Air Handling Solutions for Healthcare

Maximum hygiene – tailor-made ventilation systems

Your strong partner for the air that matters

Hospitals are part of critical infrastructure and must remain operational even under exceptional risk scenarios. Consequently, when planning air handling systems, the primary focus is on safeguarding the health of patients, clinical staff, and equipment. This means providing the vital resource of air in a manner that is maximally hygienic, comfortable, fail-safe, and energy-efficient, in compliance with both international and local standards and regulations. Furthermore, neither installation nor maintenance work on the air handling technology may disrupt or restrict hospital operations.

Hospitals are divided into three hygiene safety levels, each with distinct air-handling requirements. Public areas include reception, waiting areas, administration, offices, pharmacy, retail spaces, kitchen, and cafeteria. Sensitive areas comprise patient rooms, treatment rooms, maternity wards, emergency departments, general wards, examination and recovery rooms, MRI and CT rooms, corridors, and storage rooms. Critical areas include operating theatres, nursing rooms, intensive care units, isolation wards, laboratories, and central sterilisation facilities.

The more sensitive the room usage, the higher the demands on air quality to ensure optimal conditions for patient treatment and recovery while simultaneously protecting staff health.
In addition to varying technical requirements such as cleanability, disinfection, and humidity control, fire protection plays a crucial role in ventilation technology. Most areas are highly frequented only during daytime, making demand-controlled ventilation essential.

Beyond resilience and safety, investors increasingly focus on sustainability: highly efficient air handling systems with low CO_2 emissions are in demand, reducing environmental impact and significantly lowering hospital energy costs.

Public areas – spaces with high footfall

Patients, staff, and visitors must be effectively protected against infection – for example, from aerosol-transmitted pathogenic germs and viruses. WOLF's hygiene ventilation technology operates quietly and unobtrusively. Thanks to the use of innovative fan technology and low airflow speeds, draught effects are a thing of the past.

It intelligently and sensor-controlled adapts in real time to changing conditions – whether it's room occupancy, temperature, humidity, or dust and aerosol levels in the air – and always reliably energy-efficient, centrally managed via the building control system. WOLF ventilation technology stands for hygienically clean and conditioned air where it is needed – and always only as much as is required at any given time. Even in complex room layouts, the indoor climate remains consistently pleasant. Thanks to efficient filter technology, this is also possible in disadvantaged areas exposed to high environmental emissions. The precisely sensor-controlled WOLF air handling units not only use the most efficient and whisper-quiet fan technologies, but also recover heat from the exhaust air to temper the fresh supply air. This is achieved through powerful run-around coil systems that can recover around 80% of the heat. This saves heating and cooling costs.

Sensitive areas – safe spaces for patients and staff

In patient and treatment rooms, maternity wards, emergency departments, examination and recovery rooms, as well as MRI and CT suites, the key factors are controlling temperature and humidity of the supplied fresh air and reducing potentially pathogenic aerosols to minimise infection risk. Sterility is achieved either through HEPA filters in the final filtration stage or via UV light sterilisation.

This is particularly critical in frequently crowded emergency departments, where numerous and diverse pathogens may converge. In internal rooms, high thermal loads from medical equipment must also be dissipated – challenges WOLF hygiene air handling units meet with tailored filtration and hygienic ventilation solutions: draught-free, sensor-controlled, demand-driven, and highly efficient.

Naturally, WOLF hygiene air handling units comply with internationally recognised standards and local legal requirements. This provides planners and operators with security during design, approval, and ongoing operation, while ensuring a high level of comfort and safety for patients, staff, and visitors.

In storage areas for disinfectants, pharmaceuticals, and hospital bed equipment, WOLF systems maintain appropriate temperature and humidity for each product category and reliably remove thermal and moisture loads.

	Mechanical Ventilation	Temperature Control	HEPA Air Filtration	Humidity Control	Room Pressure Control
Public Areas	●	●			
Sensitive Areas	●	●	●	●	
Critical Areas	●	●	●	●	●

Critical areas – WOLF standards for hygiene and quality

n modern healthcare facilities, air quality plays a crucial role in ensuring the safety of patients and staff. Particularly in sensitive areas such as operating rooms and intensive care units, a reliable air management system is essential to prevent infections and maintain the highest hygiene standards

Critical areas such as operating suites, patient care rooms, intensive care units, isolation wards, laboratories, and central sterilization units are supplied by TÜV-certified WOLF hygiene ventilation units. These units provide air that is filtered through long-lasting PM1 HEPA fiberglass filters and conditioned for temperature and humidity, or utilize UV disinfection. The entire intelligent air management system operates at the highest level, separating individual areas and/or their surroundings by means of negative or positive pressure. This prevents cross-contamination and infections caused by hospital germs in highly contagious patients and protects individuals with weakened immune systems. At the same time, the preventive use of antibiotics before and after surgery can be reduced.

Excellent working conditions in the operating theatre

To prevent postoperative infections, air handling units for operating theatres are designed in accordance with DIN 1946-4 for room classes 1a or 1b. They operate with at least two filtration stages to remove over 99% of nanoparticles as small as 0.03 µm from the air and maintain positive pressure to prevent the ingress of pathogenic particles from adjacent rooms.

Relative humidity can be adjusted as required to a maximum of 50%, and temperature can be set between 18 and 27 °C (for paediatric surgery). Using low-turbulence displacement flow, an outdoor air supply of 800–1,200 m^3/h ensures excellent working conditions in the operating theatre, as the ceiling ventilation system effectively removes anaesthetic gases, dust, and odorous substances.

Central sterilisation areas are also air-conditioned under positive pressure, with particular attention paid to thermal loads, humidity, contamination risks from surgical instruments, and room occupancy. Similarly, patient rooms for highly infectious individuals are designed to separate aseptic and septic zones, if necessary, via airlocks.

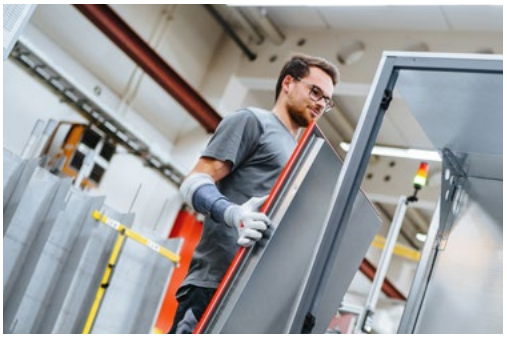
In laboratory environments where pathogenic materials and hazardous substances are handled, sufficient fresh conditioned air must be supplied, contaminated air extracted, and thermal loads reliably removed.

Designed for people

A hospital equipped with WOLF ventilation technology combines uncompromising safety with sustainable energy performance, ensuring readiness for the future. These systems integrate emergency supply concepts through redundancy and set the highest standards for energy efficiency thanks to advanced fan technology and heat recovery. WOLF air handling technology is trusted in Green Buildings for a reason: high air exchange rates and controlled airflow guarantee that only clean, carefully conditioned air reaches critical areas while preventing pathogens from entering the environment.

Hygiene air handling units and their control systems are factory-prepared for quick connection, enabling just-in-time installation in technical rooms or rapid rooftop placement via crane or helicopter. Mounted on a base frame, they are ready to connect to pre-installed ductwork and building management systems, minimizing installation complexity. Operational interruptions are limited to only a few hours on the day of delivery, ensuring continuity of care. From planning to commissioning, WOLF provides a single point of contact for the entire process. Maintenance and servicing are straightforward and fast thanks to a hygienically functional design that complies with VDI 6022 and DIN 1946-4, as well as British HTM 03-01 Part A and other applicable European standards.

WOLF is one of the leading international suppliers of innovative solutions for indoor climate control. Here's what matters most to our customers:

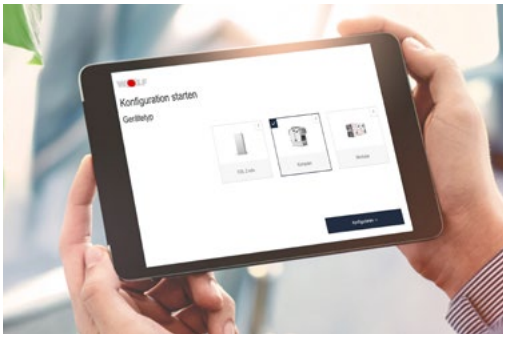


German Know-how

We develop our products at our headquarters in Mainburg, Bavaria - and manufacture them with the highest precision and vertical integration. WOLF Campus training programme offers you in-depth expert knowledge on professional installation, maintenance, etc. with seminars and in-house training courses.

Partnership at eye level

A nationwide and international network of personal contacts at our locations ensures fast and un-complicated support. The WOLF Service Team provides you with expert advice and support during commissioning and maintenance.
A network of wholesale partners facilitates the procurement of spare parts.



Simply powerful solutions

WOLF ventilation systems combine efficiency, durability and ease of operation.
The wide-ranging air handling product portfolio is complemented by digital services that save time, money and CO_2.

For an intact environment and diversity

We consciously prioritise durability and sustainability in our design and choice of materials. At WOLF, different generations and nations work hand in hand and benefit from each other.

WOLF Air handling

A suitable solution for every demand

- Hotel and accommodation
- Professional Kitchen
- Production and industrial buildings
- Offices
- Agriculture
- Experience, culture and sports buildings
- Pools and spa
- Logistics and warehouses
- Retail stores
- Transportation and traffic
- Educational institutions
- Data centers

Get in touch for more details

Please find your local contact on:
www.wolf.eu/wolf-worldwide

Contact us!

Hubert Berndt
Expert in Healthcare

WOLF