

Application

The VCDR-50 series is a round control damper intended for application in low to medium pressure and velocity systems.

Damper Ratings

Pressure

Up to 4 in. wg (1 kPa) pressure differential

Velocity

Up to 3000 fpm (15.2 m/s)

Temperature

Up to 250°F (121°C)



Construction

| | Standard | Optional |
|------------------------|------------------|----------------|
| Frame Material | Galvanized Steel | 304SS |
| Frame Thickness | 20 ga. (1mm) | 16 ga. (1.5mm) |
| Blade Material | Galvanized Steel | 304SS |
| Axle Bearings | Bronze | 316SS |
| Axle Material | Plated Steel | 316SS |

Frame Length

Diameter ≤ 14 in. (356mm), frame length is 8¹/₈ in. (206mm).

Diameter >14 in. (356mm), frame length is 11¹/₈ in. (296mm)

Size Limitations

| Diameter | Minimum | Maximum |
|----------|-------------|--------------|
| in. (mm) | 4 in. (102) | 24 in. (610) |

Diameter dimension furnished approximately 1/8 in. (3mm) undersized.

Options and Accessories

- Actuators: Electric actuator and manual quadrant available. Factory supplied actuators are sized for 1500 fpm (7m/s) and fully closed differential pressure of 2 in. wg (.5 kPa). contact factory for actuator sizing on applications exceeding those limits.
- Clean wrap
- NEMA Enclosure (3, 4, 4x)
- [OCI \(open closed indicator\)](#)
- Transformer

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Pressure Drop

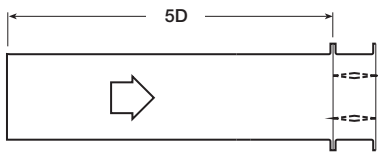
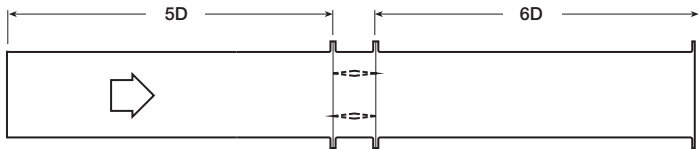
Pressure drop testing was conducted in accordance with AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent standard air at a density of 0.075 lb/ft³ (1.2 kg/m³).

Actual pressure drop found in an HVAC system is a combination of many factors. This pressure drop information, along with an analysis of other system influences should be used to estimate actual pressure losses for a damper installed in an HVAC system.

Figure 5.3 Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

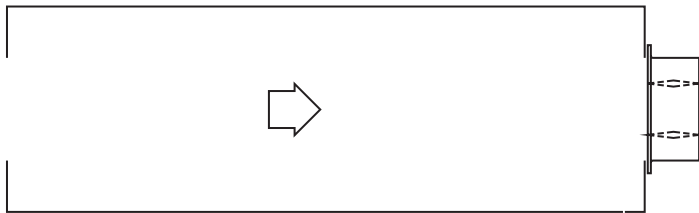
Figure 5.2 Illustrates a ducted damper exhausting air into an open area. This configuration has a lower pressure drop than Figure 5.5 because entrance losses are minimized by a straight duct run upstream of the damper.

Figure 5.5 Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of high entrance and exit losses due to the sudden changes of area in the system.



$$D = \sqrt{\frac{4(W)(H)}{3.14}}$$

- D = Duct length
- W = Damper width
- H = Damper height

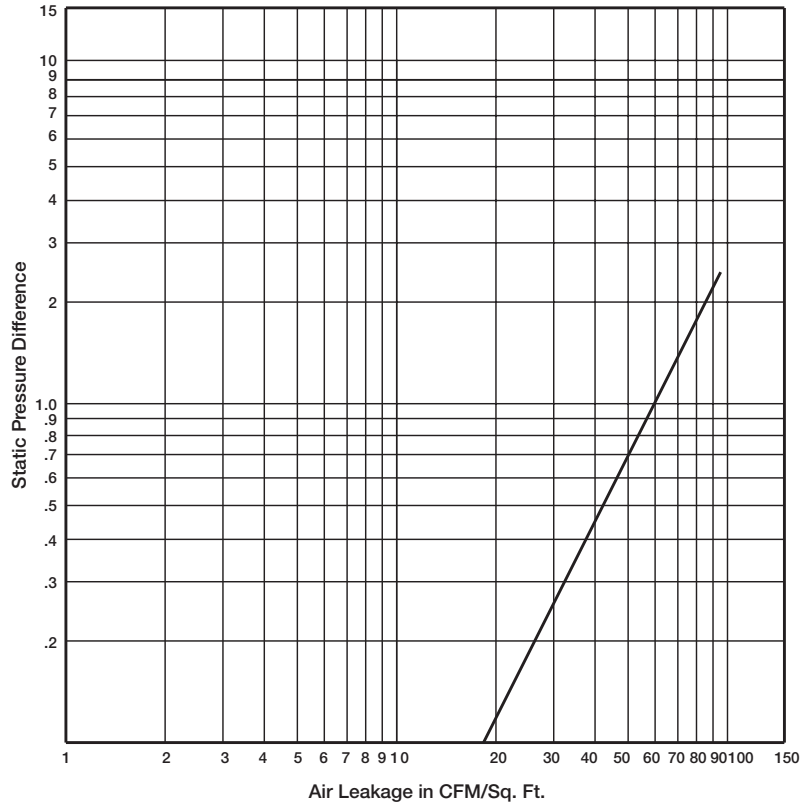


| Dimension inches | 12 | | | 24 | | |
|-------------------|----------------------|-----|-----|-----|-----|-----|
| AMCA figure | 5.2 | 5.3 | 5.5 | 5.2 | 5.3 | 5.5 |
| Velocity (ft/min) | Pressure Drop in. wg | | | | | |
| 500 | .01 | .01 | .02 | .01 | .01 | .02 |
| 1000 | .06 | .02 | .10 | .04 | .01 | .09 |
| 1500 | .13 | .05 | .22 | .08 | .03 | .20 |
| 2000 | .23 | .08 | .38 | .15 | .06 | .36 |
| 2500 | .37 | .13 | .60 | .23 | .09 | .56 |
| 3000 | .53 | .19 | .86 | .33 | .13 | .81 |

Leakage testing was conducted in accordance with AMCA Standard 500-D and is expressed as cfm/ft² of damper face area. All data has been corrected to represent standard air at a density of 0.075 lb/ft³ (1.201 kg/m³).

Leakage

24 in. Diameter (610mm)



Note: Temperatures in excess of 250°F (121°C), consult factory.