

Application

Model HTD-640 is a heavy duty flanged frame style industrial control damper qualified for use in tunnel and transit systems. The aluminum airfoil blades, silicone blade seals, and stainless steel jamb seals meet the demanding requirements for strength and operability to standards such as NFPA-130 and 502. The leakage of the HTD-640 meets UL Class I at 12 in wg.

Ratings

Velocity

Up to 4000 fpm (20.3 m/s)

Temperature

250°F (121°C) continuous,
482°F (250°C) for 1 hours (NFPA 130, 502)

Pressure

Up to 24 in. wg (6 kPa) structural integrity
Up to 12 in. wg (3 kPa) leakage and operability

Size Limitations

The following table provides minimum and maximum single section size. Multiple sections can be linked together to create larger damper assemblies.

Single Section Size

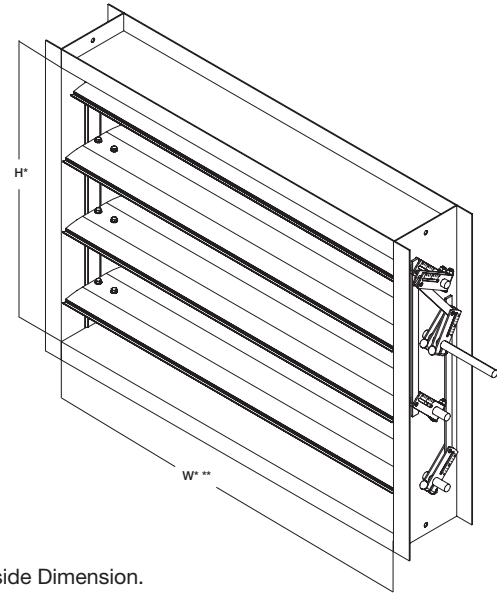
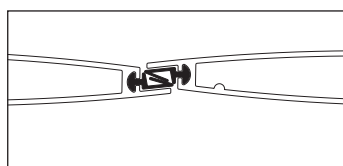
Single Section Size	
Minimum	12 in. W x 12 in. H (305mm x 305mm)
Typical Maximum	48 in. W x 96 in. H (1219mm x 2438mm)

Options

- Wide range of electric and pneumatic actuators available, including high temp applications
- High Temp Limit Switches
- Multiple panel assemblies
- Mounting holes in flanges
- Perimeter gaskets
- Rubbish screens
- Junction boxes with factory wiring
- Clear anodized finish or aluminum blades and alternate aluminum frame

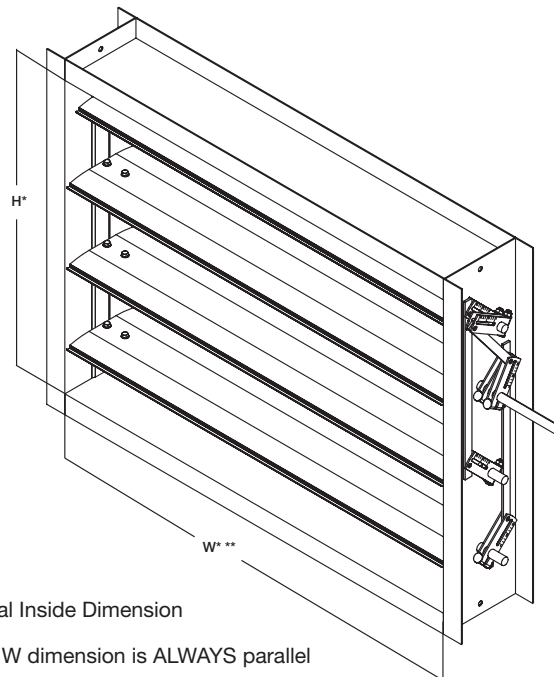
Blade Overlap

Blades overlap to provide added resistance to leakage. When pressure increases, the blade seals are forced together creating a tighter seal.



Actual Inside Dimension.

	Standard	Optional
Frame Depth	12 in. (305 mm)	10 in. (254 mm) 8 in. (203 mm)
Frame Material	Galvanized (ASTM A653)	304SS, 316SS, 9.5 in. (0.4 mm) deep extruded alumi
Frame Thickness	12 ga. (2.7 mm)	14 ga (2mm) 10 ga. (3.4 mm) 0.25 in. (6.4 mm) 0.188 in. (4.8 mm)
Flange Width	2 in. (51 mm)	1½ in. - 4 in. (38mm - 101mm)
Blade Action	Parallel	Opposed
Blade Deflection	L/180	L/360
Blade Material	Aluminum (ASTM B221 6063-T5)	-
Blade Seals	Silicone	None
Blade Thickness	.081 in. (2mm)	-
Blade Type	Extruded Airfoil	
Linkage	External industrial type stainless steel	-
Axle Diameter	¾ in. (19 mm)	-
Axle Bearing	Oil impregnated 316SS sleeve press fit into frame	External oil impregnated bronze, External Relubricable ball
Axle Material	304SS	316SS
Axle Seal	None	O-ring
Axle Type	Stub	Full length
Jamb Seal	Compression type stainless steel	None



* Actual Inside Dimension

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

Multiple Panel Assemblies

Multiple panels can be stacked on top of each other and side-by-side to span opening that are larger than the maximum single panel damper. Jackshafting can be added to couple multiple panels, allowing them to be operated using a single actuator. Consult the factory for design assistance for multiple panel assemblies.



Pressure Drop

This pressure drop data was conducted in accordance with AMCA Standard 500-D using the two configurations shown. All data has been corrected to represent standard air at a density of .075 lb./ft³ (1.2 kg/m³).

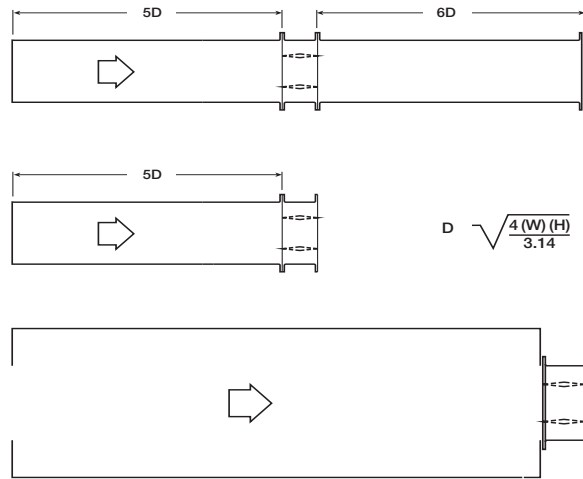
Actual pressure drop found in any HVAC system is a combination of many factors. This pressure drop information along with an analysis of other system influences should be used to estimate actual pressure losses for a damper installed in a given HVAC system.

AMCA Test Figures

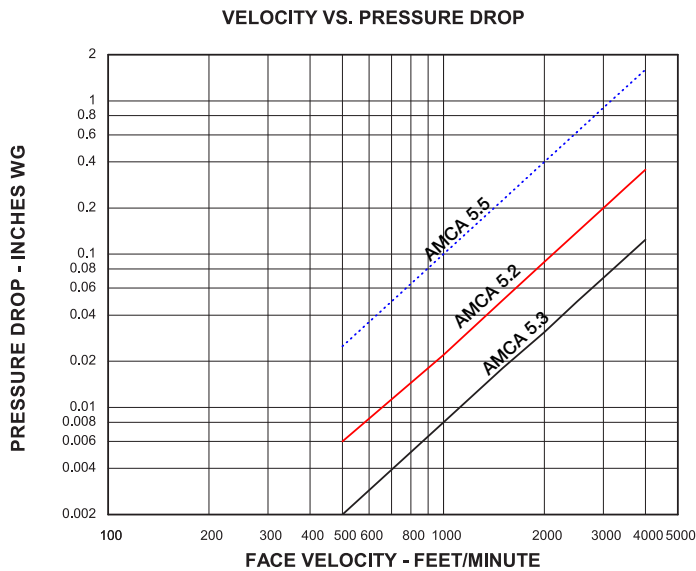
Figure 5.3 Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the two test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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 entrance losses are minimized by a straight duct run upstream of the damper.

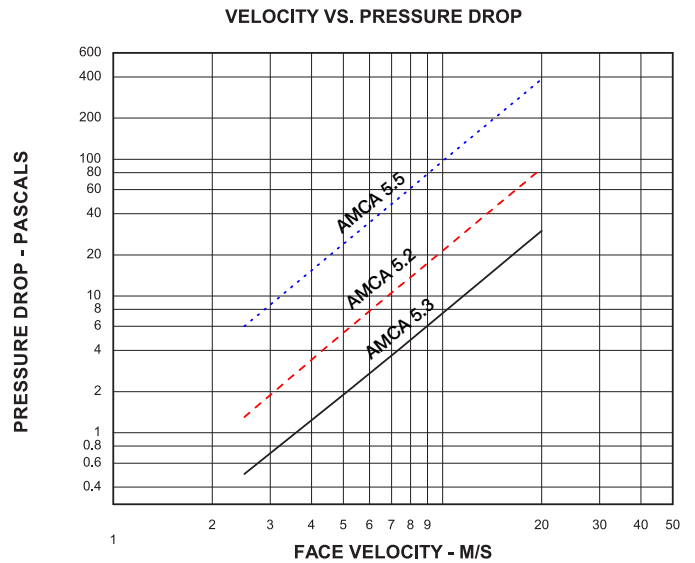
Figure 5.5 Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.



Pressure Drop (english version)
36 in. x 36 in. (914mm x 914mm) Damper



Pressure Drop (metric version)
36 in. x 36 in. (914mm x 914mm) Damper

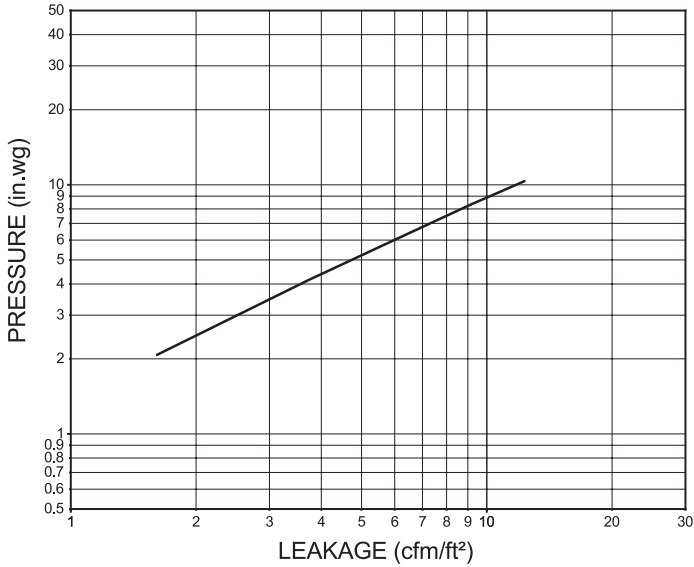


Leakage

Damper leakage (with blades fully closed) varies based on the type of low leakage seals applied. 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).

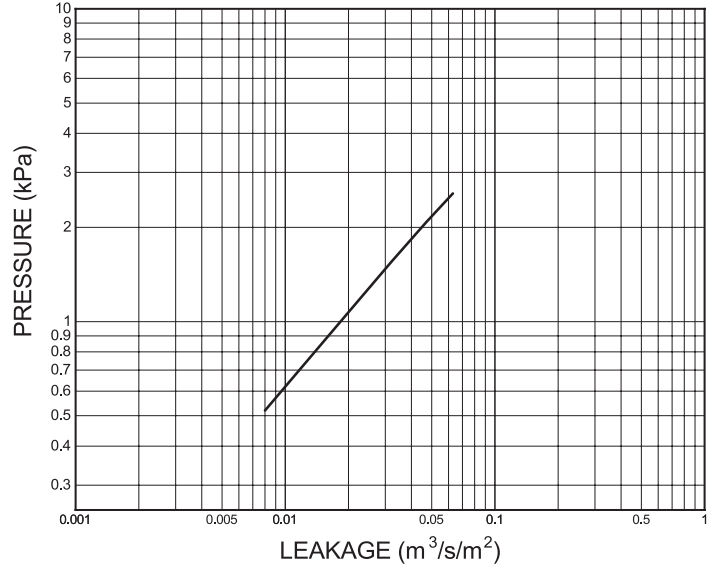
Leakage (english version)

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



Leakage (metric version)

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



Leakage

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

Leakage

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

[Installation Instructions](#)



[Heavy Duty/Industrial Damper Catalog](#)



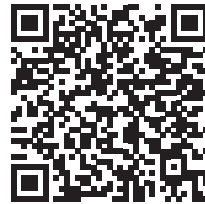
[Tunnel Transit](#)



[Damper Interactive Selection Guide](#)



[Warranty](#)



Specifications

Industrial grade control 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 12 ga. (2.7mm) galvanized steel channel frame with 8 in. (203mm) minimum depth and 2 in. (51mm) flanges; extruded aluminum airfoil type blades; 3/4 in. (19mm) dia. plated steel axles turning in oil impregnated sintered type 316 stainless steel bearings press-fit into frame; and external (out of the airstream) blade-to-blade linkage. Blade seals shall be silicone rubber and jamb seals shall be flexible stainless steel.

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 12 in. wg (3 kPa), velocities to 4000 fpm (20.3 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 Greenheck model HTD-640.