

# Case Study

weisstechnik implements hygienic and efficient air-conditioning for delivery rooms

#### WHY

Air-conditioning of a hospital delivery room. Creation of a hygienic room climate HOW

Hygienic air-cooling unit with proportional fresh air supply and thermal disinfection

## WHAT

weisstechnik hygienic air-cooling unit Vindur® Top D12

### WHY - The challenge.

A renowned private hospital in the centre of Geneva, Switzerland. One of the main focuses of the clinic is placed on birth assistance with over 900 childbirths per year. When equipping a delivery room, they set particular importance to hygienically safe air-conditioning.

An optimum air hygiene lowers the risk of a spread of diseases by airborne particles, germs and viruses. This is important not only in hospitals, but in any places where many people come together, such as in event rooms and public buildings.

The particle load in the room air should be minimized by the air-conditioning system. In addition, the circulating air-conditioning was to be supplemented by a fresh air portion.

### HOW - The concept.

To create a hygienic room climate, a circulating air-cooling system with twostep filtering has been selected that meets the strict German hygiene standards for rooms occupied by persons (DIN 1946-4 and VDI 6022). This means that any germs, bacteria and viruses that may be present are filtered out before the air is blown into the room.

The additional thermal disinfection ensures even more hygiene. When the air in the circulating air-cooling units is cooled down, the occurring condensate becomes a breeding ground for bacteria and mould. These mainly develop during shutdown times of the unit and can be distributed throughout the room when the unit is started again. Thermal disinfection regularly heats up all relevant building components of the cooling system for a short time and dries them out completely. This ensures that all microorganisms are safely killed off and do not get into the room air.





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#### WHAT - The solution.

The selected hygiene air-cooling unit Vindur® Top D12 has been integrated in the false ceiling of the hospital delivery room. From there, 1,200 m<sup>3</sup>/h supply air is conducted into the room via a particularly effective final H-14 filter.

The 1,200 m<sup>3</sup>/h supply air is composed of 950 m<sup>3</sup>/h circulating air and 250 m<sup>3</sup>/h fresh air. Circulating air and fresh air are mixed and conditioned in the room and blown out again.

The additional thermal disinfection is activated during the shutdown periods of the cooling system, if the electronics detect the accumulation of condensate. It dries out the unit and with this reliably avoids the growth of microorganisms.



#### Selected product: Vindur® Top D12

All relevant building components of the selected unit are highly accessible, easy to clean and exchangeable.

The applied, high-performance EC fan with direct drive guarantees high energy efficiency, allowing high pressures.

#### Implemented modifications:

- Two-step filtering with highly effective H-14 filter, that meets the increased clinical requirements (instead of the standard ePM1 ≥ 50 % (previously F7) on the suction side and ePM1 ≥ 80 % (previously F9) on the pressure side)
- Addition of 250 m<sup>3</sup>/h fresh air portion into the supply air instead of pure circulating air operation