HVAC Economizers 101 Section #8

Dampers: Types, Actuators, and Characteristics



Section #8-Dampers: Types, Actuators, and Characteristics

- Economizers on many Central AHU are custom ordered for the job specific requirements.
- Economizers on packaged RTU are normally ordered as an option with the package.





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Economizer damper will have either direct connect Actuators bolted directly to the damper or they will be installed with a shaft and linkage arrangement (more prone to fail)



Parallel Blade Damper Characteristics Have Poor Linear Control



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Courtesy T.A. & Co.

Opposed Damper Characteristics Have Better Linear Control

60

7

70

8

80

9

90

10V





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Damper Actuators are Controlled by Either a Voltage (2-10 vdc) or Current (4-20 ma) Signal from the Controller





Courtesy Belimo

Exercise #8 (Provide Answers below on notes page)

- 1. Which fan system has custom ordered dampers, the packaged RTU or the central AHU?
- 2. If a parallel damper receives 50% of the control signal, how much air flow will there be on 10% authority of the dampers?
- 3. If an opposed blade damper receives 50% of the control signal, how much air flow will there be on 10% authority of the dampers?
- 4. Which damper actuator is less prone to fail, direct connect or shaft/coupling connected, and why?
- 5. What are the two most common control signals used with damper actuators?