Advanced Technology Environmental Control SYSTEMS

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The ATECS Damper IS the Ideal Damper

Floor System

The ideal damper is easily installed and mechanically attached to the floor grates, significantly reducing floor installation costs.

The ideal damper actuator is a highly reliable rack and pinion The actuator is accessible through the floor grate, permitting damper adjustment without having to remove the grate. The damper actuator location and accessibility characteristics will significantly reduce the initial balancing costs and simplify operational adjustments.The ability to achieve cleanroom laminar flow is superior due to the superior linear flow control, repeatability, and air leakage characteristics.

The ideal damper design allows for production piping, tubes, ducts, etc. without affecting the damper performance.

The ideal damper design simplicity will reduce maintenance requirements and the need for damper replacements.

Plenum System

The ideal damper design is simple and robust, providing superior operational reliability. Air leakage sources have been minimized, as evidenced by the damper construction configuration and test results.

The ideal damper performance is repeatable. That is, the damper orifice configuration, the design simplicity, and the provision of an indexing characteristic make it simple and reliable to provide repeatable flow control in similar bays.

The ideal damper performance is available with low energy costs, as the total pressure drop for the damper in a cleanroom application is less than 0.010" water column at 70 FPM cleanroom velocity.

The ideal damper provided is bare aluminum, but can be andonized or power coated in a color of your choice, without any adverse affect on the damper performance.

Tool/Process/Hood Systems

Operation of the ideal damper control can be manual or automated. Where "real time", pressure independent constant or variable volume control is desired, ATECS can provide the correct automation and controls. The type of automation package to be used depends on the desired precision of your application. We can accommodate your needs ranging from laboratory VAV exhaust control for fume hoods to process exhaust flow control for ultra-sophisticated semiconductor manufacturing tools.

For exhaust applications, the ability of the damper to be precisely adjusted results in dependable and repeatable flow control. Knowing the position and the operating pressure differential, the actual flow rate is easily determined.

Make-Up Air/Return/VAV/ Economizer Systems

Energy Conservation: The performance of the ideal damper will promote energy conservation by virtue of eliminating excessive leakage of undesired fluid streams and enhancing the fluid flow control capability of systems in which it is installed.One of the best examples of this is the outside air "economizer" cycle utilized in the air conditioning industry.

The "economizer" system relies on the controlled introduction of outside air into the building via dampers in the air handling unit outside and return air paths. When the outside air temperature is lower than inside and the facility requires cooling, outside air is introduced into the air handling unit and return air from the facility is exhausted, or relieved to the atmosphere. The system works effectively when 100% outside air can be utilized (such as when the outside air temperature is between 55°F and 75°F), however, when the outside air temperature is below 55°F, and needs to be modulated to a flow rate less than 100%, existing damper technology provides less than ideal results.

Typically three damper sections must be utilized in the economizer system; 1) the outside air damper, 2) the return air damper, and 3) the relief or exhaust air damper.

All of these dampers must operate in concert when not at the 100% open or fully closed positions, i.e.; if 60% outside air is desired, then 40% of the recirculating air stream must return to the building and 60% must be relieved or exhausted to atmosphere. With the opposed blade damper - OBD, this means the outside and relief air dampers will need to be approximately 40% open, while the return air damper will need to be approximately 28% open.

The actual physical characteristics of OBD's is such that the actual flow rate at a given percentage of opening, or linkage stroke is quite unpredictable as the "play" in the linkage is such that performance is not highly repeatable.

At very low desired flow rates, the performance of the economizer is particularly unreliable as the leakage around the blades, even with the best commercially available dampers is both significant (because the blades do not properly close) and unpredictable because the linkage on commercially available dampers is such that some blades may close tightly when others do not.