



# Model HPR-120

## Industrial Pressure Relief Damper

### Application and Design

Model HPR-120 is a heavy duty pressure relief damper with double flanged channel frame and single thickness blades. It is designed to protect HVAC systems and industrial processes by relieving air pressure. External heavy duty linkage, ball bearings, blade counterbalance, and adjustable pressure setting weights are standard.

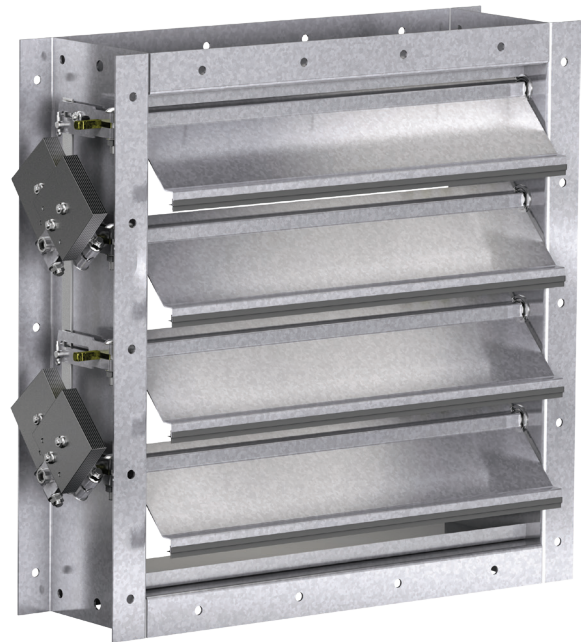
### Ratings (see page 2 for specific limitations)

**Pressure Relief:** 0.1 in. wg (0.025 kPa) minimum  
1.0 in. wg (0.249 kPa) maximum

**Back Pressure:** 5.0 - 8.5 in. wg (1.24 - 2.11 kPa)

**Velocity:** Up to 5150 fpm (26.2 m/s)

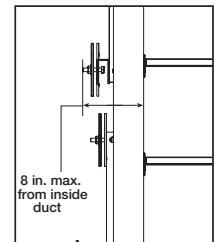
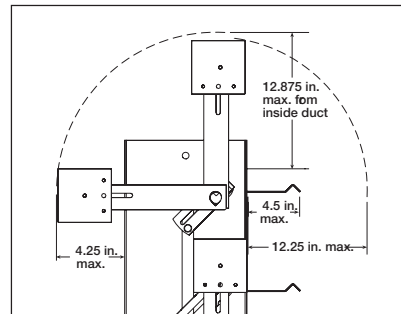
**Temperature:** Minimum: -20°F (-29°C)  
Maximum with seals: 200°F (93°C)  
Maximum without seals: 250°F (121°C)  
Consult factory for temperatures above 250°F (121°C)



	Standard	Optional
<b>Frame Material</b>	Galvanized Steel	304SS, 316SS, Carbon Steel
<b>Frame Type</b>	Flanged Channel	
<b>Frame Depth</b>	8 in. (203mm)	8 in. - 12 in. (203mm - 305mm)
<b>Frame Gauge</b>	14 ga. (2mm)	10 ga. (3.5mm) 12 ga. (2.7mm)
<b>Blade Material</b>	Galvanized Steel	304SS, 316SS, Galvalume
<b>Blade Type</b>	2V	
<b>Blade Gauge</b>	16 ga. (1.5mm)	
<b>Blade Seals</b>	TPE	None
<b>Flange Width (D)</b>	2 in. (51mm)	1 1/2 in. (38mm)
<b>Axle Bearing</b>	Galvanized Ball	
<b>Axle Diameter</b>	3/8 in. (9mm) square	-
<b>Axle Material</b>	Plated Steel	316SS
<b>Linkage</b>	External heavy duty type with galvanized steel clevis arms and plated steel tie bars & pivot pins with nylon pivot bearings	304SS or 316SS
<b>Pressure Set</b>	Adjustable arms and weights	
<b>Air Flow</b>	-	Horizontal, Vertical Up, Vertical Down
<b>Paint Finishes</b>	Mill Finish	Hi Pro Polyester, Industrial Epoxy
<b>Mounting Holes</b>	None	Standard, Standard w/Corner Holes

Actual Inside Dimension.  
\* The W dimension is ALWAYS parallel with the damper blade length.  
\*\* RH counterbalance and pressure settings are standard.  
\*\*\* Counterbalance and pressure setting weights extend beyond flanges in the open/closed positions.

### Counterbalance & Pressure Setting Weight Dimensions



Side View  
Front View

**Advise air flow direction, relief pressure, & counterbalance weight location when ordering**

### Size Limitations

W x H	Minimum Size	Maximum Size	
		Single Section	MultipleSection
Inches	6 x 6	48 x 96	96 x 96
mm	152 x 152	1219 x 2438	2438 x 2438

## Back Pressure Limitations

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

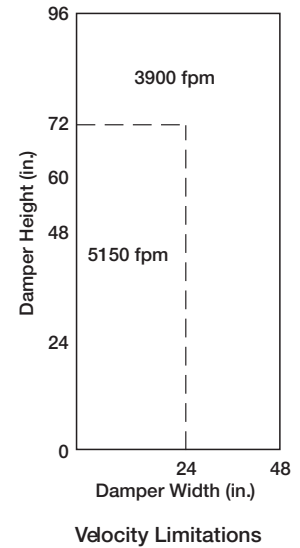
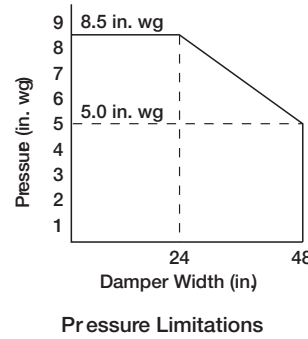
## Temperature Limitations

**TPE blade seals:** 20°F to 200°F  
(-7°C to 93°C)

**No seals:** -20°F to 250°F  
(-29°C to 121°C)

## Velocity Limitations

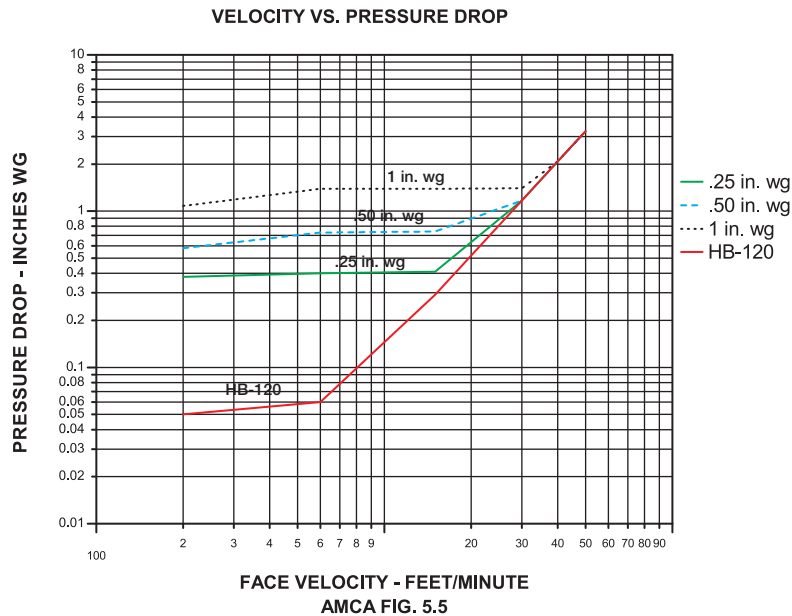
The chart at far right shows conservative velocity limitations based on damper size.



## Pressure Relief/Leakage Data

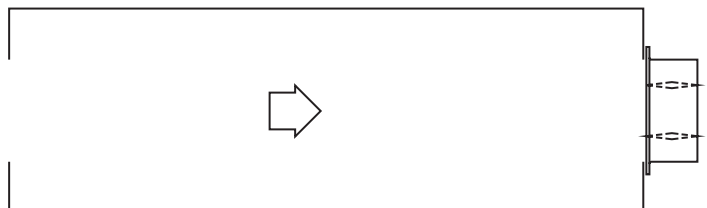
This pressure drop data was conducted in accordance with AMCA Standard 500-D using the configuration shown. All data has been corrected to represent standard air at a density of 0.075 lb/ft<sup>3</sup> (1.2 kg/m<sup>3</sup>). (The HB-120 data was included as a reference.)

**Pressure Relief**  
24 in. x 24 in. (610mm x 610mm) Damper

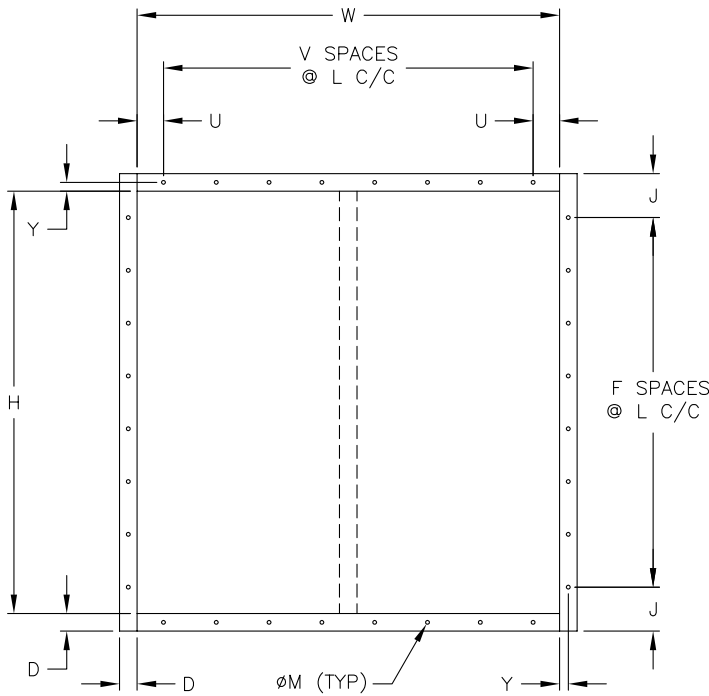


## AMCA Test Figure

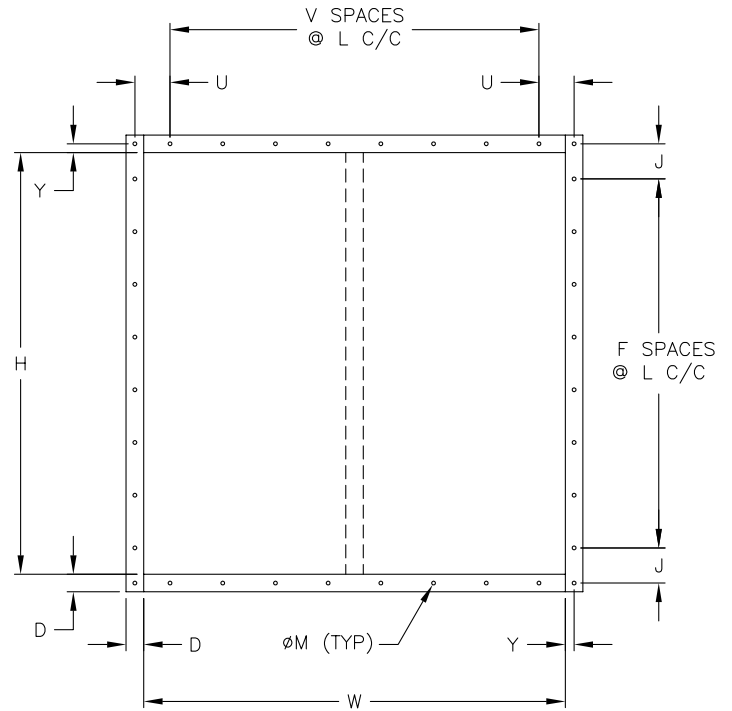
Figure 5.5 illustrates a plenum mounted damper. This configuration has high pressure drop because of entrance and exit losses due to the sudden changes of area in the system.



Bolt holes are available as an option. The standard pattern is 7/16 in. (11mm) diameter holes (M dimension) spaced 6 in. (152mm) on center (L dimension). Custom bolt hole pattern is available within the limitations of the chart below.



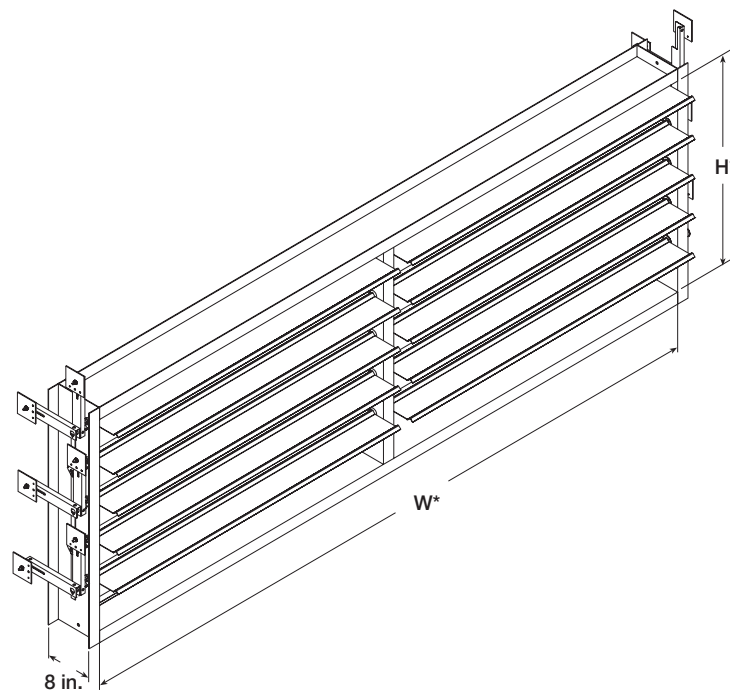
Standard Mounting Hole Pattern  
Typical for single or double wide panel



Standard Mounting Hole Pattern with Corner Holes  
Typical for single or double wide panel

## Multi Section Assembly

Damper sizes larger than 48 in. x 96 in. (1219mm x 2438mm) and less than 96 in. x 96 in. (2438mm x 2438mm) will be supplied in one frame with two sets of blades separated by a mullion as shown below. Counterbalance and pressure set weights supplied on right hand and left hand side. For sizes larger than 96 in. x 96 in. (2438mm x 2438mm), consult factory.



## Specifications

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

Dampers shall consist of: a 14 ga. (2mm) galvanized steel channel frame with 8 in. (203mm) minimum depth and 2 in. (51mm) flanges; double V type blades fabricated from 16 ga. (1.5mm) galvanized steel; TPE blade seals; 3/8 in. (9mm) dia. plated steel axles turning in galvanized steel ball bearings press fit into frame; and external (out of airstream) heavy duty linkage with counterbalance and pressure set weights.

Damper manufacturer's printed application and performance data including pressure, velocity, and temperature limitations shall be submitted for approval showing damper suitable for back pressures to 8.5 in. wg (2.11 kPa), relief pressures to 1 in. wg (0.249 kPa), velocities to 5150 fpm (26.2 m/s), and temperatures to 250°F (121°C).

Testing and ratings to be in accordance with AMCA Standard 500-D.

Basis of design is model HPR-120.