

VCDR-53 Round Volume Control Damper - Low Leakage

APPLICATION & DESIGN

Model VCDR-53 is a round control damper intended for applications in low to medium pressure and velocity systems.

RATINGS

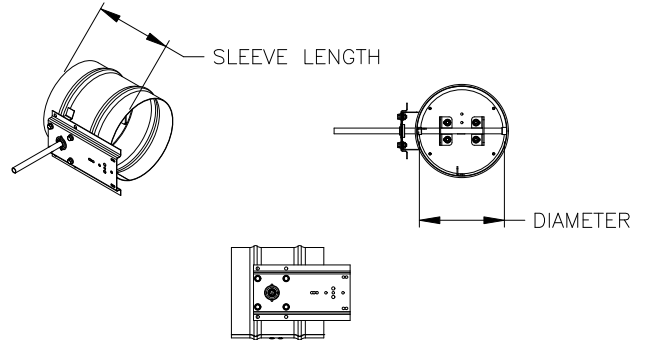
Pressure:	Up to 4 in. wg - pressure differential
Velocity:	Up to 3,000 ft/min
Temperature:	Up to 250 F

SLEEVE LENGTH = 8.125 IN. IF NOMINAL DIAMETER ≤ 14
SLEEVE LENGTH = 11.688 IN. IF NOMINAL DIAMETER > 14

PRODUCT DETAILS

Frame/Blade Material:	Galvanized
Frame Thickness:	20 ga
Axle Material:	Steel
Axle Bearings:	Bronze
Sizing:	Nominal
Blade Seal:	Silicone
Damper Temp. Rating:	180 F

Stock Sizes: 6", 8", 10", 12", 14"



• Width and Height furnished approximately 0.125 in. under size.

Application

The VCDR-53 series is a round control damper intended for application in low to medium pressure and velocity systems.

Ratings

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

Velocity: Up to 3,000 fpm (15.2 m/s)

Leakage: 4 cfm/ft² @ 1 in. wg
(73 cmh/m² @ .25 kPa)

Temperature: Up to 250°F (121°C)

Construction	Standard	Optional
Frame Material	Galvanized Steel	304SS
Frame Thickness	20 ga. (1mm)	16 ga. (1.5mm), 14 ga. (2mm)
Blade Material	Galvanized Steel	304SS
Blade Seal	Silicone	-
Axle Bearings	Bronze	316SS
Axle Material	Plated Steel	316SS

Size Limitations

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

Frame Length

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

Diameter >14 in. (356mm), frame length is 11⁵/₈ in. (296mm)

Features and Options

- Actuators (Electric or Manual Quadrant)
- OCI (Open Closed Indication switches)
- Auxiliary Switch
- Transformer



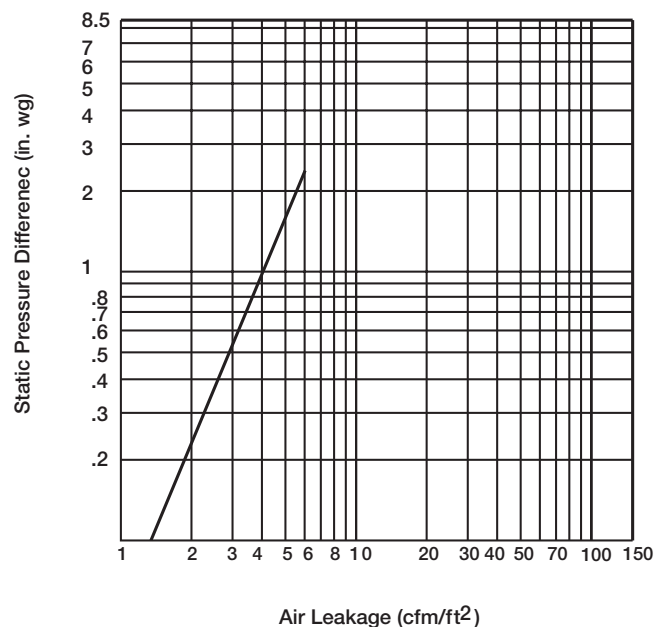
Diameter dimension furnished approximately 1/8 in. (3mm) undersize.

Leakage Data

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.

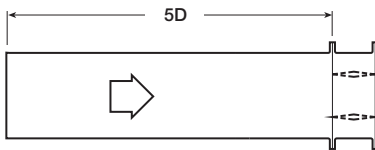
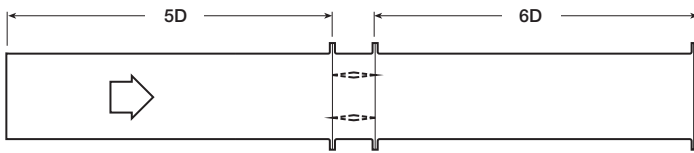
Pressure drop testing was conducted in accordance with AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent standard air at a density of .075 lb/ft³ (1.2 kg/m³).

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.

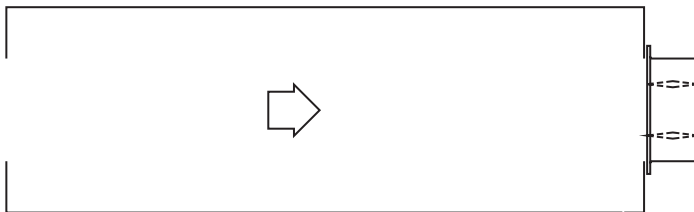
Figure 5.2 Illustrates a ducted damper exhausting air into an open area. This configuration has a lower pressure drop than Figure 5.5 because entrance losses are minimized by a straight duct run upstream of the damper.

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



Specifications

Round control dampers meeting the following specifications shall be furnished and installed where shown on plans and/or as described in schedules.

Dampers shall consist of 20 ga. (1mm) galvanized steel frame, blades fabricated from 20 ga. (1mm) galvanized steel, and ½ in. (13mm) dia. plated steel axles turning in bronze bearings and EPDM blade seals.

Damper manufacturer's printed application and performance data including pressure, velocity, and temperature limitations shall be submitted for approval showing damper suitable for pressures to 4 in. wg (1 kPa), velocities to 3,000 fpm (15.2m/s), temperatures to 250°F (121°C), and leakage to 4cfm/ft² @ 1 in. wg (73cmh/m²@ .25 kPa).

Testing and ratings to be in accordance with AMCA Standard 500-D.

Basis of design is model VCDR-53.

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