

CLEAN AIR IN LABORATORIES - EFFICIENT AND SUSTAINABLE

Efficient ventilation and air conditioning systems are indispensable in laboratories. With our smart solutions, you receive comprehensive overall packages that are not only individually adapted to your requirements, but are also cost-efficient thanks to the perfectly coordinated components and sub-systems from a single source.

The components fit together seamlessly and guarantee optimum function. Our air management systems are modular and therefore flexibly expandable. Subsequent adjustments and optimisations due to changed framework conditions can also be easily realised at any time. With our extensive portfolio, we create a system tailored to your requirements and premises and provide you with comprehensive advice from planning to implementation and maintenance. In this way, TROX creates unique air distribution solutions for every requirement and every safety level.

THINKING ABOUT TOMORROW TODAY - WITH OUR SUSTAINABLE SOLUTIONS

TROX thinks forward and is therefore already thinking about tomorrow today. Energy is used effectively with our systems so that costs remain low and the effort involved in air treatment and transport is made as efficient as possible. Intelligent volume flow control detects changing conditions in real time so that the systems always provide optimum ventilation according to demand. Air volume flow rates and fan speeds are adapted to the respective demand, resulting in an optimisation of the entire ventilation system.

If no work is being done in the laboratory at the moment and there is also no need on the product side, it is energetically efficient to automatically reduce the air change rate. In this way, it can be ensured that no costs are incurred for unnecessary air change rates. Our smart system solutions are also capable of individually closing off air terminal devices across temporarily unused activity areas. This means that the supply air flow rate can be reduced to a feasible level without a negative effect on comfort and performance of the air terminal devices.

[Get individual advice now](#)

ENVIRONMENTALLY CONSCIOUS LABORATORY PLANNING - TROX BECOMES CLIMATE NEUTRAL!

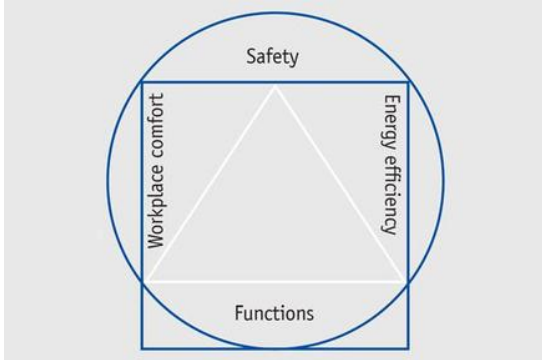


The environment also benefits from our sustainability approach. With our closed-loop air management systems, we minimise energy use and reduce the energy requirements of laboratory operation to a necessary minimum.

The concept of sustainability is lived by TROX - for the environment, for the customers, for innovation. TROX, for one, has committed itself to becoming carbon neutral by 2040 at the latest: carbon neutral production, installation, distribution and action.

Sustainability goes beyond carbon neutral production, though. It means making products that can be repaired when broken, continuously developing systems, reusing raw materials and organising logistics as energy-efficiently as possible, and experiencing a leadership culture committed to sustainability. At the same time, TROX wants to meet the quality demands of the customers and the company at all times.

[Find out more about TROX here](#)



IMPLEMENTING ENERGY EFFICIENCY IN THE LABORATORY

Ventilation and air conditioning are energy-efficient only if they meet the following requirements:

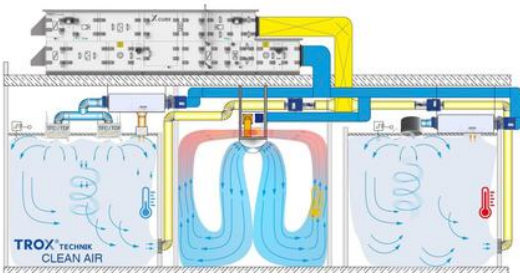
- Automatic hydraulic balancing of volume flow rates
- Supply air and extract air balancing
- Minimising damper blade pressure losses
- Demand-based volume flow rate adjustment to room usage
- Adaptation of fan speeds to the air requirement
- Communication between all system components
- Smooth integration with various central building management systems
- Demand-based optimisation saves energy.

CONTROLLING TEMPERATURES EFFICIENTLY IN LABORATORIES

The ventilation requirements in nine out of ten laboratories today are no longer determined only by constantly changing volume flow rates, but also by waste heat, which is predominantly generated by technical devices. These loads must be removed in the most energy-saving way possible, while ensuring a pleasant indoor climate - both for the process and for the people working. This requires large amounts of fresh air in conventional centralized systems. This is a comparatively expensive and only conditionally efficient way of controlling the temperature, because with an all-air system, large air volume flows are required for space cooling, which are associated with correspondingly high energy costs for air treatment and distribution.

TROX has made this process more energy-saving - with air-water systems. Water has a much higher thermal conductivity than air and can therefore transport heat loads more efficiently, resulting in lower power consumption for the same cooling capacity. The water is repeatedly treated and used several times so that every resource is ideally used with this method as well.

A COMPREHENSIVE SOLUTION FOR ALL LABORATORY REQUIREMENTS - THE TROX UBOX



Taking into account the diverse, varying requirements in laboratories, a concept was developed that integrates all important functions in one complete system: the TROX UBox. It can respond to different conditions with real demand-based ventilation and air conditioning, dissipate thermal loads in an energy-efficient manner and take into

account different pressure situations. The UBox can be easily integrated into existing systems. Compared to conventional solutions, energy savings of up to 50% can be achieved.

The UBox was installed in a Swiss laboratory for the first time. Depending on how much fresh air is required for a zone, it takes in more or less room air, which is then mixed with the fresh air and supplied to the room again. Heat loads are energy-efficiently dissipated with water thanks to the integral heat exchanger. The EASYLAB smart control system was installed for demand-based balancing of supply and extract air volume flows. EASYLAB also controls pressure conditions if several rooms have to be kept separate with different room pressures.

CONSULTING AND PROJECT DEVELOPMENT



I AM HAPPY TO ASSIST YOU

We will be happy to help you with the individual planning and implementation of air distribution strategies for your laboratories. Arrange your non-binding consultation now!

Patric Unterdorfer

Global Key Client Manager Pharma & Food

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