

Case Study

Total Containment Solutions



Fume Containment

TEL and TCS partner to deliver energy efficient solution for research laboratory

Background

Established in 2004 Total Containment Solutions (TCS) is the UK's leading supplier of fume cupboards for industrial and educational laboratories. Now part of Envir Technology, its in-house manufacturing capability enables it to create highly bespoke solutions that meet its clients' specific requirements.



The Challenge

An international contract research organisation contacted TCS about the re-fit of a large laboratory in the south of England. The premises had been acquired from another company and needed to be refurbished to facilitate the laboratory chemistry its new owner intended to use it for.

The brief included some specific requirements; that the fume cupboards could be built to the non-regular widths of 2.3m and 2.1m to make the best use of the space, were ergonomically comfortable, could cater for its specific research processes and had prioritised sustainability and energy efficiency considerations.

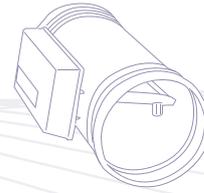
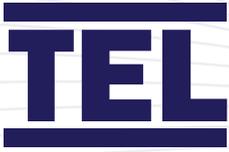
As with all fume cupboards, the equipment needed to be compliant to BS EN 14175 standards.

Gary Broomhead, Commercial Manager at TCS, knew that partnering with TEL to provide variable air volume (VAV) controllers for the fume cupboards supplied, would ensure they met the energy-efficiency requirements of the brief.

World leaders in airflow controls and monitors

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Gary Broomhead comments:

"Our longstanding relationship with TEL allows us to offer a highly personal service to our clients. They give us outstandingly good support, in both technical and design consultancy, which means clients can receive a full turnkey solution where all the components of a laboratory system talk to each other. We especially value the fact that they can work with us to deliver innovative functionality, for example, specially designed buttons to match our ideas for height adjustable stands."

The Solution

In Q4 2021 TCS delivered a bespoke re-fit solution that included 65 fume cupboards. The equipment was highly customised, including changes to the sash design to avoid the bottom rail rubbing on users' arms. Because the cupboards were purpose built, they went through rigorous type testing, factory acceptance testing and site acceptance testing to ensure they complied with BS EN 14175.

They were also fitted with TEL's energy saving **AFA1000/E** airflow controllers.

The AFA1000/E is a pioneering airflow monitoring and alarm system developed to ensure the safety of users working with industrial and educational fume hoods. Accredited by the Carbon Trust it helps laboratory managers significantly reduce their energy use (and therefore carbon footprint) by only using the air it needs.

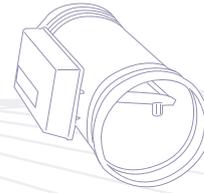
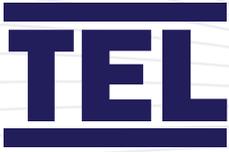
The combination of TCS's fume cupboard expertise with TEL's airflow consultancy proved a potent force throughout the project; from initial quotation through to installation and commissioning. Having worked together on projects for more than 15 years, this partnership delivered a solution that met all the end client's needs.



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The Benefits

Installing VAV airflow controllers on each of the 65 fume cupboards supplied, has several important benefits for the end user.

Energy Efficiency

The decision to install a VAV airflow control over a constant air volume (CAV) control means a significant reduction in energy wastage which not only limits carbon emissions but saved on energy costs too.

A simple energy saving calculations reveals:

- ✓ Energy cost savings of VAV over CAV airflow control = £1,271 per fume cupboard per year.
- ✓ Energy saving of VAV over CAV airflow control = 35,475 kWh per fume cupboard per year.

For this project which involved the installation of 65 fume cupboards with VAV control the total annual savings are as follows:

- ✓ Total annual energy cost saving: **£82,615**
- ✓ Total annual energy saving: **2,305,875 kWh**

Which means the VAV controls will pay for themselves in just 2.7 years.

Other Important Benefits

- ✓ Improved safety and compliance: staff are protected from potentially hazardous fumes and substances.
- ✓ Reliability: with no inherent drift, the AFA1000/E will provide stable readings for many years without re-calibration.

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TEL's Managing Director, Richard Eady, said:

"We've built up a close working relationship with TCS over more than 15 years. Together we represent a formidable force because we provide the end customer with complete peace of mind that their laboratory has been designed and installed with the benefit of our combined and complementary expertise. And with rising energy prices and pressure to meet carbon reduction targets across all sectors, the VAV solution provided will reap immediate rewards for the laboratory owner. We look forward to partnering with TCS in future to provide energy conscious solutions to laboratory owners and managers around the UK."

TEL regularly assists on the tender stage of projects in partnership with fume cupboard manufacturers. The team's airflow expertise and installation advice is often critical in winning business and delivering a solution that ensures improved safety and compliance, energy efficiency and cost savings.

Retrofit Service

It's not just new fume cupboards that benefit from VAV control. TEL offers a full retro fit service and is making a significant impact on helping educational and commercial research organisations meet carbon reduction targets.