

### Application

Models HTOD-330 is a heavy duty backdraft damper with double flanged channel frame and double thickness fabricated airfoil blades. The tornado damper is design to protect against tornadoes and instantaneous pressure changes. External clevis type linkage and external mount ball bearings are standard.

### Damper Ratings

#### Velocity

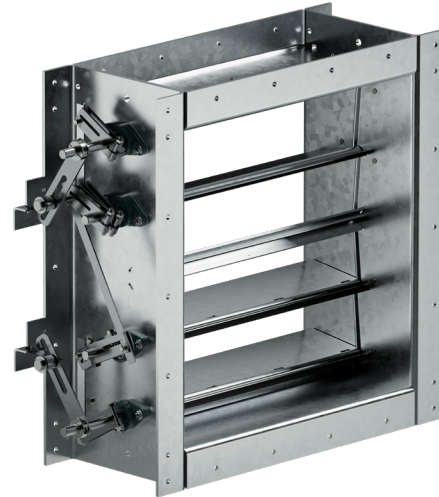
Up to 4000 fpm (2.5 to 20.3 m/s)

#### Pressure

Up to 3 psi (83 in. wg) (20.7 kPa) - pressure differential

#### Temperature

-40°F to 250°F (-40°C to 121°C).



### Construction

	Standard	Optional
<b>Frame Material</b>	Painted Steel	304SS, 316SS
<b>Frame Material Thickness</b>	¼ in. (6.3 mm)	-
<b>Frame Type</b>	12 in. x 3 in. (305 mm x 76 mm) flanged channel	-
<b>Flange Width</b>	3 in. (76 mm)	
<b>Blade Material</b>	Painted Steel	304SS, 316SS
<b>Blade Type</b>	Airfoil	-
<b>Blade Thickness</b>	16 ga. (1.6 mm)	-
<b>Axle Material</b>	Plated steel, full length with reinforcing tube	303SS, 316SS
<b>Axle Size</b>	¾ in. (19 mm)	-
<b>Axle Bearings</b>	External Ball	-
<b>Blade Seals</b>	EPDM	Silicone
<b>Jamb Seal</b>	EPDM	Silicone
<b>Linkage Material</b>	Plated Steel	304SS, 316SS
<b>Paint Finishes</b>	Hi Pro Polyester	Industrial Epoxy; Mill (304SS or 316SS)
<b>Air Flow</b>	Horizontal	-
<b>Pressure Suction</b>	With Air Flow	Opposite Air Flow
<b>Mounting Holes</b>	None	Standard; Standard w/corner holes

### Size Limitations

W x H	Minimum Size	Maximum Size
		Single Section
<b>Inches</b>	12 x 12	48 x 60
<b>mm</b>	305 x 305	1219 x 1524

\* Actual Inside Dimension.

\*\* The W dimension is ALWAYS parallel with the damper blade length.

Performance Data

Pressure Drop Data (not valid for opposite air flow operation)

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 .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 the entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

**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 5.5** 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.

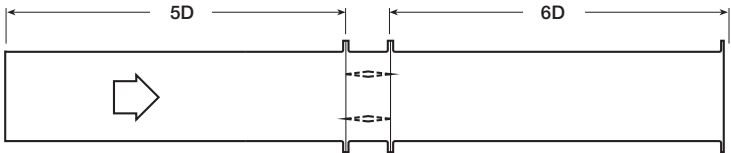


Fig. 5.3

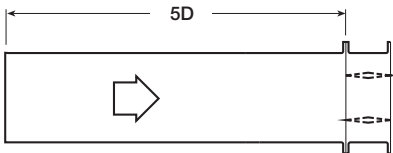


Fig. 5.2

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

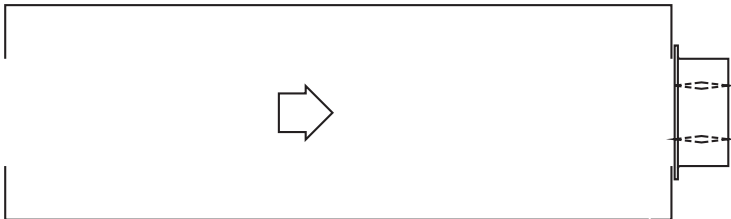
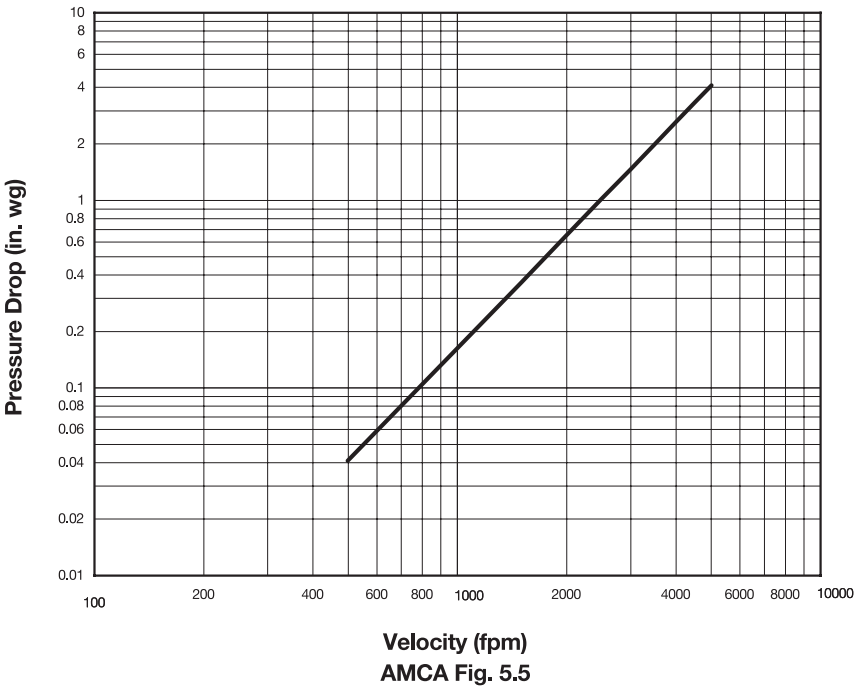


Fig. 5.5

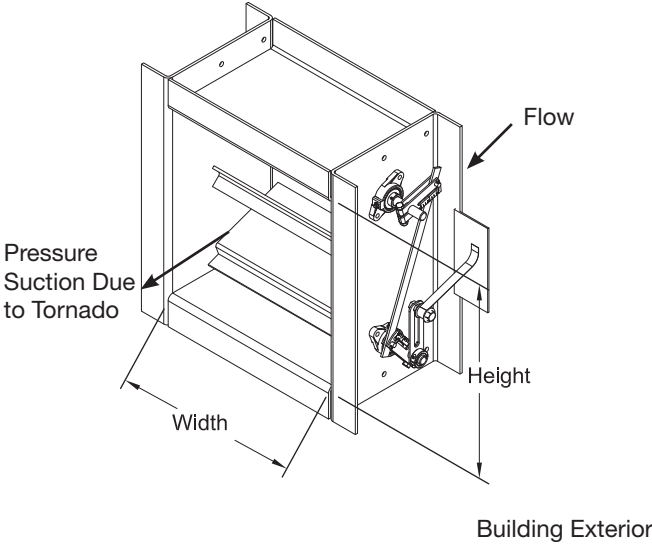
Pressure Drop

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

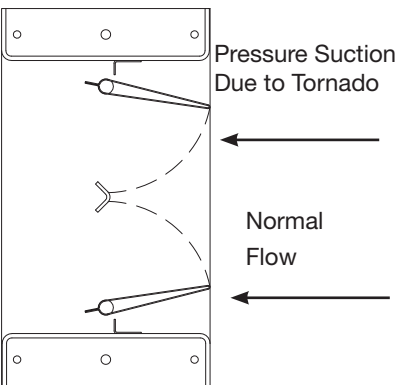
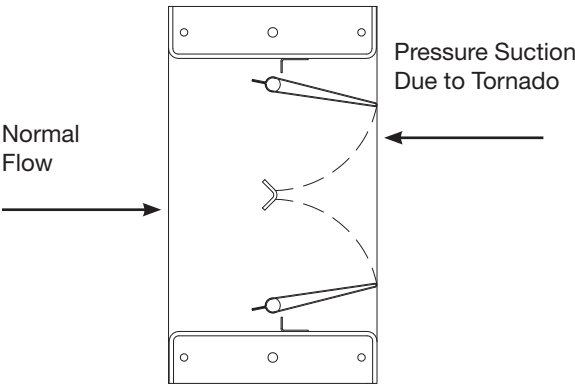
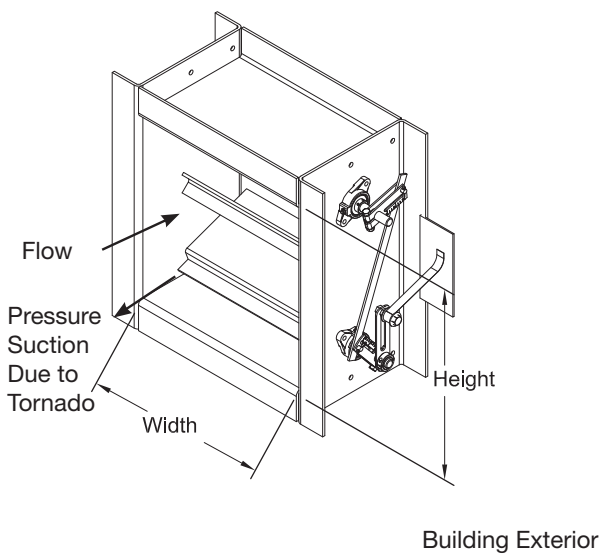


# Blast Direction

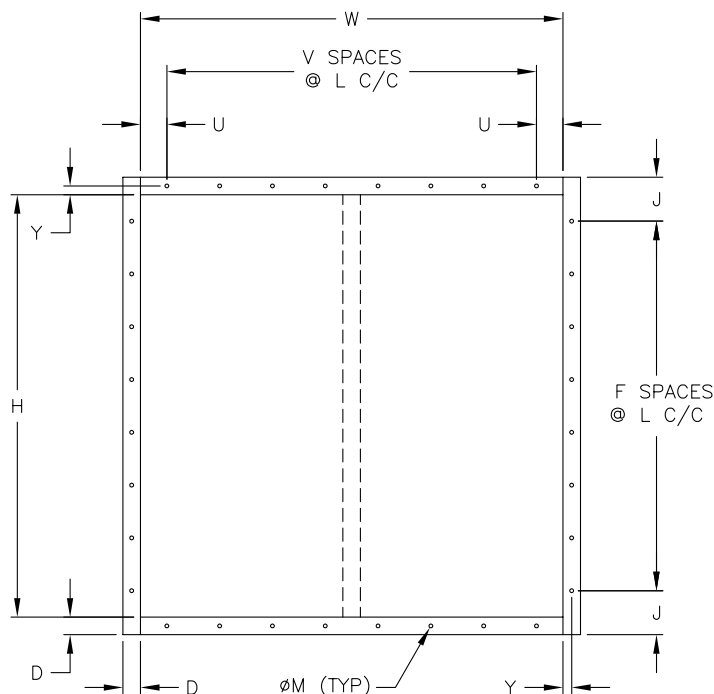
With Air Flow



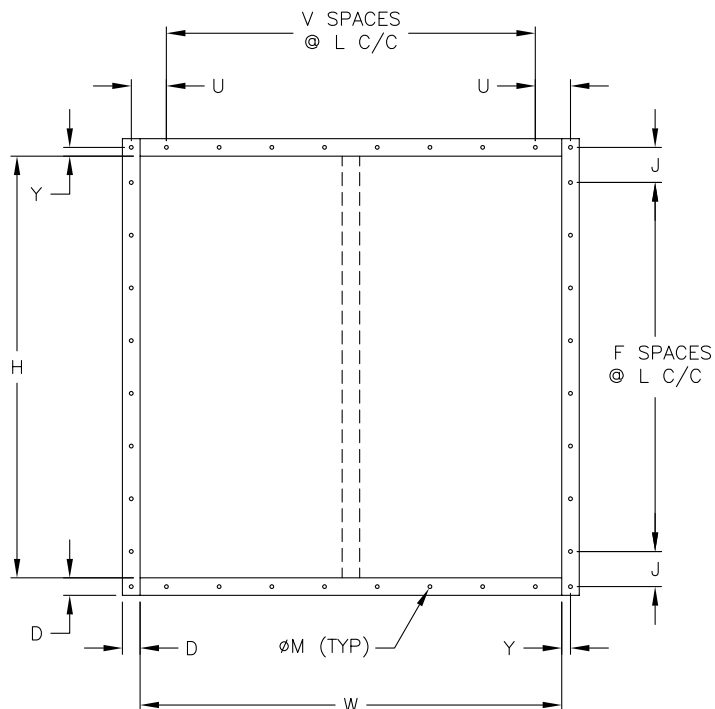
Opposite Air Flow



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 patterns are available. Contact factory for the limitations.



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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