

FUME CUPBOARD ENHANCEMENTS ECOFLOW ENERGY SAVE



CSC's research and development team has developed an energy-efficient feature that can be installed on any of our Fume Cupboards. EcoFlow is designed to reduce energy consumption by approx. 51%.*

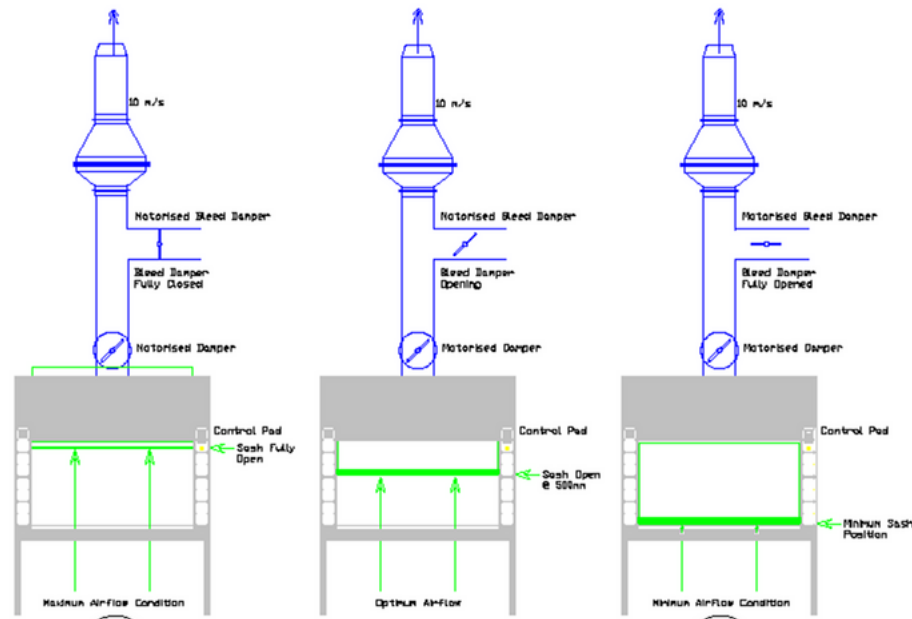
The Chemflow air velocity monitor reads the air velocity entering the fume cupboard to within 1% accuracy. It communicates this data by means of a 2-10 volt signal to the actuator on the motorized damper. The actuator responds to this information by modulating the damper to the position corresponding to the voltage signal level.

The airflow monitor has a pre-set target velocity typically 0.5m/sec. When the sash is raised or lowered the Chemflow monitor reads the changing velocity of the air passing through the sash opening.

The Chemflow monitor sends a voltage signal to the actuator to adjust the damper to a position that corresponds to a velocity across the sash opening of the preset target velocity.

The requirement however for a minimum purge of air through the fume cupboard prevents the reduction of air through the fume cupboard from falling below 33% of its initial air volume.

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This initial volume is calculated as being the volume through the fume cupboard at a sash opening of 0.5m at a velocity of 0.5m/sec by the internal width of the fume cupboard. I.e. $0.5 \times 0.5 \times$ internal width of the fume cupboard. The minimum volume, therefore, is $0.33 \times 0.5 \times 0.5$ internal width of the fume cupboard.

The Chemflow monitor prevents the volume from going below the minimum required by pre-setting a minimum volume within the tracking program. This ensures that the containment and purge levels of the fume cupboards are maintained at a safe operating level at all times.

The energy cost saving in operating this system is dependent on the vigilance of the operator in lowering the sash to its minimum position when the fume cupboard is in operation as best practice advises. The energy savings can be further improved by the use of an automatic sash operating system.

This system uses a PIR indicator to detect movement in the fume cupboard work area. If no movement is detected after a pre-set period of time (3 minutes) the sash will automatically close and the fume cupboard extract will set back to its minimum volume condition.