

CD60CE

Critical Environment

High performance 316 stainless steel airfoil blade damper
AMCA Class IA Leakage Rated



APPLICATION

The High-Performing Ruskin Model CD60CE is designed to control and regulate air movement in medium to high velocity and pressure HVAC Systems. The 316SS construction offers excellent corrosion resistance. CD60CE has airfoil shape blades which offers low pressure drop when open and meets AMCA Class 1A Leakage when closed. Manual, electric or pneumatic actuators are applied to operate the damper open and closed. CD60CE meets the leakage requirements of the of the International Energy Conservation Code (IECC).

STANDARD CONSTRUCTION

Frame	5" x 1" x 16 ga (127 x 25 x 1.6) 316 SS hat-channel
Blades	316 SS airfoil type, typically 6" (152) wide, max. 7" (178)
Blade Seals	Silicone rubber, mechanically fastened
Blade Action	Opposed (OB)
Jamb Seals	301 SS cambered compression type
Bearings	Oil-impregnated, 7/16" (11) 316 SS hex
Axles	7/16" (11) 317 SS hex
Linkage	316 SS, concealed out airstream
Fasteners	300 series or greater
Control Shaft	1/2" (13) dia. x 6" (152) long 316 SS for single section 1" (25) dia. 304 SS jackshaft for multi-section assemblies

1/2" (13) dia. jackshaft for multi-section assemblies up to 12 1/2 ft² (1.16m²)
1" (25) dia. jackshaft for multi-section assemblies over 12 1/2 ft² (1.16m²)

PERFORMANCE RATINGS

Leakage	AMCA Class IA (see page 2)
Velocity	Up to 4000 fpm (20.3 m/s)
Pressure	Up to 8 in.w.g. (2.0 kPa)
Temperature	-72° F to +275° F (-58° C to +135° C)
Airflow	Both directions

OPTIONS & ACCESSORIES

Flanges	Front, rear or both side with or without bolt holes
Control Shaft	Single-section jackshaft, 1/2" (12) or 1" (25) dia.
Blade Seal	Santoprene
Sleeve/Transition	Factory installed, with or without transitions
Actuators	Factory provided and installed
Manual Operator	Locking hand quadrant
Switches	SP100 – blade (open/closed) position indicator
Actuator Enclosure	RUS-N4X



HIGHLIGHTS

- ▶ AMCA Class IA Leakage Rated
- ▶ Airfoil blades, low pressure drop
- ▶ Mechanically fastened blade seals
- ▶ Corrosion resistant, low maintenance

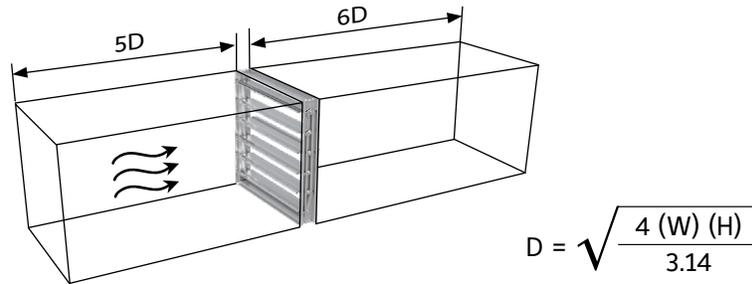
DIMENSIONS & WEIGHT

Single Blade	6" x 6" (152 x 152)
Two Blades	8" x 11" (1219 x 1829)
Maximum Section	48 x 72" (1219 x 1829)
Maximum Assembly	Unlimited
Weight	9 lbs. (4.1kg) per ft ²

NOTE: Values shown in parenthesis () indicate millimeters.

CD60CE PERFORMANCE DATA

Pressure Drop Data CD60CE air performance testing is performed in accordance with AMCA Standard 500-D configuration 5.3 as illustrated below. All data are corrected to standard air density of .075 lb/ft³ (1.201 kg/m³).



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.

12" x 12" (305 x 305)		24 x 24 (610 x 610)		36 x 36 (914 x 914)		12 x 48 (305 x 1219)		48 x 12 (1219 x 305)	
Velocity	Pressure Drop	Velocity	Pressure Drop	Velocity	Pressure Drop	Velocity	Pressure Drop	Velocity	Pressure Drop
FPM	in. WG	FPM	in. WG	FPM	in. WG	FPM	in. WG	FPM	in. WG
507	0.03	492	0.007	382	0.004	489	0.007	494	0.02
987	0.10	981	0.03	790	0.014	986	0.03	986	0.05
1481	0.24	1474	0.06	1179	0.03	1485	0.06	1484	0.12
1970	0.41	1968	0.10	1582	0.05	1981	0.10	1981	0.23
2521	0.70	2867	0.17	1979	0.08	2480	0.18	2479	0.33

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 in lbs/ft² (.56 N.m./m²) applied to close and seat the damper during the test. Air Leakage is based on operation between 32°F - 120°F (0°C - 49°C).

CD60CE	LEAKAGE CLASS*			
Maximum Damper Width	1" w.g. (0.25 kPa)	4" w.g. (1 kPa)	8" w.g. (2 kPa)	10" w.g. (2.5 kPa)
48" (1219)	1A	1	NA	NA

* Leakage Class Definition

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

Leakage Class 1A (is only defined @ 1" wg)

- ▶ 3 cfm/ft² (.92 cmm/m²) @ 1" wg (0.25 kPa)

Leakage Class 1

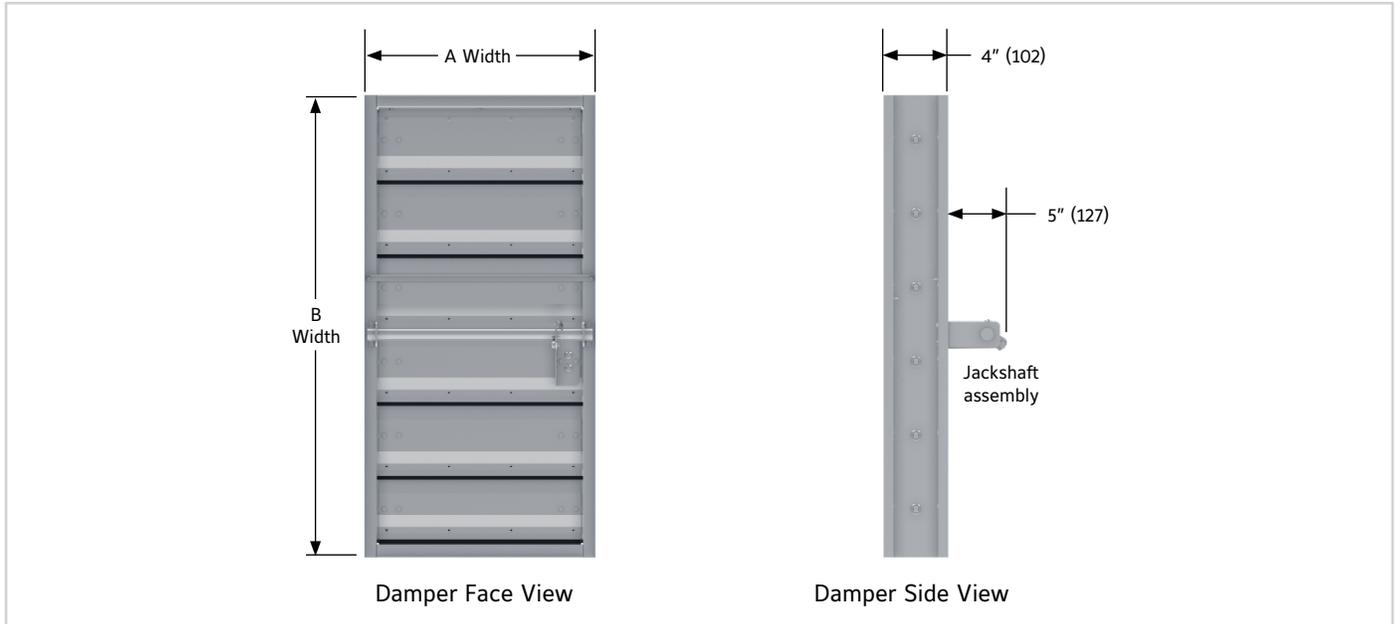
- ▶ 4 cfm/ft² (1.22 cmm/m²) @ 1" wg (0.25 kPa)
- ▶ 8 cfm/ft² (2.44 cmm/m²) @ 4" wg (1 kPa)
- ▶ 11.3 cfm/ft² (3.45 cmm/m²) @ 8" wg (2 kPa)
- ▶ 12.6 cfm/ft² (3.85 cmm/m²) @ 10" wg (2.5 kPa)



Ruskin Company certifies that model CD60CE 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.

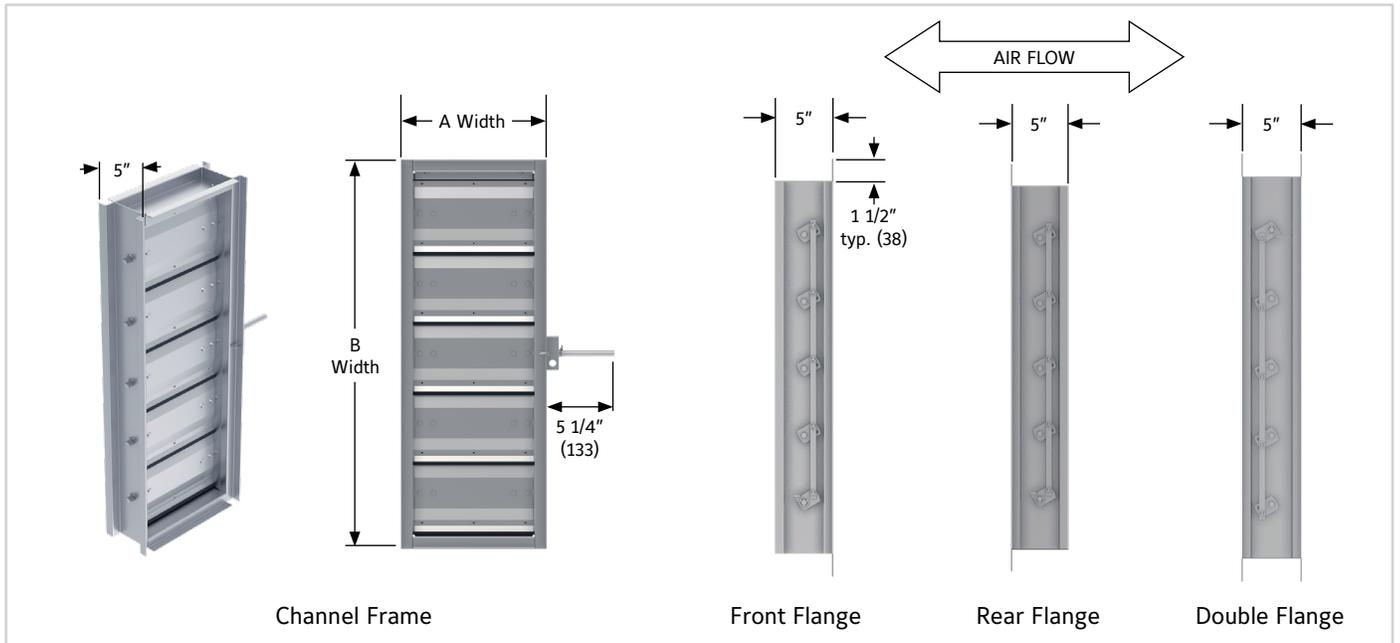
DIMENSIONAL INFORMATION

W & H dimensions are furnished with 1/4" (6) deduct standard, unless ordered actual size.



CONSTRUCTION & DIMENSIONAL INFORMATION

Channel Frame and Flange Frame Options

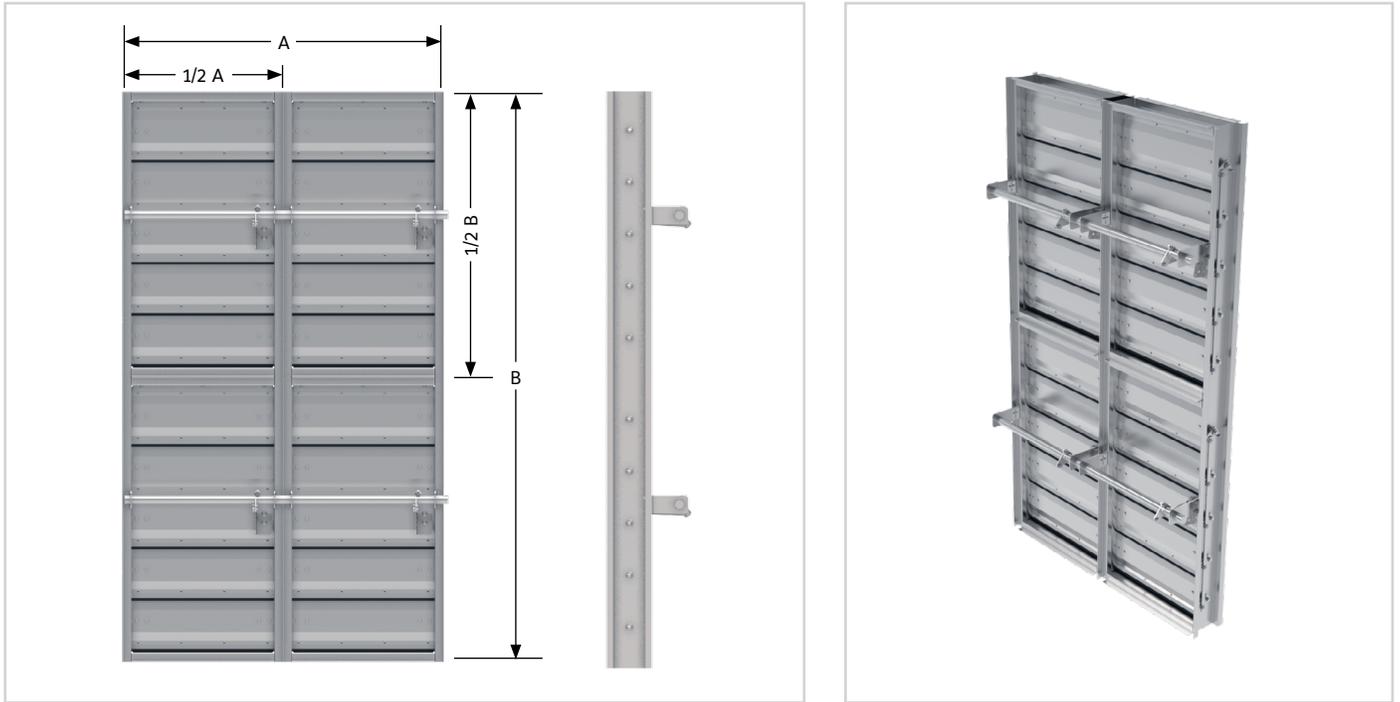


Note: Extended shaft shown installed. Shaft screwed to corner of frame for shipping.

CONSTRUCTION & DIMENSIONAL INFORMATION

Multi-section Dampers

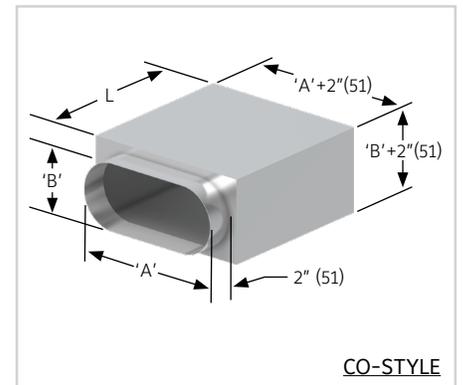
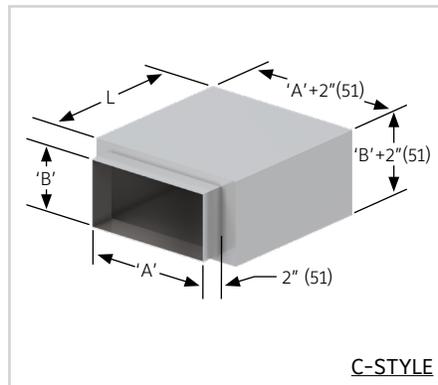
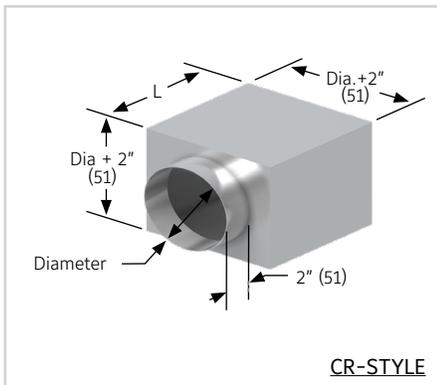
Dampers over the maximum single section size will require multiple damper sections, typically built in equal sizes. Multi-section dampers typically use jackshafts to link sections together. Vertical sections may be linked together with a vertical cross-over between jackshafts.



Note: Multiple section dampers are not intended to be structural supports. Additional bracing is recommended to support the damper weight and support against system pressure. Refer to Installation Instructions.

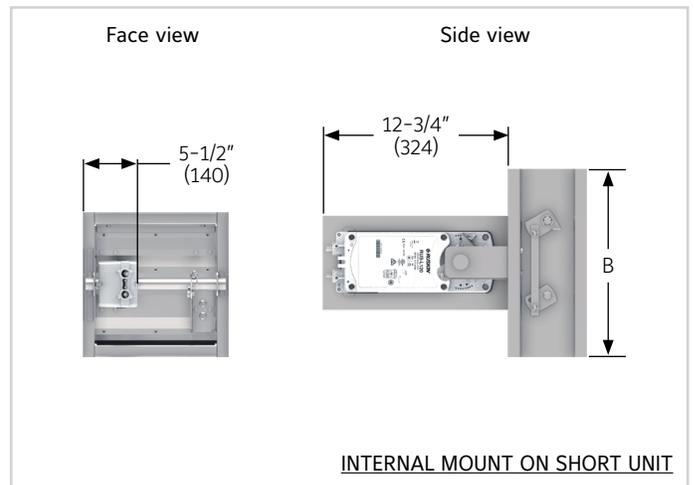
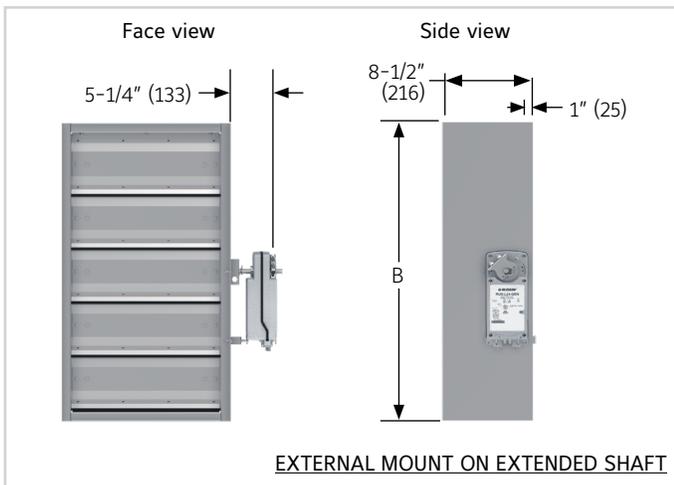
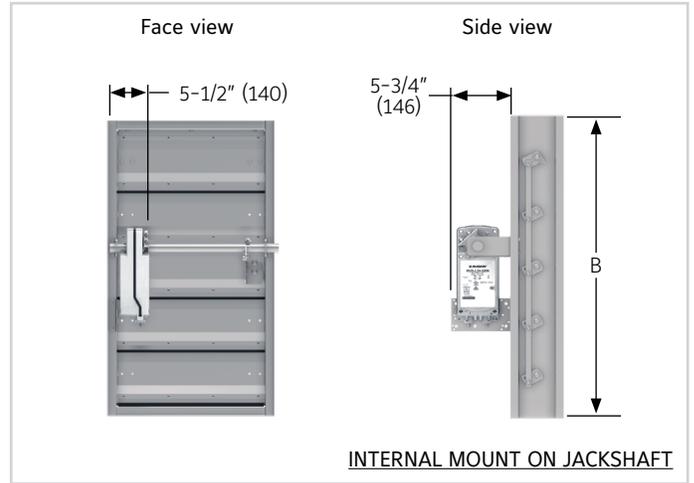
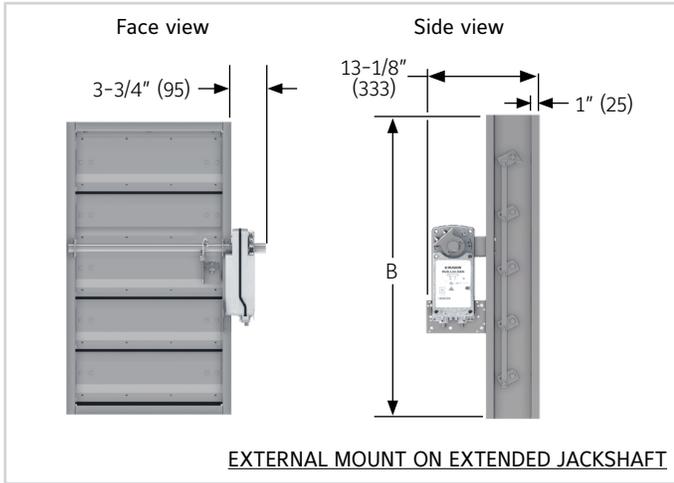
Sleeve Transitions

When a rectangular damper is your only option but you need to connect to a round, oval, or smaller than minimum size duct, you can use a transition to match the field-connection requirement. CR-Style is a round transition, C-Style is a step-down rectangular transition, and CO-Style is an oval transition. CR-Style is ordered by the diameter and C-Style and CO-Style are ordered by the A X B dimension shown below.



L = Sleeve Length

TYPICAL ACTUATOR MOUNTING DETAILS



2 X 1 COUPLER OPTION

2x1 coupler option allows two damper sections to be joined without a jackshaft. This provides the shortest depth when actuator is mounted to side of damper frame, outside the airstream.

Coupler option available for damper sizes up to 30 sq. ft. (Available size ranges: 120" x 36", 96" x 45" and 72" x 60")



SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans, or in accordance with schedules AMCA certified, low leakage airfoil control dampers meeting the following minimum construction standards. Control dampers shall be produced in an ISO9001 certified factory. Frame shall be 16 ga. (1.6) 316 stainless steel hat channel construction. Blades shall be 18 ga. (1.3) double skin 316 stainless steel airfoil type for low pressure drop and low noise generation. Blade edge seals shall be silicone or equivalent mechanically locked into the blade edge. Jamb seals shall be stainless steel chambered compression type to prevent leakage between blade end and damper frame. Blade end overlapping frame is unacceptable. Multiple section dampers must have factory installed jackshafts unless clearly eliminated by engineer. Bearings shall be 316 stainless steel, oil impregnated, and self-lubricating sleeve type with a 450 pound (204 kg) minimum radial crush load. Bearings shall turn in extruded holes in the damper frame. Axles shall be hexagonal positively locked into the damper blade. Linkage shall be concealed out of airstream, within the damper frame to reduce pressure drop and noise. Temperature limits shall be -72°(-58°C) to +275°F(+135°C). 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 48" (305 to 1524) wide shall not leak any greater than 3 cfm/sq.ft. at 1" w.g. (15.2 l/s-m² at .25 kPa). Dampers shall be equivalent in all respects to Ruskin Model CD60CE.

LINKS TO IMPORTANT DOCUMENTS

Document Title
Limited Warranty Document



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