



Krantz

A perfect interplay of diverse
expertise:
Engineering services at a glance

Air is our passion

Krantz

Krantz

From tradition, committed to the future

Clean air is a basic foundation for quality of life and health. It is therefore essential to handle well the air that we breathe on a daily basis. We take this task very seriously.

With our state-of-the-art technology, we meet the highest demands for air distribution systems and the strictest requirements for air quality control.

Krantz offers a wide range of the most diverse services related to the topic of air under one roof:

- Clean air solutions
- Filter systems and dampers
- Research and development center
- Cooling and heating systems
- Air distribution systems
- Special technologies (nuclear and conventional sectors)



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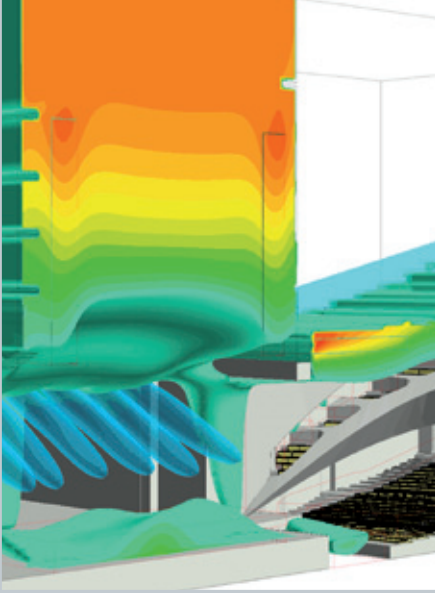
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We are setting the course for the future

In our R&D Center in Aachen, research and development is carried out on all things air-related in our 1,000 m² laboratory test center equipped with state-of-the-art technology. It's there that we work closely with our customers to develop reliable and practical solutions.

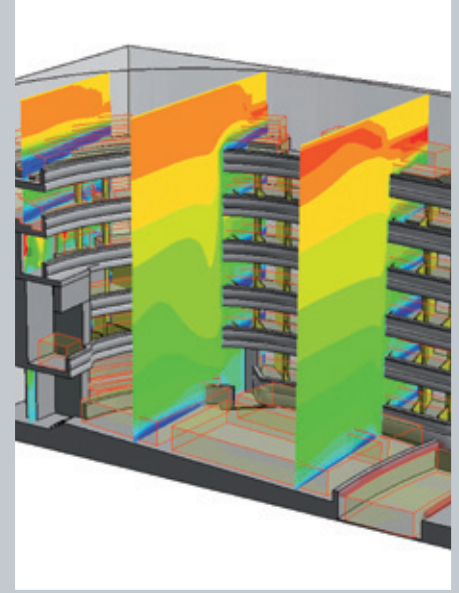




Parco della Musica di Firenze
Auditorium Parco della Musica di Firenze



Carmen Würth Forum
Convention and Cultural Centre



Bolshoi Theatre

Reliability for planning

Simulations

With state-of-the-art computer programs, both thermal and flow simulations and energy consumption calculations can be carried out in order to compare different system setups.

Through our fluidic laboratory, we have gained the experience necessary to set the parameters of such programs to achieve realistic results.

Performance measurements

As early as the planning phase, for example, when using similar components in large numbers (e.g., recirculation air cooling units in hotel rooms, offices, etc.), testing may be useful to avoid later complaints. But even during the modeling, commissioning, or later operating phase, performance measurements for components are available, be it to provide proof of reference values or to determine the cause of any problems within the system.

- Air flow rates
- Calorimetric measurements (heating/cooling capacity)
- Thermography (e.g., on chilled ceilings, chilled sails, etc.)
- Electrical power input and energy consumption
- Acoustic measurements

Tools	Calculation / Measurement	Optimisation
Thermal building simulation	<ul style="list-style-type: none"> • Cooling load • Heating load • Basis for HVAC dimensioning 	<ul style="list-style-type: none"> • Sun protection/shading • Thermal mass within building
Flow simulation CFD	<ul style="list-style-type: none"> • Air distribution efficiency • Thermal comfort • Extract air efficiency 	<ul style="list-style-type: none"> • Air distribution system • Facade influence • Position of extract air
HVAC system simulation	<ul style="list-style-type: none"> • HVAC capacity design • Energy consumption • Acoustic calculations 	<ul style="list-style-type: none"> • HVAC systems comparison • Control strategy • Space for HVAC plant, ducts and pipes
Performance measurement station	<ul style="list-style-type: none"> • Determination or testing of product data 	<ul style="list-style-type: none"> • System function • Product customization
Reverberation room	<ul style="list-style-type: none"> • Sound measurements on active and passive components 	<ul style="list-style-type: none"> • Sound attenuation and insulation • Sound level optimisation

We set standards

For special requirements, we create individual test setups to develop tailor-made solutions for our customers. We are specialists in the measuring, analysing and evaluating of the physical factors that influence the climate within your building.





Lab testing of displacement ventilation in a parliament building (State Parliament NRW Düsseldorf)



On-site testing in a call center (Deutsche Telekom)



On-site testing in the auto industry (BMW)

Experiencing the perfect room climate

Thermal comfort

Most people spend 80-90% of their time inside buildings. A healthy climate is therefore a prerequisite for their jobs both in offices and in the industrial sector. A variety of factors play a role in thermal comfort.

Air distribution efficiency

In addition to thermal and air-flow-based factors, the quality of indoor air also has a significant influence on the well-being of the people breathing it. A high level of efficiency is achieved by a targeted approach of getting supply air to people, which also has an advantageous effect on energy consumption.

Acoustics

The human ear is a highly sensitive organ that can detect pressure fluctuations down to 20 μPa . However, in addition to the total sound pressure level, the noise spectrum also has an influence on hearing comfort. Thus, it may be that despite compliance with a predetermined limit in the sound pressure level, due to the tone quality in a certain frequency range, the noise is still perceived as annoying.

Within the framework of laboratory investigations on these topics, we build realistic office situations in which we not only carry out measurements but also experience the indoor climate directly on our own bodies.

On-site testing

If problems arise in existing buildings, we can carry out on-site measurements and develop proposals for solutions.

Measurements of factors influencing thermal comfort

- Room air velocity and temperature
- Air flow turbulence
- Radiation symmetry, e.g., for large-scale glass façade
- Vertical temperature gradient – especially with displacement ventilation
- Draught risk assessment, in accordance with DIN EN ISO 7730

Measurements of ventilation efficiency

- Tracergas measurements
- Measurements of air distribution efficiency and recovery time

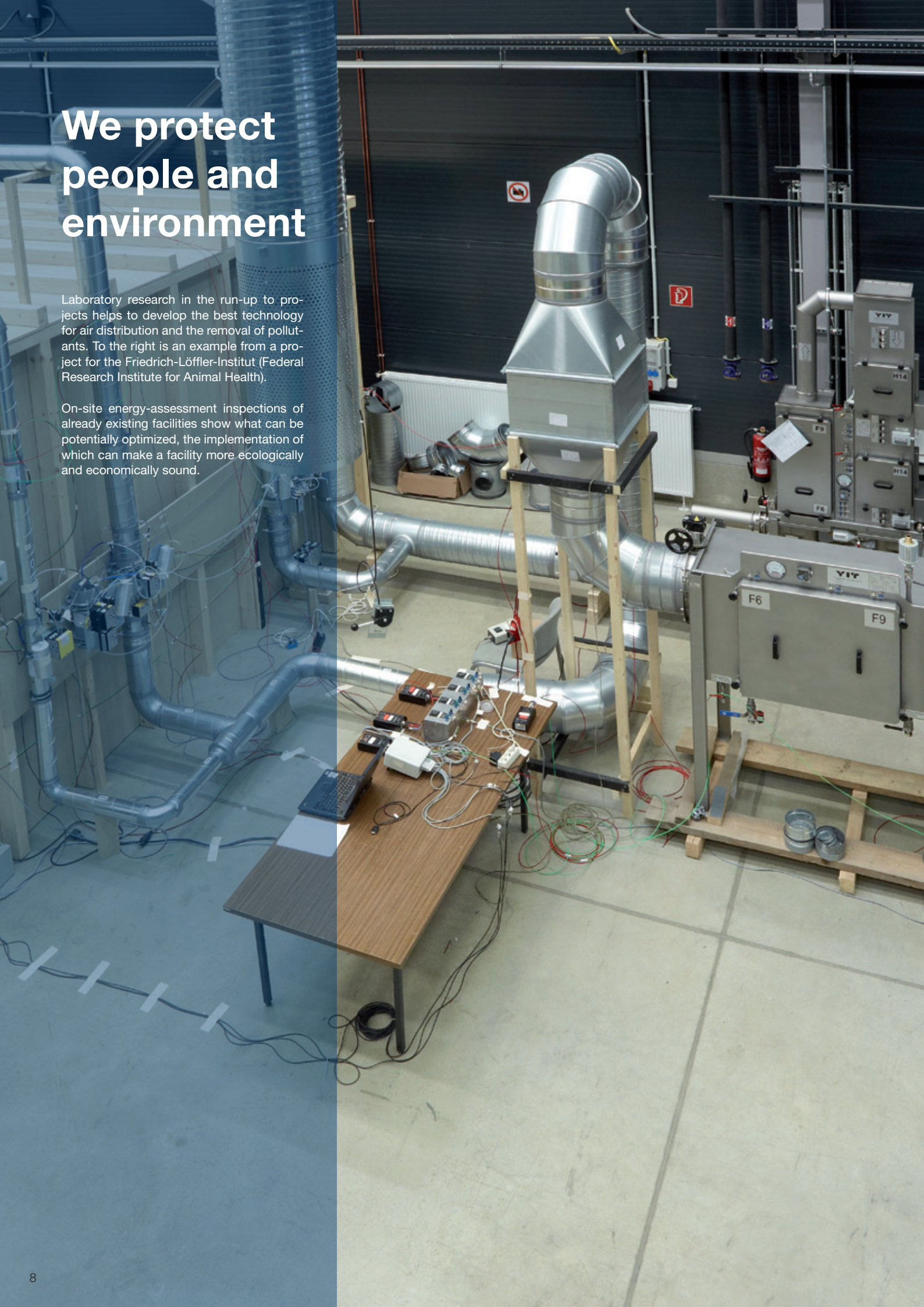
Acoustics measurements according to standards DIN EN ISO 3741, 5135 and 354

- Determination of the sound power level of components in the reverberation room
- Sound pressure level measurements and frequency analysis of rooms
- Noise emissions outside of buildings
- Sound absorption measurements of HVAC components – e.g., cooling elements, crosstalk attenuation air transfer elements

We protect people and environment

Laboratory research in the run-up to projects helps to develop the best technology for air distribution and the removal of pollutants. To the right is an example from a project for the Friedrich-Löffler-Institut (Federal Research Institute for Animal Health).

On-site energy-assessment inspections of already existing facilities show what can be potentially optimized, the implementation of which can make a facility more ecologically and economically sound.





Lab testing, BSL-4 laboratory
(Friedrich-Löffler-Institut, Riems)



Post-combustion plant with heat recovery
for emissions reduction



Functional testing at a thermal incineration plant

Avoiding dangers for people and the environment Recognizing energy savings potential

Energy-assessment inspections

Ventilation and air conditioning systems in commercial and industrial applications and clean air systems in every area of industry often have an operating time of 15 to 20 years. Over the years, the development of energy-saving technologies has made enormous progress. Moreover, the mode of operation often follows preset and fixed general requirements. Thus, there is a lot of potential for the optimising of the quality and energy effectiveness of air distribution and environmental engineering systems. With measurements and on-site inspections, we help you identify your optimisation potential and to implement it effectively.

What our services entail

- Monitoring – measurement-based recording of how HVAC systems operate
- Measurement-based inspection of the optimisation measures put in place for HVAC systems
- Energy-efficiency testing of industrial processes in connection with thermal exhaust air purification
- Energy-efficiency testing of supply and exhaust air systems in all areas of industry and laboratory technology
- Energy-efficiency testing of supply and exhaust air systems in the nuclear sector
- Measurement of VOC emissions in the exhaust air of industrial processes as a basis for the conceptual design of a suitable clean air system

Servicing

- Maintenance of thermal incineration facilities
- Maintenance of equipment in all areas of conventional and nuclear industry
- Energy-assessment and technical facilities monitoring
- System check for inventory and planning

We master challenges

Enjoying a concert with the highest level of thermal comfort. Customized air outlets from Krantz provide "Elphi" visitors with fresh air.





Connols Air, Singapur



Heathrow Airport, London

Success through people and technology

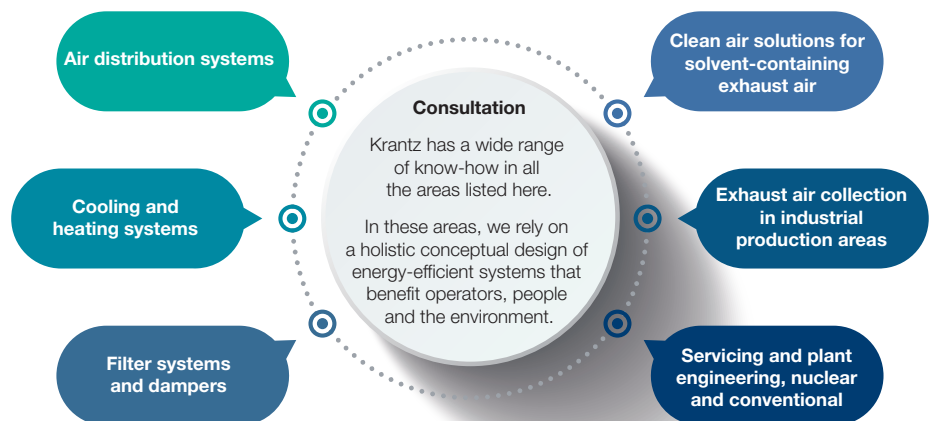
References

Laboratory testing and simulation

- Automotive industry
- Banks
- Office buildings
- Call centres
- Printing houses
- Shopping centres
- Airports
- Aircraft painting hangars
- Research laboratories
- Hotels
- Cinemas
- Hospitals
- Cold storage
- Trade shows
- Museums
- Production plants
- Indoor shooting ranges
- Restaurants
- Swim halls
- Sports halls
- Studios
- Theatres
- Meeting rooms
- Insurance

Our services at a glance

Topic	Planning phase	Execution phase	Operation phase	In the lab Aachen	On site
Thermal comfort	■	■	■	■	■
Air distribution effectiveness		■	■	■	■
Acoustics	■	■	■	■	■
Power measurements	■	■	■	■	■
Simulations	■			■	
Energy-assessment			■		■
Inspection and monitoring					
Emissions measuring/monitoring	■		■		■
Consultation	■	■	■	■	■
Servicing			■		■





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The logo for Krantz, featuring the word "Krantz" in a fluid, blue, cursive script font. The letters are connected and have a slight shadow, giving it a three-dimensional appearance.