ease of maintenance

