

### Application

The VCD-23 damper is a low leakage damper intended for application in low to medium pressure and velocity systems.

### Damper Ratings

#### Velocity

Up to 3000 fpm (15.2 m/s)

#### Pressure

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

#### Leakage

Class 1A at 1 in. wg (0.25 kPa)  
Class 1 up to 5 in. wg (1.2 kPa)

#### Temperature

-40°F to 250°F (-40°C to 121°C). Consult factory for higher temperature

### Construction

	Standard	Optional
<b>Frame Material</b>	Galvanized Steel	304SS
<b>Frame Material Thickness</b>	16 ga. (1.5 mm)	12 ga. (2.7 mm)*
<b>Frame Type</b>	5 in. x 1 in. hat channel	Single flange, Reversed flange, Double flange
<b>Blade Material</b>	Galvanized steel	304SS
<b>Blade Thickness</b>	16 ga. (1.5mm)	-
<b>Blade Type</b>	3V	-
<b>Blade Action</b>	Opposed	Parallel
<b>Blade Seals</b>	TPE	Silicone, None**
<b>Linkage</b>	Plated steel out of airstream, concealed in jamb	316SS
<b>Axle Bearings</b>	Synthetic	316SS
<b>Axle Material</b>	½ in. dia. Plated steel	316SS
<b>Jamb Seal</b>	Stainless Steel	-
<b>Paint Finishes</b>	Mill Finish	Baked Enamel, Hi Pro Polyester, Industrial Epoxy

\*When 12 ga. frame is selected and the damper height is less than 17 inches, low profile top and bottom frame members are utilized. These low profile frame members will be made from 16 ga. material.

\*\*AMCA leakage applies when damper is provided with blade seals.

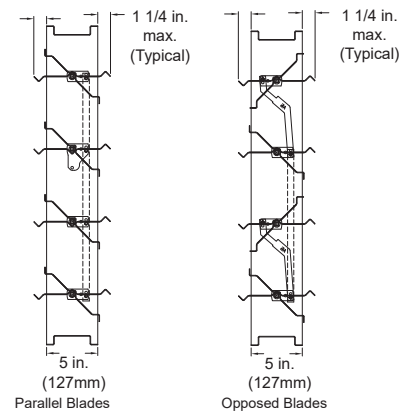


\* W&H dimension furnished approximately ¼ in. (6mm) undersize.

### Size Limitations

W x H	Minimum Size	Maximum Size	
		Single Section	Multiple Section
<b>Inches</b>	6 x 6	48 x 74	Unlimited
<b>mm</b>	152 x 152	1219 x 1880	Unlimited

### Blade Operation



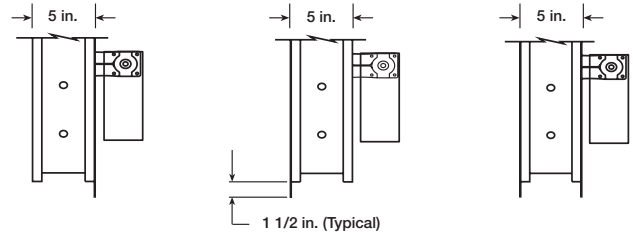
### Notes:

- Low profile head and sill are used on sizes less than 17 in. (432mm) high
- 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.
- 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. If you need vertical blades, see VCD-23V model.

## Options

- Actuators (24V, 120V, manual, pull chain)
- Actuator mounting (external, external kit (field assembly), internal)
- Flanges
- Multi-section fastening
- NEMA enclosures (3, 4, 4X, 7)
- [OCI \(open or closed indicator\)](#)
- R Transition
- [Retaining angles](#)
- [Security bars](#)
- Sleeves
- Transformers

## Flange Options



Single Flange

Reversed Flange

Double Flange

Shown with optional internally mounted actuator.

## Document Links



[INSTALLATION](#)



[CATALOG](#)



[SELECTION GUIDE](#)



[SPECIFICATIONS](#)



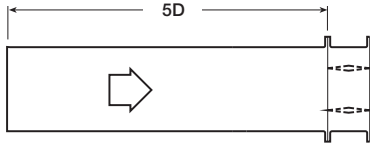
[WARRANTY](#)

# AMCA Certified Pressure Drop Data



Greenheck Fan Corporation certifies that the model VCD-23 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	0.05
1500	0.11
2000	0.19
2500	0.29
3000	0.41
3500	0.55
4000	0.72

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

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	0.40

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.02
1500	0.05
2000	0.09
2500	0.14
3000	0.19
3500	0.27
4000	0.35

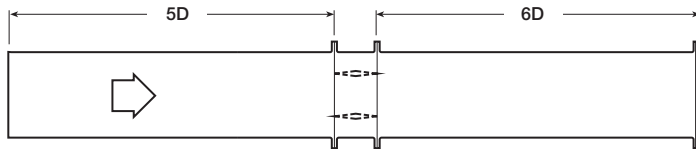
12 in. x 48 in. (305mm x 1219mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.04
1500	0.08
2000	0.15
2500	0.22
3000	0.32
3500	0.43
4000	0.56

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.03
1500	0.07
2000	0.12
2500	0.18
3000	0.26
3500	0.36
4000	0.47

## AMCA 5.3



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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.03
1500	0.08
2000	0.13
2500	0.20
3000	0.29
3500	0.40
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	0.07
2500	0.11
3000	0.16
3500	0.21
4000	0.28

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.02
1500	0.03
2000	0.06
2500	0.09
3000	0.13
3500	0.19
4000	0.25

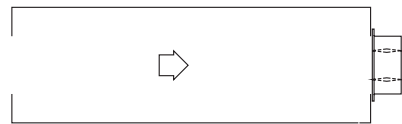
12 in. x 48 in. (305mm x 1219mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.03
1500	0.07
2000	0.12
2500	0.18
3000	0.26
3500	0.36
4000	0.46

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	0.22
3500	0.30
4000	0.39

## AMCA 5.5



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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.13
1500	0.30
2000	0.53
2500	0.82
3000	1.19
3500	1.62
4000	2.10

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.12
1500	0.26
2000	0.47
2500	0.75
3000	1.04
3500	1.41
4000	1.90

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.02
1000	0.10
1500	0.22
2000	0.40
2500	0.62
3000	0.90
3500	1.23
4000	1.62

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.14
1500	0.32
2000	0.57
2500	0.90
3000	1.29
3500	1.76
4000	2.30

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.12
1500	0.28
2000	0.49
2500	0.77
3000	1.12
3500	1.53
4000	2.01

# AMCA Certified Leakage Data

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./ft<sup>2</sup> (0.56 N·m) applied to close and seat the damper during the test.

VCD-23 Maximum Damper Width	Leakage Class*		
	1 in. wg (0.25 kPa)	4 in. wg (1 kPa)	5 in. wg (1.2 kPa)
48 in. (1219mm)	1A	1	1



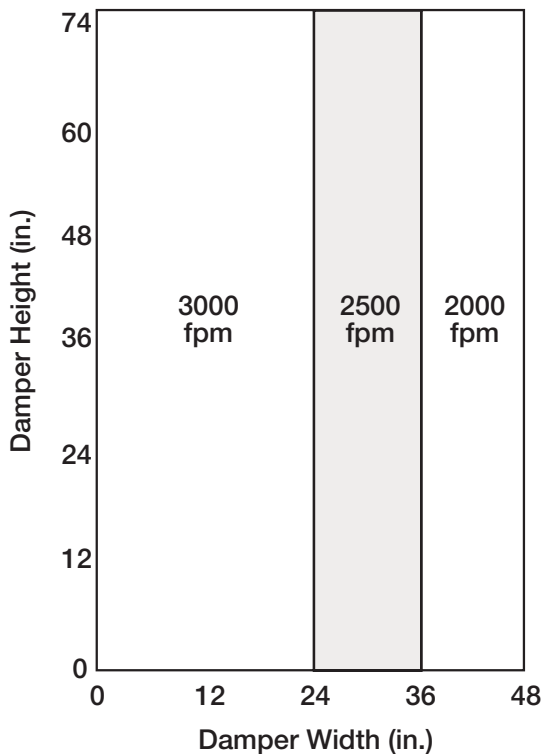
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## \*Leakage Class Definitions

The maximum allowable leakage is defined by AMCA as the following:

- Leakage Class 1A - 3 cfm/ft<sup>2</sup> at 1 in. wg (class 1A is only defined at 1 in. wg).
- Leakage Class 1
  - 4 cfm/ft<sup>2</sup> at 1 in. wg
  - 8 cfm/ft<sup>2</sup> at 4 in. wg
  - 11 cfm/ft<sup>2</sup> at 8 in. wg
  - 12.6 cfm/ft<sup>2</sup> at 10 in. wg

## Velocity and Temperature Limitations

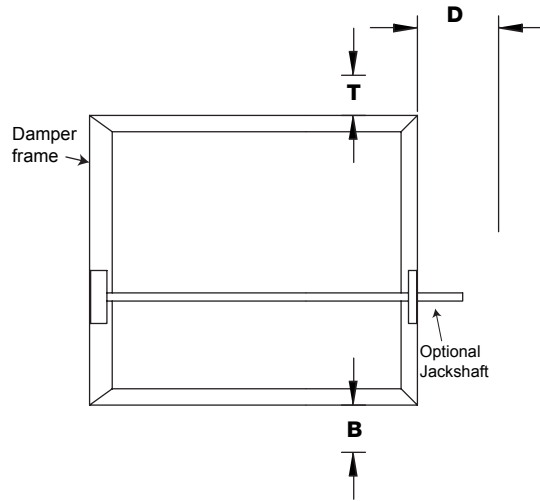


### Temperature Limitations

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)
No Seal	-40°F to 250°F (-40°C to 121°C)

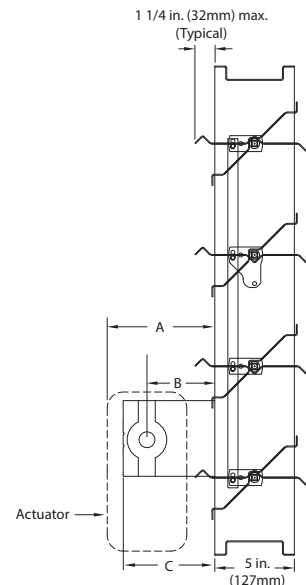
# Space Envelopes

On dampers less than 18 in. (457mm) high, actuators may also require 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 (mm)	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	7 ¾ in (197 mm)	3 ¾ in (95 mm)	5 ⅜ in (136.5 mm)
EFB & EFCX Series	8 ½ in (216 mm)	6 in (152mm)	8 ½ in (216 mm)



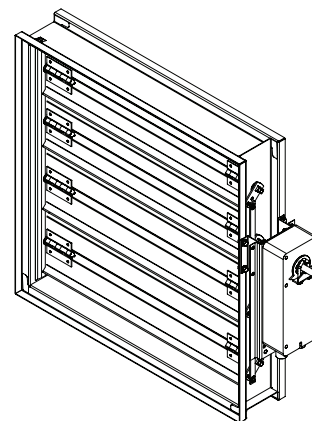
This drawing depicts the worst case clearance requirements for an actuator with a jackshaft.

## 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

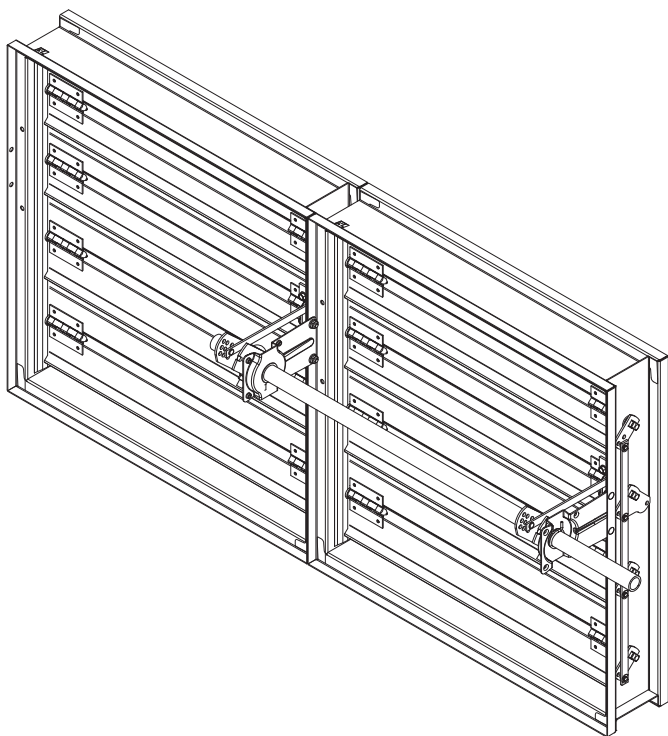


Non-jackshaft external right

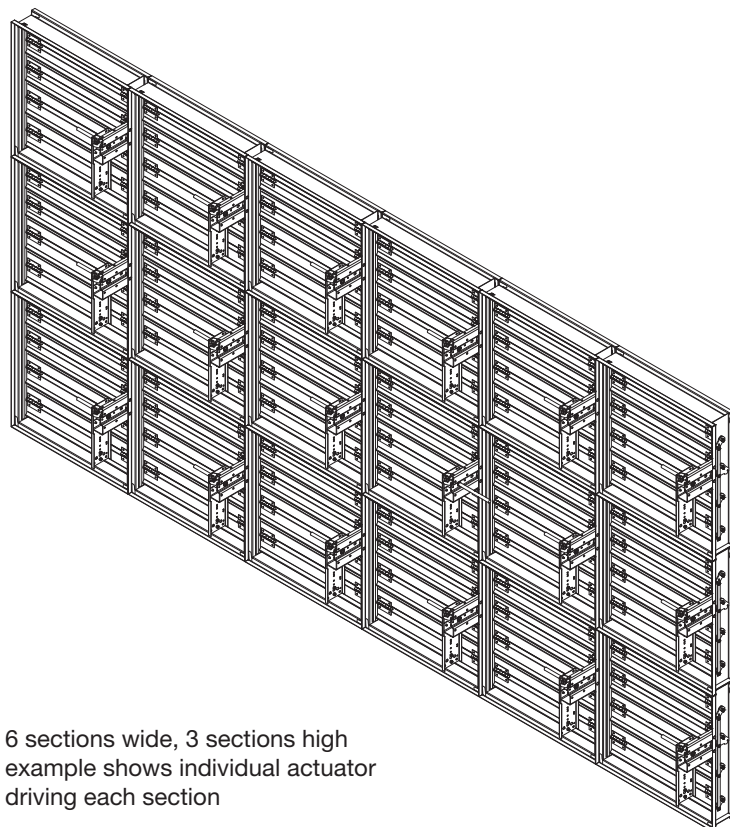
## Multi-Section Dampers

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

**NOTE:** Dampers larger than 48 in. x 74 in. (1219mm 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



6 sections wide, 3 sections high example shows individual actuator driving each section