

# CD50IF

High-performance Control Damper  
Extruded Aluminum | Airfoil Blade  
AMCA Class 1A Leakage Rated



## APPLICATION

The CD50IF is a low leak, extruded aluminum damper with integral flange 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" of static pressure and is AMCA licensed as a Class 1A damper.

## STANDARD CONSTRUCTION

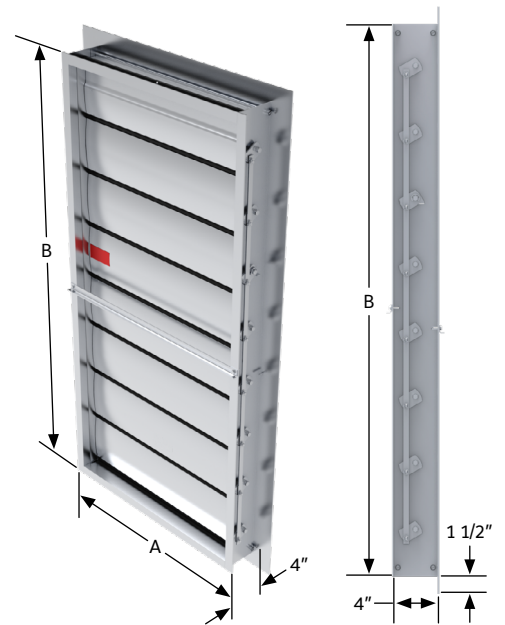
<b>Frame</b>	4" x 1" x 6063T6 extruded aluminum U channel (102 x 25) and 1 1/2" (38) integral front flange
<b>Blades</b>	6" (152) wide, 6063T6 extruded aluminum, airfoil shape. Opposed blade action is standard, parallel blade action optional.
<b>Seals</b>	Santoprene blade edge seals and flexible metal compressible jamb seals
<b>Bearings</b>	Lexan
<b>Linkage</b>	Plated steel concealed in frame
<b>Axles</b>	7/16" (11) plated steel hex
<b>Operator Shaft</b>	1/2" (13) dia. x 6" (152) long plated steel for single section
	1/2" (13) dia. jackshaft on single and multi-section assemblies up to 12 1/2 ft <sup>2</sup> (1.16m <sup>2</sup> )
	1" (25) dia. jackshaft on multi-section assemblies over 12 1/2 ft <sup>2</sup> (1.16m <sup>2</sup> )

## PERFORMANCE RATINGS

<b>Leakage</b>	AMCA Class 1A [see page 2]
<b>Velocity</b>	0 to 6000 FPM (30.5 MPS) [see page 2]
<b>Pressure</b>	0 to 13 in. WG (3.25 kPa) [see page 2]
<b>Temperature</b>	-72°F to 275°F (-58°C - 135°C)
<b>Torque</b>	Opposed blades: 5 in-lb/ft <sup>2</sup> and Parallel blades: 7 in-lbs/ft <sup>2</sup>
<b>Airflow</b>	Both directions

## OPTIONS AND ACCESSORIES

<b>Frame</b>	Rear flange or Channel [no flange]
<b>Operator Shaft</b>	Stainless steel (1/2" (13) dia. & 1" (25) dia)
<b>Linkage, axles &amp; bearings</b>	Stainless steel
<b>Face/Bypass</b>	FBV, FBH or FBR
<b>Actuators</b>	Electric or Pneumatic, factory provided and installed
<b>Switches</b>	SP100 switch package for damper open/closed position
<b>Couplers</b>	Used to join 2 damper sections up to 30 sq. ft.
<b>Finishes</b>	Anodized



## FEATURES

- ▶ Airfoil blades for low pressure drop and less noise
- ▶ Mechanically fastened blade-edge seals for longevity
- ▶ Positive lock axles and noncorrosive bearings for durability
- ▶ Shake-proof linkage for low maintenance

## DIMENSIONS AND WEIGHT

<b>Minimum</b>	PB:	6" W x 5" H (152 x 127)
	OB:	6" W x 9" H (152 x 229)
<b>Maximum</b>	Section:	60" W x 72" H (1524 x 1829)
	Assembly:	Unlimited
<b>Weight</b>		5 lbs. /ft <sup>2</sup> (3.2 kg)

NOTE:  
- Dimensions are in inches, () indicate metric units, unless otherwise indicated, Units furnished deduct 1/4" (6) than given dimensions unless specified actual size on order.

## PERFORMANCE DATA

Maximum System Velocity and Pressure Data		
Damper Width	Velocity	Pressure
in. (mm)	FPM (MPS)	in. WG (kPa)
60 (1524)	3000 (15.2)	3.5 (0.9)
48 (1219)	4000 (20.3)	6.2 (1.5)
36 (914)	4000 (20.3)	8.5 (2.1)
24 (610)	5000 (25.4)	10.8 (2.7)
12 (305)	6000 (30.5)	13.0 (3.25)

The CD50IF may be used in systems with total pressures exceeding 3.5" by reducing damper section width as indicated. Example: Maximum design total pressure of 8.5" w.g. would require CD50IF damper with maximum section width of 36" (914).

Pressure limitations shown above allow maximum blade deflection of L/180 of span on 60" (1524) damper widths. Deflections in other damper widths (less than 48" [1219]) at higher pressures shown will result in blade deflection substantially less than L/180 of span.



Ruskin Company certifies that the CD50IF 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 Program. The AMCA International Certified Ratings Seal applies to Air Performance and Air Leakage.

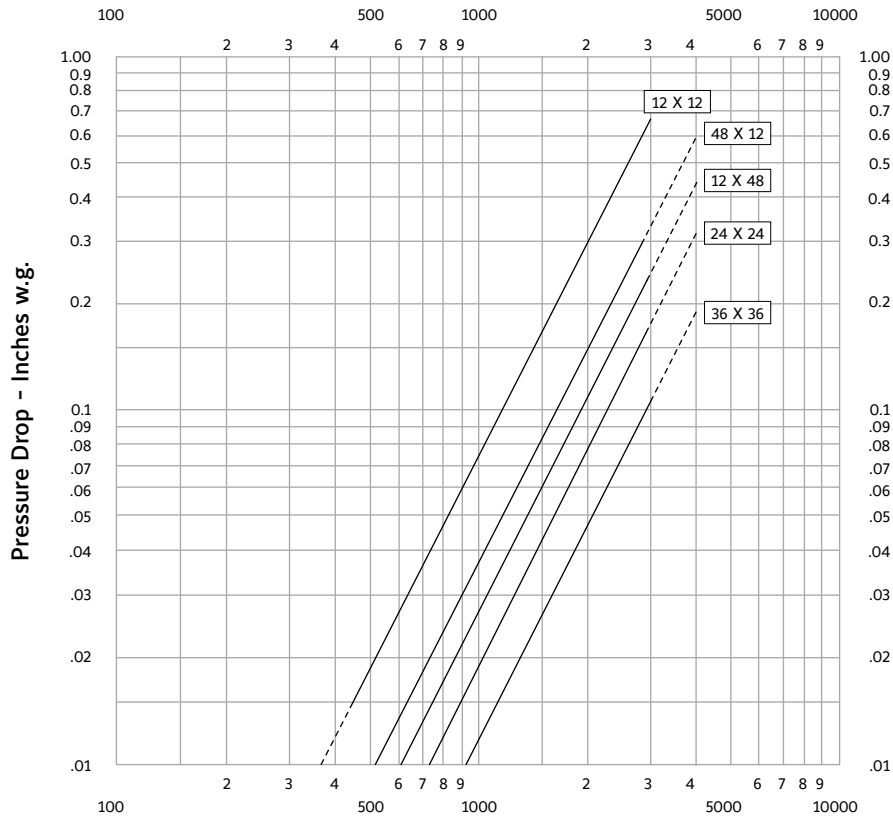
Class	Leakage, ft <sup>3</sup> /min/ft <sup>2</sup> (L/s/m <sup>2</sup> )			
	Required Rating		Extended Ranges (Opt.)	
	1" (0.25 kPa)	4" (1.0 kPa)	8" (2.0 kPa)	12" (3.0 kPa)
1A	3 (15.2)	N/A	N/A	N/A
1	4 (20.3)	8 (40.6)	11 (55.9)	14 (71.1)
2	10 (50.8)	20 (102)	28 (142)	35 (178)
3	40 (203)	80 (406)	112 (569)	140 (711)

Damper Width (Inches)	1 IN. W.G.	4 IN. W.G.	8 IN. W.G.
12" (305)	IA	I	II
24" (610)	IA	I	II
36" (914)	IA	I	N/A
48" (1219)	IA	I	N/A
60"(1524)	IA	I	N/A

Leakage testing conducted in accordance with AMCA Standard 500-D-18. Torque applied holding damper closed, 5 in. lbs./sq.ft. on opposed blade dampers and 7 in. lbs./sq. ft. on parallel blade dampers. Air leakage is based on operation between 50°F to 104°F. All data corrected to represent standard air density 0.075 lbs/ft<sup>3</sup>.

## PERFORMANCE DATA

### VELOCITY VS. PRESSURE DROP



Face Velocity - Feet/Minute AMCA Fig. 5.3

CD501F sizes 12 x 12, 24 x 24, 48 x 12, 12 x 48, 36 x 36 (305 x 305, 610 x 610, 1219 x 305, 305 x 1219, 914 x 914)

All data corrected to represent standard air at a density of 0.075 lbs/ft<sup>3</sup>.

## SOUND RATINGS

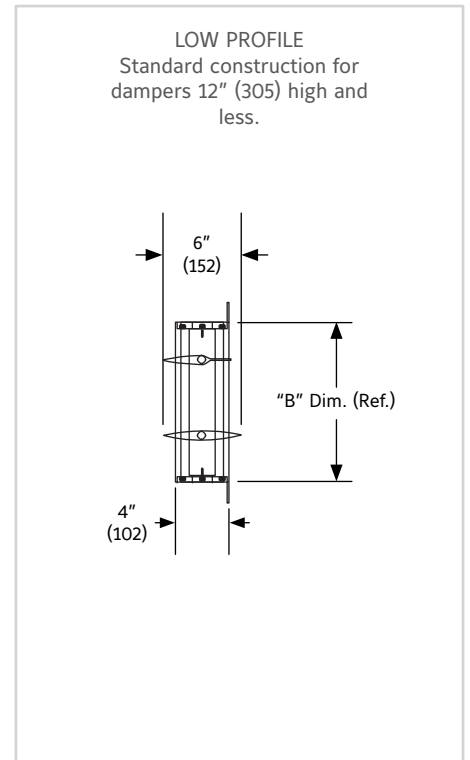
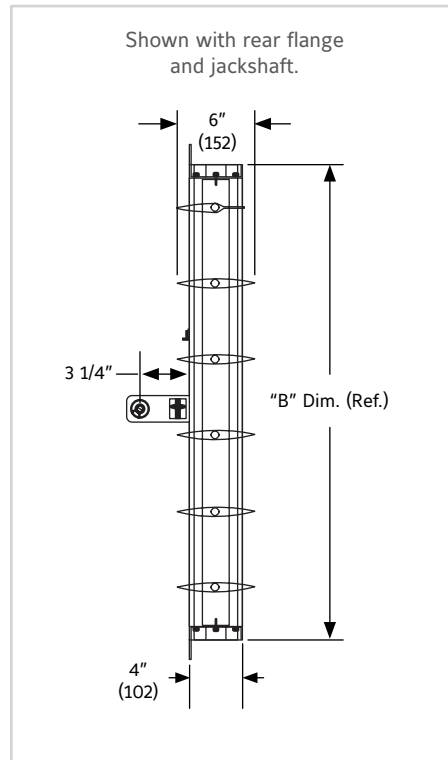
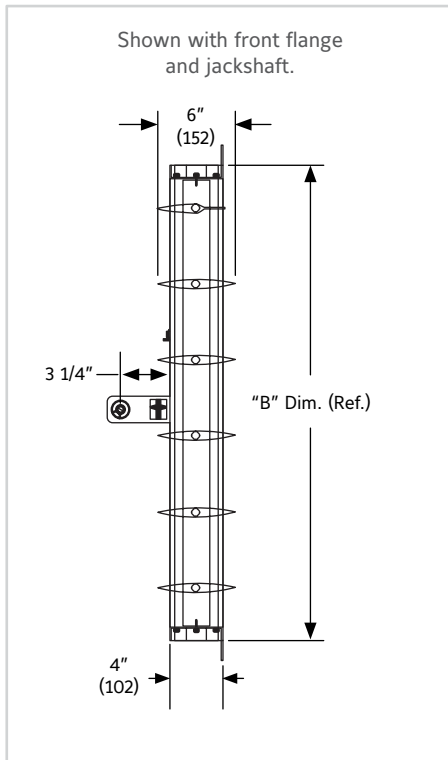
Damper size	Damper Full Open		Damper 75% Open		Damper 50% Open		Damper 25% Open	
	CFM	NC	CFM	NC	CFM	NC	CFM	NC
12 x 12 (305 x 305)	2000	17	1500	11	1000	11	500	*
	3000	28	2250	22	1500	19	750	*
	4000	35	3000	29	2000	24	1000	*
18 x 18 (457 x 457)	2250	17	1688	10	1125	21	563	*
	4500	33	3375	26	2250	32	1125	*
	6750	43	5063	37	3375	40	1688	15
24 x 24 (610 x 610)	4000	11	3000	10	2000	26	1000	*
	8000	32	6000	30	4000	38	2000	21
	12000	43	9000	42	6000	46	3000	31

NC = Noise criteria in Decibels is based on 10db room effect and 10db of room attenuation.

\* = Less than 10 NC

See ASHRAE Handbook (1977 Fundamentals, Chapter 7) for explanation of NC Ratings.

## DIMENSIONAL INFORMATION



## SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans, or in accordance with schedules, Low leakage dampers shall meet the following minimum construction standards: Frames shall be 2.5" x 4" x 1" (63.5 x 101.6 x 25.4) 6063T6 extruded aluminum channel with 1.5" flanges on one side of the frame. Each corner shall be joined with two 1/4-20 self-tapping screws. Blades shall be airfoil type extruded aluminum (maximum 6" [152] depth) with integral structural reinforcing tube running full length of each blade.

Blade edge seals shall be extruded double edge design with inflatable pocket which enables air pressure from either direction to assist in blade to blade seal off. Blades seals shall be mechanically locked in extruded blade slots, yet shall be easily replaceable in field. Adhesive or clip-on type blade seals are not acceptable. Bearings shall be non-corrosive molded synthetic. Axles shall be hexagonal (round not acceptable) to provide positive locking connection to blades and linkage. Linkage shall be concealed in frame. Submittal must include leakage, maximum air flow and maximum pressure ratings based on AMCA Publication 500. Damper shall be tested and licensed in accordance with AMCA 511 for Air Performance and Air Leakage. Damper widths from 12" to 60" (305 to 1524) wide shall not leak any greater than 8 cfm sq. ft. @ 4" w.g. and a maximum of 3 CFM sq. ft. @ 1" w.g. Dampers shall be in all respects equivalent to Ruskin Model CD50IF.

### LINKS TO IMPORTANT DOCUMENTS

#### Document Title

O & M for Commercial Control Dampers

Face Bypass Mixing Damper

SP100 And SP100FK Switch Package

Replacement Parts Catalog

Limited Warranty Document



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