



**BADR and ASFOUR**  
Engineering & Metal Industries

# Commercial Control Dampers Flange Type



**CVS**

Reference:

Client:

Project:

Consultant:

Location:

Contractor:

Date:

Submitted by:



Your Reliable HVAC Partner

### Model CDF-100 Series

Commercial Control Dampers

Airfoil Blade

Manual Quadrant/Motorised

#### Application:

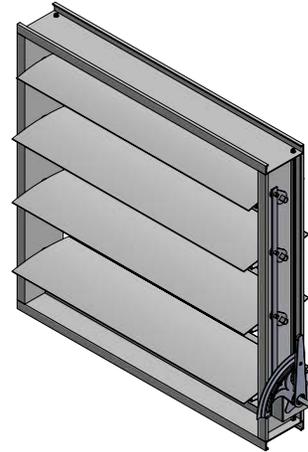
The CVS commercial control damper models CDF-100-AF-Q and CDF-100-AF-M are intended for low to high pressure and velocity applications and can be provided in opposed or parallel blade orientations.

The model CDF-100-AF-Q (manual quadrant) is a general purpose commercial control damper for use in manual balancing control applications where tight sealing is not of primary importance.

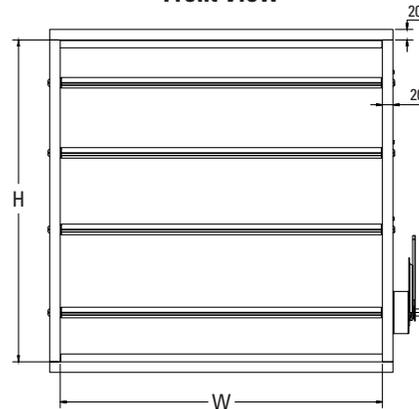
The model CDF-100-AF-M (motorised) is a general purpose commercial control damper for use in automatic balancing control or shut off applications where tight sealing is a primary requirement.

#### Standard Construction:

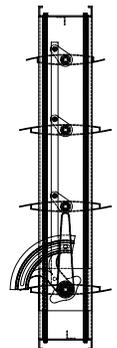
	Standard	Optional
<b>Frame Material</b>	2.3mm thick extruded aluminium 6063-T6 flanged frame	Multiple gauges galvanized steel or stainless steel flange frame and other flange sizes (only for roll formed frames)
<b>Frame Depth</b>	100mm	Other depths available (only for roll formed frames)
<b>Blade Material and Type</b>	1.4 mm thick extruded aluminum 6063-T6 airfoil shaped (Type 1)	16 gauge galvanized steel or stainless steel roll formed airfoil shape double skin profile (Type 2)
<b>Blade Seal</b>	Q - None M - Foam Type	Q - Foam Type, Neoprene, EPDM, Silicon Rubber M - Neoprene, EPDM, Silicon Rubber
<b>Blade Operator</b>	Q - Manual Quadrant M - Electric Actuator (On/Off Type)	M - Electric Actuator (Modulating type)
<b>Dimensions</b>	Actual	----
<b>Axle Material</b>	Zinc plated steel	Stainless steel
<b>Axle Bearings</b>	Nylon	Brass, Bronze, Stainless steel, Acetal Copolymer, Polycarbonate
<b>Type of Blade Operation</b>	Parallel	Opposed
<b>Jamb Seal</b>	Q - None M - SS301	Q - SS301



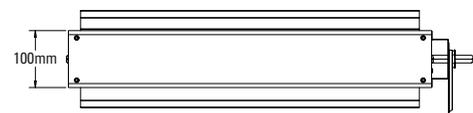
Front View



Section View



Top View



Airfoil Blade - Type 1



Airfoil Blade - Type 2



#### Minimum & Maximum Sizes:

Model	Minimum Single Section	Maximum Single Section	Maximum Multi Section
<b>CDF-100-AF-Q</b> (Manual quadrant)	5" x 6" (127 x 152)	36" x 48" (914 x 1219)	Unlimited Size (Please consult factory)
<b>CDF-100-AF-M</b> (Motorised)			

All dimensions shown in inches, parentheses ( ) indicate millimeters.

#### Optional Construction:

Operators: Manual Quadrant

Actuators: 24V 230V

Spring Return Non-Spring Return

On/Off Modulating

Airfoil Blade Construction: Type 2

As part of our continuous improvement program, we reserve the right to make further improvements without notice.

Submittal

Reference:

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Contractor:

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Submitted by:



Your Reliable HVAC Partner

### Model CDF-100 Series

Commercial Control Dampers

3V Blade

Manual Quadrant/Motorised

#### Application:

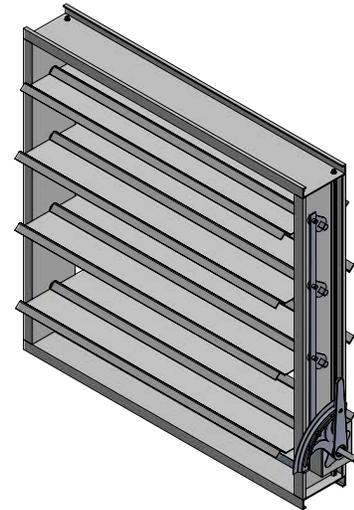
The CVS commercial control damper models CDF-100-3V-Q and CDF-100-3V-M are intended for low to high pressure and velocity applications and can be provided in opposed or parallel blade orientations.

The model CDF-100-3V-Q (manual quadrant) is a general purpose commercial control damper for use in manual balancing control applications where tight sealing is not of primary importance.

The model CDF-100-3V-M (motorised) is a general purpose commercial control damper for use in automatic balancing control or shut off applications where tight sealing is a primary requirement.

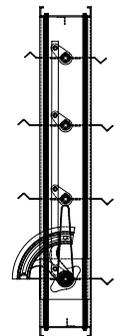
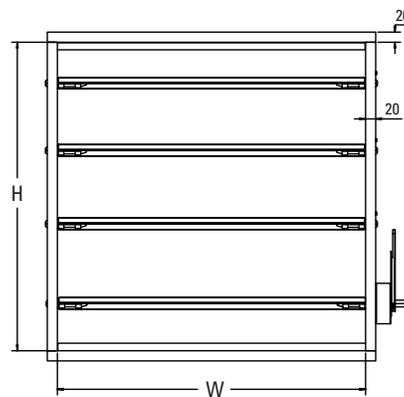
#### Standard Construction:

	Standard	Optional
<b>Frame Material</b>	2.3mm thick extruded aluminium 6063-T6 flanged frame	Multiple gauges galvanized steel or stainless steel flange frame and other flange sizes (only for roll formed frames)
<b>Frame Depth</b>	100mm	Other depths available (only for roll formed frames)
<b>Blade Material and Type</b>	16 gauge galvanized steel roll formed 3V shape profile	Multiple gauges of galvanized steel & stainless steel roll formed 3V shape profile
<b>Blade Seal</b>	Q - None M - Foam Type	Q - Foam Type, Neoprene, EPDM, Silicon Rubber M - Neoprene, EPDM, Silicon Rubber
<b>Blade Operator</b>	Q - Manual Quadrant M - Electric Actuator (On/Off Type)	M - Electric Actuator (Modulating type)
<b>Dimensions</b>	Actual	-----
<b>Axle Material</b>	Zinc plated steel	Stainless steel
<b>Axle Bearings</b>	Nylon	Brass, Bronze, Stainless steel
<b>Type of Blade Operation</b>	Parallel	Opposed
<b>Jamb Seal</b>	Q - None M - SS301	Q - SS301



Front View

Section View



Top View



#### Minimum & Maximum Sizes:

Model	Minimum Single Section	Maximum Single Section	Maximum Multi Section
<b>CDF-100-3V-Q</b> (Manual quadrant)	4" x 4" (101 x 101)	36" x 48" (914 x 1219)	Unlimited Size (Please consult factory)
<b>CDF-100-3V-M</b> (Motorised)			

All dimensions shown in inches, parentheses ( ) indicate millimeters.

#### Optional Construction:

Operators:

Actuators: 24V 230V  
Spring Return Non-Spring Return  
On/Off Modulating

Manual Quadrant

As part of our continuous improvement program, we reserve the right to make further improvements without notice.

Submittal

Reference:

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Location:

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Your Reliable HVAC Partner

### Model CDF-165 Series

Commercial Control Dampers

Airfoil Blade

Manual Quadrant/Motorised

#### Application:

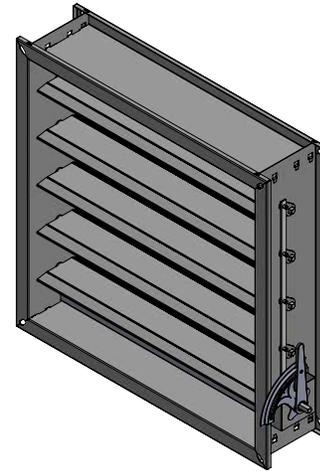
The CVS commercial control damper models CDF-165-AF-Q and CDF-165-AF-M are intended for low to high pressure and velocity applications and can be provided in opposed or parallel blade orientations.

The model CDF-165-AF-Q (manual quadrant) is a general purpose commercial control damper for use in manual balancing control applications where tight sealing is not of primary importance.

The model CDF-165-AF-M (motorised) is a general purpose commercial control damper for use in automatic balancing control or shut off applications where tight sealing is a primary requirement.

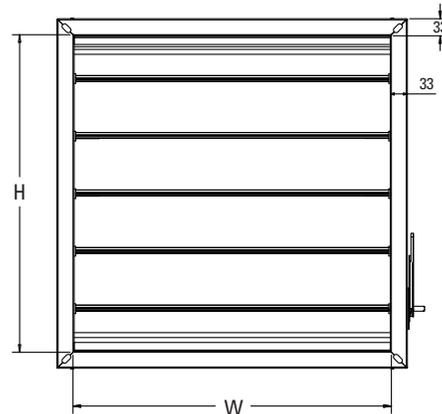
#### Standard Construction:

	Standard	Optional
<b>Frame Material</b>	20 gauge thick roll formed galvanized steel flanged frame	Multiple gauges galvanized steel or stainless steel flange frame and other flange sizes (only for roll formed frames)
<b>Frame Depth</b>	165mm	Other depths available (only for roll formed frames)
<b>Blade Material and Type</b>	16 gauge galvanized steel roll formed airfoil shape double skin profile (Type 2)	1.4 mm thick extruded aluminum 6063-T6 airfoil shape (Type 1)
<b>Blade Seal</b>	Q - None M - Foam Type	Q - Foam Type, Neoprene, EPDM, Silicon Rubber M - Neoprene, EPDM, Silicon Rubber
<b>Blade Operator</b>	Q - Manual Quadrant M - Electric Actuator (On/Off Type)	M - Electric Actuator (Modulating type)
<b>Dimensions</b>	Actual	-----
<b>Axle Material</b>	Zinc plated steel	Stainless steel
<b>Axle Bearings</b>	Nylon	Brass, Bronze, Stainless steel, Acetal Copolymer, Polycarbonate
<b>Type of Blade Operation</b>	Parallel	Opposed
<b>Jamb Seal</b>	Q - None M - SS301	Q - SS301

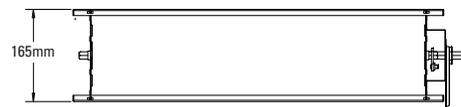


Front View

Section View



Top View



Airfoil Blade - Type 1



Airfoil Blade - Type 2



#### Minimum & Maximum Sizes:

Model	Minimum Single Section	Maximum Single Section	Maximum Multi Section
<b>CDF-165-AF-Q (Manual quadrant)</b>	5" x 6" (127 x 152)	36" x 48" (914 x 1219)	Unlimited Size (Please consult factory)
<b>CDF-165-AF-M (Motorised)</b>			

All dimensions shown in inches, parentheses ( ) indicate millimeters.

#### Optional Construction:

Operators: Manual Quadrant

Actuators: 24V 230V

Spring Return Non-Spring Return

On/Off Modulating

Airfoil Blade Construction: Type 1

As part of our continuous improvement program, we reserve the right to make further improvements without notice.

Submittal

Reference:

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Your Reliable HVAC Partner

**Model CDF-165 Series**

Commercial Control Dampers

3V Blade

Manual Quadrant/Motorised

**Application:**

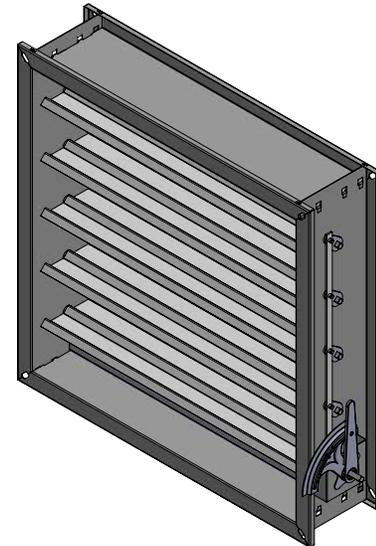
The CVS commercial control damper models CDF-165-3V-Q and CDF-165-3V-M are intended for low to high pressure and velocity applications and can be provided in opposed or parallel blade orientations.

The model CDF-165-3V-Q (manual quadrant) is a general purpose commercial control damper for use in manual balancing control applications where tight sealing is not of primary importance.

The model CDF-165-3V-M (motorised) is a general purpose commercial control damper for use in automatic balancing control or shut off applications where tight sealing is a primary requirement.

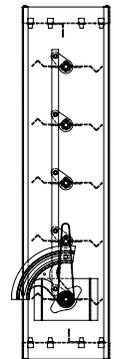
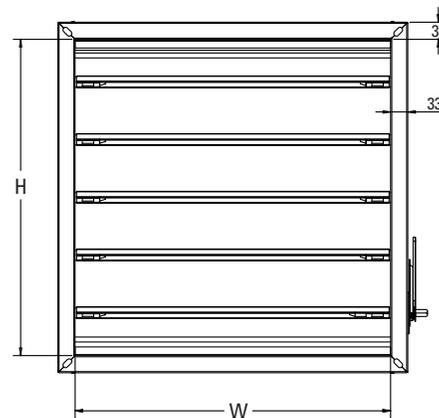
**Standard Construction:**

	Standard	Optional
<b>Frame Material</b>	20 gauge thick roll formed galvanized steel flanged frame	Multiple gauges galvanized steel or stainless steel flange frame and other flange sizes (only for roll formed frames)
<b>Frame Depth</b>	165mm	Other depths available (only for roll formed frames)
<b>Blade Material and Type</b>	16 gauge galvanized steel roll formed 3V shape profile	Multiple gauges of galvanized steel & stainless steel roll formed 3V shape profile
<b>Blade Seal</b>	Q - None M - Foam Type	Q - Foam Type, Neoprene, EPDM, Silicon Rubber M - Neoprene, EPDM, Silicon Rubber
<b>Blade Operator</b>	Q - Manual Quadrant M - Electric Actuator (On/Off Type)	M - Electric Actuator (Modulating type)
<b>Dimensions</b>	Actual	
<b>Axle Material</b>	Zinc plated steel	Stainless steel
<b>Axle Bearings</b>	Nylon	Brass, Bronze, Stainless steel
<b>Type of Blade Operation</b>	Parallel	Opposed
<b>Jamb Seal</b>	Q - None M - SS301	Q - SS301

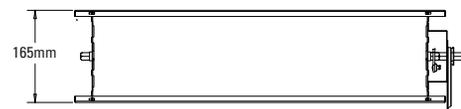


Front View

Section View



Top View



**Minimum & Maximum Sizes:**

Model	Minimum Single Section	Maximum Single Section	Maximum Multi Section
<b>CDF-165-3V-Q</b> (Manual quadrant)	4" x 4" (101 x 101)	36" x 48" (914 x 1219)	Unlimited Size (Please consult factory)
<b>CDF-165-3V-M</b> (Motorised)			

All dimensions shown in inches, parentheses ( ) indicate millimeters.

**Optional Construction:**

Operators:

Actuators: 24V 230V  
Spring Return Non-Spring Return  
On/Off Modulating

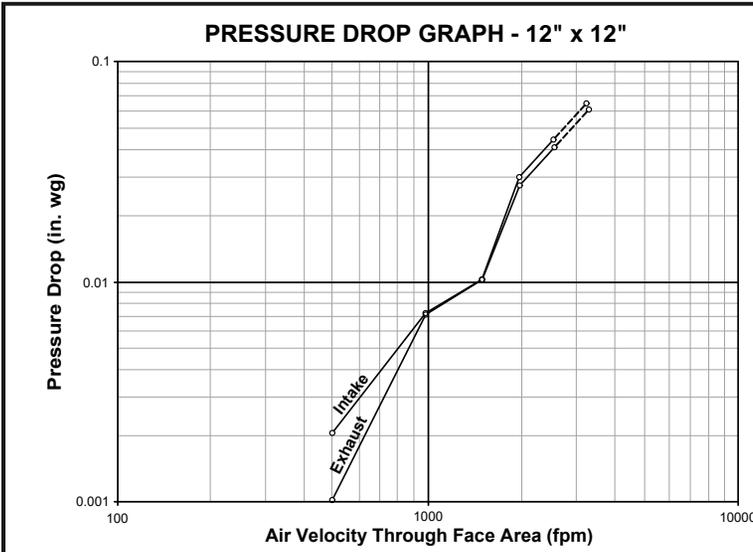
Manual Quadrant

As part of our continuous improvement program, we reserve the right to make further improvements without notice.

Submittal

## PRESSURE DROP - INTAKE AND EXHAUST:

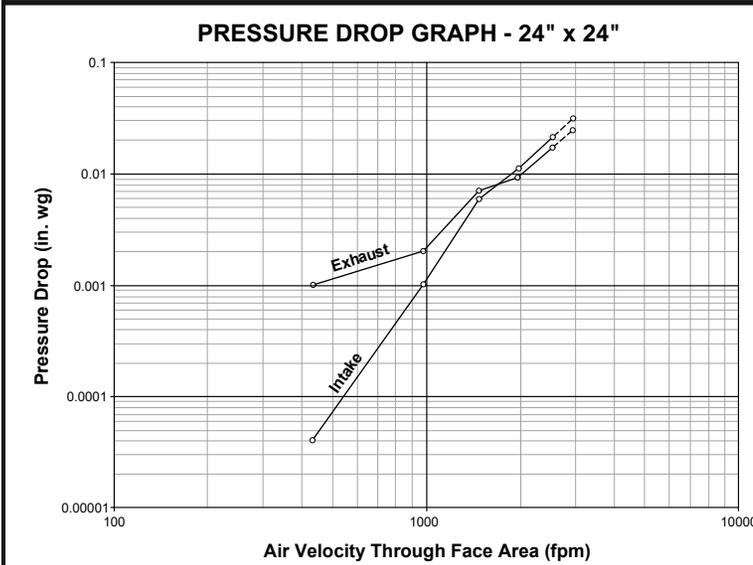
Air Performance testing has been performed in accordance with Test Method as per latest version of ANSI/AMCA Standard 500-D, Figure 5.3 (Duct Upstream and Downstream).



**PRESSURE DROP OF DAMPER**

12" x 12" - (305 x 305)

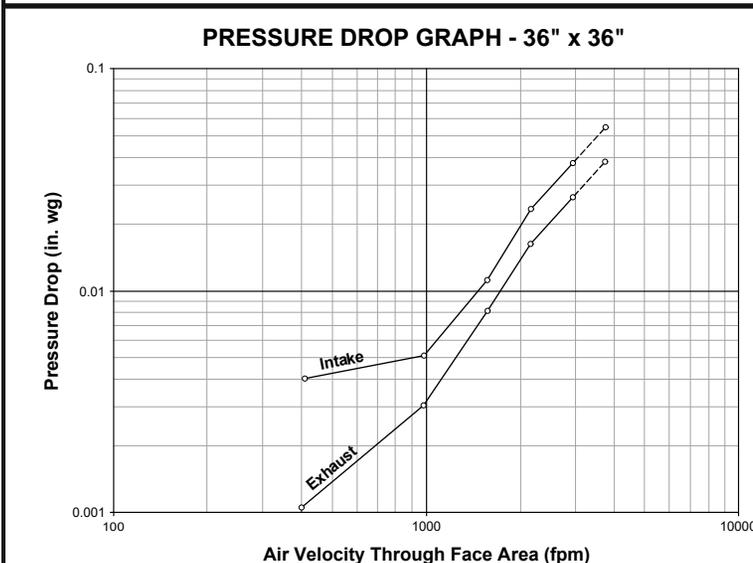
Intake		Exhaust	
Velocity	Pressure Drop	Velocity	Pressure Drop
(fpm)	(in. w.g.)	(fpm)	(in. w.g.)
2468	0.044	2471	0.041
1964	0.03	1965	0.028
1472	0.01	1472	0.01
982	0.007	984	0.007
502	0.002	502	0.001



**PRESSURE DROP OF DAMPER**

24" x 24" - (610 x 610)

Intake		Exhaust	
Velocity	Pressure Drop	Velocity	Pressure Drop
(fpm)	(in. w.g.)	(fpm)	(in. w.g.)
2530	0.021	2531	0.017
1966	0.011	1964	0.009
1473	0.006	1473	0.007
976	0.001	976	0.002
431	0.000	434	0.001



**PRESSURE DROP OF DAMPER**

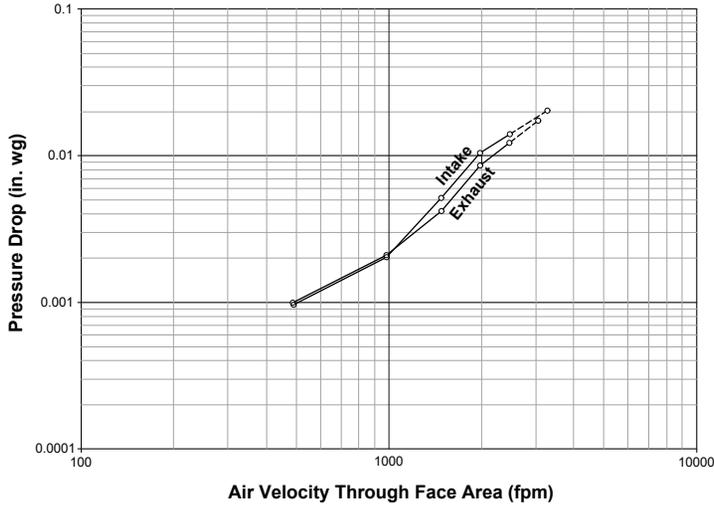
36" x 36" - (914 x 914)

Intake		Exhaust	
Velocity	Pressure Drop	Velocity	Pressure Drop
(fpm)	(in. w.g.)	(fpm)	(in. w.g.)
2948	0.038	2950	0.026
2160	0.023	2161	0.016
1570	0.011	1571	0.008
981	0.005	982	0.003
409	0.004	399	0.001

## PRESSURE DROP - INTAKE AND EXHAUST:

Air Performance testing has been performed in accordance with Test Method as per latest version of ANSI/AMCA Standard 500-D, Figure 5.3 (Duct Upstream and Downstream).

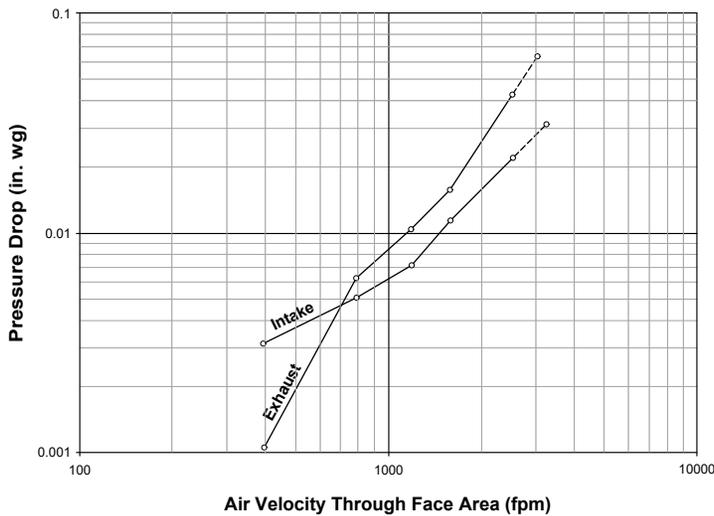
**PRESSURE DROP GRAPH - 12" x 48"**



**PRESSURE DROP OF DAMPER**

12" x 48" - (305 x 1219)			
Intake		Exhaust	
Velocity	Pressure Drop	Velocity	Pressure Drop
(fpm)	(in. w.g.)	(fpm)	(in. w.g.)
2473	0.014	2470	0.012
1978	0.01	1976	0.009
1482	0.005	1481	0.004
984	0.002	982	0.002
490	0.001	488	0.001

**PRESSURE DROP GRAPH - 48" x 12"**



**PRESSURE DROP OF DAMPER**

48" x 12" - (1219 x 305)			
Intake		Exhaust	
Velocity	Pressure Drop	Velocity	Pressure Drop
(fpm)	(in. w.g.)	(fpm)	(in. w.g.)
2531	0.022	2534	0.043
1587	0.011	1589	0.016
1189	0.007	1188	0.01
791	0.005	790	0.006
394	0.003	397	0.001

**CVSA**  
DAMPER SERIES



**SUGGESTED SPECIFICATION:**

Central Ventilation Systems certifies that the Flange Type VCD Models CDF Series as shown herein are 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 performance and air leakage ratings only.

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## AIR LEAKAGE

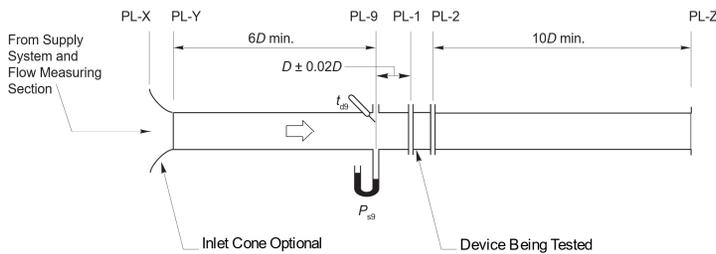
Tested for air leakage at standard air density in accordance with latest version of ANSI/AMCA Standard 500-D, Figure 5.4.

Data are based on a torque of 44in-lbs./ft<sup>2</sup> applied to close and seal the damper during the test. Air leakage is based on operation between 0°C-49°C (32°F-120°F).

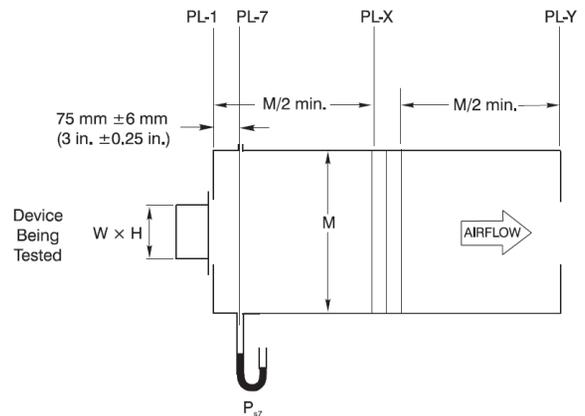
Maximum Allowable Leakage, cfm/ft <sup>2</sup>					
Class	1 in. w.g.	2 in. w.g.	3 in. w.g.	4 in. w.g.	6 in. w.g.
1A	3	N/A	N/A	N/A	N/A
1	4	6	7	8	10
2	10	14	17	20	25

AMCA Leakage Class					
Damper Size	1 in. w.g.	2 in. w.g.	3 in. w.g.	4 in. w.g.	6 in. w.g.
12 inch. x 48 inch. (305 mm x 1219 mm)	Class 1A	Class 1	Class 1	Class 1	Class 1
36 inch. x 36 inch. (914 mm x 914 mm)	Class 1A	Class 1	Class 1	Class 1	Class 1
48 inch. x 36 inch. (1219 mm x 914 mm)	Class 1A	Class 1	Class 1	Class 1	Class 1

**Test Figure 5.3 - Test Damper Setup with Inlet and Outlet Ducts**



**Test Figure 5.4 - Test Damper Setup with Outlet Chamber**



**CVSA**  
DAMPER SERIES



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The AMCA Certified Ratings Seal applies to air performance and air leakage ratings only.

Cat ID: CDF Series	Rev. No.: 00	Date: June 2023	Page: 8/9
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# Product Range

- ▶ Fire-Resisting Ductwork (BS & EN)
- ▶ Fire-rated Insulation (ASTM & UL)
- ▶ Sound Attenuators (ASTM & BS)
- ▶ VAV Boxes (AHRI)
- ▶ Life Safety Dampers (UL)
- ▶ Control Dampers (AMCA & BS)
- ▶ Access Doors (BS & EN)
- ▶ Louvers (AMCA)
- ▶ Smoke Exhaust, Building, Car Park & Tunnel Ventilation Fans (AMCA & EN)
- ▶ Domestic and Industrial Ventilation Fans
- ▶ AHU, FAHU, FCU, RTU, ERV & Ecology Units (Eurovent, TUV & AHRI)
- ▶ Electrostatic Precipitators (ESPs) & UL Listed Air Filters (UL)

## Our Brands



Non-Coated Fire-Resisting Ductwork  
& Life Safety Dampers



Coated Fire-Resisting  
Ductwork



Control Dampers, Louvers,  
Sound Attenuators & VAV Boxes



Fire-rated Insulation

**Badr and Asfour  
Company For Engineering  
and Metal Industries**

Al Minya Industrial Zone,  
Al Minya Governorate  
2427606, Egypt

**Jamil Ali Nasser  
Al-Zadjali  
Factory for Industry**

2nd Industrial City,  
Dammam 31952,  
K.S.A

**Central Ventilation System  
Co. L.L.C**

Al Wasit Street,  
Industrial Area 2,  
Sharjah, U.A.E

**Central Ventilation Systems  
Co. W.L.L.**

Street 9,  
Industrial Area  
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