

Application

The ICD-44 is a low leakage thermally insulated damper with extruded airfoil blades. ICD-44 features broken blade which minimized the transfer of thermal energy and reduce condensation. It's also IECC (International Energy Conservation Code) compliant with a leakage rating of 3 cfm/ft² @ 1 in. wg (55 cmh/m² @ .25 kPa) or less.

Note Regarding UV Lights:

The dampers should not be mounted or stored in direct line of sight to UV lights.

Ratings

Pressure

Up to 8 in. wg (2kPa) pressure differential

Velocity

2,500 to 4,000 fpm (12.7 m/s - 20.3 m/s)

Leakage

Class 1A @ 1 in. wg at -40°F (Class 1A @ .25 kPa at -40°C)
 Class 1 @ 4 in. wg at -40°F (Class 1 @ 4 in. wg at -40°C)

Temperature

-70°F to 200°F (-56°C to 93°C)

Construction

	Standard	Optional
Frame Material	Aluminum (6063T5)	
Frame Thickness	.125 in. (3.2mm)	
Frame Type	5 in. x 1 in. (127mm x 25mm) Hat Channel	Single Flange, Reverse Flange, Quick Connect
Blade Action	Opposed	Parallel
Blade Material	Extruded Aluminum (6063T5)	
Blade Type	Insulated Thermally Broken Airfoil	
Linkage	Plated Steel Out of Airstream	316SS
Axle Bearings	Dual Bearing With Acetal Inner Sleeve, Flanged Outer Bearing	
Axle Material	Plated Steel	316SS
Blade Seals	Silicone	
Jamb Seals	Stainless Steel	Silicone

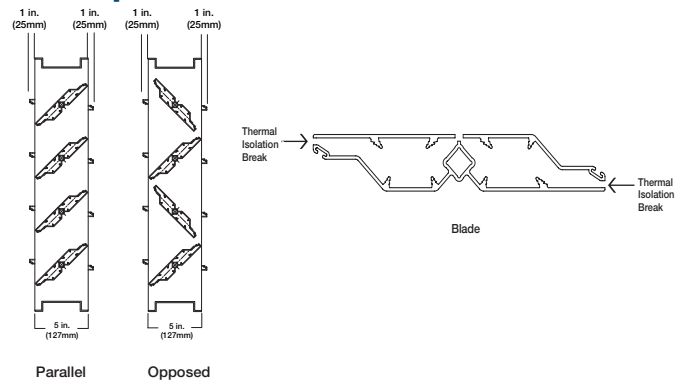
Notes:

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.



*shown with optional silicone jamb seal

Blade Operation



Size Limitations

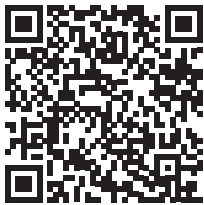
in. (mm) W x H	Frame Type				
	Channel, Single or Reverse Flange		Quick Connect		
Blade Action	Parallel	Opposed	Parallel	Opposed	
Min. Size	Internal Mount	8 x 8 (203 x 203)	8 x 8 (203 x 203)	-	
	External Mount	8 x 7 (203 x 178)	8 x 7 (203 x 178)	8 x 6 (203 x 152)	8 x 6 (203 x 152)
Max. Size	Single Section	60 in. W x 78 in. H (1524mm x 1981mm)		60 in. W x 76 in. H (1524mm x 1930mm)	
	Multi-Section	180 in. W x 156 in. H (4572mm x 3962mm)		96 in. W x 152 in. H (2438mm x 3861mm)	

Options and Accessories

- Actuator: bracket only, manual quadrant, variety of 24V, 120V, 230V actuators
- Actuator mounting; external and external kit
- Clean wrap
- [NEMA enclosures](#)
- [120V to 24V Transformer](#)
- [Multi-Voltage Transformer](#)

Document Links

[Installation Instructions](#)



[Damper Warranty](#)

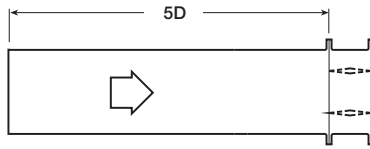


[Product Catalog](#)



AMCA Pressure Drop

AMCA 5.2



12 x 12 (305mm x 305mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.03
1000	.11
1500	.25
2000	.45
2500	.71
3000	1.03
3500	1.40
4000	1.83

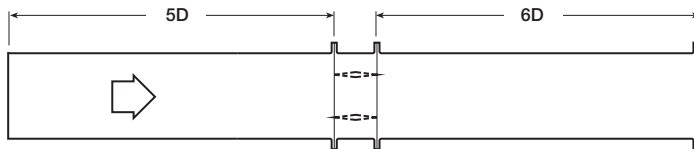
24 x 24 (610mm x 610mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.02
1000	.08
1500	.19
2000	.34
2500	.53
3000	.77
3500	1.05
4000	1.37

36 x 36 (914mm x 914mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.01
1000	.05
1500	.11
2000	.21
2500	.33
3000	.47
3500	.64
4000	.84

12 x 48 (305mm x 1219mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.01
1000	.06
1500	.14
2000	.25
2500	.40
3000	.57
3500	.78
4000	1.02

48 x 12 (1219mm x 305mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.03
1000	.14
1500	.32
2000	.57
2500	.89
3000	1.29
3500	1.76
4000	2.30

AMCA 5.3



12 x 12 (305mm x 305mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.01
1000	.04
1500	.09
2000	.17
2500	.26
3000	.38
3500	.52
4000	.67

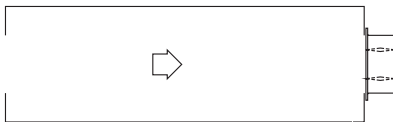
24 x 24 (610mm x 610mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.01
1000	.03
1500	.08
2000	.14
2500	.22
3000	.32
3500	.43
4000	.57

36 x 36 (914mm x 914mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.01
1000	.02
1500	.04
2000	.08
2500	.12
3000	.18
3500	.24
4000	.32

12 x 48 (305mm x 1219mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.01
1000	.02
1500	.06
2000	.10
2500	.17
3000	.24
3500	.33
4000	.43

48 x 12 (1219mm x 305mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.01
1000	.06
1500	.14
2000	.25
2500	.40
3000	.58
3500	.79
4000	1.03

AMCA 5.5



12 x 12 (305mm x 305mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.05
1000	.23
1500	.52
2000	.93
2500	1.44
3000	2.08
3500	2.83
4000	3.70

24 x 24 (610mm x 610mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.05
1000	.21
1500	.47
2000	.84
2500	1.32
3000	1.90
3500	2.59
4000	3.39

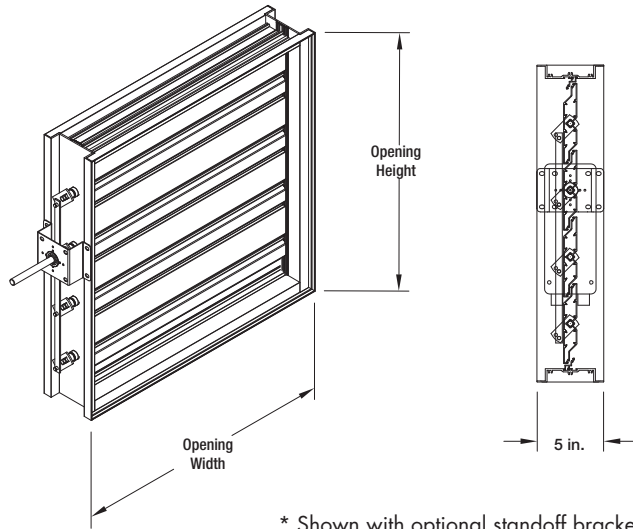
36 x 36 (914mm x 914mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.04
1000	.14
1500	.33
2000	.58
2500	.91
3000	1.31
3500	1.79
4000	2.34

12 x 48 (305mm x 1219mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.04
1000	.18
1500	.42
2000	.74
2500	1.16
3000	1.68
3500	2.28
4000	2.98

48 x 12 (1219mm x 305mm)	
Velocity (fpm)	Pressure Drop (in. wg)
500	.05
1000	.22
1500	.51
2000	.90
2500	1.41
3000	2.04
3500	2.78
4000	3.70

Frame Type Options

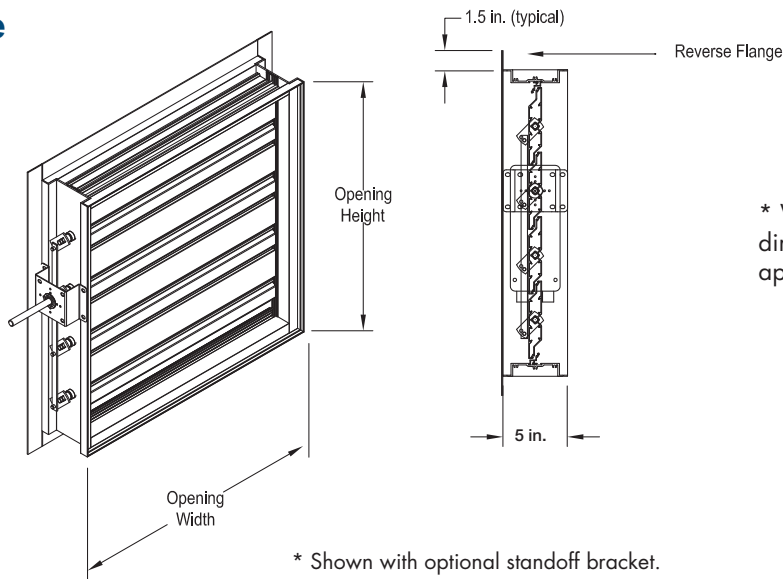
Channel Frame



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

* Shown with optional standoff bracket.

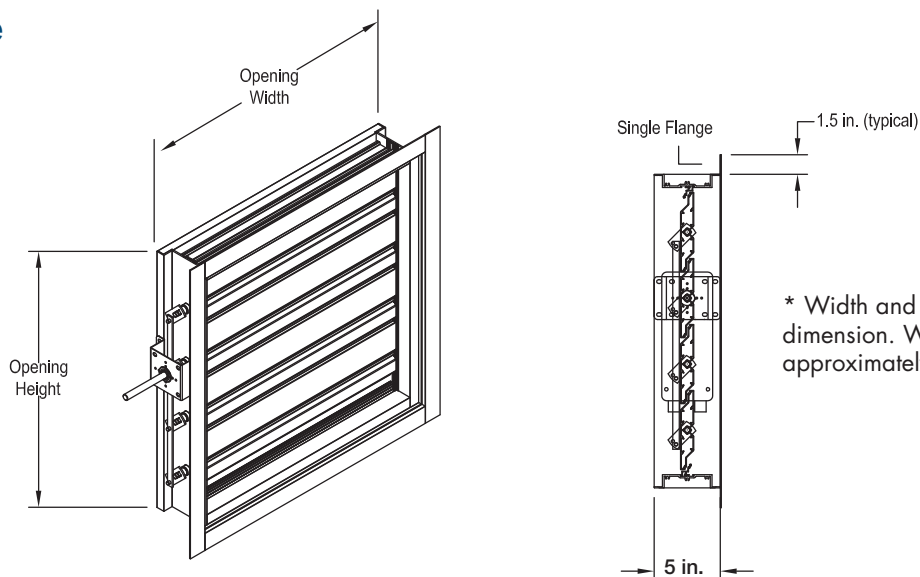
Reverse Flange



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

* Shown with optional standoff bracket.

Single Flange

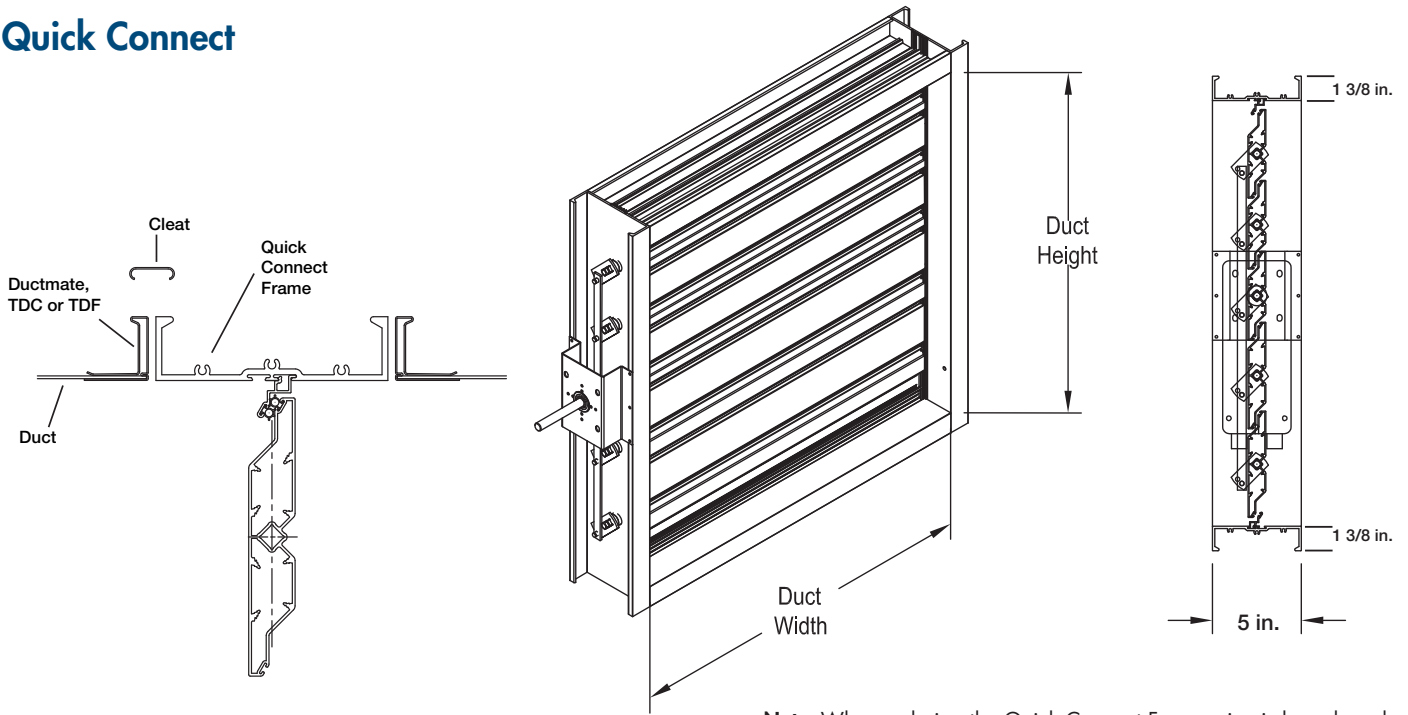


* Width and height is based on outside dimension. W & H dimensions furnished approximately 1/4 in. (6mm) undersize.

* Shown with optional standoff bracket.

Frame Type Options

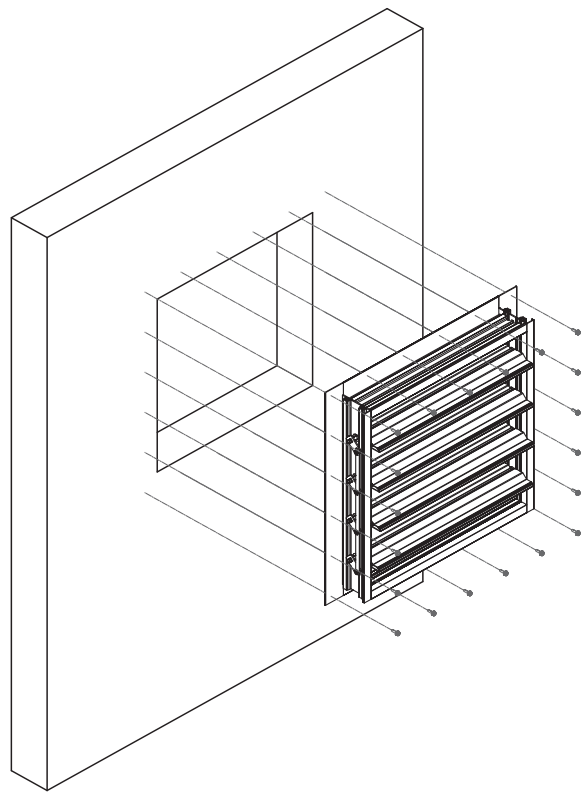
Quick Connect



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.

* Shown with optional standoff bracket.

There are applications that require mounting an ICD-44 into a plenum wall. This illustration depicts how to mount an ICD-44 into a plenum wall.



Leakage & Specifications

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 9.0 in. lb./ft² (1.02 N·m) applied to close and seat the damper during the test.

ICD-44 Maximum Damper Width	Leakage Class*			
	1 in. wg (0.25 kPa)	4 in. wg (1 kPa)	8 in. wg (2 kPa)	10 in. wg (2.5 kPa)
60 in. (1524mm)	1A	1	1	1

*Leakage Class Definitions

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

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

Energy Efficiency Performance

Model ICD-44 has a Thermal Efficiency Ratio of 593%.

A damper's Thermal Efficiency Ratio (E) is a comparison of the thermal performance of the tested damper with that of a standard reference damper, which is a 3V blade damper with blade and jamb seals. A damper with the same thermal efficiency as the reference damper would have an E of 0%. A damper that is twice as efficient as the reference damper would have an E of 100%.

Test Information

Testing was conducted on a 36 in. x 36 in. (914mm x 914mm) sample in AMCA 500-D figure 5.10 per AMCA standard 500-D's Thermal Efficiency test.

Torque

Data are based on a torque of 9.0 in.lb./ft² (0.56 N·m) applied to close and seat the damper during the test.

Specifications

Control Dampers meeting the following specifications shall be furnished and installed where shown on plans and/or as described in schedules.

Dampers shall consist of: .125 (3.2mm) aluminum channel frame; aluminum airfoil blade internally insulated polyurethane foam and thermally broken. Blades shall be completely symmetrical relative to their axle pivot point, presenting identical resistance to airflow in either direction or pressure on either side of the damper. Axle will be ½ in. (13mm) diameter plated steel; bearings are dual bearing with acetal inner sleeve, flanged outer bearing resulting in no metal-to-metal or metal-to-plastic contact. Blade seal to be silicone rubber, jamb seal to be stainless steel, and external (out of the airstream) blade-to-blade linkage.

Dampers manufacturer's printed application and performance data including pressure, velocity, leakage, and temperature limitations shall be submitted for approval showing damper suitable for pressures to 8 in. wg (2 kPa), velocities to 4000 fpm (20.3 m/s), standard air leakage less than 6 cfm/sq. ft. @ 4 in. wg (110 cmh/m² @ 1 kPa) and temperatures to 200 °F (93°C).

Damper air leakage, air performance and energy efficiency rating data shall be developed in accordance with the latest edition of AMCA Standard 500-D.

Basis of design is ICD-44.

