

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

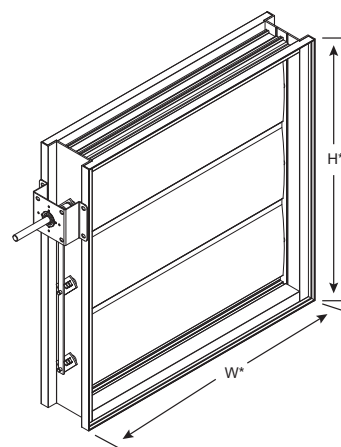
Class 1A at 1 in. wg (0.25 kPa)
Class 1 up to 4-8 in. wg (1-2 kPa)

Temperature

-40°F to 250°F (-40°C to 121°C)



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



Standard frame shown. See page 3 for more frame options.

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, Single, or Reverse Flange	Quick Connect
Minimum Sizes*		8 x 6 (203 x 178)	8 x 5 (203 x 127)
Maximum Sizes	Single Section	60 x 78 (1524 x 1981)	60 x 76 (1524 x 1930)
	Multiple Section	288 x 234 (7315 x 5944)	144 x 152 (3658 x 3861)

* varies by actuator

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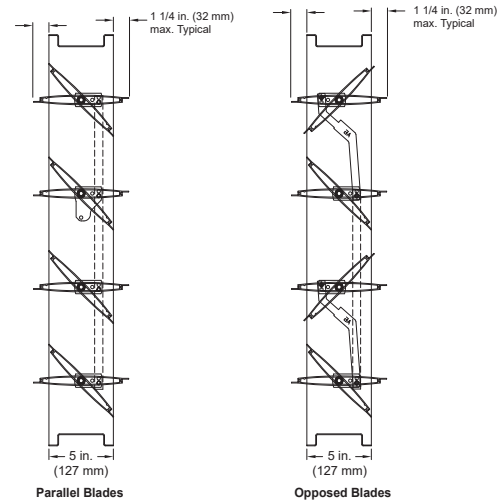
Notes

- Low profile head and sill are used on sizes less than 17 in. high (432 mm), 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.

Blade Operation

Parallel blade operation - this configuration requires the damper blades to rotate in the same direction, parallel to one another.

Opposed blade operation - adjacent damper blades rotate opposite one another.



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

Frame Options

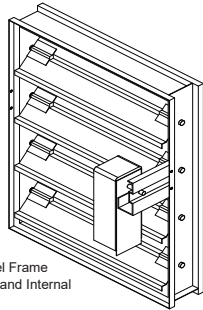
Channel Frame

The channel frame option is designed for in-duct or slip-in installation. Dampers with external actuators can be rotated in the field 180 degrees to change from right hand to left hand drive (not recommended on parallel blade dampers).

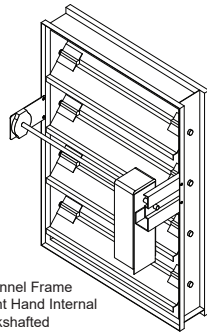
Scan the QR code or click on the link “More Info” for more information on single flange, reverse flange and double flange.



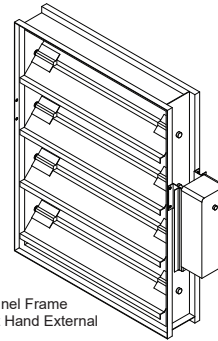
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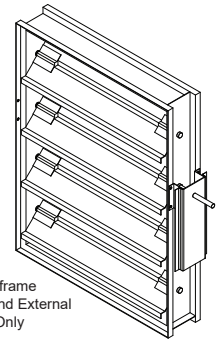
Channel Frame
Right Hand Internal



Channel Frame
Right Hand Internal
Jackshafted

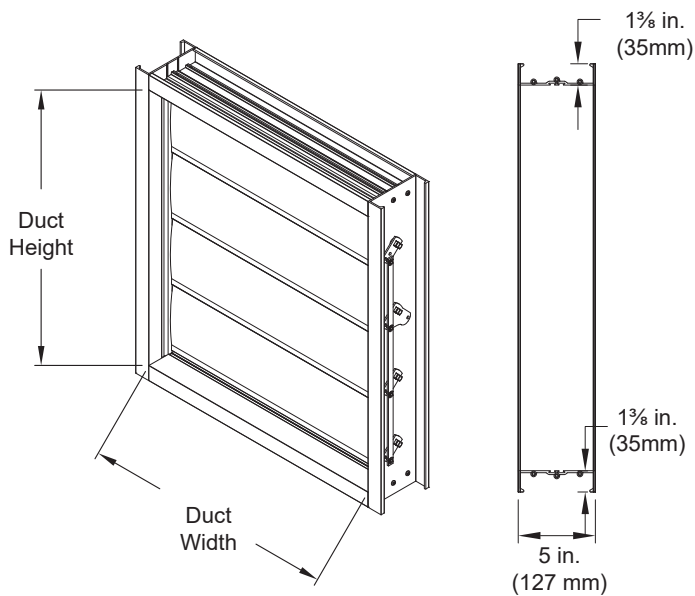


Channel Frame
Right Hand External

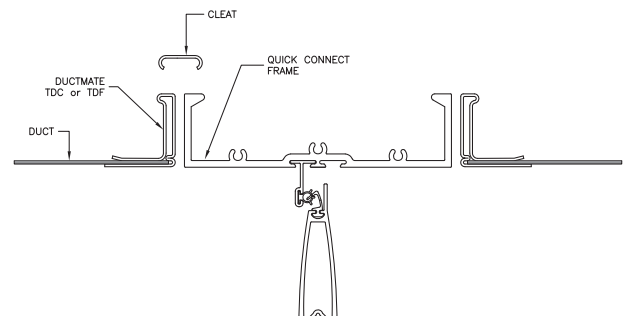


Channel frame
Right Hand External
Bracket Only

Quick Connect



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.

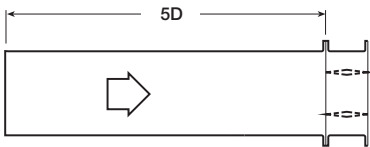


AMCA Certified Pressure Drop Data



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. (305 mm x 305 mm)	
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

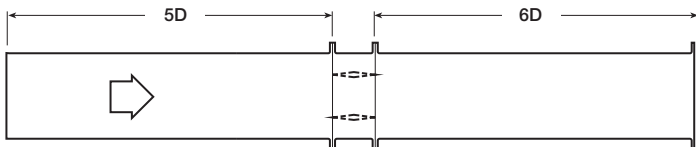
24 in. x 24 in. (610 mm x 610 mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.04
1500	0.10
2000	0.18
2500	0.28
3000	0.40
3500	0.54
4000	0.70

36 in. x 36 in. (914 mm x 914 mm)	
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. (305 mm x 1219 mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.04
1500	0.10
2000	0.17
2500	0.26
3000	0.38
3500	0.52
4000	0.68

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

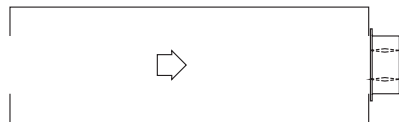
24 in. x 24 in. (610 mm x 610 mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.02
1500	0.04
2000	0.08
2500	0.13
3000	0.19
3500	0.26
4000	0.34

36 in. x 36 in. (914 mm x 914 mm)	
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. (305 mm x 1219 mm)	
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. (1219 mm x 305 mm)	
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. (305 mm x 305 mm)	
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. (610 mm x 610 mm)	
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. (914 mm x 914 mm)	
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. (305 mm x 1219 mm)	
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. (1219 mm x 305 mm)	
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. (1524 mm)	1A	1	1
* applies to opposed blades only			



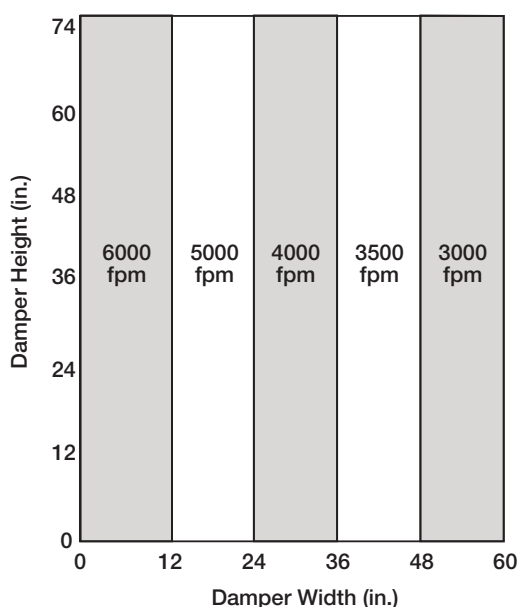
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*Leakage Class Definitions

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

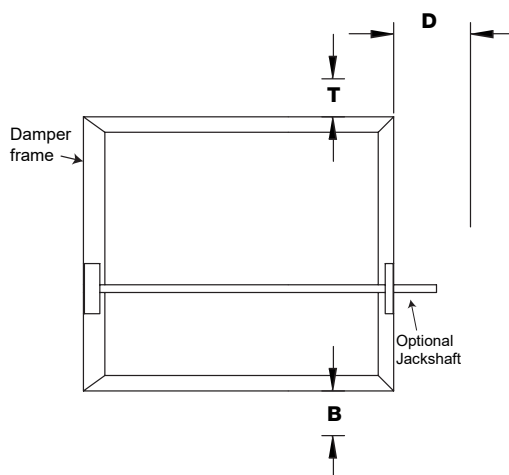


Temperature Limitations

Blade Seal	Temperature Range
TPE	-10°F to 200°F (-23°C to 93°C)
Silicone	-40°F to 250°F (-40°C to 121°C)

Space Envelopes

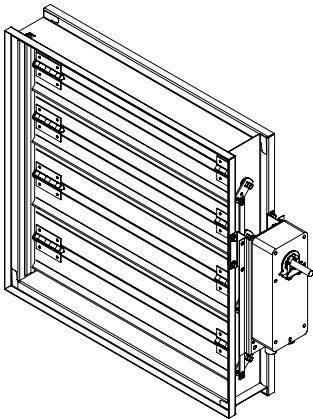
Externally mounted actuators always require space outside the damper. The "D" dimension illustrates the clearance required for various available actuators. Dampers less than 18 in. (457 mm) high may require actuator clearances above and/or below the damper frame. "B" and "T" dimensions are worst case clearance requirements for some dampers less than 18 in. (457 mm) high. All damper sizes under 18 in. (457 mm) 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	12 ³ / ₄	6 ¹ / ₄
	≥10 to <18	0	2	6 ¹ / ₄
	≥18	0	0	6 ¹ / ₄
FSLF, LF and TFB Series, Belimo	≥6 to <10	0	3 ¹ / ₂	6 ¹ / ₄
	≥10	0	0	6 ¹ / ₄
MSxx04 & MSxx09 Series, Honeywell	≥6 to <9	0	4 ³ / ₄	6 ¹ / ₄
	≥9	0	0	6 ¹ / ₄
MS75xx Series, Honeywell	≥6 to <10	0	12 ³ / ₄	6 ¹ / ₄
	≥10 to <18	0	7	6 ¹ / ₄
	≥18	0	0	6 ¹ / ₄
GRD and GVD Series, Siemens	≥6 to <10	0	12 ³ / ₄	6 ¹ / ₄
	≥10 to <18	0	2	6 ¹ / ₄
	≥18	0	0	6 ¹ / ₄
GJD Series, Siemens	≥6 to <10	0	3 ¹ / ₂	6 ¹ / ₄
	≥10 to <18	0	0	6 ¹ / ₄
	≥18	0	0	6 ¹ / ₄

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.

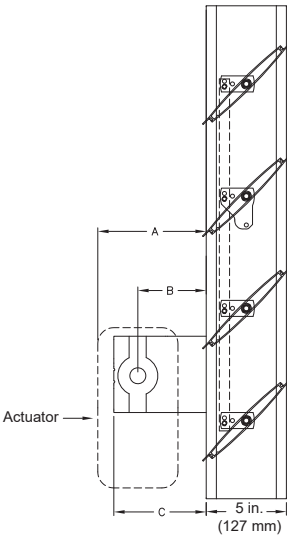


Non-jackshaft external right

Clearance Requirements

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

Internal mount only Actuator model	A	B	C
All except - EFB & EFCX Series	7¾ in. (197 mm)	3¾ in. (95 mm)	5⅝ in. (136.5 mm)
EFB & EFCX Series	8½ in. (216 mm)	6 in. (152 mm)	8½ in. (216 mm)

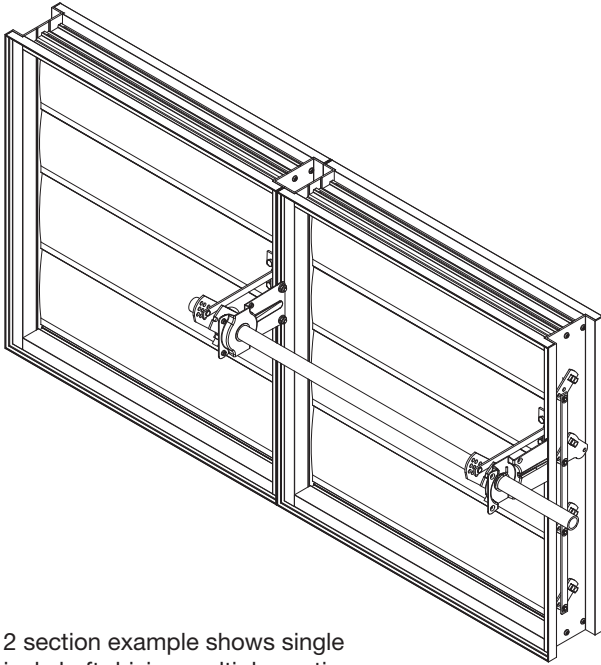


Multi-Section Dampers

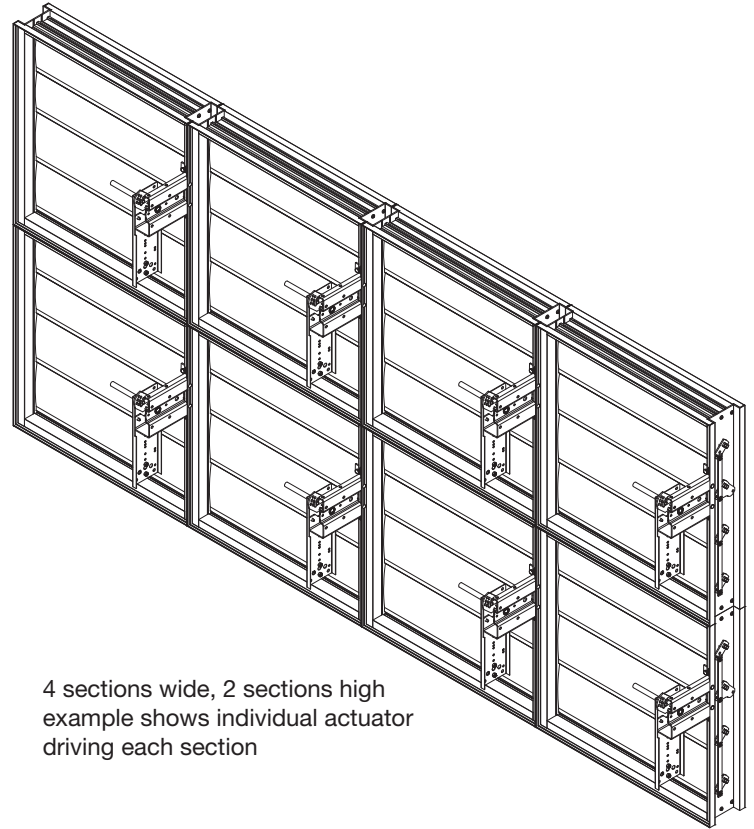
VCD-43
Control Damper

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. (1524 mm x 1880 mm) 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

Document Links



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