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Bypass control VCP for S3 laboratories

- Control system prioritised for volumetric flow



Air diffusers
Air to water systems
Ventilation grille
Fire prevention
Sound insulation

Building control system
Living space ventilation
Shut-off devices

Control units
Filter diffusers
**Laboratory
ventilation systems**



Bypass control

constant room pressure in laboratories

The bypass control for VCP type laboratories is a quick control system for prioritised control of room supply air and room return air volumetric flows fitted with internal secondary control circuits for constant pressure regulation. This control system prioritised for volumetric flow in round design provides, microprocessor-controlled, a uniform room pressure in laboratories (S1-S3), clean rooms (classes A-D), stables and interlocks.

A high-speed control algorithm compares the setpoint value with the measured actual value of a static differential pressure transmitter and regulates it at high speed, precisely and reliably, independently of the pressure variations in the duct system.

Once the volumetric setpoint value has been reached, a second internal control circuit ensures that the preset room pressure is controlled via a second control flap equipped with actuator mounted in the bypass. The volumetric flow is varied within parameterisable limits (V_{min} and V_{max}) until the desired room pressure can be controlled. The external room pressure transmitter continuously measures the room pressure and transmits the analog signal to the controller. This allows the parameterised constant room under- or overpressure to be maintained and stored failure-proof in the EEPROM. The control curve is calculated independently, relative to the external setpoint value input of (0)2 ... 10 V DC. Faults (e.g. volumetric setpoint value is not reached) are detected and signalled via the fault signalling relay.

Both 3-point drives without hysteresis are designed as high-speed actuators with direct activation (direct drive mode) and integrated position angle detection of the damper position. Only 3 seconds are required for a 90° angle of rotation and the high-precision resolution achieves high controlling precision. The high-speed control is supported by using one controller only for both motors. The low-maintenance control flaps used have been designed sealing air-tight to DIN 1946 T4 and EN 1751 T2 and with ageing-resistant silicone-free sealing rubber.

As an option, the VCP can be integrated into a LON network, to centralise monitoring.

