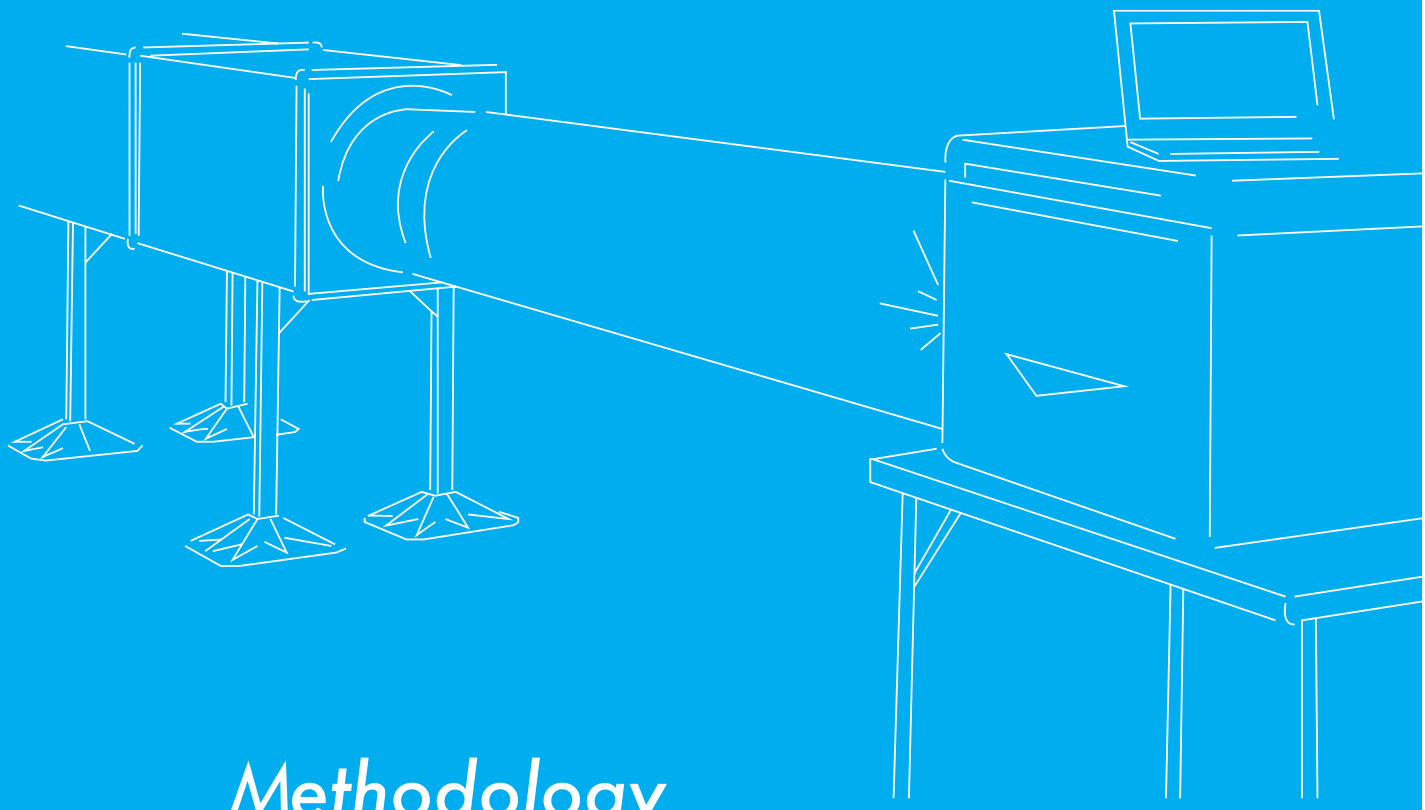
AEROSEAL

THE NEW AIRTIGHTNESS CLASS FOR DUCTWORK



Methodology

Why Aeroseal?

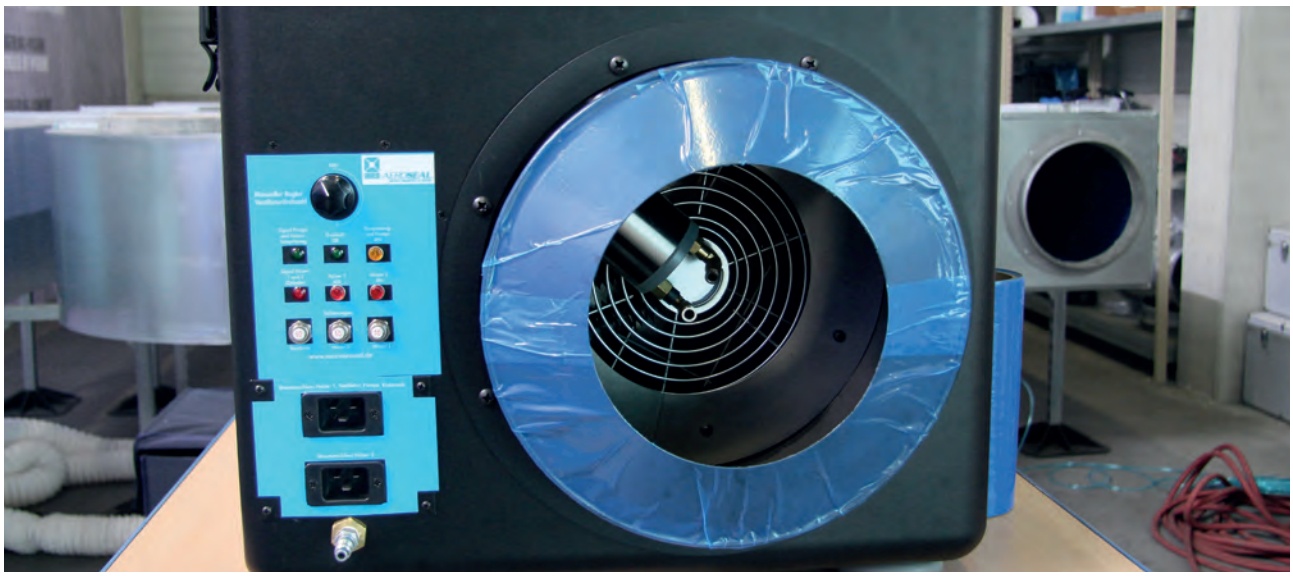
Aeroseal makes it possible to meet the airtightness classes defined in BESA DW144 in both newly installed and old existing ductwork systems. The speed at which systems can be sealed is far higher than any other method available, minimising interruption to operation and without the need for ductwork replacement. Internal sealing with Aeroseal also allows existing systems to be brought up to modern energy standards as per EN 1507, EN 12237, EN 12599, Eurovent or DW144.

Once ductwork leakage has been sealed system performance will increase, following re-balancing it may be possible to reduce fan speeds, delivering an energy saving. Detailed energy saving calculations can be conducted on request.

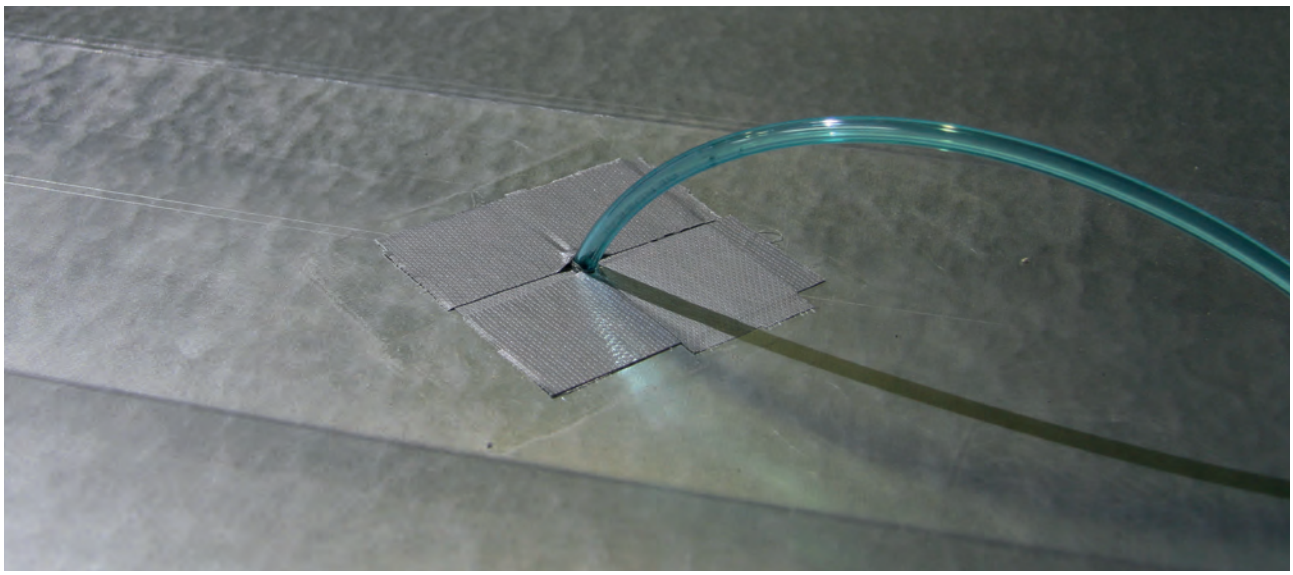
Under-performing ventilation systems may be improved to acceptable levels by Aeroseal. This solution will be far more cost effective than renewing the existing plant and ductwork system. Older systems may have never been airtightness tested when first built, or their performance may have decreased over time. Aeroseal offers huge benefits to building operators, in particular; hospitals, pharmaceuticals and large office/warehouse spaces with high volumes.

Machine Set Up

The Aeroseal machine must be set up close to the duct to be sealed. The process requires both 230V and 400V power on site to power the sealing machine and air compressor.



The Aeroseal machine heats up the sealant and blows it into the duct as a fog. The fog will then seal the holes and leakages from inside the duct.

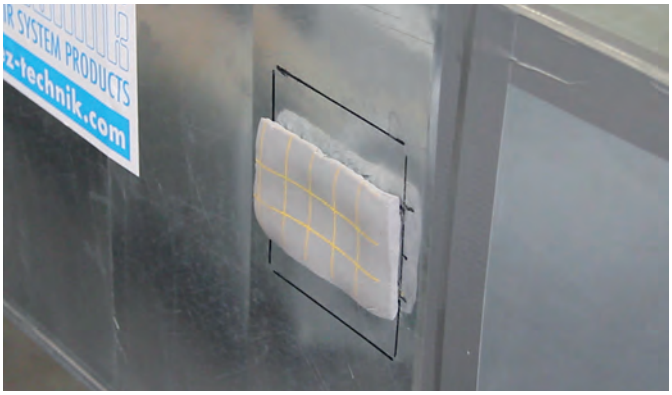


Duct pressure is measured throughout the process to give real-time sealing data.

Preparation - Block inlets and outlets

It is critical to block all inlets and outlets of the duct system in order to achieve correct results during the leakage measure-ment and the sealing process (the blocks should permanently withstand a pressure of 600 Pa). Blanking materials used include sheet metal plates, sealing balloons, self-adhesive foil, or foam-plugs. The most simple solution is to block air ducts with a diameter of up to 500 x 500 mm (max. diameter of 500 mm for circular ducts) with self-adhesive plastic roll.

A sealing connection collar will be fitted to the duct, this will be made good at the end of the process by installing an access panel.



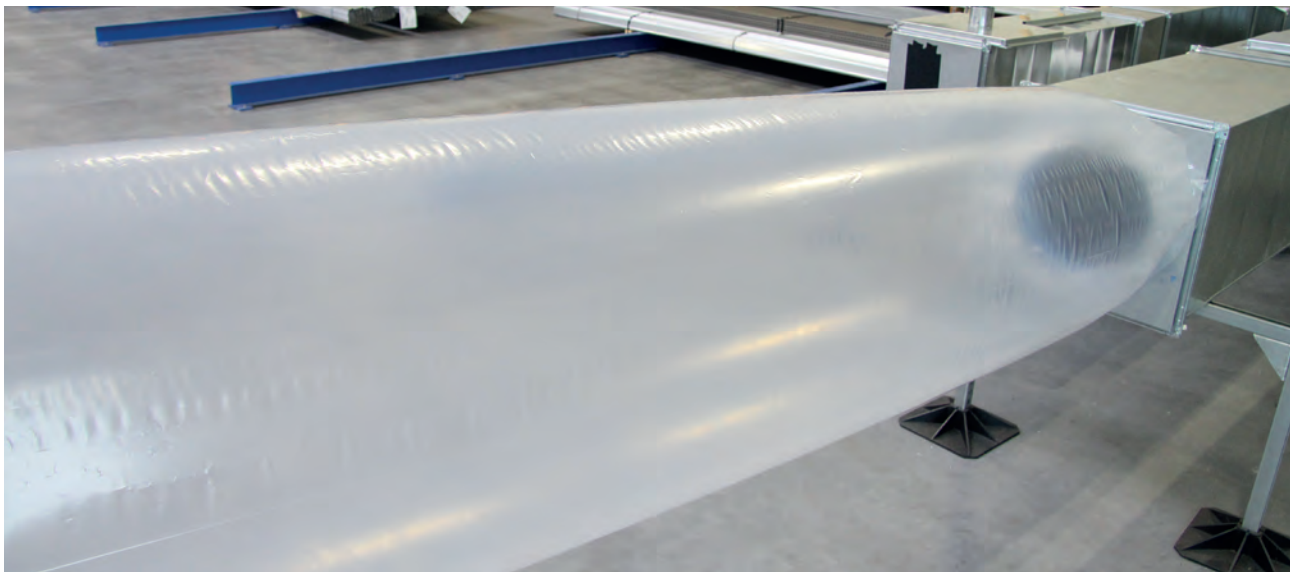
Check in-line components

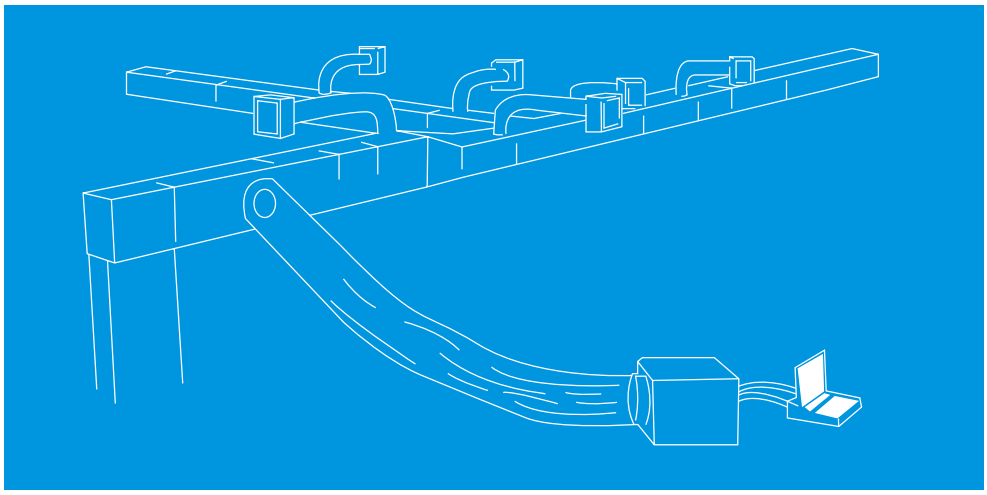
Before sealing with Aeroseal we must check for additional components installed in the air duct system. Some of them have to be removed or protected. Components like silencers, fire dampers or volume control dampers can remain inside the air duct during the sealing process. Dampers should be in a completely open position so the airborne sealant can pass through.
Components like heat exchangers, sensors, volume flow controllers or other measurement devices should be removed or taped before starting the sealing process. Otherwise you may risk that the sealant sticks to those components having a negative impact on their functionality.

Smoke detectors, fire alarms

Make sure that all sprinkler systems as well as smoke detectors and fire alarms are disabled during the whole sealing process because they might activate due to sealant escaping from the duct being sealed.

The Aeroseal machine connects to the duct via a flexible plastic hose which inflates during sealing.



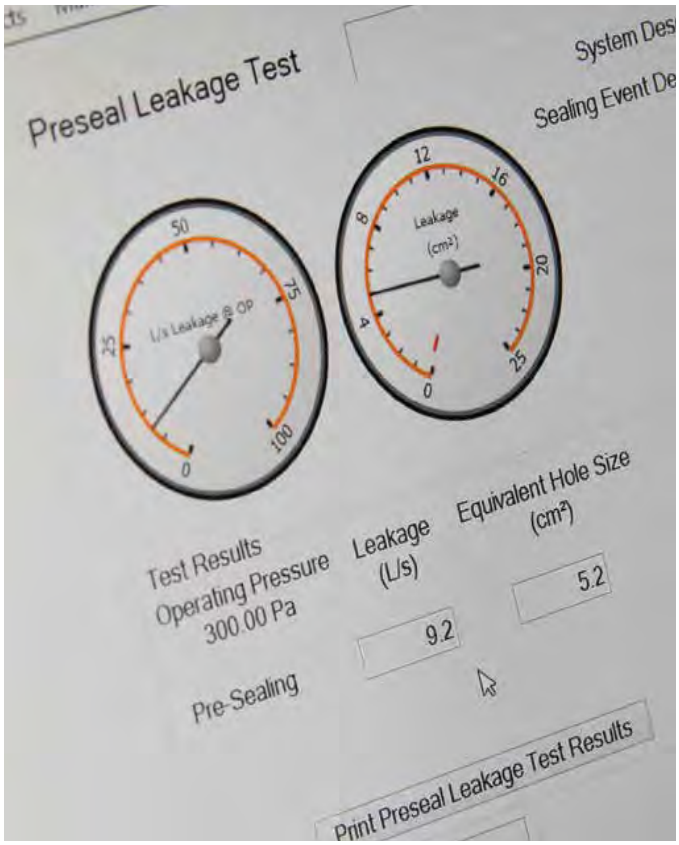


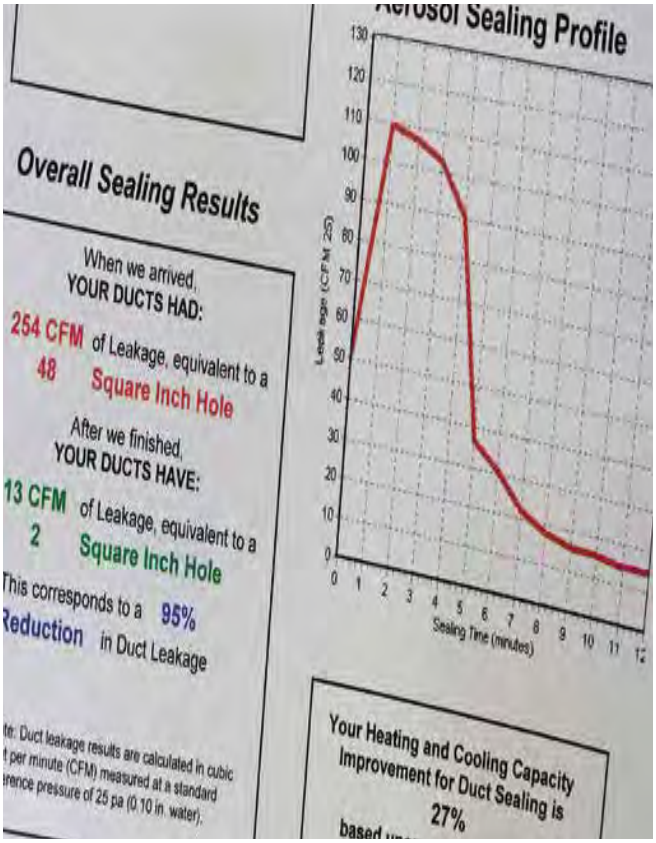
Ductwork Sealing

The ductwork system is pressurised to between +25 to +500 Pa and initial leakage rates are calculated. After the system leakage test is complete sealant is injected into the duct as a mist, this passes through the entire system, reaching all branches. As sealant escapes from the pressurised duct at points of leakage it leaves behind a deposit closing the opening.

Sealant Material

The sealant forms a white deposit in the points of leakage. The sealant cures in only 2 hours, remaining flexible for its lifetime. Far less sealant is used compared to manually sealing the duct with mastic. A small amount of sealant may settle on the base of the duct on long duration seals, leading to minor discolouration.





Data & Certification

The Aeroseal machine monitors ductwork leakage and equivalent leakage hole size throughout the sealing. This allows the technicians to ensure that sealing achieves the required airtightness of the project in accordance with BESA DW144. On average systems airtightness increases by over 90%, achieving class D airtightness is possible.

On completion of sealing a post seal leakage test is run. This calculates the improvement made by sealing and presents this on a sealing certificate. The sealing certificate details the reduction in equivalent hole size as well as reduction in ductwork leakage (l/s) at the systems operating/test pressure.