# Model VCDRM-53

## Low Leakage Round Multi-Blade Control Damper

## Application

The VCDRM-53, a low leakage insert type multi-blade round damper, is designed to provide control of airflow in round HVAC ductwork.

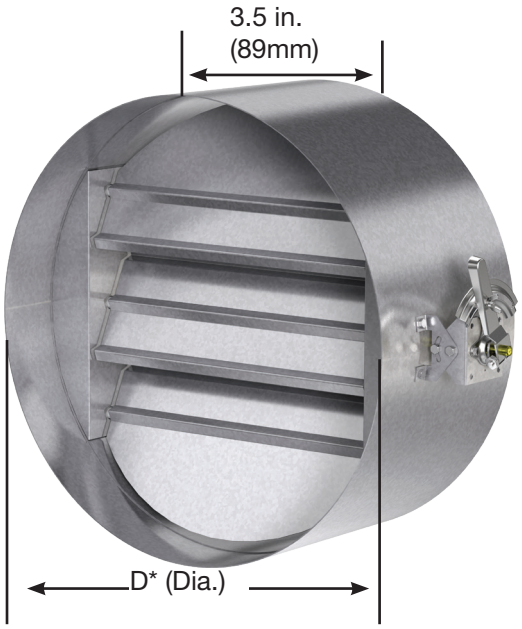
## Damper Ratings

**Pressure:** Up to 5 in. wg (1.2 kPa)- pressure differential

**Velocity:** Up to 2500 fpm (12.7 m/s)

**Leakage:** 3½ cfm/ft² @ 1 in. wg (64 cmh/m² @ 0.25 kPa) on 48 in. diameter.

**Temperature:** Up to 180°F (82°C)




*D dimension furnished approximately 1/4 in. (6mm) undersize.

| Construction | Standard | Optional |
|---|---|---|
| Frame Material | Galvanized Steel | 304SS |
| Frame Thickness | 3 ½ in. x 14 ga. (89mm x 2mm) under 22 in. dia. (559mm); 3 ½ in. x 10 ga. (89mm x 3mm) 22 in. and greater | |
| Frame Type | Round | |
| Blade Action | Opposed | Parallel |
| Blade Material | Galvanized Steel | 304SS |
| Blade Seals | Vinyl blade seals with silicone on top and bottom radii | |
| Blade Thickness | 16 ga. (1.5mm) | - |
| Blade Type | 3V | - |
| Linkage | Plated Steel | 316SS |
| Axle Bearing | 316SS | - |
| Axle Material | ½ in. (13mm) Plated Steel | 316SS |
| Jamb Seal | 304SS | - |

## Options

- 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.

| Diameter* | Minimum | Maximum |
|---|---|---|
| in. (mm) | 11 in. (279) | 48 in. (1219) |
| * 1 in. (25mm) increments | | |

# Pressure Drop VCDRM-53

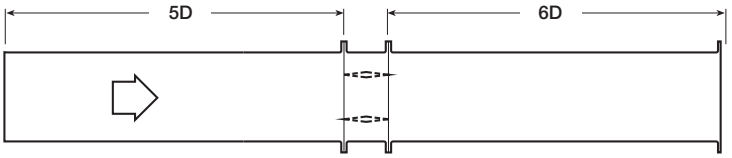
Pressure drop testing was conducted in accordance with AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent standard air at a density of 0.075 lb/ft$^3$ (1.2 kg/m$^3$).

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.

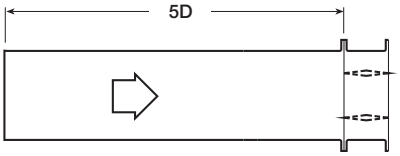
**Figure 5.3** Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

**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.

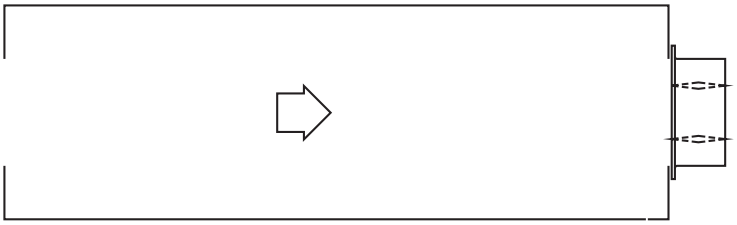
**Figure 5.5** Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of high entrance and exit losses due to the sudden changes of area in the system.




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




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

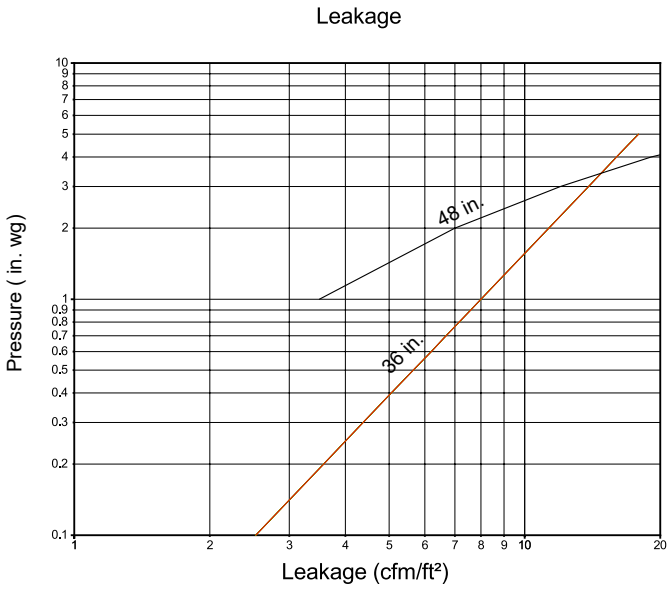


| Dimension inches | 12 | | | 24 | | | 36 | | |
|---|---|---|---|---|---|---|---|---|---|
| AMCA figure | 5.2 | 5.3 | 5.5 | 5.2 | 5.3 | 5.5 | 5.2 | 5.3 | 5.5 |
| Velocity (ft/min) | Pressure Drop in. wg | | | | | | | | |
| 500 | .04 | .03 | .05 | .03 | .02 | .04 | .05 | .05 | .06 |
| 1000 | .15 | .11 | .19 | .13 | .10 | .15 | .19 | .20 | .25 |
| 1500 | .33 | .25 | .42 | .29 | .21 | .33 | .42 | .44 | .57 |
| 2000 | .59 | .45 | .75 | .51 | .38 | .59 | .75 | .79 | 1.01 |
| 2500 | .93 | .70 | 1.18 | .79 | .60 | .92 | 1.18 | 1.23 | 1.58 |

# Leakage VCDRM-53

## Leakage Data

Leakage testing was conducted in accordance with AMCA Standard 500-D and is expressed as cfm/ft$^2$ of damper face area. All data has been corrected to represent standard air at a density of 0.075 lb/ft$^3$ (1.201 kg/m$^3$).




## 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 a 14 ga. (2mm) galvanized steel frame, blades fabricated from 16 ga. (1.5mm) galvanized steel, ½ in. (13mm) dia. plated steel axles turning in stainless steel bearings and vinyl blade seal on each blade with silicone blade seal on top and bottom radius.

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 5 in. wg (1.2 kPa), velocities to 2500 fpm (12.7 m/s) and temperatures to 180°F (82°C).Testing and ratings shall be in accordance with AMCA Standard 500-D.

Basis of design is model VCDRM-53.