BD-1600 Balancing/Zone Control Damper

Product Bulletin

Code No. LIT-12012355
Issued June 2018

The BD-1600 Balancing/Zone Control Damper is designed for manual balancing or automated zone control of airflow in heating, ventilating, and air conditioning systems. The BD-1600 is not a leakage-rated damper. It is available in 1 in. increments.

The rigid frames are constructed of formed 16 gauge (1.6 mm) galvanized steel, mechanically joined with linkage concealed in the end channel to eliminate noise and friction.

Applications

- airflow balancing
- zone control

Features

- three working-day standard shipping, next working-day shipping available
- three-year warranty on materials and workmanship
- standard factory assembly of multi-section dampers
- standard factory installed jackshafts on multi-section dampers

Figure 1: BD-1600 Balancing/Zone Control Damper

Construction

Table 1: Construction

Item	Construction
Frame	5 in. x 1 in. x 16 gauge (127 mm x 25 mm x 1.6 mm) galvanized steel, hat-channel shaped
Blades	6 in. (152 mm) wide, triple-vee shaped, 16 gauge (1.6 mm) galvanized steel, approximately 6 in. (152 mm) on center
Bearings	Synthetic
Linkage	Concealed in end channel of frame
Blade Pin	1/2 in. (13 mm) plated steel hex
Extension	1/2 in. (13 mm) diameter, 6 in. (152 mm) long pin included with all control dampers

Variations

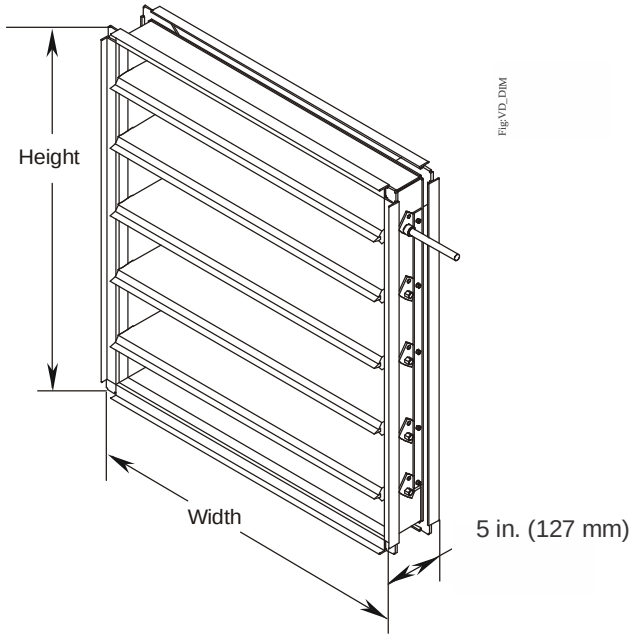
Variations to standard BD-1600 construction available at additional cost are the following:

- factory-installed manual, pneumatic, or electric actuators (specific information required with order)
- factory-installed SP100 Switch Package to remotely indicate damper blade position
- front and/or rear flange frame

Sample Guide Specification

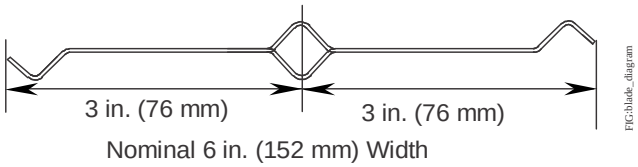
Furnish and install, at locations shown on plans, or in accordance with schedules, balancing / control dampers that meet the following minimum construction standards. Frame shall be 16 gauge (1.6 mm) galvanized steel structural hat channel with tabbed corners for reinforcement. The blades shall be single skin, 16 gauge (1.6 mm) galvanized steel with three longitudinal grooves for reinforcement. Bearings shall be corrosion-resistant, molded synthetic sleeve type turning in an extruded hole in the damper frame. Axles shall be square or hexagonal, positively locked into the damper blade. Linkage shall be concealed out of airstream, within the damper frame to reduce pressure drop and noise. Submittal must include leakage, pressure drop, maximum velocity, and maximum pressure data based on AMCA Publication 500. Dampers shall be in all respects equivalent to Johnson Controls® model BD-1600.

Figure 2: BD-1600 Balancing/Zone Control Damper



Note: Units are furnished approximately 1/4 in. (6 mm) smaller than given operating height and width dimensions.

Figure 3: Triple-Vee Shaped Blade Profile



Ordering Information

Table 2: BD-1600 Balancing/Zone Control Damper

	Code Number/ Character	FIELD														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Application	**B** = Balancing															
Blade Operation	**O** = Opposed **P** = Parallel															
Blade/ Frame Type	**T** = Triple-Vee shaped 16 gauge (1.6 mm) galvanized steel blade with 16 gauge (1.6 mm) galvanized steel channel frame															
Bearings/ Seals	**S** = Synthetic bearings, no seals															
Actuator	**A** = M9208-AGC-3 or M9220-AGC-3 (24 V, floating, spring return) **B** = M9208-GGC-3 or M9220-GGC-3 (24 V, modulating, spring return) **C** = M9208-BAC-3 or M9220-BAC-3 (120 V, two-position, spring return) **D** = M9208-BGC-3 or M9220-BGC-3 (24 V, two-position, spring return) **F** = M9106-AGC-2 or M9116-AGC-2 (24 V, floating, non-spring return) **G** = M9106-GGC-2 or M9116-HGC-2 (24 V, modulating, non-spring return) **M** = Manual locking quadrant **N** = None **P** = D-3062-3 or D-3153-2 (pneumatic 8 to 13 lb spring range)															
Width Dimensions	**www** = 005 to 999 in., 1 in. increments															
Height Dimensions	**hhh** = 005 to 999 in., 1 in. increments															
Options (Up to 2)	**E** = Exact whole inch size, no undercut **F** = 1.5 in. L flange front side (cannot be used with options G or H) **G** = 1.5 in. L flange back side (cannot be used with options F or H) **H** = Double flange (cannot be used with options F or G) **I** = Indicator switch **J** = Field-installed jackshaft on single section (multiple section units broken down and shipped in sections) **M** = Factory-installed jackshaft on single section units **Q** = Internal mount actuator back side (minimum electric actuator 14 in. x 21 in. [36 cm x 53 cm], minimum pneumatic actuator 8 in. x 21 in. [20 cm x 53 cm]) **V** = Transition (round/oval)															
Ordering Code Number		B	O	T	S	C	-	w	w	w	x	h	h	h	-	-

Accessories

Refer to the *Damper Accessory Kits Catalog Page (LIT-1923185)* and the *Damper Replacement Parts Catalog Page (LIT-1923190)* for more details.

Repair Information

If the BD-1600 Balancing/Zone Control Damper fails to operate within its specifications, replace the unit. For a replacement BD-1600 Damper, contact the nearest Johnson Controls representative.

Technical Specifications

BD-1600 Balancing/Zone Control Damper (Part 1 of 2)

Performance Data for Damper Width of 48 in. (122 cm)[1]		
Maximum System Pressure		2.5 in. wg
Maximum System Velocity[2]		1,500 fpm
Leakage[3]	**% of Maximum Flow**	2.67
	cfm/sq ft	40
Performance Data for Damper Width of 36 in. (91 cm)[1]		
Maximum System Pressure		3.0 in. wg
Maximum System Velocity[2]		1,500 fpm
Leakage[3]	**% of Maximum Flow**	2.67
	cfm/sq ft	40
Performance Data for Damper Width of 24 in. (61 cm)[1]		
Maximum System Pressure		4.0 in. wg
Maximum System Velocity[2]		1,500 fpm
Leakage[3]	**% of Maximum Flow**	3.33
	cfm/sq ft	50
Performance Data for Damper Width of 12 in. (30 cm)[1]		
Maximum System Pressure		5.0 in. wg
Maximum System Velocity[2]		1,500 fpm
Leakage[3]	**% of Maximum Flow**	4.33
	cfm/sq ft	65
Pressure Drop—Fully Open[4]	**1,000 fpm**	0.045 in. wg
Minimum Temperature		-40°F (-40°C)
Maximum Temperature		240°F (116°C)

BD-1600 Balancing/Zone Control Damper (Part 2 of 2)

Maximum Size[5]	**Single Section**	48 in. wide x 72 in. high (122 cm x 183 cm)
	Multiple Section Assembly	Unlimited[6]
Minimum Size	**Single Blade**	5 in. wide x 5 in. high (13 cm x 13 cm)
	Two Blades, Parallel or Opposed Action, Concealed Linkage	5 in. wide x 8 in. high (13 cm x 20 cm) (Optional)

1. Dampers may tolerate higher pressures and velocities than those listed here. Conservative ratings are presented intentionally in an effort to avoid misapplication. 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.
2. The BD-1600 is structurally designed for velocities of 2,000 fpm and greater. Turbulence may produce objectionable noise in some conditions with velocities greater than 1,500 fpm.
3. Leakage information based on pressure differential of 1 in. wg tested per AMCA Publication 500, *Test Methods for Louvers, Dampers, and Shutters*.
4. Pressure drop data obtained using a 24 in. x 24 in. (61 cm x 61 cm) damper.
5. Maximum section width varies with static pressure. Consult Johnson Controls, Inc. if the application involves pressures in excess of 2.5 in. wg or air velocities in excess of 2,000 fpm.
6. If ordering an assembly greater than 999 in (2537 cm) in width or height, the assembly must be ordered using a Ruskin-01 quote.

European Single Point of Contact:

JOHNSON CONTROLS
WESTENDHOF 3
45143 ESSEN
GERMANY

NA/SA Single Point of Contact:

JOHNSON CONTROLS
507 E MICHIGAN ST
MILWAUKEE WI 53202
USA

APAC Single Point of Contact:

JOHNSON CONTROLS
C/O CONTROLS PRODUCT MANAGEMENT
NO. 22 BLOCK D NEW DISTRICT
WUXI JIANGSU PROVINCE 214142
CHINA