



# EM-10 Series

## Horizontal Mount/Vertical Airflow Up Extruded Backdraft Damper Adjustable Counterbalance

### Application and Design

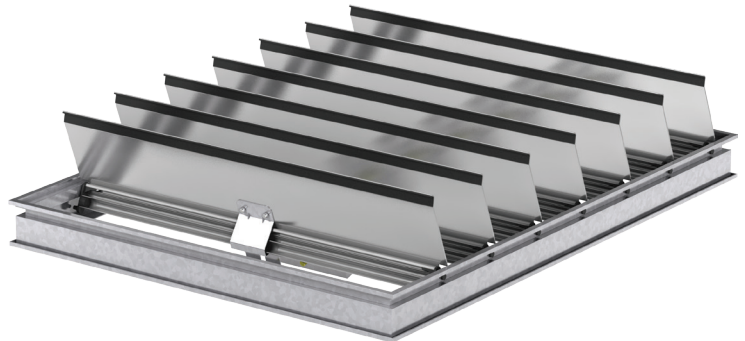
The EM-10 series is a horizontally mounted backdraft damper that is designed to allow vertical airflow up and prevent reverse airflow. The damper is opened by air pressure differential and closed by gravity. Standard models include adjustable counterbalance to assist opening.

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

**Pressure:** Up to 10.0 in. wg (2.5 kPa) differential pressure. For pressures over 10 in. wg, (2.5 kPa), consult factory

**Velocity:** 2,500 to 3,500 fpm (13 m/s - 18 m/s)

**Temperature:** 180°F (82°C)

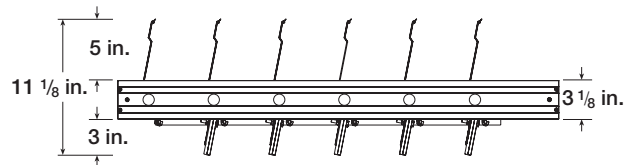


\*W & H dimensions furnished approximately 1/4 in.(6mm) under size.

|                        | Standard                       | Optional |
|------------------------|--------------------------------|----------|
| <b>Frame Material</b>  | 6063T5 Extruded Aluminum       | -        |
| <b>Frame Thickness</b> | .125 in. (3.2mm)               | -        |
| <b>Blade Material</b>  | 6063T5 Extruded Aluminum       | -        |
| <b>Blade Thickness</b> | .070 in. (1.8mm)               | -        |
| <b>Axle Linkage</b>    | 1/8 in. (3mm) plated steel     | 304SS    |
| <b>Bearings</b>        | Synthetic (acetal) sleeve type |          |
| <b>Blade Seals</b>     | Vinyl                          |          |

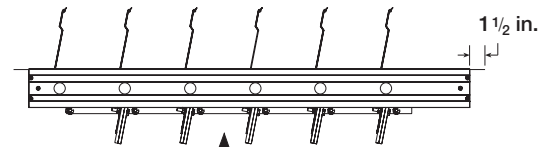
### EM-10

No Flange



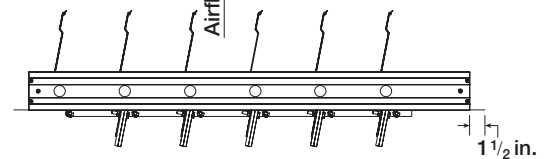
### EM-11

Flange On Discharge



### EM-12

Flange On Intake



### Options and Accessories

- 1½ in. (38mm) flange on discharge: EM-11
- 1½ in. (38mm) flange on intake: EM-12
- APC (Adjustable Pressure Controller). Allows field setting of relief pressure on all EM dampers. Use one per panel.
- Sleeves

Maximum recommended pressure set limitations are as follows:

| Area ft <sup>2</sup><br>(m <sup>2</sup> ) | Maximum Set Pressure<br>in. wg (Pa) |
|---|-------------------------------------|
| 4 (.37)                                   | .75 (187)                           |
| 6 (.56)                                   | .50 (125)                           |
| 8 (100)                                   | .40 (100)                           |
| 10 (.93)                                  | .30 (75)                            |
| 15 (1.39)                                 | .20 (50)                            |
| 20 (1.86)                                 | .15 (37)                            |
| 24 (2.23)                                 | .125 (31)                           |

| W x H  | Minimum Size | Maximum Single Section Size | Maximum Multi Section Size |
|--------|--------------|-----------------------------|----------------------------|
| Inches | 8 x 11       | 48 x 74                     | 144 x 148                  |
| mm     | 203 x 279    | 1219 x 1880                 | 3658 x 3759                |

Sizes larger than maximum shown will be supplied as two or more equal size smaller dampers required to make up the size specified. These larger multiple damper assemblies require field assembly and may require additional reinforcement (not supplied by Greenheck) to support the assembly.

## Test Information

- Air leakage is based on operation between 32°F and 120°F (0°C and 48°C)
- Tests for air leakage were conducted in accordance with ANSI/AMCA Standard 500-D Figure 5.5, in the backdraft direction
- Air performance testing conducted in accordance with ANSI/AMCA Standard 500-D, Figure 5.7B

## Air Leakage

Model EM-10 series dampers with a width and height 24 in. (610mm) or greater leak a maximum of:

- 12.3 cfm/ft<sup>2</sup> or less at 1.0 inches w.g.

Model EM-30 series dampers with a width or height less than 24 in. (610mm) leak a maximum of:

- 27.5 cfm/ft<sup>2</sup> or less at 1.0 inches w.g.

\*Note: This model complies with the International Energy Conservation Code (IECC) and ASHRAE 90.1 leakage requirements for non-motorized dampers.

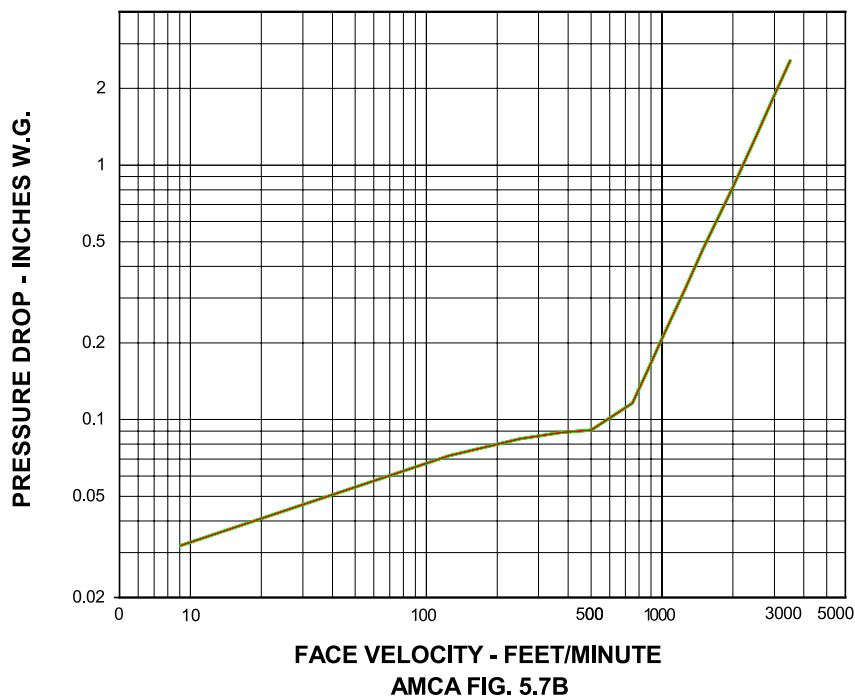
## Air Performance

Performance data results from testing a 24 in. x 24 in. damper in accordance with AMCA Standard 500-D using Figure 5.7B. All data has been corrected to represent standard air at 0.075 lb/ft<sup>3</sup> (1.201 kg/m<sup>3</sup>).

### Pressure Drop

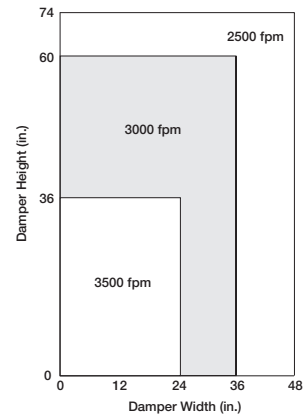
24 in. x 24 in. Damper  
(610mm x 610mm)

### VELOCITY VS. PRESSURE DROP



| Operational Data               |                      | ÆP in. wg (Pa) | Velocity fpm (m/s) |
|--------------------------------|----------------------|----------------|--------------------|
| Dampers with standard bearings | Blades start to open | 0.03 (7)       | 9 (.05)            |
|                                | Blades fully open    | 0.12 (15)      | 750 (3.8)          |

## Velocity Limitations



## 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: heavy gauge 6063T5 extruded aluminum channel frame (0.125 in. [3.2mm] thick) with 3½ in. (79mm) depth; blades from 0.070 in. (1.8mm) 6063T5 extruded aluminum; synthetic acetal axle bearings; damper shall be equipped with extruded vinyl blade seals; and internal 1/8 in. (3mm) plated steel blade-to-

blade linkage with counterbalance weights. 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 10 in. wg (2491 Pa), velocities to 3500 fpm (18 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 model EM-10.