

Industrial Backdraft Damper
Application and Design

Model HB-120 is a heavy duty double flanged channel frame style backdraft damper with single thickness blades. It is designed to prevent backflow and to provide shut off in HVAC or industrial process systems. External heavy duty linkage, blade counterbalance, and ball bearings are standard.

Ratings (See page 2 for specific limitations)

Pressure: 5.0 - 8.5 in. wg (1.2 - 2.1 kPa) - differential pressure

Velocity: 3900 - 5150 fpm (19.8 - 26.2 m/s)

Temperature: Minimum: -20°F (-29°C)
 Maximum with seals: 180°F (82°C)
 Maximum without seals: 250°F (121°C)
 Consult factory for temp. above 250°F (121°C)

Standard Construction (See page 3 for options)

Frame: 8 in. x 2 in. x 14 ga. (203mm x 51mm x 2mm) galvanized steel channel

Blades: 2V type - 16 ga. (1.5mm) galvanized steel, eccentrically pivoted, 7 in. (178mm) max. spacing

Blade Seals: Vinyl

Axles: Plated steel 3/8 in. (9.5mm) square

Linkage: External heavy duty type with galvanized steel clevis arms and plated steel tie bars & pivot pins with nylon pivot bearings

Bearings: Galvanized steel ball press fit into frame

Finish: Mill galvanized

Size Limitations:

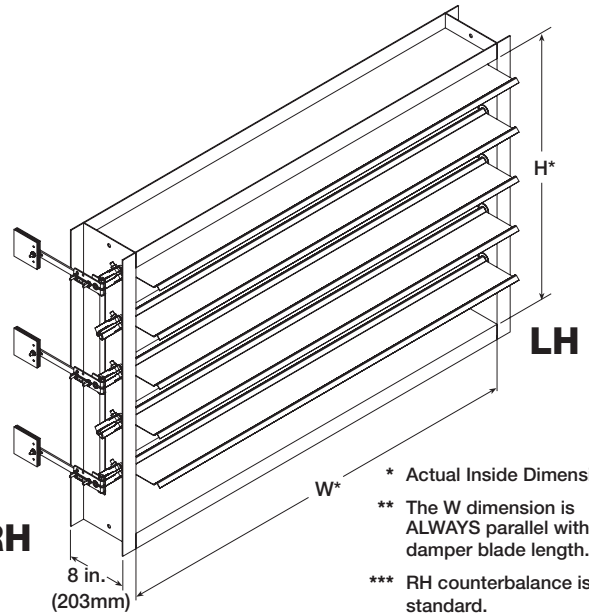
Minimum Size: Single blade 6 in. W x 6 in. H (152mm x 152mm)

Maximum Single Section Size: 48 in. W x 96 in. H (1219mm x 2438mm)

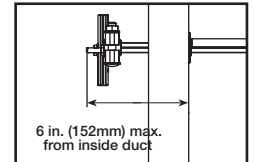
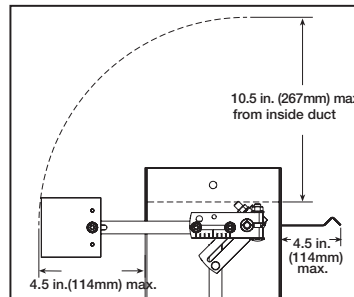
Maximum Double Section Size: 96 in. W x 96 in. H (2438mm x 2438mm)

Options:

- 12 ga. (2.7mm) galvanized steel frame
- 12 ga. (2.7mm) and 14 ga. (2mm) 304 stainless steel frame
- 16 ga. (1.5mm) 304 stainless steel blades
- 3/8 in. (9.5mm) 316 stainless steel axles
- Bearings- Acetal races w/ 316ss ball
- Mounting holes in both flanges
- Flanges- 2 in. (51mm) standard; 1 1/2 in. - 4 in. (38mm - 102mm) optional



- * Actual Inside Dimension.
- ** The W dimension is ALWAYS parallel with the damper blade length.
- *** RH counterbalance is standard.
- **** Counterbalance weights extend beyond inlet flange in the open position.

Counterbalance Weight Dimensions


Front View

Side View

Advise flow direction & counterbalance weight location when ordering

PERFORMANCE DATA

HB-120

Pressure Limitations

The chart at the right shows conservative pressure limitations based on a maximum blade deflection of $w/360$.

Temperature Limitations

- Vinyl blade seals: -20°F to +180°F (-29°C to 82°C)
- No seals: -20°F to +250°F (-29°C to 121°C)

For higher temperatures consult Greenheck

Velocity Limitations

The chart at far right shows conservative velocity limitations based on damper size.

Pressure Drop Data

This pressure drop data was conducted in accordance with AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent standard air at a density of 0.075 lb/ft³ (1.2 kg/m³).

Actual pressure drop found in any HVAC system is a combination of many factors. This pressure drop information along with an analysis of other system influences should be used to estimate actual pressure losses for a damper installed in a given HVAC system.

AMCA Test Figures

Figure 5.3 Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

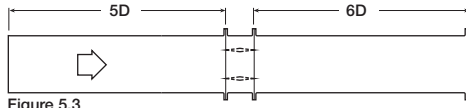


Figure 5.3

Figure 5.2 Illustrates a ducted damper exhausting air into an open area. This configuration has a lower pressure drop than Figure 5.5 because the entrance losses are minimized by a straight duct run upstream of the damper.

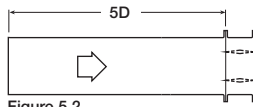


Figure 5.2

$$D = \sqrt{\frac{4(W)(H)}{3.14}}$$

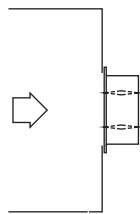


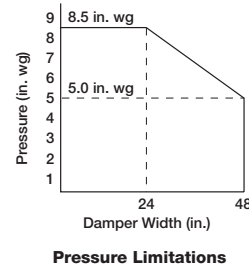
Figure 5.5

AMCA Test Figures

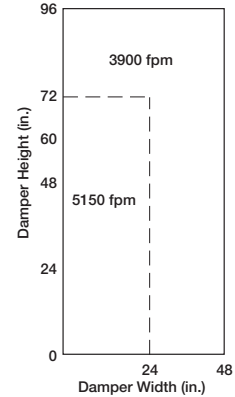
Figure 5.5 Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of the high entrance and exit losses due to the sudden changes of area in the system.

Leakage Data

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 a density of 0.075 lb/ft³ (1.2 kg/m³).

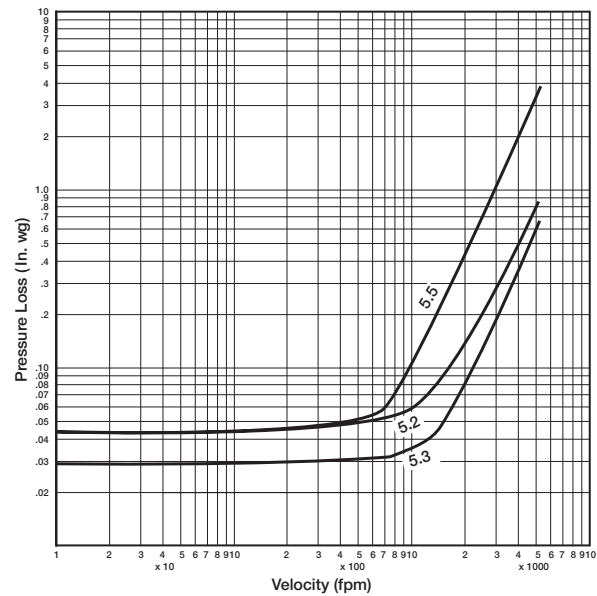


Pressure Limitations



Velocity Limitations

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



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

