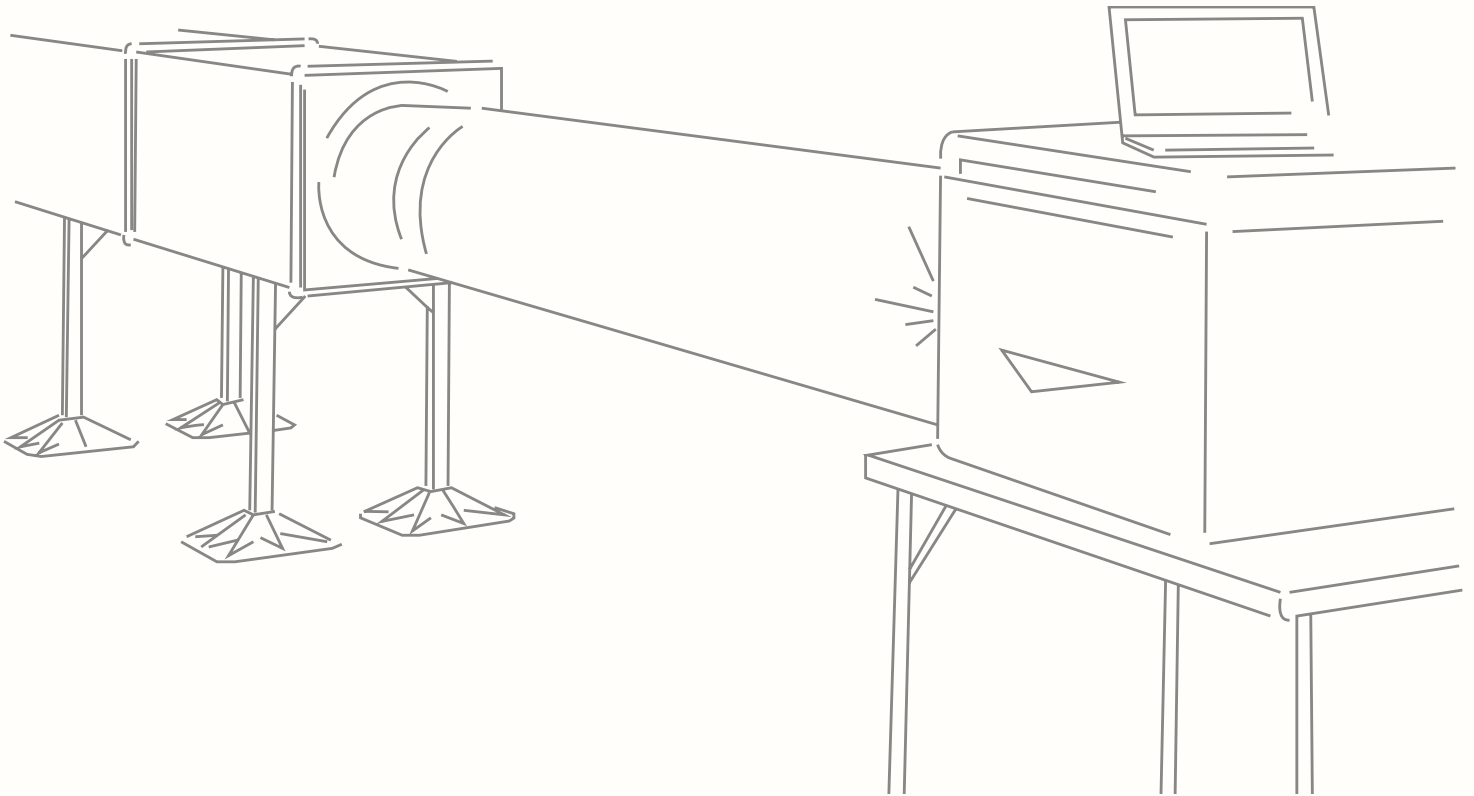


The new Standard for Airtightness

# gesaAEROSEAL®

The New Standard for Airtightness



## What is gesaAEROSEAL®?

gesaAEROSEAL® is a patented breakthrough technology that tackles duct leaks from the inside out.

gesaAEROSEAL® can be applied to existing or recently constructed duct systems.

gesaAEROSEAL® duct sealing is used in commercial buildings around the world to increase energy efficiency and to set new standard regarding comfort and indoor air quality.

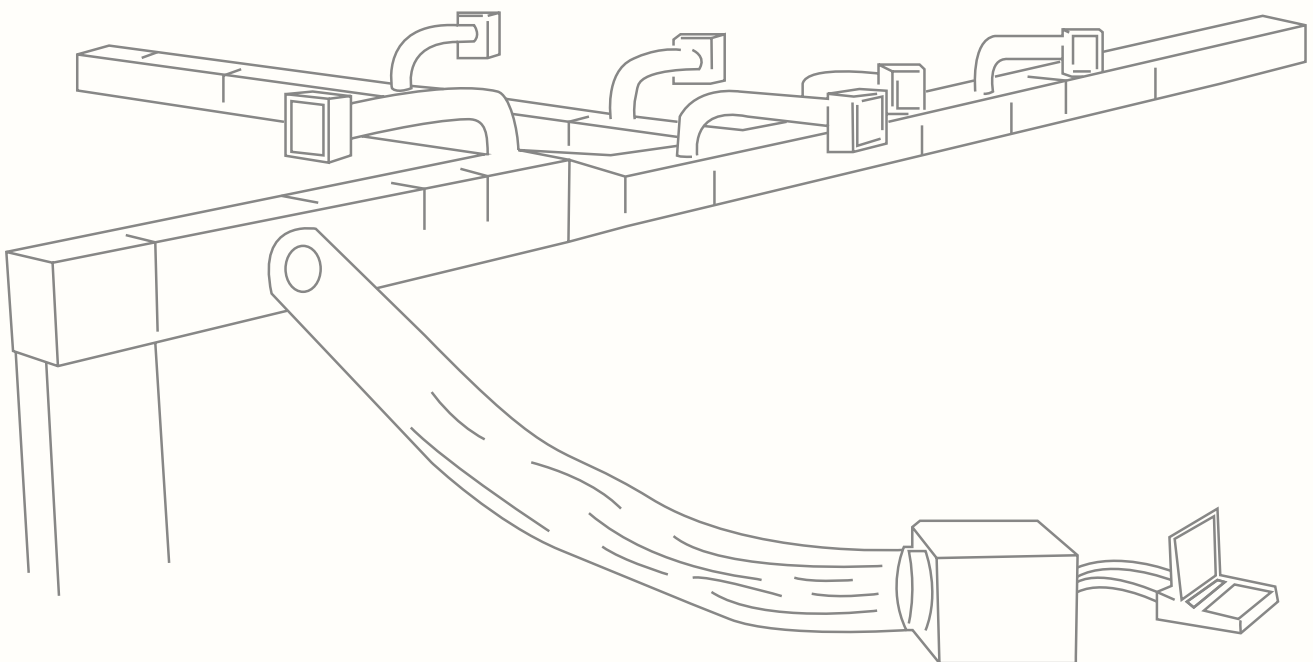
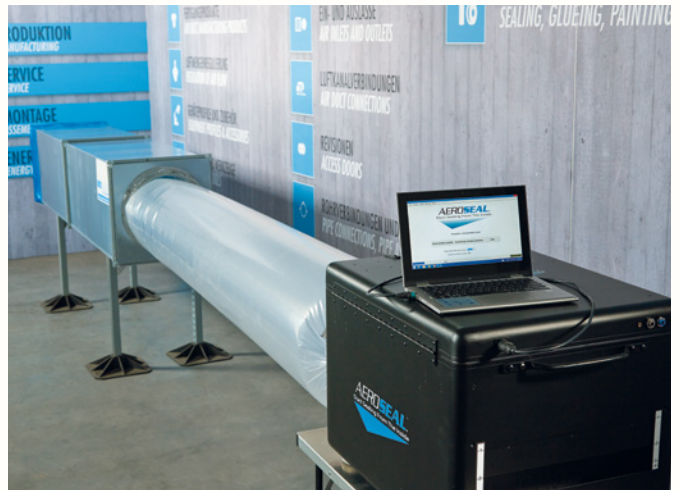
## How does gesaAEROSEAL® work?

The gesaAEROSEAL® process puts escaping air under pressure and causes polymer particles to stick first to the edges of a leak, then to each other until the leak is completely sealed. Over time, leaks to a diameter of 1.5 cm can be sealed. These seals resist withstand pressure up to 2.000Pa.



## What needs to be considered when using gesaAEROSEAL®?

The entire process just takes a few steps. In a first step, all air inlets and -outlets will be closed with metal panels, foam mats, sealing balloons, or MEZ-DUCT-WRAP – depending on the requirements. Generally, we avoid blowing sealant material through VAV boxes or fire/smoke dampers, however laboratory and field testing have shown that under the right circumstances this can be done without adverse consequences. However, we recommend disconnecting ventilators or recuperators and to remove or mask VAV boxes or fire/smoke dampers. Under no circumstances can sealant material be blown through VAV boxes with reheat coils.





### Advantage 1: **Tight air dust systems**

Limited access to the duct systems due to the characteristics of the building, leaks that are made up of many small leaks, and many other reasons make the detection of leaks air duct system extremely difficult. By using gesaAEROSEAL® none of above matters. When it comes to sealing ductwork, gesaAEROSEAL® achieves results that can only be achieved through very elaborately sealed air ducts. Due to the high efficiency of subsequent sealing it is possible to achieve or to be well below the requirements for air tightness class D, as per EN 1507, EN 12237, EN 12599, Eurovent or DW144 TM1. gesaAEROSEAL® reduces the leakage of air duct systems in no time by an average of 90%.



### Advantage 2: **Speed**

Further, gesaAEROSEAL® convinces users by the speed of the sealing process since no long lasting setup of the system is required and the building or building sections in question (e.g. in existing hotels) can be used again immediately. For the process, just 2 or 3 service technicians are necessary – this results in reduced time and staff expenses that would not be possible with conventional sealing methods.

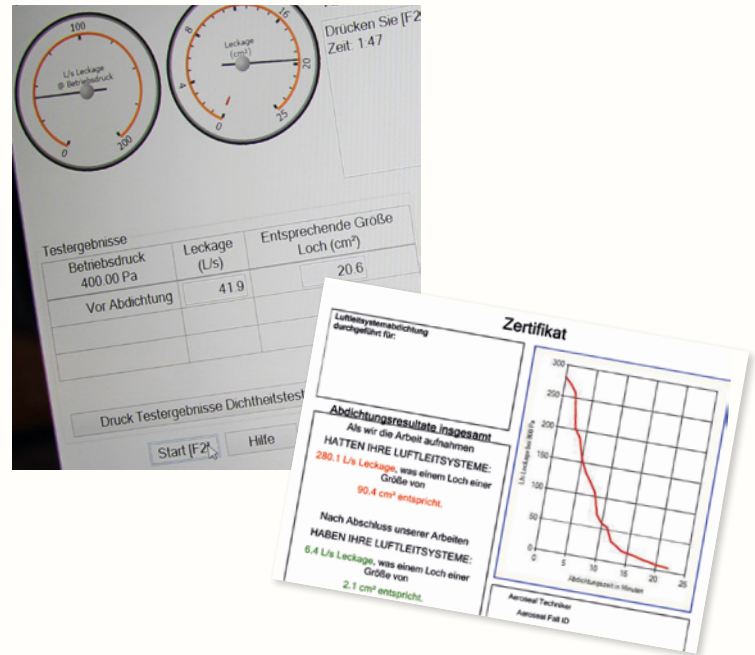


### Advantage 3: **Increased comfort and hygiene**

gesaAEROSEAL® improves the level of comfort of buildings significantly, since the heating or cooling losses through leaks is substantially reduced and thus an even distribution of heat and cold is guaranteed throughout the entire building. Regarding hygiene, the gesaAEROSEAL® technology increases the entire level of hygiene. The sealant meets the requirements of the hygiene guideline VDI 6022 and thus has no adverse health effects. It may be used in all building such as schools, hospitals and other public facilities.

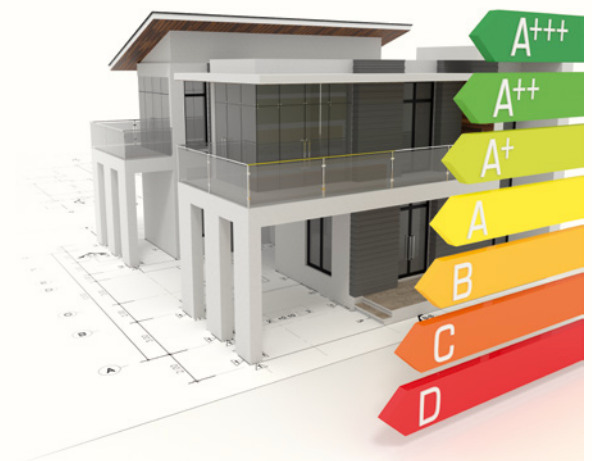
## Advantage 4: Documentation

Before and after sealing process, the total leakage of the system is determined and documented in a certificate that will be handed over to the customer after the application. Also, the percentage of the leakage reduction is shown.



## Advantage 5: Energy savings

The European guideline Energy Performance of Buildings Directive (EPBD) sets detailed targets regarding the level of energy saving. These targets are further implemented through national laws and guidelines such as the German Energieeinsparungsverordnung (EnEV). If your air ducts have not been analysed yet, a leakage of 15 % is expected. By achieving an airtightness class A, this leakage can be reduced to 6 %.

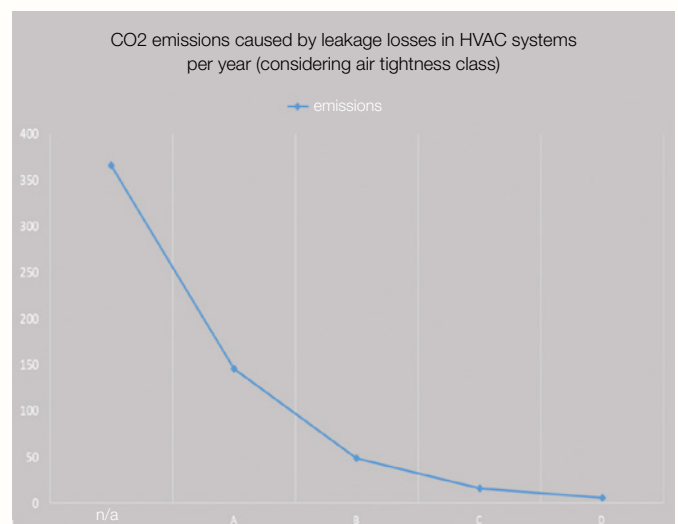


© Patrick Meider

## Advantage 6: Carbonite footprint

Today, companies are no longer exclusively obliged to their shareholders, but must also be aware of their social responsibility. gesaAEROSEAL® helps companies to deal responsibly with the limited resources of our planet and thus preserve the environment for our children and grandchildren.

By way of comparison, to compensate for the CO<sub>2</sub> emissions caused by leakage losses in HVAC systems according to EnEV 2009, approx. 136 spruces need to be planted each year if the airtightness class is unknown. After reaching the airtightness class B only 18!





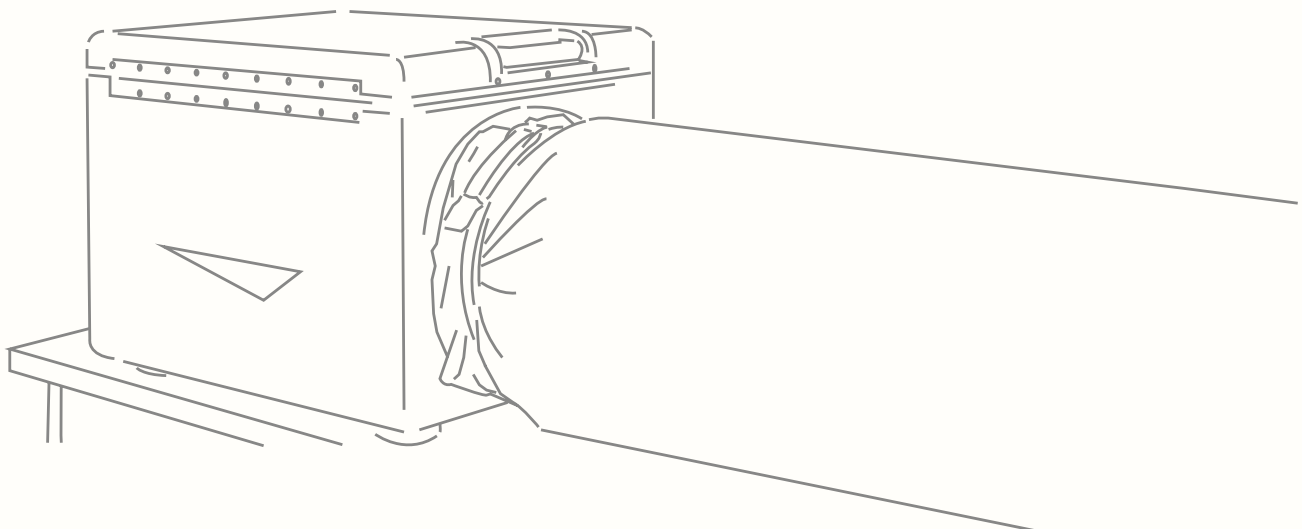
## Case Study **Cardiac Clinic Filip Vtori**

After completion of the building, leakages in the duct work led to serious hygiene issues through uncontained air flows and to an insufficient air exchange rate. Through the leakages, the building could not be used as intended. Again, AEROSEAL was the only solution to seal the air ducts. The technology achieved a reduction of the leakages of 93 to 98%.



## Case Study **Digiplex Data Center**

The Digiplex Data Center at Fetsund is a state of the art server farm with a total area of approximately 2.1000 sqm. Through fire protection requirements, the oxygen level of the compartment air is constantly reduced to 15%. Thus, uncontained air flows through leakages in the duct work cannot be tolerated. After applying the AEROSEAL technology, leakages were reduced by 85 to 93%.



## Case Study

### Childcare Facility Les Ulis

After a few months after completion, measuring the airtightness of the duct work revealed several leakages (2-3 x airtightness class A, even though B was required). Access to the duct work has been difficult as the entire system was installed behind irremovable ceilings. Due to the leakages and the constructional requirements, AEROSEAL was the only viable solution to reduce leakages in the duct work.



## Case Study

### University Paris Quest Nanterre

Measuring the air tightness revealed that approximately 50% of the air went lost between the ventilator and the air-outlet. Our AEROSEAL partner MapClim achieved a leak reduction of 92%.



## Case Study

### EPFL Lausanne

The polytechnic Institute of Lausanne is a public facility that has been established since 1969. The polytechnic institute hosts five schools, 2 colleges, 36 institutes and 350 laboratories for fundamental research and life sciences. It is further known for its engineering and architecture programmes. AEROSEAL technology was used to seal duct work in the laboratories. It achieved a leakage reduction of 94.1% on average and stopped uncomfortable whistling sounds and air flows that originated from the air ducts.



**Mailing address:**

Gesec Hygiene + Instandhaltung  
GmbH & Co. KG  
PO Box 10 17 06  
86007 Augsburg  
Phone +49 821 79015-0  
Fax +49 821 79015-399  
E-Mail: [info@gesa.de](mailto:info@gesa.de)  
Internet: [www.gesa.de](http://www.gesa.de)