

Application

Model HSV-230 is heavy duty industrial shut-off damper with a flanged frame.

Ratings

Velocity

Up to 5000 fpm (25.4 m/s)

Temperature

-40° to 250°F (-40° to 121°C)

Pressure

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

Construction

	Standard	Optional
Frame Depth	8 in. (203 mm)	-
Frame Material	Galvanized steel	304SS, 316SS
Frame Type	Flanged channel	
Frame Thickness	7 ga. (4.6 mm)	-
Flange Width (D)	2 in. (51 mm)	-
Blade Action	Parallel	-
Blade Material	Galvanized steel	304SS, 316SS
Blade Seals	EPDM	Silicone, None
Blade Thickness	14 ga. (2 mm)	-
Blade Type	Fabricated Airfoil	
Linkage	Plated steel	304SS, 316SS
Jamb Seals	316SS	None
Axle Diameter	¾ in. (12.7mm)	-
Axle Bearing	External bronze	-
Axle Material	Plated steel	303SS, 316SS
Axle Seals	None	-
Paint Finishes	None	-
Mounting Holes	Standard	Standard with corner holes
Actuator	Manual Quadrant	Schischek InMax-15-SF-S7 (24V - 230V)



*Actual inside dimension. The width is ALWAYS parallel with the damper blade length.

Model HSV-230 shock damper meets the requirements established by:

United States Department of the Navy

MIL-S-901D Shock Tests, High Impact Shipboard Machinery, Equipment, and Systems (NAVSEA letter 9072 Ser05P1/463)

Equipment Class: Class I

Shock Test Type: Type A

Size Limitations

W x H	Minimum Size	Maximum Size	
		Single Section	Multi - Section
Inches	6 x 6	21½ x 20	45 x 20
mm	152 x 152	546 x 508	1143 x 508

Features:

- When actuator is supplied, NEMA 4X enclosure is included.

Performance Data

Pressure Limitations

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

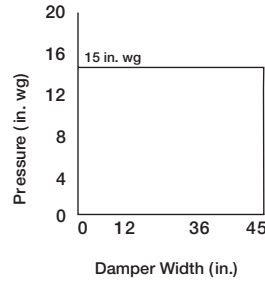
Temperature Limitations

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

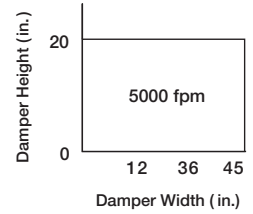
Jamb seals: Flexible stainless steel -40° to 400°F (-40° to 204°C)

Velocity Limitations

The chart to the right shows velocity limitations based on damper size.



Pressure Limitations



Velocity Limitations

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.

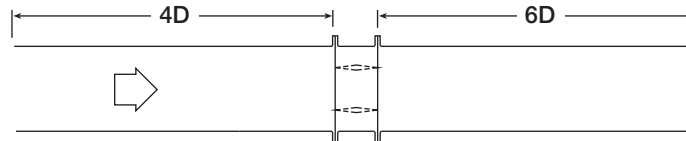
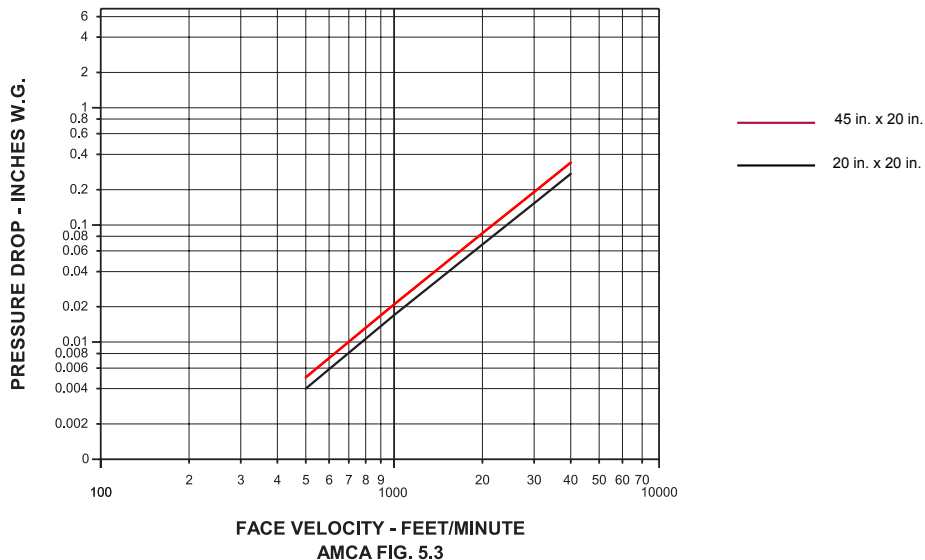


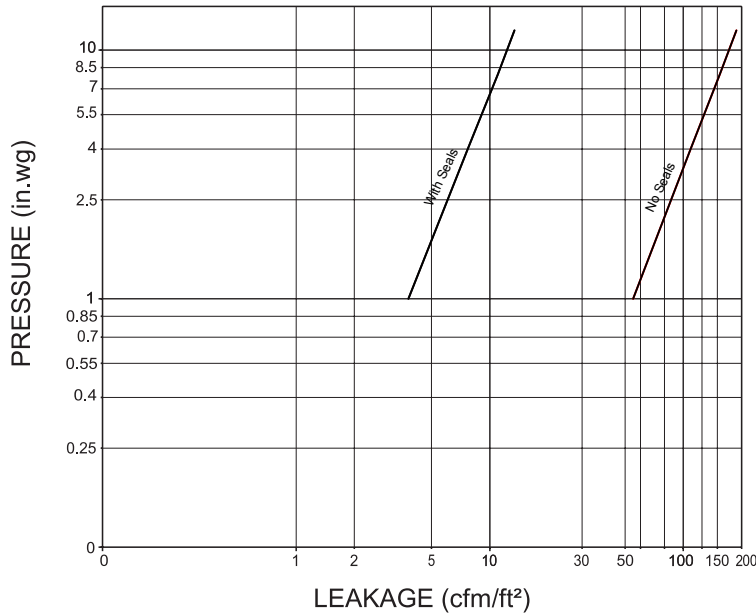
Fig. 5.3



Leakage

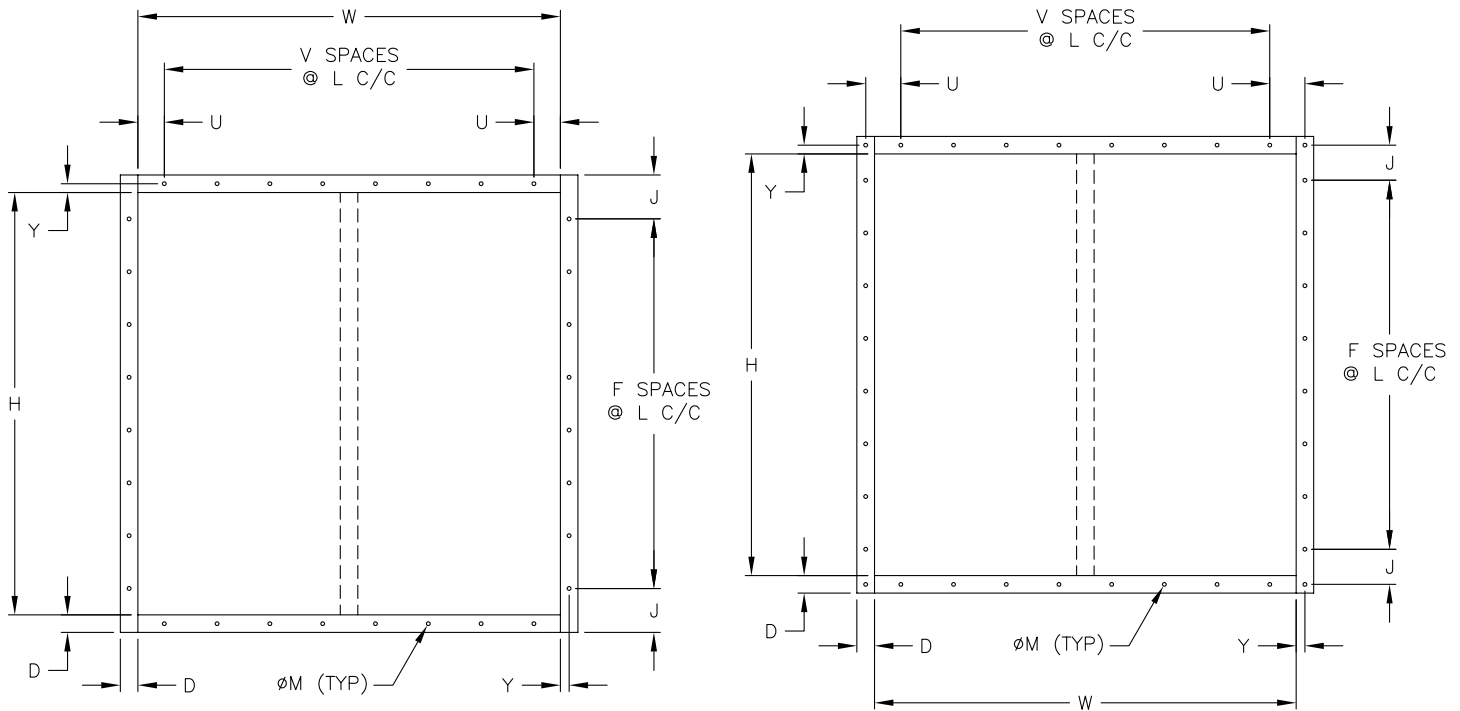
Damper leakage (with blades fully closed) varies based on the type of low leakage seals applied. Model HSV-230 is available with no jamb seals (standard) or with stainless steel jamb seals and EPDM, or silicone rubber blade seals. Leakage testing was conducted in accordance with AMCA Standard 500-D and 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
20 x 20 in. (508mm x 508mm) Damper



Mounting Holes

Bolt holes are available as an option. Greenheck's 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 Greenheck 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

Document Links

[Heavy Duty/Industrial Damper Catalog](#)



[Damper Interactive Selection Guide](#)



[Warranty](#)



Specifications

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

Dampers shall meet the requirements of the United States Department of the Navy; MIL-S-901D Shock Tests, High Impact Shipboard Machinery, Equipment, and Systems (4130 Ser 501/1942); and Test Category: Medium Weight, Shock Grade A.

Dampers shall consist of: a 7 ga (4.6mm) galvanized steel channel frame with 8 in. (203mm) minimum depth and 2 in. (51mm) flanges; double skin airfoil blades fabricated from two layers of 14 ga. (2mm) galvanized steel; 3/4 in. (19mm) dia. plated steel axles turning in external bronze sleeve bearings; EPDM blade seal; flexible stainless steel jamb seals and external (out of the airstream) blade-to-blade linkage. Damper actuator shall be a manual quadrant.

Damper manufacturer's printed application and performance data including pressure, velocity, and temperature limitations shall be submitted for approval showing damper suitable for pressures to 15 in. wg (3.7 kPa), velocities to 5,000 fpm (25.4 m/s) and temperatures to 250°F (121°C).

Specifier may add the following:

Damper shall be equipped with blade and jamb seals for low leakage performance. Blade seals shall be silicone rubber for 400°F (204°C) maximum temperature. Testing and ratings shall be per AMCA Standard 500-D.

Basis of design is Greenheck model HSV-230.