

Application

The VCD-43 is a low leakage damper with extruded aluminum airfoil blades and frame. Smooth profile extruded aluminum airfoil blades insure the lowest resistance to airflow in HVAC systems. This model is intended for application in medium to high pressure and velocity systems.

VCD-43 is IECC (International Energy Conservation Code) compliant with a leakage rating of 3 cfm/ft² at 1 in. wg (55 cmh/m² at .25 kPa) or less.

Damper Ratings

Velocity

Up to 6000 fpm (30.5 m/s)

Pressure

Up to 8 in. wg (2 kPa) - pressure differential
For pressures greater than 8 in. wg, consult factory

Leakage

Class 1A at 1 in. wg (0.25 kPa)
Class 1 up to 4-8 in. wg (1-2 kPa)

Temperature

-40°F to 250°F (-40°C to 121°C)



*W&H dimension furnished approximately 1/4 in. (6mm) undersize.

Construction

| | Standard | Optional |
|---------------------------------|--|--|
| Frame Material | Aluminum (6063T5) | - |
| Frame Material Thickness | .125 in. (3.2 mm) | - |
| Frame Type | 5 in. x 1 in. hat channel (127 mm x 25 mm) | Single flange, Reversed flange, Quick connect |
| Blade Material | Extruded Aluminum (6063T5) | - |
| Blade Type | Airfoil | - |
| Blade Action | Opposed | Parallel |
| Blade Seals | TPE | Silicone |
| Linkage | Plated steel out of airstream, concealed in jamb | 316SS |
| Axle Bearings | Synthetic (acetal) sleeve | 316SS |
| Axle Material | Plated steel | 316SS |
| Jamb Seal | Stainless Steel | - |
| Paint Finishes | Mill Finish | Baked Enamel, Hi Pro Polyester, Industrial Epoxy, Kynar/Hylar (70%), Anodize |

Size Limitations

| W x H in. (mm) | | Frame Type | | |
|-----------------------|-------------------------|----------------------------|----------------------------|----------------------------|
| | | Channel | Quick Connect | Single or Reverse Flange |
| Minimum Sizes* | | 8 x 6 (203 x 178) | 8 x 5 (203 x 127) | 8 x 6 (203 x 178) |
| Maximum Sizes | Single Section | 60 x 78 (1524 x 1981) | 60 x 76 (1524 x 1930) | 60 x 78 (1524 x 1981) |
| | Multiple Section | 288 x 234 (7315 x 5944) | 144 x 152 (3658 x 3861) | 288 x 234 (7315 x 5944) |

* varies by actuator

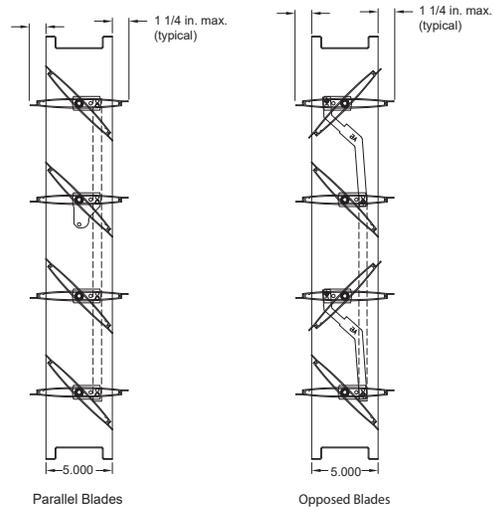
Note

- Low profile head and sill are used on sizes less than 17 in. high (432mm), excluding quick connect frame.
- Electric actuators and manual operators available. Factory supplied actuators are sized for 1500 fpm (7 m/s) and fully-closed differential pressure of 2 in. wg (.5 kPa). Contact factory for actuator sizing on applications exceeding those limits.
- In applications where airflow could be uneven, such as a discharge fan, it is imperative to verify that at no point the maximum velocity exceeds the damper's cataloged velocity.
- Blades must be horizontal for either horizontal or vertical mount. See VCD-43V model for vertical blade applications.

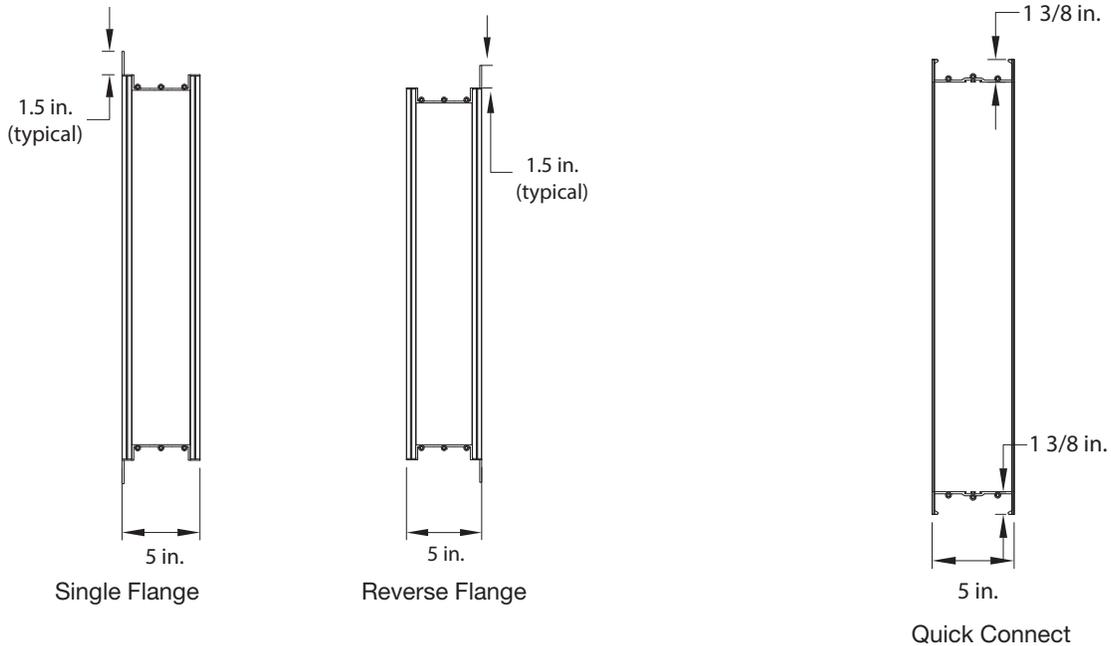
Options

- Actuators (24V, 120V, manual, pull chain, bracket only)
- Actuator mounting (external, external kit (field assembly), internal)
- NEMA enclosures (3, 4, 4X, 7)
- [OCI \(open or closed indicator\)](#)
- Transformers

Blade Operation

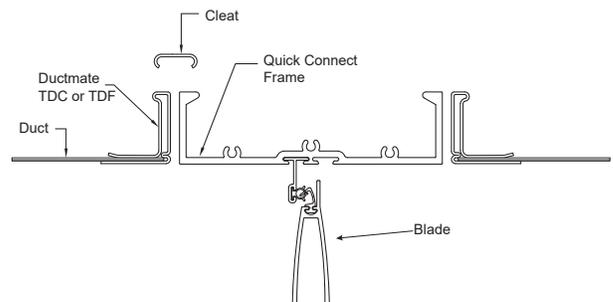


Frame/Flange Options



* Width and height is based on outside dimension. W & H dimensions furnished approximately 1/4 in. (6mm) undersize.

Note: When ordering the Quick Connect Frame, size is based on duct size (or inside dimension of the damper frame). Quick connect frame is actual size.

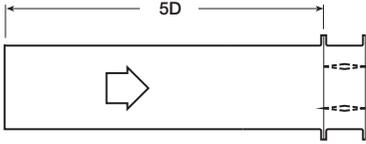


AMCA Certified Pressure Drop Data



Greenheck Fan Corporation certifies that the model VCD-43 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

AMCA 5.2



12 in. x 12 in. (305mm x 305mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.06 |
| 1500 | 0.13 |
| 2000 | 0.23 |
| 2500 | 0.35 |
| 3000 | 0.50 |
| 3500 | 0.68 |
| 4000 | 0.88 |

24 in. x 24 in. (610mm x 610mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.04 |
| 1500 | 0.10 |
| 2000 | 0.18 |
| 2500 | 0.28 |
| 3000 | 0.40 |
| 3500 | 0.54 |
| 4000 | 0.70 |

36 in. x 36 in. (914mm x 914mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.03 |
| 1500 | 0.06 |
| 2000 | 0.12 |
| 2500 | 0.18 |
| 3000 | 0.26 |
| 3500 | 0.35 |
| 4000 | 0.46 |

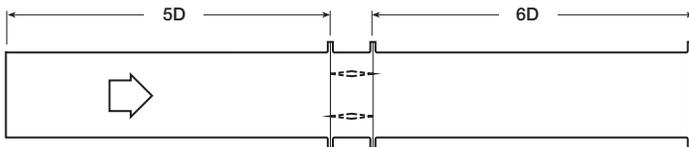
12 in. x 48 in. (305mm x 1219mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.06 |
| 1500 | 0.13 |
| 2000 | 0.23 |
| 2500 | 0.36 |
| 3000 | 0.51 |
| 3500 | 0.71 |
| 4000 | 0.93 |

48 in. x 12 in. (1219mm x 305mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.03 |
| 1500 | 0.06 |
| 2000 | 0.10 |
| 2500 | 0.16 |
| 3000 | 0.23 |
| 3500 | 0.30 |
| 4000 | 0.39 |

AMCA 5.3



12 in. x 12 in. (305mm x 305mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.03 |
| 1500 | 0.07 |
| 2000 | 0.14 |
| 2500 | 0.21 |
| 3000 | 0.29 |
| 3500 | 0.39 |
| 4000 | 0.51 |

24 in. x 24 in. (610mm x 610mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.02 |
| 1500 | 0.04 |
| 2000 | 0.08 |
| 2500 | 0.13 |
| 3000 | 0.19 |
| 3500 | 0.26 |
| 4000 | 0.34 |

36 in. x 36 in. (914mm x 914mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.01 |
| 1500 | 0.02 |
| 2000 | 0.04 |
| 2500 | 0.06 |
| 3000 | 0.09 |
| 3500 | 0.13 |
| 4000 | 0.17 |

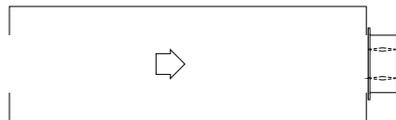
12 in. x 48 in. (305mm x 1219mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.03 |
| 1500 | 0.06 |
| 2000 | 0.11 |
| 2500 | 0.17 |
| 3000 | 0.25 |
| 3500 | 0.34 |
| 4000 | 0.45 |

48 in. x 12 in. (1219mm x 305mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.01 |
| 1000 | 0.02 |
| 1500 | 0.04 |
| 2000 | 0.08 |
| 2500 | 0.12 |
| 3000 | 0.18 |
| 3500 | 0.24 |
| 4000 | 0.31 |

AMCA 5.5



12 in. x 12 in. (305mm x 305mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.04 |
| 1000 | 0.14 |
| 1500 | 0.31 |
| 2000 | 0.55 |
| 2500 | 0.86 |
| 3000 | 1.23 |
| 3500 | 1.67 |
| 4000 | 2.19 |

24 in. x 24 in. (610mm x 610mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.03 |
| 1000 | 0.12 |
| 1500 | 0.27 |
| 2000 | 0.48 |
| 2500 | 0.75 |
| 3000 | 1.07 |
| 3500 | 1.47 |
| 4000 | 1.91 |

36 in. x 36 in. (914mm x 914mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.03 |
| 1000 | 0.10 |
| 1500 | 0.22 |
| 2000 | 0.39 |
| 2500 | 0.61 |
| 3000 | 0.87 |
| 3500 | 1.19 |
| 4000 | 1.56 |

12 in. x 48 in. (305mm x 1219mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.03 |
| 1000 | 0.11 |
| 1500 | 0.25 |
| 2000 | 0.46 |
| 2500 | 0.72 |
| 3000 | 1.05 |
| 3500 | 1.43 |
| 4000 | 1.87 |

48 in. x 12 in. (1219mm x 305mm)

| Velocity (fpm) | Pressure Drop (in. wg) |
|----------------|------------------------|
| 500 | 0.03 |
| 1000 | 0.11 |
| 1500 | 0.26 |
| 2000 | 0.46 |
| 2500 | 0.72 |
| 3000 | 1.02 |
| 3500 | 1.40 |
| 4000 | 1.83 |

AMCA Certified Leakage

Air leakage is based on operation between 32°F (0°C) and 120°F (49°C).

Tested for leakage in accordance with ANSI/AMCA Standard 500-D, Figure 5.5.

Tested for air performance in accordance with ANSI/AMCA Standard 500-D, Figures 5.2, 5.3 and 5.5.

Torque

Data are based on a torque of 5.0 in.lb./ft² (0.56 N·m) applied to close and seat the damper during the test.

| VCD-43 | Leakage Class* | | |
|----------------------------------|------------------------|---------------------|---------------------|
| Maximum Damper Width | 1 in. wg (0.25 kPa) | 4 in. wg (1 kPa) | 8 in. wg (2 kPa) |
| 60 in. (1524mm) | 1A | 1 | 1 |
| * applies to opposed blades only | | | |



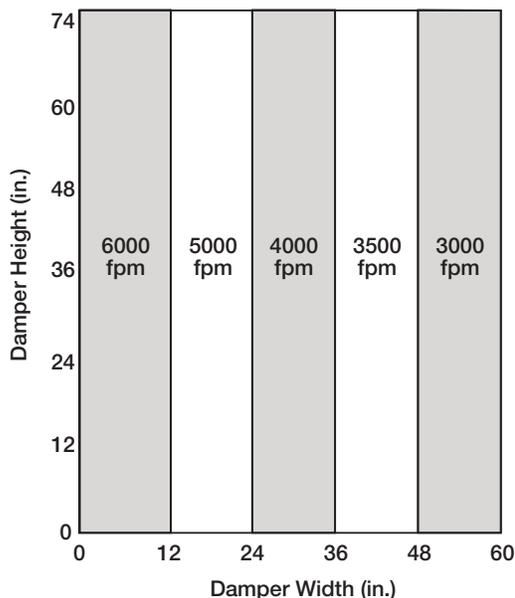
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*Leakage Class Definitions

The maximum allowable leakage is defined as the following:

- Leakage Class 1A - 3 cfm/ft² at 1 in. wg (class 1A is only defined at 1 in. wg).
- Leakage Class 1
 - 4 cfm/ft² at 1 in. wg
 - 8 cfm/ft² at 4 in. wg
 - 11 cfm/ft² at 8 in. wg
 - 12.6 cfm/ft² at 10 in. wg

Velocity and Temperature Limitations

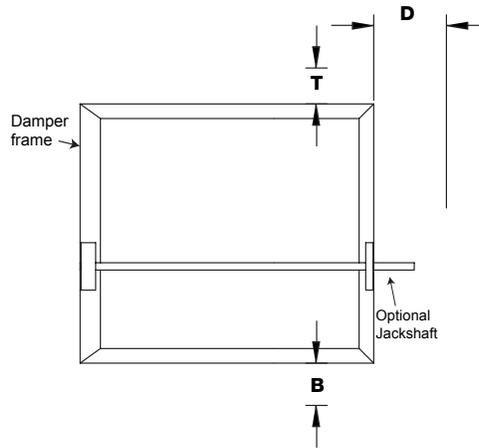


Temperature Limitations

| Blade Seal | Temperature Range |
|------------|---------------------------------|
| TPE | -10°F to 180°F (-23°C to 82°C) |
| Silicone | -40°F to 250°F (-40°C to 121°C) |

Space Envelopes

Externally mounted actuators always require space outside the damper. The "D" dimension illustrates the clearance required for various available actuators. Dampers less than 18 in. (457mm) high may require actuator clearances above and/or below the damper frame. "B" and "T" dimensions are worst case clearance requirements for some dampers less than 18 in. (457mm) high. All damper sizes under 18 in. (457mm) high do not require these worst case clearances. If space availability above or below the damper is limited, each damper size should be individually evaluated.

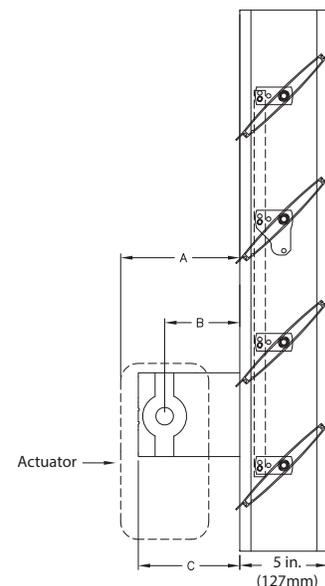


| Actuator Type/Model | Height | T | B | D |
|---|------------|--------|-----|----|
| | Inches | Inches | | |
| AFBUP (-S) and FSNF Series, Belimo MSxx20 Series, Honeywell | ≥6 to <10 | 0 | 12¾ | 6 |
| | ≥10 to <18 | 0 | 2 | 6 |
| | ≥18 | 0 | 0 | 10 |
| FSLF, LF and TFB Series, Belimo | ≥6 to <10 | 0 | 3½ | 6 |
| | ≥10 | 0 | 0 | 6 |
| MSxx04 & MSxx09 Series, Honeywell | ≥6 to <9 | 0 | 4¾ | 6 |
| | ≥9 | 0 | 0 | 6 |
| MS75xx Series, Honeywell | ≥6 to <10 | 0 | 12¾ | 6 |
| | ≥10 to <18 | 0 | 7 | 6 |
| | ≥18 | 0 | 0 | 6 |

| Internal mount only Actuator model | A | B | C |
|---------------------------------------|--------------------|-------------------|----------------------|
| All except - EFB & EFCX Series | 7¼ in. (197 mm) | 3¼ in. (95 mm) | 5½ in. (136.5 mm) |
| EFB & EFCX Series | 8½ in. (216 mm) | 6 in. (152mm) | 8½ in. (216 mm) |

Mounting

- External - includes extension pin (standoff bracket optional)
- External kit - actuator and all mounting hardware
- Internal - blade lever



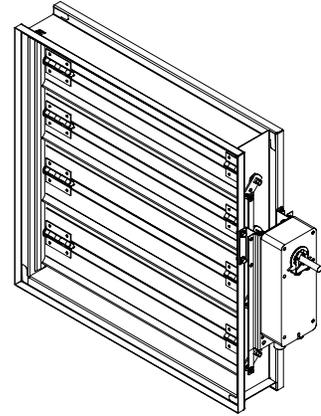
This drawing depicts the worst case clearance requirements for an actuator with a jackshaft.

Actuator Mounting

Actuators may be installed at the factory, shipped loose with the necessary linkage and brackets for mounting, or field supplied. For more detail information on actuator mounting, click on link below or scan QR code.



[ACTUATOR MOUNTING](#)

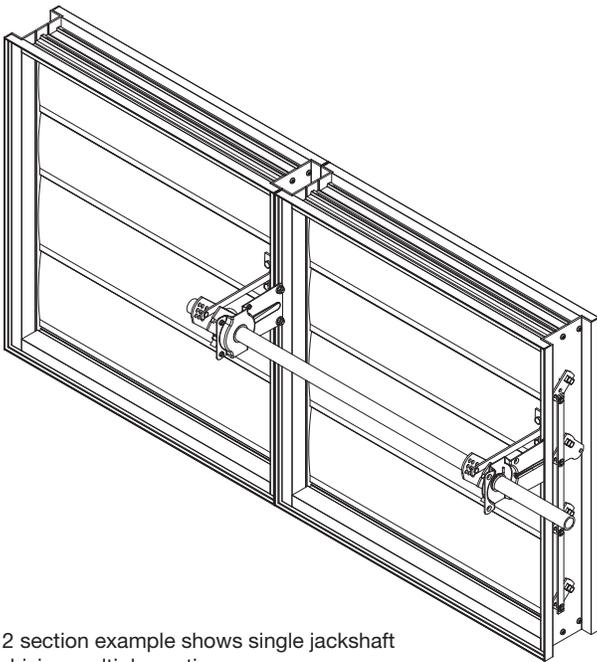


Non-jackshaft external right

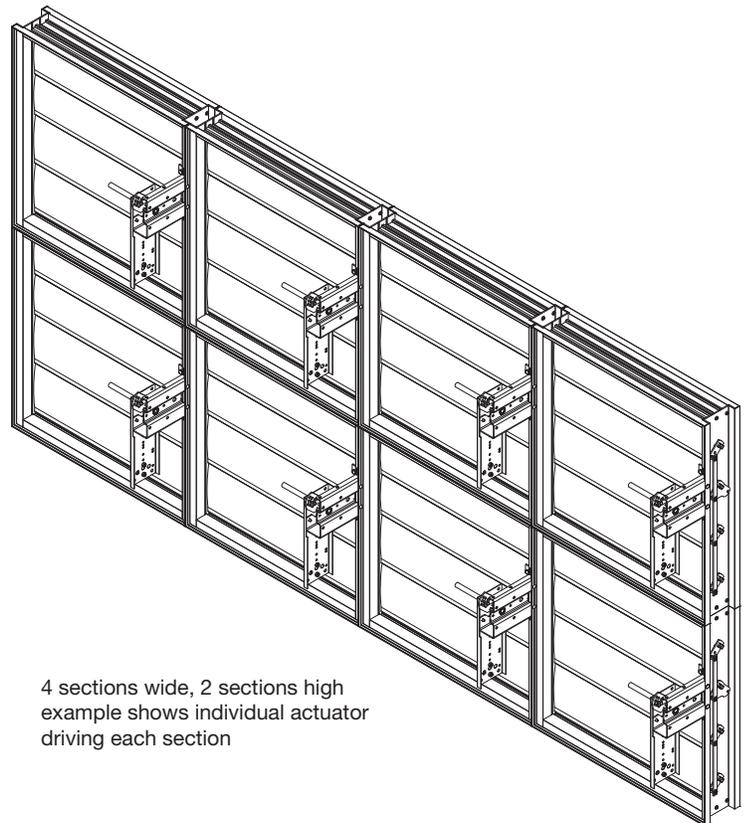
Multi-Section Dampers

Dampers larger than the maximum single section size, will be made up of a multiple of equal size sections.

NOTE: Dampers larger than 60 in. x 74 in. (1524mm x 1880mm) are not intended to be structurally self supporting. Refer to IOM document #463384 for structural support requirements on multi-section assemblies.



2 section example shows single jackshaft driving multiple sections



4 sections wide, 2 sections high example shows individual actuator driving each section



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