

# BACKDRAFT DAMPER

## WD-100 SERIES

### Horizontal Mount Vertical Airflow Up

### Application and Design

The WD-100 series are horizontally mounted backdraft dampers designed to allow vertical airflow up and prevent reverse airflow. The dampers are opened by air pressure differential (assisted by springs) and closed by gravity. Optional motor pack converts the dampers to motorized operation. The primary application is with roof mounted exhaust fans.

### Ratings (See page 2 for specific limitations)

**Pressure:** 1.0 in. wg (249 Pa) - differential pressure.

**Velocity:** 2500 fpm (13 m/s)

**Temperature:** 180°F (82°C)

### Standard Construction

**Frame:** 18 ga. (1.3mm) galvanized steel.

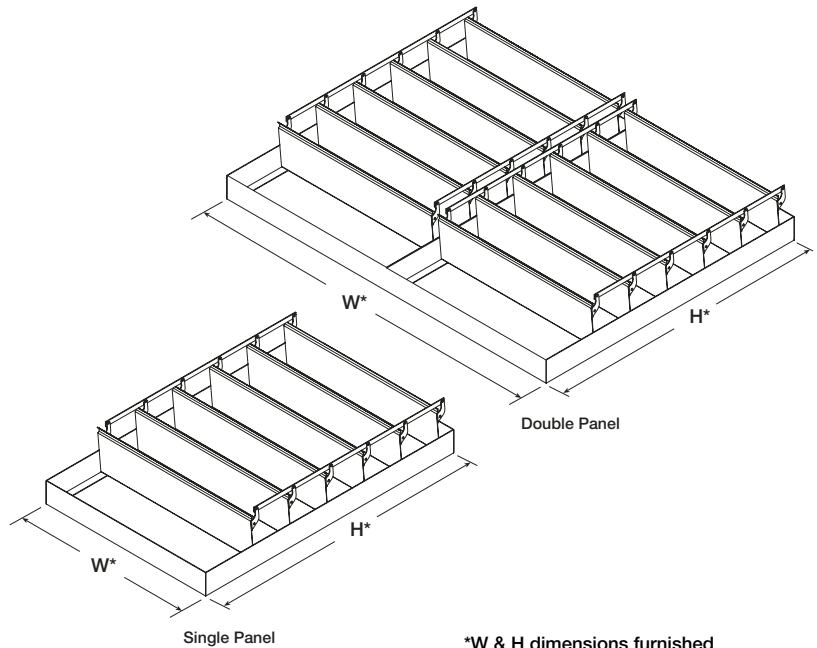
**Blades:** 0.025 in. (0.6mm) aluminum.

**Axles:** 3/16 in. (4.8mm) dia. plated steel, full length

**Bearings:** Synthetic (acetal) sleeve type

**Linkage:** 0.064 in. (1.6mm) 6061T6 aluminum tie bar. Spring assisted opening for low pressure drop

**Blade Seals:** Vinyl



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

### Size Limitations (see page 4 for specific limitations)

**Minimum Panel Size:** 6 in. W x 6 in. H  
(152mm x 152mm)

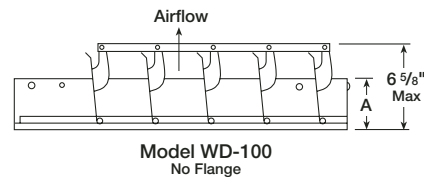
#### Maximum Panel Size

Single Panel: 36 in. W x 74 in. H  
(914mm W x 1880mm H)

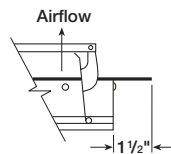
Double Panel: 50 in. W x 50 in. H  
(1270mm x 1270mm)

### Options and Accessories (at additional cost)

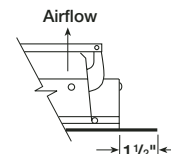
- 1 1/2 in. flange on discharge: WD-110
- 1 1/2 in. flange on intake: WD-120
- Aluminum Frame: WD-101/111/121
- Motor Packs (24V, 120V, 208V, 220V, 308V, and 440V)
- End Switch Kit (See page 3): Model #851038
- Stainless Steel
- Stainless Steel Axles



A = 2 1/2 in. (64mm) when damper width and height is less than 36 in. (914mm)  
 3 1/2 in. (89mm) when width or height is greater than 36 in. (914mm)



Model WD-110  
Flange on discharge side



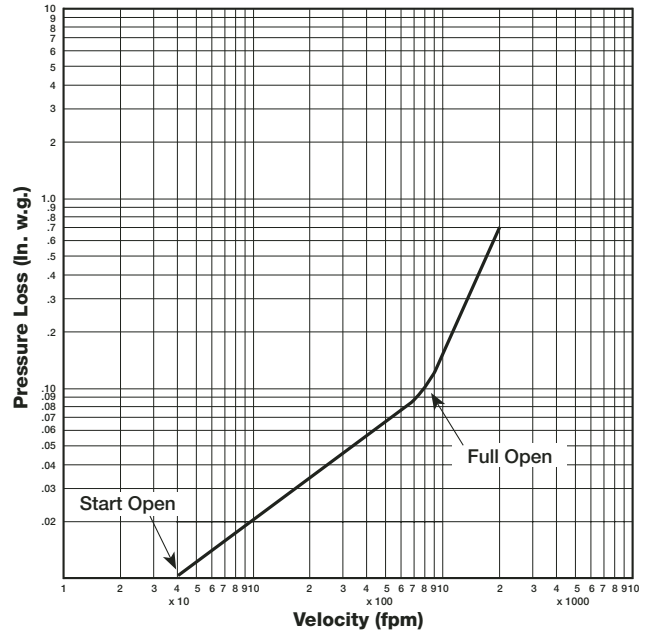
Model WD-120  
Flange on intake side

## 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 5.7B (unducted). All data has been corrected to represent standard air at 0.075 lb/ft<sup>3</sup> (1.201 Kg/m<sup>3</sup>).

Operational Data		$\Delta P$ in. wg (Pa)	Velocity fpm (m/s)
Blades Start to Open	non-ducted	0.01 (2.5)	40 (.2)
Blades Fully Open	non-ducted	0.10 (25)	813 (4)

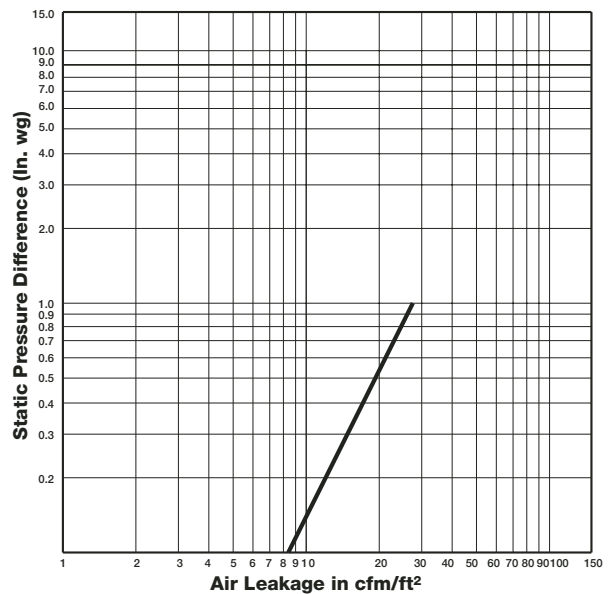
**Pressure Drop**  
36 in. x 36 in. (914mm x 914mm) Damper



## 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/ft<sup>3</sup> (1.201 kg/m<sup>3</sup>).

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



## MP-100 Motor Packs (Optional)

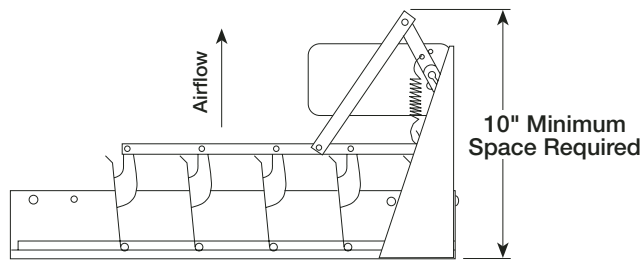
Model MP-100 motor packs may be field installed to convert the WD-100 horizontal mount backdraft damper to motorized operation. Airflow direction should remain vertical upward when this motorized version is applied. These versatile motor packs feature power opening with spring return. The springs also provide damper closure in the event of electrical failure. Voltages available are 24, 120, 208, 220, 380, and 440. 575/600 volts may be used with a transformer (Greenheck Part #380711) and a 115 volt motor pack. All MP-100 motor packs are U.L. Listed.

If optional motor packs are desired, first determine the number of dampers required for your installation (refer to page 4). Oversized applications may require several dampers connected together for one opening. One motor pack is required for each damper panel (single or double). *For example: referring to page 4, a 120 in. W x 60 in. H (3048mm W x 1524mm H) WD-100 would consist of four single panel sections, each of which would require a motor pack (four motor packs total).*

MP-100 motor packs are supplied with mounting hardware, assembly instructions and actuator arms for either single or double panel installation.

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	.100	.098
Spec ID#	3753	3752	3751	3751	3751	2651-A	2663-C

### Motor Pack Dimensional Data

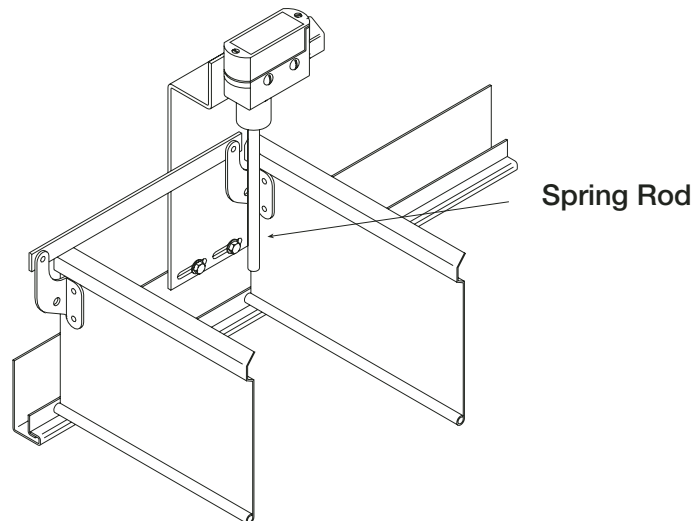


WD-100 backdraft damper with optional motorpack

WD-100 series dampers are available with an optional motor pack (MP-100). The diagram to the left illustrates the minimum space required for proper operation of a mounted motor pack.

## 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.

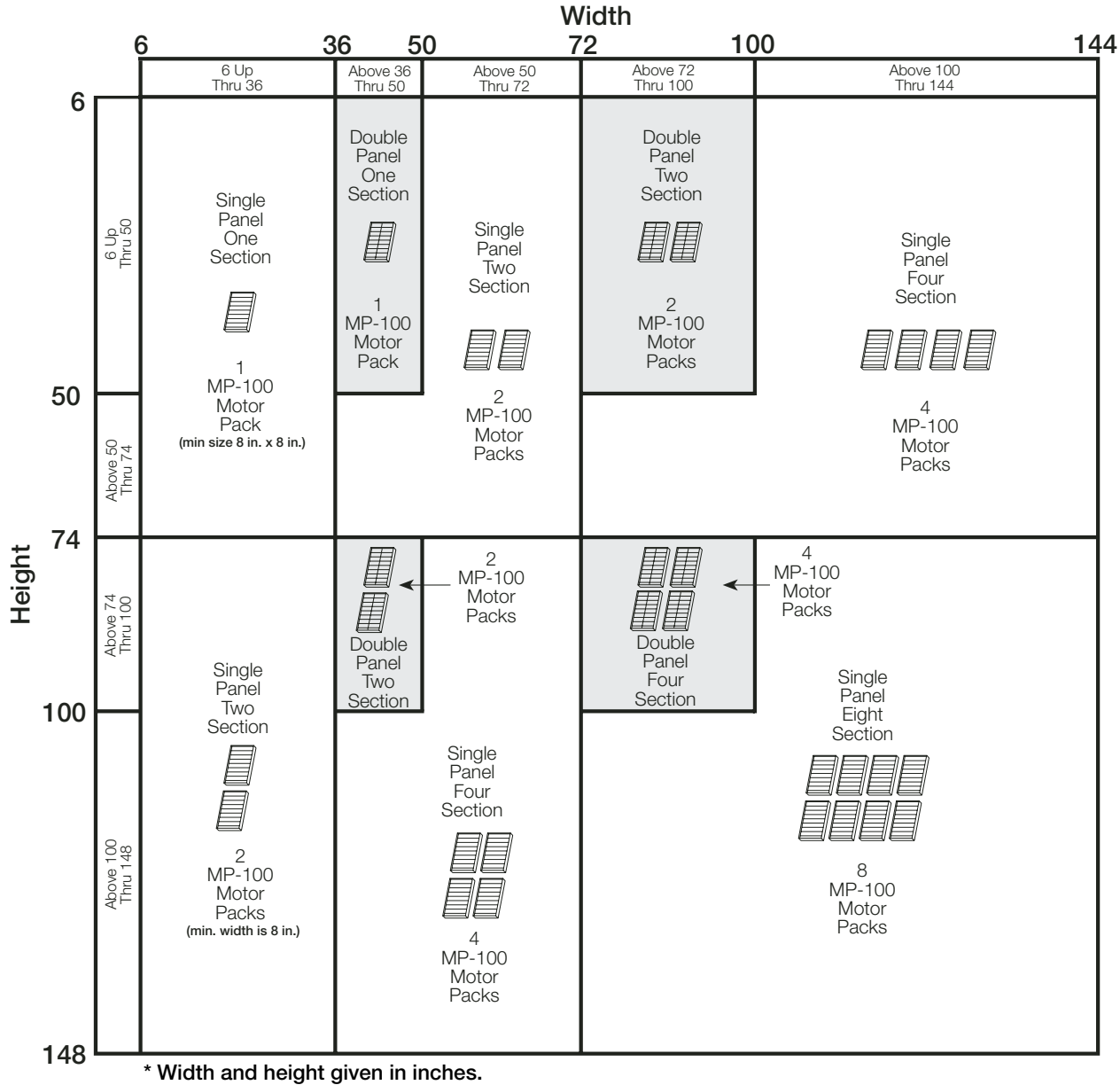


Horizontally Mounted Damper

# WD-100 SELECTION

# SPECIFICATIONS

- 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.
- **Optional:** The motor pack quantities are shown below for job specifications requesting them.



## 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 2 1/2 in. to 3 1/2 in. (64mm to 89mm) depth; blades from 0.025 in. (.6mm) roll-formed aluminum; 3/16 in. (4.8mm) dia. plated steel, full length, 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) with spring assist. 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 1.0 in. wg (249 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-100.