

Application

Model HCD-240 is a heavy duty industrial control damper with a flanged frame. It is designed to control airflow and provide shut off in HVAC or industrial process control systems. A variety of optional features makes model HCD-240 extremely versatile, allowing its capabilities to be tailored to the application. Blade and jamb seals are standard.

Damper Ratings

Velocity

Up to 5000 fpm (25.4 m/s)

Pressure

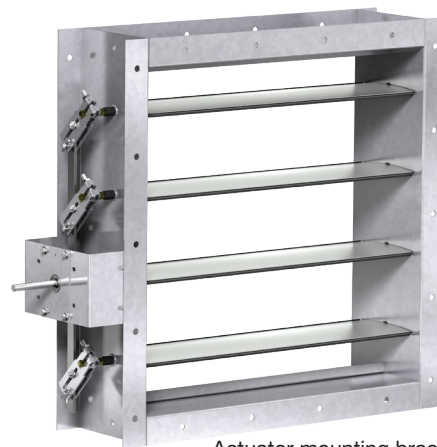
Up to 15 in. wg (3.7 kPa) - pressure differential

Temperature

-40°F to 250°F (-40°C to 121°C). Consult factory for temperatures.

Construction

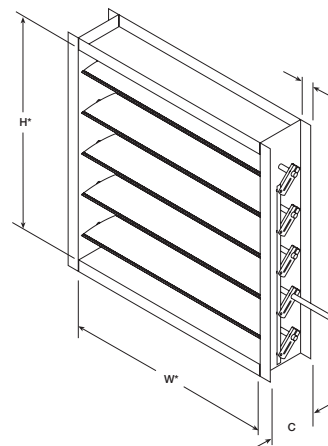
	Standard	Optional
Frame Depth (C)	8 in. (203 mm)	10 in. (254 mm)
Frame Material	Galvanized Steel	304SS, 316SS, Aluminum
Frame Material Thickness	See chart below	10 ga. (3.5 mm) 12 ga. (2.7 mm) 0.125 in. (3.2 mm)
Frame Type	Flanged channel	-
Flange Width (D)	2 in. (51 mm)	1½ in. (64 mm) 2½ in. (64 mm) 3 in. (76 mm)
Blade Material	Aluminum	-
Blade Thickness	.080 in. (2 mm)	-
Blade Type	Extruded Aluminum Airfoil	-
Blade Action	Parallel	Opposed
Blade Seals	Silicone	EPDM
Linkage	Plated steel	304SS, 316SS
Jamb Seals	316SS	None
Axle Diameter	¾ in. (19 mm)	-
Axle Bearings	Stainless Steel Sleeve	External SS Sleeve, External Bronze, External Ball, Outboard Bronze, Outboard Ball
Axle Material	Plated steel	303SS, 316SS, Aluminum
Axle Seals	None	O-ring, Double Gland
Paint Finishes	None	Hi Pro Polyester, Hi Temp. Silver Industrial Epoxy
Mounting Holes	None	Standard, Standard with corner holes



Actuator mounting bracket shown.

* Actual Inside Dimension. The W dimension is ALWAYS parallel with the damper blade length.

Damper linkage and axles may extend beyond the damper flange based on the configuration of selectable options. Consult factory for dimensions.



Size Limitations

W x H	Minimum Size	Maximum Size	
		Single Section	Multi - Section
Inches	6½ x 6¼	60 x 96	120 x 96
mm	165 x 158	1524 x 2438	3048 x 2438

Frame Thickness*	Height less than or equal to 72 in. (1829 mm)	Height greater than 72 in. (1829 mm)
Width less than or equal to 60 in. (1524 mm)	14 ga. (2 mm)	14 ga. (2 mm)
Width greater than 60 in. (1524 mm) and less than or equal to 96 in. (2438 mm)	12 ga. (2.7 mm)	12 ga. (2.7 mm)
Width greater than 96 in. (2438 mm)	10 ga. (3.5 mm)	10 ga. (3.5 mm)

Size Limitations

W x H	Minimum Size	Maximum Size		
		Single Section	Multi - Section	Spark 'A'
Inches	6½ x 6¼	60 x 96	120 x 96	48 x 48
mm	165 x 158	1524 x 2438	3048 x 2438	1219 x 1219

Options

- Wide range of actuators available
- Mounting holes in flanges
- Vertical blade orientation

Spark Resistant

AMCA Standard 99-0401 defines fan material performance requirements for operation in hazardous environments. Dampers meet the spirit of this standard as follows:

- Class A - All materials in the airstream must be non-ferrous
- Class B or C - Damper blades must be non-ferrous

Construction for Spark 'A' Resistant

Frame: 8 in. x 2 in. x ¼ in. (203 mm x 51 mm x 3.2 mm) formed aluminum channel
Blades: Extruded aluminum airfoil shaped, symmetrical 8 in. (203 mm) maximum width
Seals: Silicone rubber blade seals. No jamb seal.
Linkage: External heavy duty type with galvanized steel clevis arms, plated steel tie bars & pivot pins
Bearings: External mounted relubricable ball bearings
Finish: Mill finish

Max Size: Single section 48 in. x 48 in. (1219 mm x 1219 mm)

Options for Spark 'A' Resistant

- No stainless steel linkage or jamb seal

Performance Data

Pressure Limitations

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

Temperature Limitations

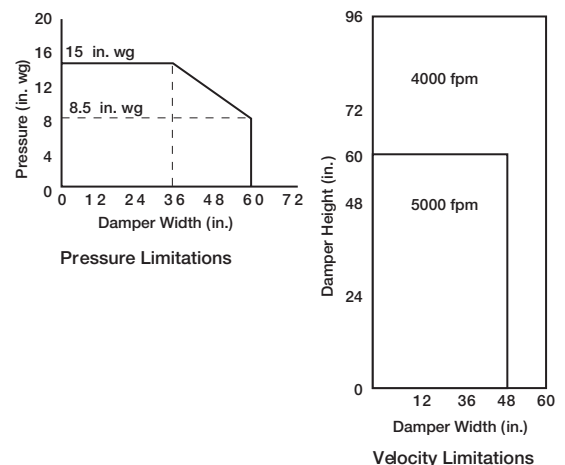
Blade seals: Silicone -40° to 400°F (-40° to 204°C)
EPDM -20° to 250°F (-29° to 121°C)

Jamb seals: Flexible stainless steel -40° to 400°F
(-40° to 204°C)

For higher temperatures, consult factory.

Velocity Limitations

The chart at far right shows 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 .075 lb/ft³ (1.2 kg/m³).

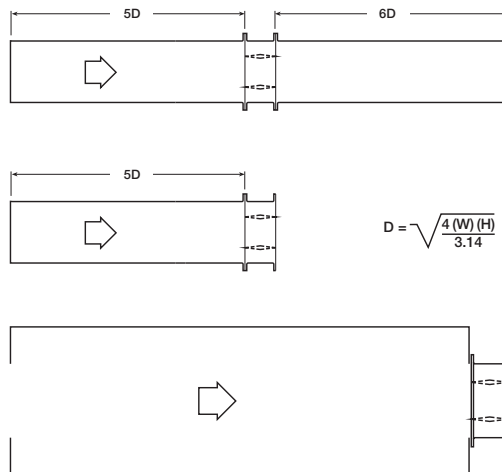
Actual pressure drop found in any HVAC system is a combination of many factors. This pressure drop information along with an analysis of other system influences should be used to estimate actual pressure losses for a damper installed in a given HVAC system.

AMCA Test Figures

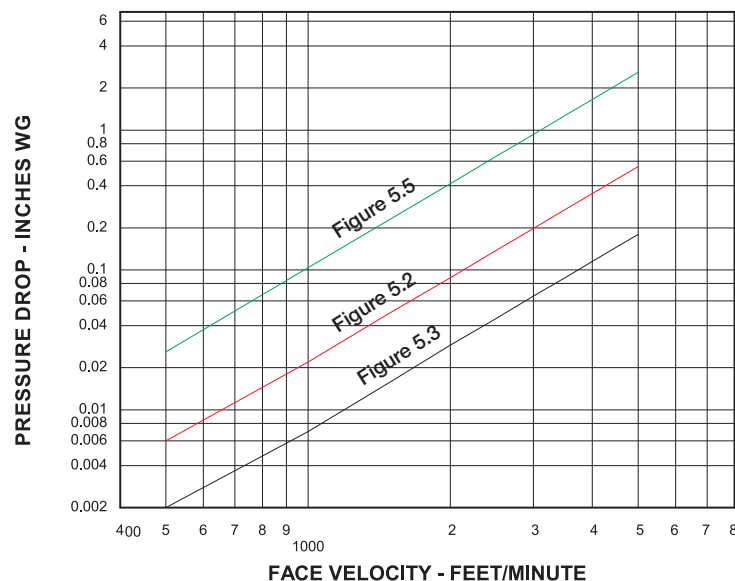
Figure 5.3 illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because the entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.



Pressure Drop
36 x 36 in. Damper
(914 mm x 914 mm)
VELOCITY VS. PRESSURE DROP

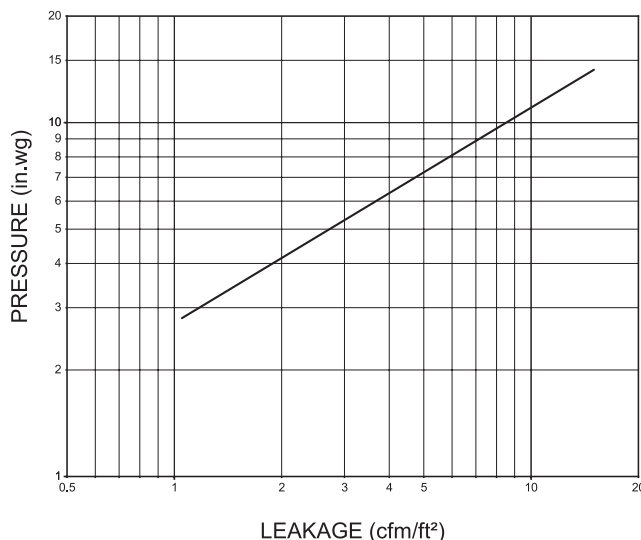


Leakage Data

Damper leakage (with blades fully closed) varies based on the type of low leakage seals applied. Model HCD-240 is available with no jamb seals (standard) or with stainless steel jamb seals and EPDM, or silicone rubber blade seals. 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 .075 lb/ft³ (1.2 kg/m³).

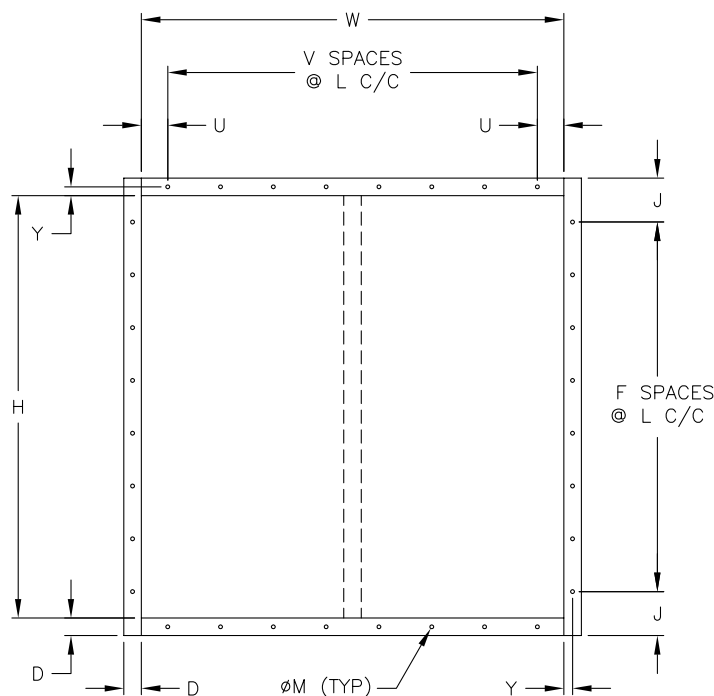
Leakage

This chart shows worst case scenario based on these sizes:
 6 in. x 60 in. (152 mm x 1524 mm), 60 in. x 6¼ in. (1524 mm x 159 mm),
 48 in. x 36 in. (1219 mm x 914 mm), 60 in. x 60 in. (1524 mm x 1524 mm).
 Based on 5 in. lb/ft² of torque.

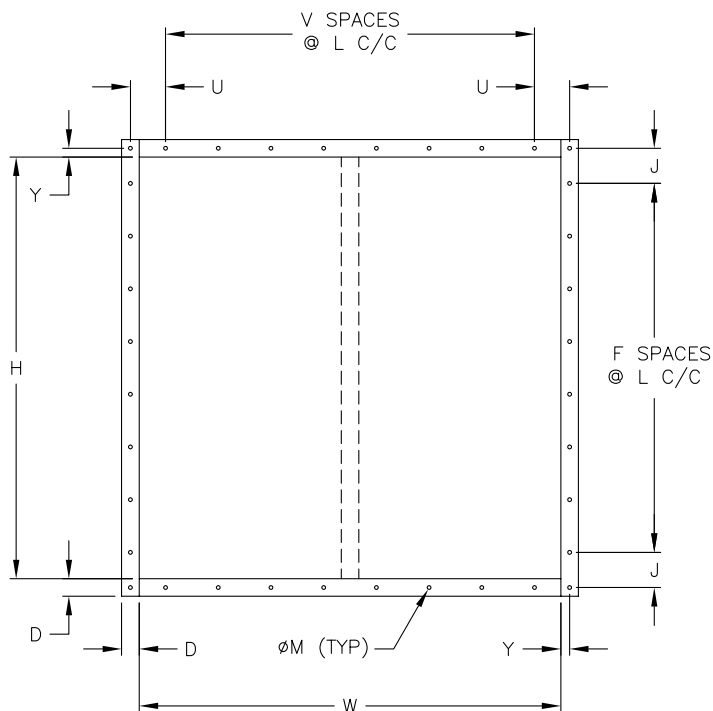


Mounting Holes

Bolt holes are available as an option. The standard pattern is 7/16 in. (11 mm) diameter holes (M dimension) spaced 6 in. (152 mm) 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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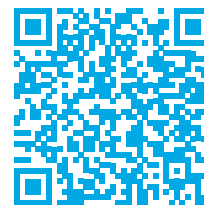
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