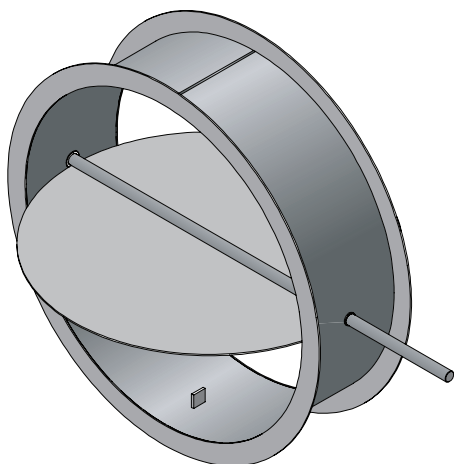
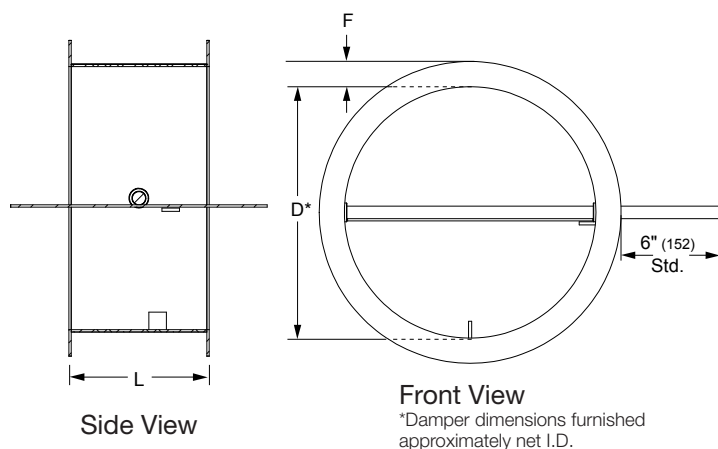




AC-81R
(standard)



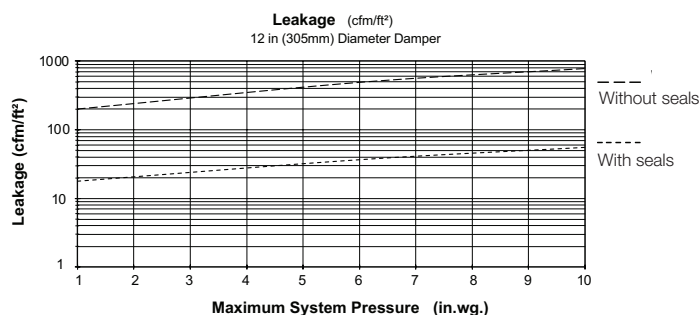
Ratings

Velocity: Up to 6,000 fpm (30.5 m/s)

Temperature: -40°F to 400°F (-40°C to 204°C)

Pressure: Up to 10 in.wg. (2.5 kPa)

Damper Diameter inches(mm)	Maximum System Pressure in. wg. (kPa)	Maximum System Velocity fpm (m/s)
4" (102)	10.0 (2.5)	6,000 (30.5)
12" (305)	10.0 (2.5)	6,000 (30.5)
24" (610)	8.0 (2.0)	6,000 (30.5)
36" (914)	8.0 (2.0)	5,000 (25.4)
48" (1219)	6.0 (1.5)	4,000 (20.3)
60" (1524)	6.0 (1.5)	4,000 (20.3)



AC-81R control dampers employ a rugged round channel frame and a single round blade for automatic air control and manual balancing in medium to high pressure and velocity applications.

Standard Construction

Frame: Steel channel, see table for details

Flange type: Round

Blade Material: Steel, see table for details

Blade Stop: Full open and closed position pin stop

Blade Style: Single round steel blade; reinforced where required

Axes: Plated steel, see table for details

Bearings: Stainless steel sleeve bearing, press fit into frame.

Control Shaft: 6" (152) long round drive axle, see table for details

Finish: Hi-Pro poly powder coat, gray, *MCOT of 250°F (121°C)
High-temp powder coat, gray, *MCOT of 400°F (204°C)

Minimum Size: 4" Ø (122 Ø)

Maximum Size: 60" Ø (1524 Ø)

Lifting Lugs: Four 1" (25) lifting lugs provided on dampers > 16" Ø (406 Ø)

*Maximum Continuous Operating Temperature

Options

- **Factory-installed external mount actuator:**
 - 24 VAC ▪ 120 VAC ▪ 230 VAC ▪ Pneumatic
 - Modulating ▪ Locking quadrant ▪ Hand Wheel
- **Stainless Steel Construction:** ▪ 304SS ▪ 316SS
- **Blade seal material** (available with continuous blade stop only):
 - EPDM max. 250°F (121°C) ▪ Silicone max. 400°F (204°C)
- **Frame mounting holes:** ▪ One side ▪ Both sides
- **Bearings:** ▪ External Ball bearing up to 250°F (121°C)
 - Outboard Ball bearing up to 400°F (204°C)
- **Square Flange** up to 48" Ø (1219 Ø)
- **Axle Seal:** ▪ O-ring (optional w/external bearing) (standard with outboard bearing)

Standard Construction Table

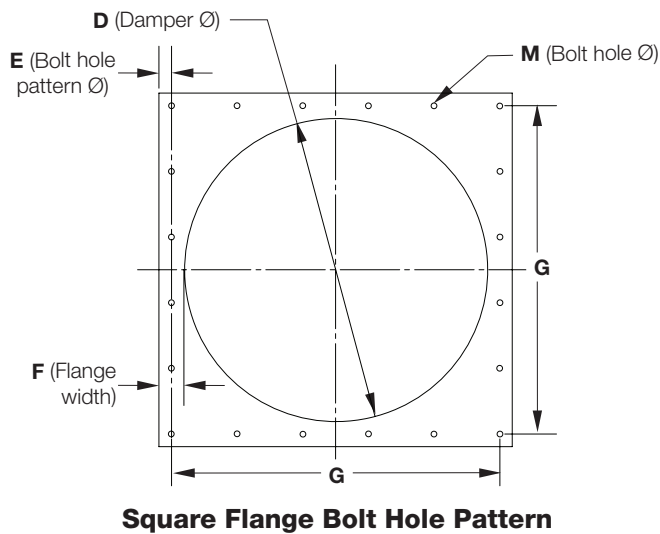
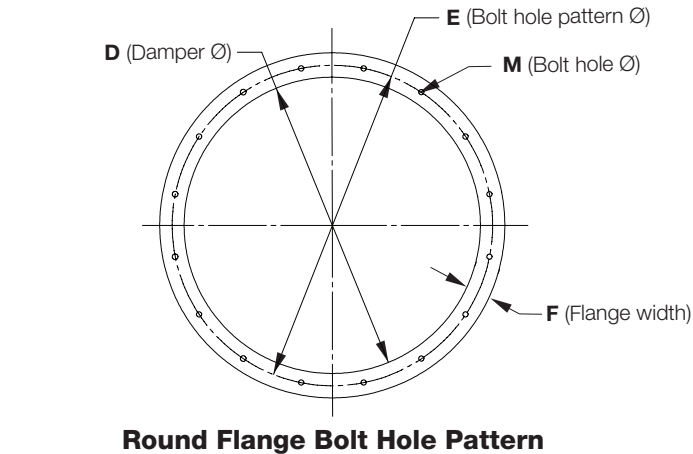
Damper Diameter (D)	Frame			Blade Thickness	Axle Diameter
	Depth (L)	Frame & Flange Thickness	Flange Width (F)		
4" (102) ≤ D ≤ 12" (305)	6"(152)	12 ga.(2.6)	1-1/2" (38)	10 ga.(3.5)	1/2" (13)
12" (305) < D ≤ 14" (356)	8"(203)	12 ga.(2.6)	1-1/2" (38)	10 ga.(3.5)	1/2" (13)
14" (356) < D ≤ 24" (610)	8"(203)	12 ga.(2.6)	1-1/2" (38)	10 ga.(3.5)	3/4" (19)
24" (610) < D ≤ 42" (1067)	8"(203)	10 ga.(3.2)	2" (51)	10 ga.(3.5)	3/4" (19)
42" (1067) < D ≤ 48" (1219)	8"(203)	10 ga.(3.2)	2" (51)	10 ga.(3.5)	1" (25)
48" (1219) < D ≤ 60" (1524)	8"(203)	3/16" (4.8)	2" (51)	3/16" (4.8)	1" (25)

NOTE: Dimensions in parentheses () are millimeters.
Information is subject to change without notice or obligation.
csairproducts.com

AC-81R Bolt Hole Dimensions

AC-81R

Industrial Control Damper
Single Blade — Round



The recommended bolt hole pattern for both standard round and optional square flanges are shown in the tables below. Standard round bolt hole pattern will straddle the axle centerline. Customer must specify bolt holes that are parallel to the axle centerline. The factory can also provide bolt hole sizes and patterns other than those shown.

Recommended Bolt Hole Pattern - Round Flange			
Damper Diameter (D)	Number of Holes (K)	Bolt Hole Diameter (M)	Degrees Between Holes
4" (102) $\leq D \leq$ 8" (203)	4	3/8" (10)	90
8" (203) $< D \leq$ 18" (457)	8	7/16" (11)	45
18" (457) $< D \leq$ 24" (610)	12	7/16" (11)	30
24" (610) $< D \leq$ 36" (914)	16	7/16" (11)	22.5
36" (914) $< D \leq$ 58" (1473)	24	7/16" (11)	15
58" (1473) $< D \leq$ 60" (1524)	32	9/16" (14)	11.25

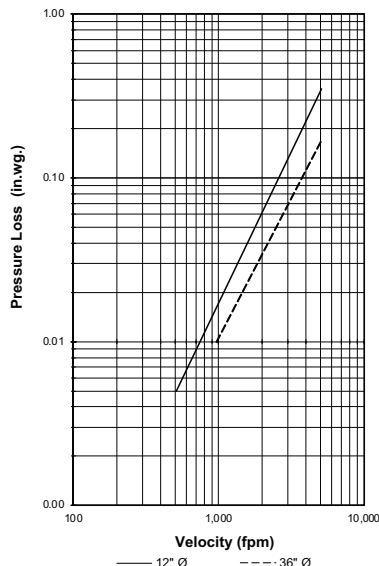
$$E \text{ (Bolt hole pattern } \varnothing) = D + F \frac{1}{4} \text{ (6)}$$

Recommended Bolt Hole Pattern - Square Flange			
Damper Diameter (D)	Number of Holes (G)	Bolt Hole Diameter (M)	Bolt Hole Pattern (E)
4" (102) $\leq D \leq$ 8" (203)	2	3/8" (10)	5/8" (16)
8" (203) $< D \leq$ 18" (457)	4	7/16" (11)	3/4" (19)
18" (457) $< D \leq$ 24" (610)	4	7/16" (11)	3/4" (19)
24" (610) $< D \leq$ 36" (914)	6	7/16" (11)	1" (25)
36" (914) $< D \leq$ 48" (1219)	8	7/16" (11)	1" (25)

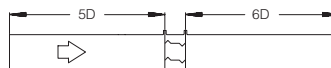
Airflow Performance Data

Pressure Loss vs. Velocity

Figure 5.3 — Ducted Inlet and Outlet



Pressure drop testing was performed in accordance with AMCA Standard 500-D using Figure 5.3 — Ducted Inlet and Outlet. All data has been corrected to represent air density of 0.075 lb/ft. Actual pressure drop in any ducted HVAC system is a combination of many elements. This information, along with analysis of other system influences, should be used to estimate actual pressure losses for a damper installed in a given HVAC system.



Ducted Inlet and Outlet

AMCA Figure 5.3 illustrates a fully ducted damper. This configuration represents the lowest pressure drop because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.