

VD-1251Tx Thermal Efficiency Volume Control Dampers Catalog Page

Description

Since 1885, Johnson Controls has provided the highest quality control dampers that fit your application and size requirements.

VD-1251Tx dampers offer sturdy construction of both frame and airfoil blades of aluminum, and are designed to meet various application and environmental requirements. These applications include, but are not limited to:

- VD-1251TE: Insulated aluminum blade with thermal break and aluminum frame. For low-temperature applications.
- VD-1251TB: Insulated aluminum blade with thermal break and insulated aluminum frame with thermal break. For low temperature applications that require isolation breaks filled with polyurethane and are debridged.

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

Refer to the *Thermal Efficiency Volume Control Dampers Product Bulletin (LIT-12011907)* for important product application and single point of contact information.

Features

- 3-Year warranty on materials and workmanship provides the confidence of Johnson Controls standing behind the product.
- 15-working-day standard shipping after order entry results in fast response for short lead time projects.
- 345% thermal efficiency ratio results in less cold penetration.
- Self-compensating side seals minimize leakage between the blades and the damper frame.
- Twin blade seals with neutral zone thermal break improve thermal efficiency and isolate skins for less migration.
- Dual-action injection molded bearing and bearing surface frame insert reduce friction for lower torque, requiring fewer and smaller actuators.

Refer to the *Thermal Efficiency Volume Control Dampers Product Bulletin (LIT-12011907)* for important product application information.

Submittal Specifications

Furnish and install, where shown on plans or as indicated in schedules, thermal efficiency control dampers meeting the following minimum specifications.

Damper shall be Johnson Controls® VD-1251Tx.

Frame: Damper frame shall be constructed of 6063T6 high-yield extruded aluminum with a minimum wall thickness of 0.125 in. (3 mm) and a yield stress of no less than 30,000 psi.

Blades: Low-pressure-drop aerodynamically shaped blades shall be constructed of 6063T6 high-yield extruded aluminum with a minimum wall thickness of 0.125 in. (3 mm) and a yield stress of no less than 30,000 psi. Blades shall be filled with polyurethane structural foam with a minimum density of 15 pcf. Insulated blades shall include a thermal break positioned between two blade seals to completely eliminate a thermal path from one side of the damper to the other. Thermal breaks on the blade edges shall not be visible when the damper is in the closed position.

Design: Damper assembly shall have a symmetrical design to ensure the resistance to airflow is identical from either direction.

Axles: Axles shall be 1/2 in. (13 mm) hexagonal plated steel material. Stainless steel axles shall be utilized when noted on the plans. Polycarbonate bearings shall be formed to the shape of the axle to reduce leakage through the frame.

Bearings: Bearings shall rotate inside an acetyl copolymer outer bearing surface to reduce torque and promote a smooth operation throughout the stroke of the damper.

Linkage: Zero-tolerance Swedgelock™ linkage arms shall be permanently and mechanically secured to each axle, eliminating future need for field adjustment of the linkage assembly. Linkage assembly shall be set to predetermined parameters ensuring leakage performance for the life of the product. Linkage shall be completely concealed within the damper frame, out of the airstream. Stainless steel linkage of the same design shall be used when specified on the plans. Blade edge seals shall be extruded bulb silicone and shall be mechanically fastened to the blades.

Seals: Santoprene seals are standard. Silicone seals shall be utilized when specified on the plans. Jamb seals shall be low-profile, light-prohibiting, extruded silicone secured in extruded pockets of the damper frame. Santoprene jamb seals are standard. Silicone seals shall be used when specified on the plans. Stainless steel jamb seals creating a thermal path from one side of the blade to the other are not permitted.

Pressure: Damper shall be suitable for pressures up to 8 in. water gage (2 kPa), velocities up to 4,000 fpm (20.3 m/s), standard air leakage of less than 8 cfm/ft² at 4 in. water gage (2.44 cmm/m² at 1 kPa), temperature range of -45 to 200°F (-43 to 93°C), and a thermal efficiency ratio no less than 345% on opposed blade dampers.



Aluminum Control Damper

All performance data shall be submitted to engineer of record for approval. Damper leakage, performance, and thermal efficiency shall be developed in accordance with the latest edition of AMCA 500-D.

Factory Options

- C Clear anodized finish
- E Exact whole inch size, no undercut
- F 1-1/2 in. L flange air entering side (cannot be used with option G) (VD-1251TE only)
- G 1-1/2 in. L flange air leaving side (cannot be used with option F) (VD-1251TE only)
- H Double flange for flange to duct applications (VD-1251TE only.) VD-1251TB models have a double-sided T Flange as standard. For flange to duct applications, on VD-1251TB models, add 2 in. to height and width dimensions.
- I Indicator switch
- J Single-panel jackshaft (multiple section broken down for field assembly)
- M Single panel only, factory assembled
- Q Internal mount actuator (electric minimum size 014 x 021, pneumatic minimum size 018 x 024)
- S Stainless steel linkage and axles (VD-1251TB only)
- X Ships unassembled

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Damper Selector

	Code Number ¹	V				-	w	w	w	x	h	h	h			
Application	V = Volume Control															
Blade Operation	O = Opposed (greater than 12 in. high) P = Parallel															
Blade/Frame	C = Insulated, Thermally Broken Blade/Standard Frame (VD-1251TE) I = Insulated, Thermally Broken Blade/Thermally Broken Frame (VD-1251TB)															
Bearing/Seal	E = Extended (Polycarbonate/Silicone) S = Standard (Polycarbonate/Santoprene)															
Actuator²	A = M9208-AGC or M9220-AGC (24 V Floating, Spring Return) B = M9208-GGC or M9220-GGC (24 V Modulating, Spring Return) C = M9208-BAC or M9220-BAC (120 V Two-Position, Spring Return) D = M9208-BGC or M9220-BGC (24 V Two-Position, Spring Return) F = M9106-AGC or M9116-AGC (24 V Floating, Non-Spring Return) G = M9106-GGC or M9116-HGC (24 V Modulating, Non-Spring Return) N = No Actuators P = D-3062-3 or D3153-2 (Pneumatic, 8-13# Spring Range)															
Width	006 to 999 inches, 1 in. increments															
Height	Opposed: 012 to 999 inches, 1 in. increments Parallel: 006 to 999 inches, 1 in. increments															
Options (limit two)	See Factory Options for descriptions and combinations.															

1. Not all combinations are available; check selector tool for valid combinations.
2. Actuators restrict minimum sizes (see [Factory Options](#)) and may restrict maximum sizes; check selector tool for valid sizes.

Repair Information

All Johnson Controls dampers are built to order and cannot be returned due to ordering errors. All dampers are backed by a 3-year warranty, which covers defects in materials or workmanship. Refer to terms and conditions of sale for specifics.

Accessories

Code Number	Description
DMPR-KC011	Extended shaft only, hex pin
DMPR-KC012	Extended shaft with bracket, hex pin
DMPR-KC013	Position switch kit, short link, for sizes over 20 in.
DMPR-KC014	Position switch kit, long link, for sizes under 20 in.
DMPR-KC016	External field mount position switch 1 in. coupling
DMPR-KC017	External field mount position switch square pin coupling
DMPR-KC018	External field mount position switch hex pin coupling
DMPR-KC210	Jackshaft, 1 in. diameter, 1 panel

Repair Parts

Code Number	Description
DMPR-RC070	Santoprene blade seal
DMPR-RC071	Silicone blade seal/stop
DMPR-RC072	Santoprene blade stop

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Technical Specifications

VD-1251Tx Volume Control Dampers ¹					
Leakage	Class 1A at 1 in. water gage (0.25 kPa) Class 1 at 4 in. water gage (1 kPa)				
Operating Torque	1 in. static pressure, 1,000 fpm fully open approach velocity				7 lb-in/sq ft
Pressure Drop (in. water gage) - Fully Open	Size (in.)	Approach Velocity (fpm) Based on AMCA Standard 500-D Figure 5.3			
		1,000	2,000	3,000	4,000
	24 x 24	0.06	0.22	0.49	0.86
	36 x 36	0.03	0.13	0.29	0.51
Pressure	Up to 8.0 in. water gage (2 kPa) pressure				
Velocity	Up to 4,000 fpm (20.3 m/s)				
Temperature Rating	Standard and Extended Operating Conditions	-50 to 200°F (-46 to 93°C)			
	Actuator	-4 to 122°F (-20 to 50°C)			
Temperature Range	-70 to 200°F (-57 to 93°C) with optional silicone seals -45°F to 185°F (-43 to 85°C) with standard Santoprene seals				
Approximate Weight	10 lb/sq ft (4.6 kg/sq m)				
	Actuator	2.9 lb (1.6 kg) per actuator			

1. All performance data are determined using instrumentation and procedures at an AMCA Certified Laboratory in accordance with AMCA Standard No. 500, Test Methods for Louvers, Dampers, and Shutters.