

RD-2000 Round Control Damper

Johnson Controls provides top-quality, low-leakage round control dampers for use in Heating, Ventilating, and Air Conditioning (HVAC) systems that fit your size and application requirements:

Round dampers are available with seals for low-leakage control dampers and are easily installed in round ducts.

Round dampers are available with or without a factory installed actuator.



Figure 1: RD-2000

Features and Benefits	
<input type="checkbox"/> Formed Shroud	Inserts easily into round ductwork
<input type="checkbox"/> Factory-Installed Actuator Available	Reduces installation time
<input type="checkbox"/> One-Piece Construction	Increases rigidity and strength

Specifications

Furnish and install round control dampers manufactured by Johnson Controls.

Damper shrouds are to be constructed of formed 20-gauge galvanized steel, mechanically joined. Blade rotation shall not exceed 80°.

Damper blades are to be constructed with 1-piece, or 2-piece 16-gauge or 20 gauge galvanized steel, determined by size.

Damper performance shall be designed for tight shutoff. Leakage rating at 4 in. Water Gauge (WG) differential pressure with 5 lb-in/sq ft closing torque shall not exceed 10 cfm per square foot. Dampers without actuators must be rated to operate over a temperature range of -20 to 200°F (-29 to 93°C).

Damper sizing shall be by the designer in accordance with accepted industry practices to ensure proper system performance.

Factory-installed electric and pneumatic actuators are available.

Construction

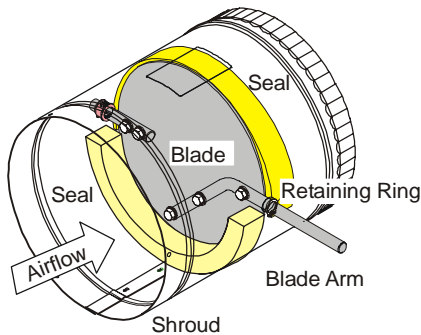


Figure 2: RCG Damper Components

RCG Construction

The shroud is made of 20-gauge (1 mm) galvanized steel.

Blades of 4 to 8 in. (102 to 204 mm) diameter are made of single-piece 16-gauge galvanized steel. Nine to 22 in. (229 to 559 mm) are made of 12-gauge galvanized steel, single-piece.

Blade arm for 4 to 8 in. (102 to 204 mm) is 5/16 in. (8 mm) diameter steel (1/2 in. adapter provided when ordered without actuator) 9 to 22 in. (229 to 559 mm); 1/2 in. (13 mm) diameter steel

The washer is made of nylon.

The seal is closed-cell polyurethane foam tape.

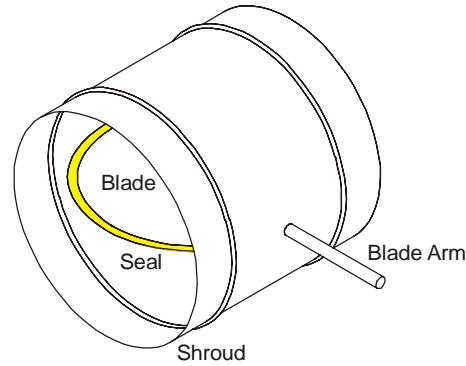


Figure 3: Round Low Leakage Damper

RLG or RLS Construction

The shroud is made of 20-gauge (1 mm) galvanized or 304 stainless steel.

Blades are two layers of 14-gauge (2 mm) equivalent thickness galvanized steel or 304 stainless steel.

Blade arm 1/2 in. (13 mm) diameter steel extending 6 in. (152 mm) beyond shroud.

The bearing is stainless steel sleeve pressed into frame.

The seal is polyethylene foam seal sandwiched between two sides of blades. Seal fully encompasses blade edge.

Dimensions

Table 1: Dimensions, in. (mm)

A	B	C
4 (102)	9.0 (229)	5.6 (142)
5 (127)	9.0 (229)	6.6 (168)
6 (152)	9.0 (229)	7.6 (193)
7 (178)	9.4 (239)	8.6 (218)
8 (203)	9.4 (239)	9.6 (244)
9 (229)	10.9 (277)	14.5 (368)
10 (254)	10.9 (277)	15.5 (394)
11 (279)	11.0 (279)	16.5 (419)
12 (305)	12.0 (305)	17.5 (445)
13 (330)	13.0 (330)	18.5 (470)
14 (356)	14.0 (356)	19.5 (495)
15 (381)	15.0 (381)	20.5 (521)
16 (406)	16.0 (406)	21.5 (546)
17 (432)	17.0 (432)	22.5 (572)
18 (457)	18.0 (457)	23.5 (597)
19 (483)	19.0 (482)	24.5 (622)
20 (508)	20.0 (508)	25.5 (648)
21 (533)	21.0 (533)	26.5 (673)
22 (559)	22.0 (559)	27.5 (699)

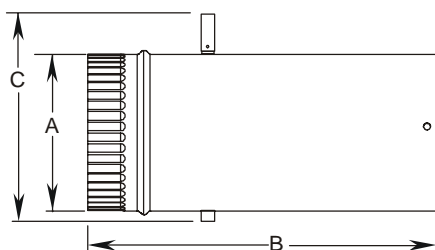


Figure 4: Round Damper without Actuator

See Table 1 for Dimensions A, B and C.

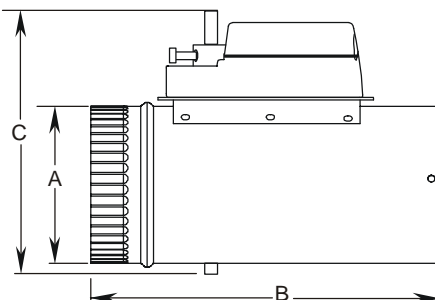


Figure 5: Round Damper with M9106 Actuator

Note: See Table 1 for Dimensions A, B and C.

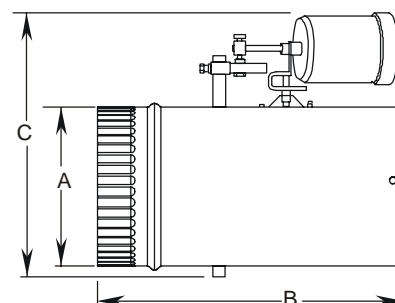


Figure 6: Round Damper with D-3062 Actuator

Note: See Table 1 for Dimensions A and B. Dimension **C** is an additional 3-1/4 in. (83 mm) to Column C (dimensions in Table 1).

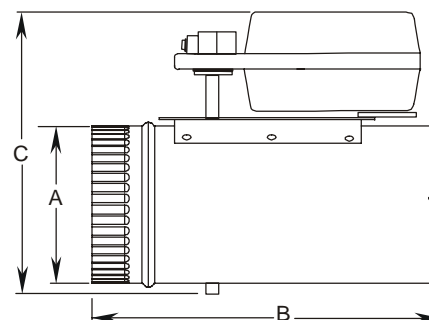


Figure 7: Round Damper with M9206 Actuator

Note: See Table 1 for Dimensions A and B. Dimension **C** is an additional 3-5/8 in. (93 mm) to Column C (dimensions in Table 1).

Selection Information

Table 2: Damper Selector

	Code Number	R	C	G	d	d		N
Product Family	R = Round dampers							
Application	C = Control L = Low Leakage Control							
Shroud Type	G = Galvanized steel S = Stainless steel (low leakage only)							
Diameter	4 to 22 in., 1 in. increments							
Actuator	B = Bracket with no actuator E = Electric non-spring return (Not available on 4- and 5 in. diameters) M = Manual locking quadrant N = None P = Pneumatic, D-3062 S = Spring return electric (Not available on 4- and 5 in. diameters)							
Control Signal	B = Floating with two SPDT auxiliary switches E = Proportional with Two SPDT auxiliary switches P = 8-13 lb spring range							
Operation	NC = Normally Closed NO = Normally Open							

Note: Based on torque requirements, RCG products use M9106 or M9206 actuators on all sizes and RLG products use M9206 and M9216 actuators on all sizes.

Performance Data

Table 3: Performance Data

Actuator Torque Required for Closing at 1,500 fpm Velocity	RCG			RLG and RLS	
4- to 8 in. diameter 9- to 16 in. diameter 17- to 22 in. diameter	5 lb-in minimum 15 lb-in minimum 25 lb-in minimum			52 lb-in maximum 84 lb-in maximum 116 lb-in maximum	
Leakage per in. diameter	1 in. sp.	2 in. sp.		4 in. sp.	
RCG	.82	.55		.41	
RLG and RLS	.11	.10		.08	
Pressure Drop (in w.g. at 1,000 fpm)	8 in.	12 in.	16 in.	20 in.	
RCG	.3	.03	.005	.001	
RLG and RLS	.12	.012	.001	.001	
Electric Actuator	M9106 and M9206: Running and breakaway torque 53 lb-in (6 N-m) M9116 and M9216: Running and breakaway torque 140 lb-in (16 N-m)				
Pneumatic Actuator	Maximum control pressure: 25 psig (172 kPa)				
Temperature Limits	without actuator: -20 to 200°F (-29 to 93°C) with electric actuator: 35 to 125°F (2 to 52°C) with pneumatic actuator: -20 to 150°F (-29 to 66°C)				
Approximate Weight, lb (kg)	Diameter	Without Actuator	With M9106	With M9206	With D-3062
	4 in.	1.1 (0.5)	3.5 (1.6)	7.5 (3.4)	3.5 (1.6)
	8 in.	2.9 (1.3)	5.3 (2.4)	9.3 (4.2)	5.5 (2.5)
	12 in.	8.0 (3.6)	10.4 (4.7)	14.4 (6.5)	10.5 (4.8)
	16 in.	14.0 (6.3)	16.4 (7.4)	20.4 (9.2)	16.5 (7.5)
	20 in.	22.5 (10.2)	24.9 (11.3)	28.9 (13.1)	25.0 (11.3)
	22 in.	26.5 (12.0)	28.9 (13.1)	32.9 (14.9)	29.0 (13.2)

Dampers are tested using instrumentation and procedures in accordance with AMCA Standard No. 500, Test Methods for Louvers, Dampers, and Shutters.

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Refer to the *M9216 Series Electric Spring Return Actuators Product Bulletin (LIT-2681068)* for necessary information on operating and performance specifications for the actuator.

Return Policy

All Johnson Controls dampers are built to order and backed by a 3-year warranty covering defects in materials or workmanship. Products received as a result of customer ordering errors are not returnable. Refer to terms and conditions of sale for specifics.



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