

### Application

Model HPR-230 is a heavy duty pressure relief damper with double flanged channel frame and streamlined airfoil 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 3 for specific limitations)

<b>Velocity</b>	Up to 5150 fpm (26.2 m/s)
<b>Pressure Relief</b>	0.25 in. wg (0.062 kPa) minimum; 4.0 in. wg (1 kPa) maximum
<b>Back Pressure</b>	6 - 13.5 in. wg (1.49 - 3.36 kPa)
<b>Temperature</b>	-40° to 250°F (-40° to 121°C) Consult factory for temperatures above 250°F (121°C)

### Construction

	Standard	Optional
<b>Frame Depth</b>	8 in. (203 mm)	8 in. - 12 in. (203 mm - 305 mm)
<b>Frame Material</b>	Galvanized steel	Painted steel, 304SS, 316SS
<b>Frame Type</b>	Flanged channel	
<b>Frame Thickness</b>	14 ga. (2 mm)	10 ga. (3.5 mm), 12 ga. (2.7 mm)
<b>Flange Width</b>	2 in. (51 mm)	1½ in. (38 mm)
<b>Blade Material</b>	Galvanized steel	Painted steel, 304SS, 316SS
<b>Blade Seals</b>	Silicone	EPDM, None
<b>Blade Thickness*</b>	18 ga. (1.3 mm)	16 ga. (1.5 mm)
<b>Blade Type</b>	Airfoil	
<b>Linkage</b>	External heavy duty type with galvanized steel clevis arms and plated steel tie bars & pivot pins with nylon pivot bearings	304SS, 316SS
<b>Axle Diameter</b>	¾ in. (19 mm)	-
<b>Axle Bearing</b>	Galvanized ball	External ball
<b>Axle Material</b>	Plated steel	303SS, 316SS
<b>Pressure set</b>	Adjustable arms and weights	
<b>Paint Finishes</b>	None	Hi Pro Polyester, Industrial Epoxy
<b>Mounting Holes</b>	None	Standard, Standard with corner holes
<b>Airflow</b>	Horizontal, Vertical Up, or Vertical Down	



Actual Inside Dimensions.

\*\* RH counterbalance and pressure setting are standard.

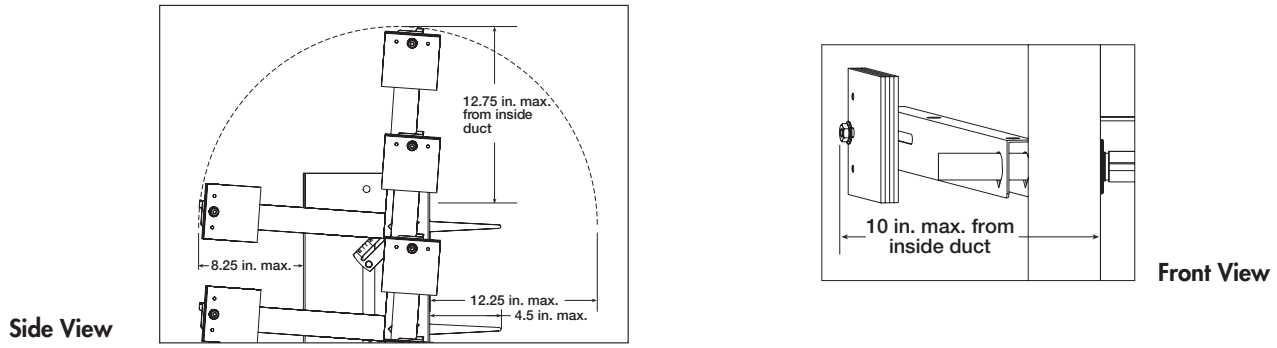
\*\*\* Counterbalance and pressure setting weights extend beyond flanges in the open/closed positions.

### Size Limitations

W x H		Inches	mm
<b>Minimum Size</b>		6x6	152x152
<b>Maximum Size</b>	<b>Single Section</b>	48x96	1219x2438
	<b>Multi - Section</b>	96x96	2438x2438

\* When blade is galvanized steel, the blade thickness is 18 ga. When the blade is stainless steel (304 or 316), the blade thickness is 16 ga.

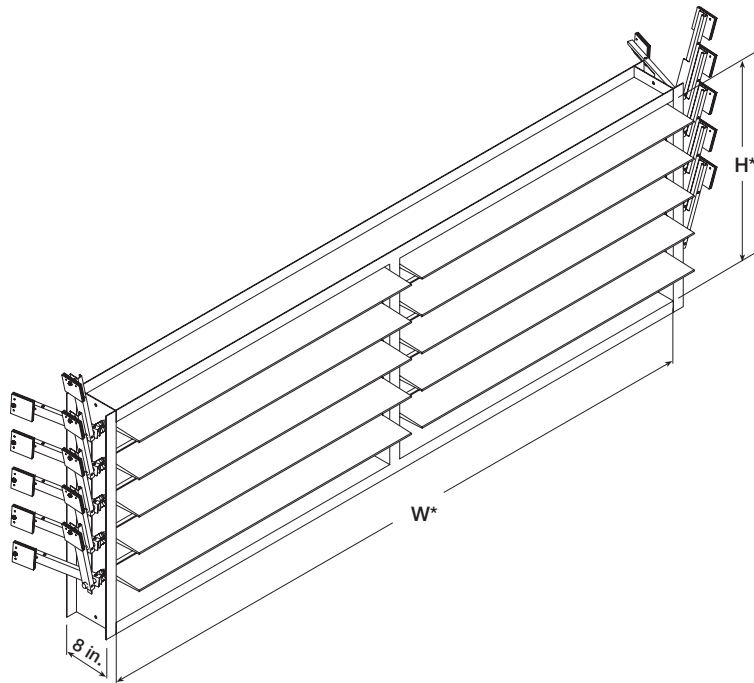
## Counterbalance & Pressure Setting Weight Dimensions



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

## 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.



# Performance Data

## Back Pressure Limitations

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

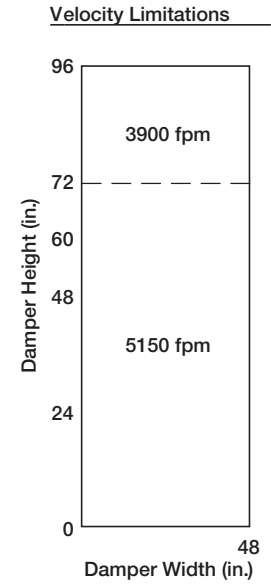
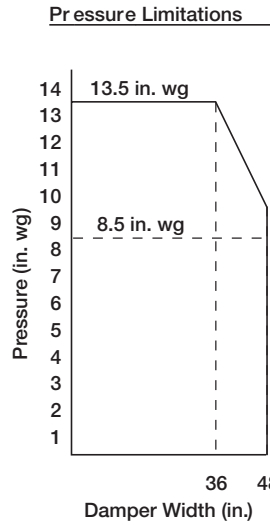
## Temperature Limitations

-40°F to 250°F (-40°C to 121°C)

For higher temperatures, consult factory.

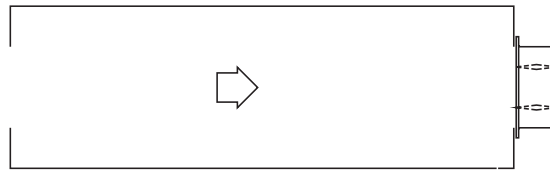
## Velocity Limitations

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



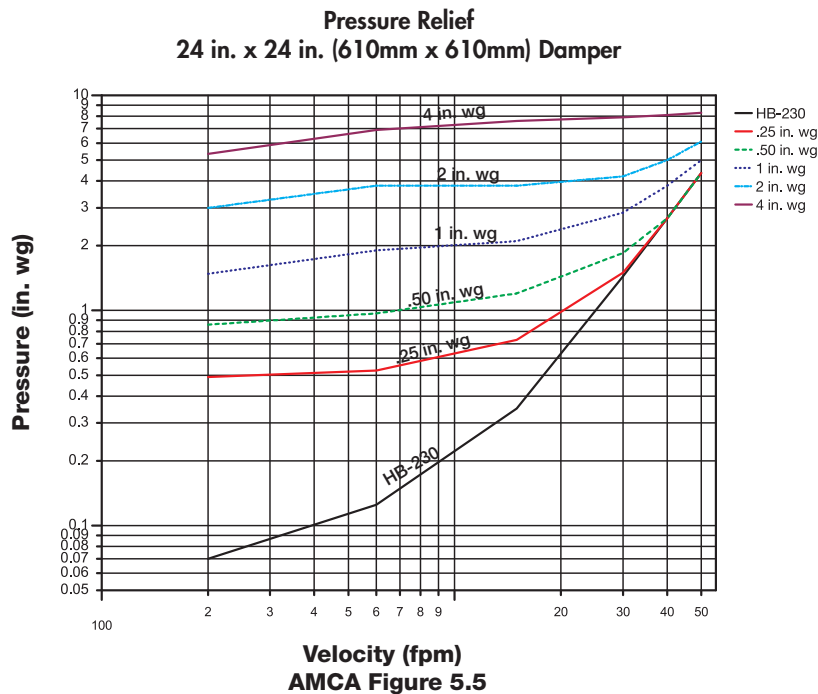
## AMCA Test Figure

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.



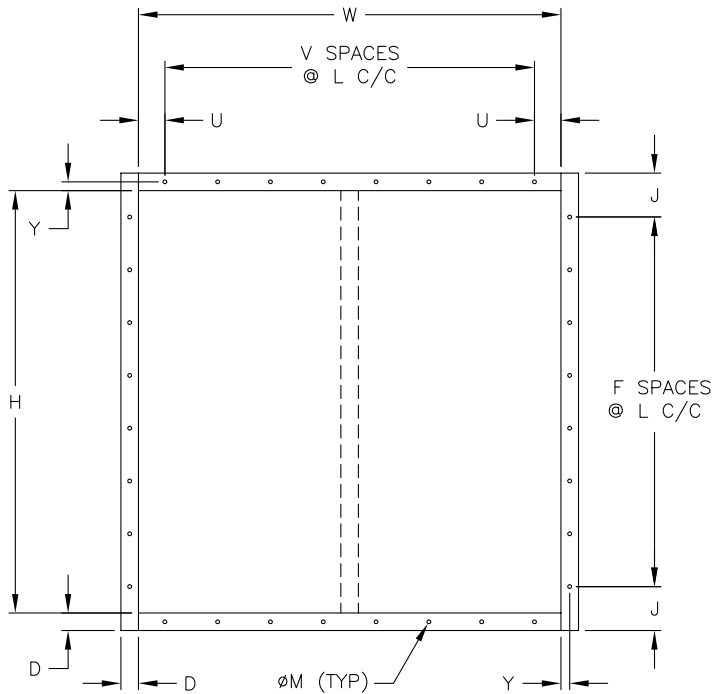
## Pressure Relief/Leakage Data

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-230 data was included as a reference.)

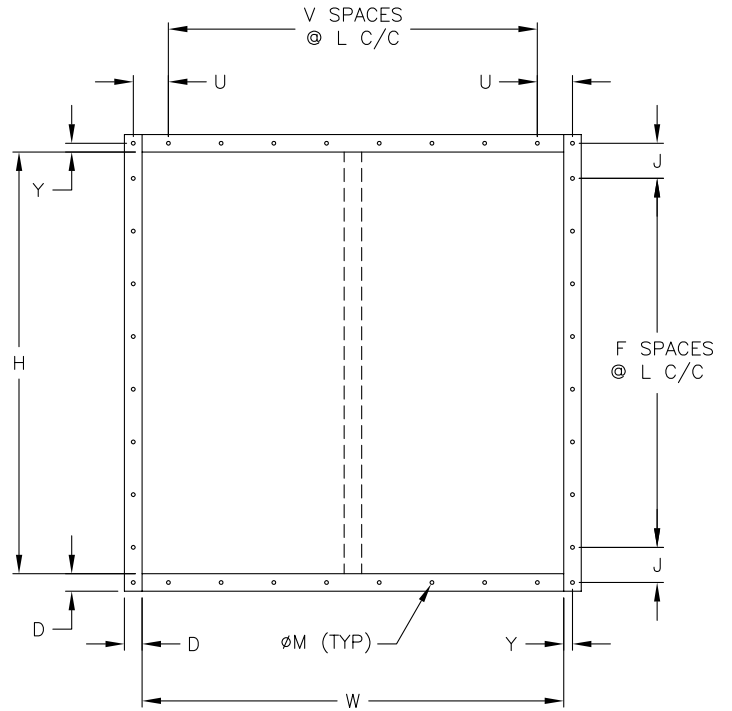


## Mounting Holes

Bolt holes are available as an option. The standard pattern is  $\frac{7}{16}$  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

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