

# VD-1630 Galvanized Steel Damper

## Description

The VD-1630 is a low leak, galvanized steel damper designed with airfoil blades for higher velocity and pressure HVAC systems. It meets the leakage requirements of the International Energy Conservation Code by leaking less than 3 cfm/sq. ft. at 1 inch of static pressure and is AMCA licensed as a Class 1A damper.

For more information on the VD-1630 Galvanized Steel Damper, refer to the *VD-1600 Volume Control Dampers Product Bulletin (LIT-1201735)*.

## Features

- Self-Compensating Stainless Steel Side Seals
- 15-Working-Day Standard Shipping after Order Entry
- 5-Working-Day Fast Track Shipping
- three-year warranty on materials and workmanship

## Factory Options

- E = Exact whole inch size, no undercut
  - F = 1.5 inch L flange air entering side (Cannot be used with option G or H)
  - G = 1.5 inch L flange air leaving side (Cannot be used with option F or H)
  - H = Double flange (Cannot be used with option F or G)
  - I = Indicator Switch
  - J = Field-installed jackshaft on single panel (multiple section units broken down and shipped in sections)
  - M = Factory-installed jackshaft on single panel units
  - Q = Internal mount actuator (actuator mounted in air stream, minimum electric actuator 14 x 21 in., minimum pneumatic actuator 18 x 24 in.)
  - V = Transition (round/oval)
- Note:** When the transition option is selected, the damper is 2 inches larger than the round or oval duct for the transition. For example, the VOGSN-014x014V has a 16 in. x 16 in. damper used with a 14 in. round duct. The VOGSN-014x024V has a 16 in. x 26 in. damper used with a 14 in. x 24 in. oval duct.



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## Repair Information

If the VD-1630 Galvanized Steel Damper fails to operate within its specifications, replace the unit. For a replacement VD-1630, contact the nearest Johnson Controls® representative.



## VD-1630 Galvanized Steel Control Damper Selection Chart

	Code Number	V	G	S	-	w	w	w	x	h	h	h		
<b>Application</b>	V = Volume Control													
<b>Blade Operation</b>	O = Opposed P = Parallel													
<b>Blade/Frame</b>	G = Galvanized Airfoil/Galvanized Steel													
<b>Bearing/Seal Type</b>	S = Standard (Stainless Steel/Ruskiprene) E = Extended (Stainless Steel/Silicone) T = Thrust Bearing (Vertical Airfoil Blade)													
<b>Actuator</b>	A = M9208-AGC or M9220-AGC (24 V, Floating, Spring Return) B = M9208-GGC or M9220-GGC (24 V, Modulating, Spring Return) C = M9208-BAC or M9220-BAC (120 V, Two-Position, Spring Return) D = M9208-BGC or M9220-BGC (24 V, Two-Position, Spring Return) F = M9106-AGC or M9116-AGC (24 V Floating, Non-Spring Return) G = M9106-GGC or M9116-HGC (24 V Modulating, Non-Spring Return) N = No Actuator P = D-3062-3 or D-3151-3 (Pneumatic 8-13 lb Spring Range)													
<b>Width Dimensions</b>	006 to 999 (Vertical Blade), 008 to 999 (Opposed and Parallel Blade) <sup>1</sup>													
<b>Height Dimensions</b>	006 to 999 (Parallel Blade), 008 to 999 (Vertical Blade), 010 to 999 (Opposed Blade) <sup>2</sup>													
<b>Options (limit two)</b>	See Factory Options list													

1. The maximum single panel size is 60 inches wide x 72 inches high. After 60 inches, maximum width for a section is 48 inches, and the maximum height is 72 inches.
2. Actuators may restrict maximum sizes; check selector tool for valid maximum sizes. Actuators, by default, come externally mounted (outside air stream). Use option Q for internally mounted actuators.

**Note:** Any damper that requires more than one panel (larger than 60 inches wide or 72 inches high) automatically includes the jackshaft. All jackshafts are factory installed.

## VD-1630 Galvanized Steel Damper (Continued)

VD-1630 Galvanized Steel Damper		
Temperature Rating - Damper	Extended Operating Condition	-72 to 275°F (-60 to 135°C)
	Standard Operating Condition	-40 to 200°F (-40 to 93°C)
Temperature Rating - Actuator	Actuator	-4°F to 122°F (-20°C to 50°C)
Approximate Weight	Damper Actuator	7 lb/sq. ft (3.2 kg/sq. ft) 2.9 lb (1.6 kg) per actuator
Construction		
Frame	5 in. x 1 in. x 16-gauge (127 mm x 25 mm x 1.6 mm) galvanized steel, hat channel shaped	
Blades	Galvanized steel airfoil shaped double skin construction; 6-inch nominal width	
Bearings	Stainless steel	
Blade Seal	Ruskiprene blade edge seal mechanically locked into blade edge, silicone optional	
Linkage	Concealed in end channel of frame	
Blade Pin	1/2 in. plated steel hex	
Side Seal	Self-compressing flexible metal or stainless steel	
Extension	1/2 in. (13 mm) diameter, 6 in. (152 mm) long pin included with all control dampers	

### Submittal Specifications

Furnish and install Johnson Controls VD-1630 Class IA volume dampers.

**Frames** are to be constructed of formed 16-gauge galvanized sheet steel, with linkage concealed in the side channels to eliminate noise and friction. Compressible spring stainless steel side seals and self-lubricating bearings shall also be provided.

**Blades** are to be constructed of rollformed galvanized steel in an airfoil shape. Damper blade width shall not exceed 8 inches and shall have seals. Blade action is to be parallel or opposed as shown on the schedules.

**Performance** shall be designed for very tight shutoff and tested in accordance with AMCA Standard 500. Damper shall perform to leakage class 1A at 1 in. w.c. and class 1 up to 10 in. w.c. with a holding torque of 5 in-lbs/sq.ft. The damper must be rated to operate over a temperature range of -40 to 200°F (-40 to 93°C) standard and -72 to 275°F (-60 to 135°C) extended temperature.

**Sizing** shall be determined by the designer in accordance with accepted industry practices to ensure proper system performance.

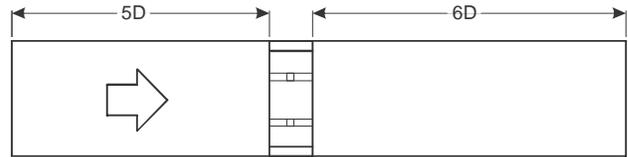
## VD-1630 Galvanized Steel Damper (Continued)

### Pressure Drop Data

VD-1630 air performance testing is performed in accordance with AMCA Standard 500-D configurations 5.3 as illustrated to the right. All data has been corrected to standard air density of 0.075 lb/ft<sup>3</sup> (1.201 kg/m<sup>3</sup>).

AMCA figure 5.3 was established to represent a fully ducted damper with straight duct upstream and downstream. With entrance and exit losses minimized by this straight duct arrangement, this configuration has the lowest pressure drop of all three configurations.

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



12 in. x 12 in. (305 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in.wg)
499	0.02
869	0.06
1,417	0.17
1,980	0.34
2,986	0.79

24 in. x 24 in. (610 mm x 610 mm)	
Velocity (fpm)	Pressure Drop (in.wg)
506	0.005
998	0.03
1,514	0.06
2,012	0.11
2,867	0.22

36 in. x 36 in. (914 mm x 914 mm)	
Velocity (fpm)	Pressure Drop (in.wg)
517	0.005
1,007	0.02
1,404	0.03
1,949	0.05
3,004	0.12

12 in. x 48 in. (305 mm x 1,219 mm)	
Velocity (fpm)	Pressure Drop (in.wg)
508	0.005
1,002	0.03
1,519	0.06
2,019	0.10
2,883	0.21

48 in. x 12 in. (1,219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in.wg)
509	0.01
1,005	0.04
1,523	0.08
2,024	0.16
2,884	0.32

### Leakage Data

Air Leakage testing is performed in accordance with ANSI/AMCA Standard 500-D, figure 5.5.

Data are based on a torque of 7 inch pounds /ft<sup>2</sup> (0.79 N.m./m<sup>2</sup>) applied to close and seat the damper during the test.

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

VD-1630 Maximum Damper Width, in. (mm)	Leakage Class			
	1 in. w.g. (0.25 kPa)	4 in. w.g. (1 kPa)	8 in. w.g. (2 kPa)	10 in. w.g. (2.5 kPa)
60 (1,524)	1A	1	N/A	N/A

### Leakage Class Definitions

As defined by AMCA, the maximum allowable leakage is as follows:

**Leakage Class 1A** (only defined at 1 in. wg)

- 3 cfm/ft<sup>2</sup> (0.92 cmm/m<sup>2</sup>) at 1 in. wg (0.25 kPa)

**Leakage Class 1**

- 4 cfm/ft<sup>2</sup> (1.22 cmm/m<sup>2</sup>) at 1 in. wg (0.25 kPa)
- 8 cfm/ft<sup>2</sup> (2.44 cmm/m<sup>2</sup>) at 4 in. wg (1 kPa)
- 11.3 cfm/ft<sup>2</sup> (3.45 cmm/m<sup>2</sup>) at 8 in. wg (2 kPa)
- 12.6 cfm/ft<sup>2</sup> (3.85 cmm/m<sup>2</sup>) at 10 in. wg (2.5 kPa)

### Maximum System Velocity and Pressure

The VD-1630 may be used in systems with total pressures exceeding 3.5 in. w.g. (0.09 kPa) and velocities exceeding 3,000 fpm (15.2 m/s) by reducing damper section width as indicated in the following table.

Velocity and Pressure Data		
Damper Width, in. (mm)	Maximum System Pressure in. wg (kPa)	Maximum System Velocity FPM (m/s)
60 (1,524)	3.5 (0.9)	3,000 (15.2)
48 (1,219)	6.2 (1.5)	4,000 (20.3)
36 (914)	8.5 (2.1)	4,000 (20.3)
24 (610)	10.8 (2.7)	5,000 (25.4)
12 (305)	13.0 (3.25)	6,000 (30.5)

Johnson Controls certifies that model VD-1630 shown herein is licensed to bear the AMCA seal. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings. 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 Program.

