

Motorized Backdraft Damper

Application and Design

The WD-200 series are electrically motorized backdraft dampers that open when energized and spring return close when de-energized. The WD-200 series are for horizontal or vertical mounting. Primary application is to prevent undesirable reverse airflow when installed with roof or sidewall supply (intake) fans. Electric motor pack is shipped separately and requires installation in the field.

Ratings (See page 2 for specific limitations)

Pressure: 2.0 in. wg (498 Pa) - differential pressure

Velocity: 2500 fpm (13 m/s)

Temperature: 180°F (82°C)

Standard Construction

Frame: 18 ga. (1.3mm) galvanized steel

Blades: 0.032 in. - 0.040 in. (0.8 - 1 mm) roll-formed aluminum

Axles: 3/16 in. (4.8mm) dia. zinc plated steel pins, on blade ends

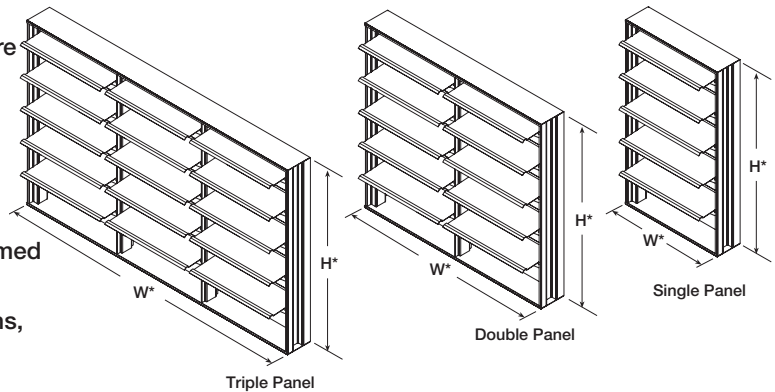
Bearings: Synthetic (acetal)

Linkage: 0.064 in. (1.6mm) 6061T6 aluminum tie bar

Blade Seals: Vinyl

Operator: MP-200 series motor pack(s)

(See pages 5 & 7 for more details)



*W & H dimensions furnished approximately 1/8 in. (3mm) under size.

Size Limitations (see pages 4 & 6 for specific limitations)

Minimum Panel Size

WD-200/210/220: 6 in. W x 6 in. H
(152mm x 152mm)

Maximum Panel Size

Single Panel (WD-200/210/220): 31 in. W x 74 in. H
(787 mm x 1880mm)

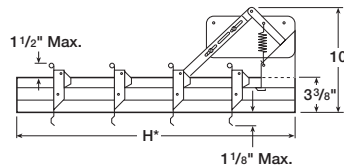
Double Panel (WD-200): 50 in. W x 74 in. H
(1270mm x 1880mm)

Double Panel (WD-210/220): 63 in. W x 74 in. H
(1600mm x 1880mm)

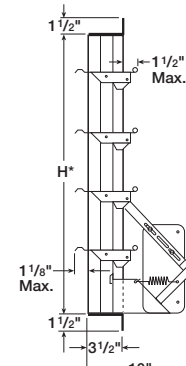
Triple Panel (WD-210/220): 74 in. W x 74 in. H
(1880mm x 1880mm)

Options and Accessories (at additional cost)

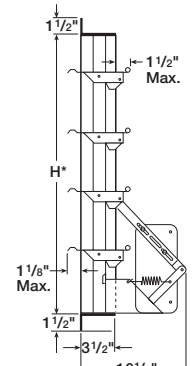
- 1 1/2 in. (38mm) flange on motor side: WD-210
- 1 1/2 in. (38mm) flange opposite motor: WD-220
- End Switch Kit (See page 8): Model #851038
- Stainless Steel Bearings
- Stainless Steel Axles



Model WD-200
No Flange



Model WD-210
Flange on Motor Side



Model WD-220
Flange Opposite Motor

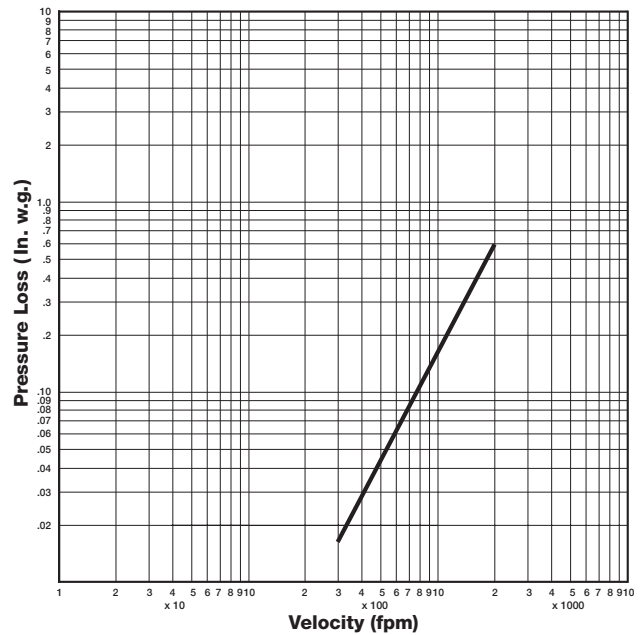
Pressure Drop

Performance data results from testing a 36 in. x 36 in. (914mm x 914mm) damper in accordance with AMCA Standard 500-D using Figure 5.5 (unducted). All data has been corrected to represent standard air at 0.075 lb/ft³ (1.201 kg/m³).

Operational Data		ΔP in. wg (Pa)	Velocity fpm (m/s)
Blades Fully Open	non-ducted	0.017 (4)	300 (1.5)
Blades Fully Open	non-ducted	0.62 (154)	2000 (10.2)

* Please note that the pressure differentials listed above are for the beginning and ending points of the graph at the right. Both blade positions above are listed as fully open (and not 'Start Open' and 'Fully Open') because this damper is always motorized and thus the testing is performed with the blades actuated to the open position.

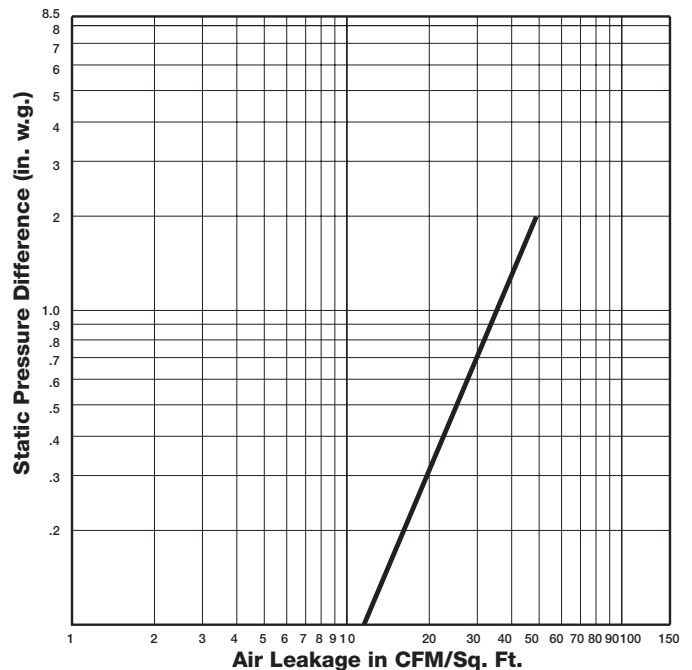
Pressure Drop
36 in. x 36 in. (914mm x 914mm) Damper



Leakage

Leakage testing was conducted in accordance with AMCA Standard 500-D and is expressed as CFM per sq. ft. of damper face area. All data has been corrected to represent standard air at 0.075 lb/ft³ (1.201 kg/m³).

Leakage
36 in. x 36 in. (914mm x 914mm) Damper



MOTOR PACKS

MP-210 & 220 Motor Packs

Series MP-210 motor packs are a standard feature of all WD-200 dampers. These motor packs are field installed to convert the WD-200 series backdraft damper to motorized operation. Airflow direction can be vertical or horizontal. These versatile motor packs feature power opening with spring return. The springs also provide damper closure in the event of electrical failure.

The MP-210 motor packs are available in voltages of 24, 120, 208, 220, 380 and 440. The MP-220A motor pack is available in voltages of 24, 120, 220, 380 and 440 volts. 575/600 volts may be used for the MP-200 series by way of a transformer (Greenheck Part #380711) and the appropriate 115 volt motor pack (MP-210 or MP-220A). All MP-200 series motor packs are U.L. Listed. **Please specify voltage when ordering.**

There are two motor packs available on the WD-200 series damper to accommodate for larger torque requirements. To determine the type and number of motor packs required per WD-200 damper, refer to the table on page 5. To determine the type and number of motor packs required per WD-210 or WD-220 damper, refer to the table on page 7. Oversized applications may require several dampers connected together for one opening.

MP-200 series motor packs are supplied with mounting hardware, assembly instructions and actuator arms for either single, double or triple panel installation.

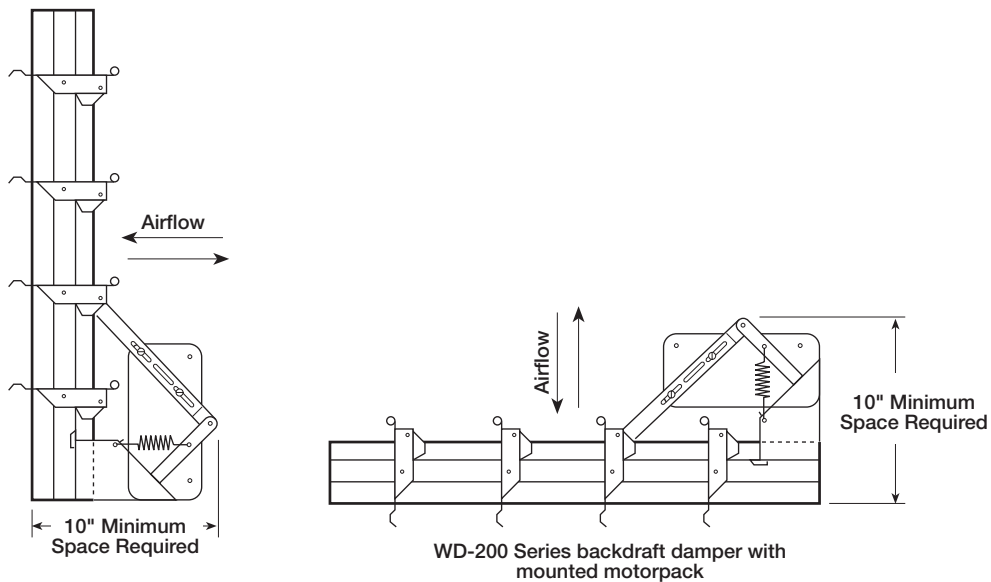
MP-210

Motor packs	24V (60 Hz)	440V (60 Hz)	120V (50/60 Hz)	208V (50/60 Hz)	220V (50/60 Hz)	24V (50 Hz)	380V (50 Hz)
Stall Amps	.740	.047	.110	.050	.062	1.00	.098
Spec ID#	3753	3752	3751	3751	3751	2651-A	2663-C

MP-220A

Motor packs	24V (60 Hz)	120V (60 Hz)	208V (60 Hz)	220V (60 Hz)	440V (60 Hz)	24V (50 Hz)	380V (50 Hz)
Stall Amps	.711	.17	.075	.09	.058	.860	.135
Spec ID#	3756	3754	3754	3754	3755	3756	3560







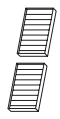

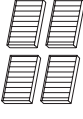

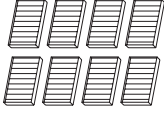

Motor Pack Dimensional Data



WD-200 series dampers come standard with a motor pack. The diagrams above illustrate the required clearance needed for proper operation of a mounted motor pack.

WD-200 SELECTION

- Multiple section dampers shown below are supplied as equal size sections. Any damper that has multiple sections, both vertically and horizontally, will require field assembly and will require additional reinforcement (not supplied by Greenheck) to support the assembly. These larger dampers must have the additional reinforcement to give them structural stability.
- Please note that the width dimension is **always** taken as being parallel to the length of the blades.
- **Note:** The type and number of motor packs required can be found on page 5.

		Width						
		6	32	50	64	100	128	150
Height	6	6 Up To 32 Single Panel One Section 	32 Up Thru 50 Double Panel One Section 	Above 50 Up to 64 Single Panel Two Section 	64 Up Thru 100 Double Panel Two Section 	Above 100 Up To 128 Single Panel Four Section 	128 Up To 150 Double Panel Three Section 	
	74	Above 74 Thru 148 Single Panel Two Section 	Double Panel Two Section 	Single Panel Four Section 	Double Panel Four Section 	Single Panel Eight Section 	Double Panel Six Section 	
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* Width and height given in inches.

MOTOR PACK SELECTION FOR WD-200






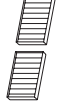

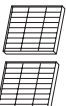

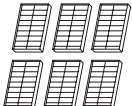
- The table below will allow you to determine the type and number of motor packs needed for a given size WD-200 backdraft damper.
- For further information on a particular motor pack, refer to page 3.

		Width				
		8	37	50	100	128
Height	8 8 Up Thru 74	8 Up To 37	37 Up Thru 50	Above 50 Thru 100	Above 100 Up To 128	128 Up Thru 150
	1 MP-210 Motor Pack	1 MP-220 Motor Pack	2 MP-220 Motor Packs	4 MP-220 Motor Packs	3 MP-220 Motor Packs	
	Above 74 Thru 148	2 MP-210 Motor Packs	2 MP-220 Motor Packs	4 MP-220 Motor Packs	8 MP-220 Motor Packs	6 MP-220 Motor Packs
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* Width and height given in inches.

WD-210/220 SELECTION

- Multiple section dampers shown below are supplied as equal size sections. Any damper that has multiple sections, both vertically and horizontally, will require field assembly and will require additional reinforcement (not supplied by Greenheck) to support the assembly. These larger dampers must have the additional reinforcement to give them structural stability.
- Please note that the width dimension is **always** taken as being parallel to the length of the blades.
- **Note:** The type and number of motor packs required can be found on page 7.

		Width					
		8	32	64	74	128	148
		8 Up To 32	32 Up To 64	64 Up Thru 74	Above 74 Up To 128	128 Up Thru 148	
Height	8	Single Panel One Section 	Double Panel One Section 	Triple Panel One Section 	Double Panel Two Section 	Double Panel Three Section 	
	74	Single Panel Two Section 	Double Panel Two Section 	Triple Panel Two Section 	Double Panel Four Section 	Double Panel Six Section 	
	148						

* Width and height given in inches.

MOTOR PACK SELECTION FOR WD-210/220

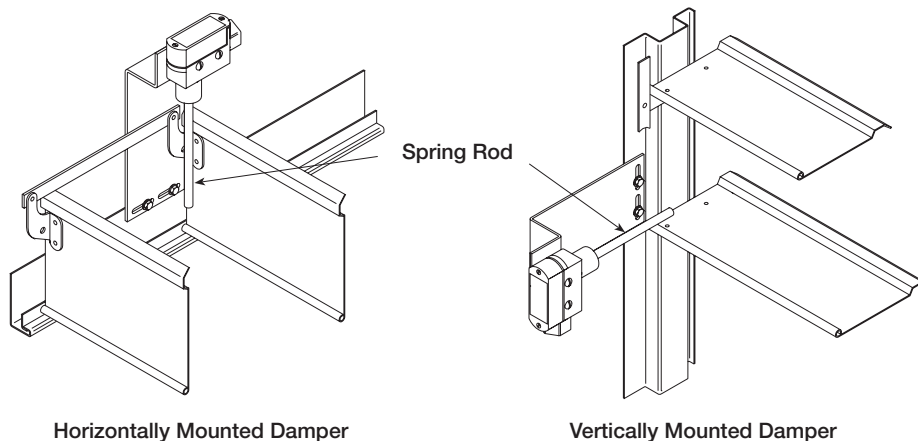
- The table below will allow you to determine the type and number of motor packs needed for a given size WD-200 backdraft damper.
- For further information on a particular motor pack, refer to page 3.

		Width				
		8	37	64	128	148
Height	8	8 Up To 37	37 Up To 64	64 Up To 128	128 Up To 148	
	8 Up Thru 74	1 MP-210 Motor Pack	1 MP-220 Motor Pack	2 MP-220 Motor Packs	3 MP-220 Motor Packs	
	74	Above 74 Thru 148	2 MP-210 Motor Packs	2 MP-220 Motor Packs	4 MP-220 Motor Packs	6 MP-220 Motor Packs
	148					

* Width and height given in inches.

End Switch Kit (Optional)

An end switch is a control device used in conjunction with a motor pack (the end switch is usually wired to a fan and/or to a light serving as an open/not open indicator). When the damper is powered open, the blades of the damper hit the spring rod of the end switch which in turn makes a connection allowing power to flow to the fan and/or light. This set up would be used when it is desirable to ensure that the damper is fully open before the fan starts. Otherwise, with the damper blades not fully open, the pressure and air velocity produced by the fan may damage the blades, making the damper inoperable.



Specifications

Backdraft dampers meeting the following specifications shall be furnished and installed where shown on plans and/or as described in schedules.

Dampers shall consist of: 18 ga. (1.3mm) galvanized steel frame with 3 1/2 in. (89mm) depth; blades from 0.032 in.-0.040 in. (.8mm - 1mm) roll-formed aluminum; 3/16 in. (4.8mm) dia. plated steel stub axles turning in acetal bearings; damper shall be equipped with extruded vinyl blade seals; and internal 0.064 in. (1.6mm) aluminum tie bar (on-blade).

Damper manufacturer's printed application and performance data including pressure, velocity and

temperature limitations shall be submitted for approval showing damper suitable for pressures to 2.0 in. wg (498 Pa), velocities to 2500 fpm (13 m/s) and temperatures to 180°F (82°C). Testing and ratings to be in accordance with AMCA Standard 500-D.

Basis of design is Greenheck model WD-200.

