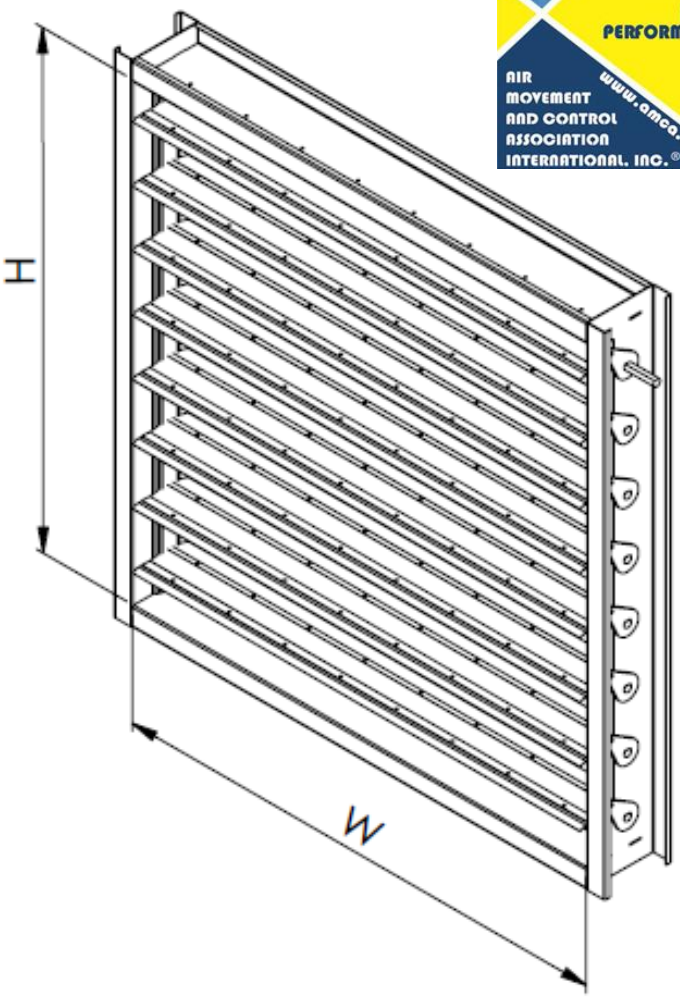
TD Tunnel Dampers

Application and Design

FLOWTECH's Tunnel Dampers(TD)are constructed by high quality galvanized steel or stainless steel parts. The bush is made of phosphor bronze material while the damper frames constructed of 2.0 mm or more thick hot-dipped, galvanized steel, 150 mm x 50 mm or more cold-formed channels with full-welded corners. To minimize air leakage, stainless steel jamb seals are incorporated on the vertical frames of the dampers. The blade axles are made steel shafts and pivot on stainless steel or phosphor bronze bushes. The dampers may be powered externally by electrical or pneumatic actuators. The TD may be installed in, or adjacent to vertical walls or partitions, or horizontally in, or adjacent to floors or assemblies.

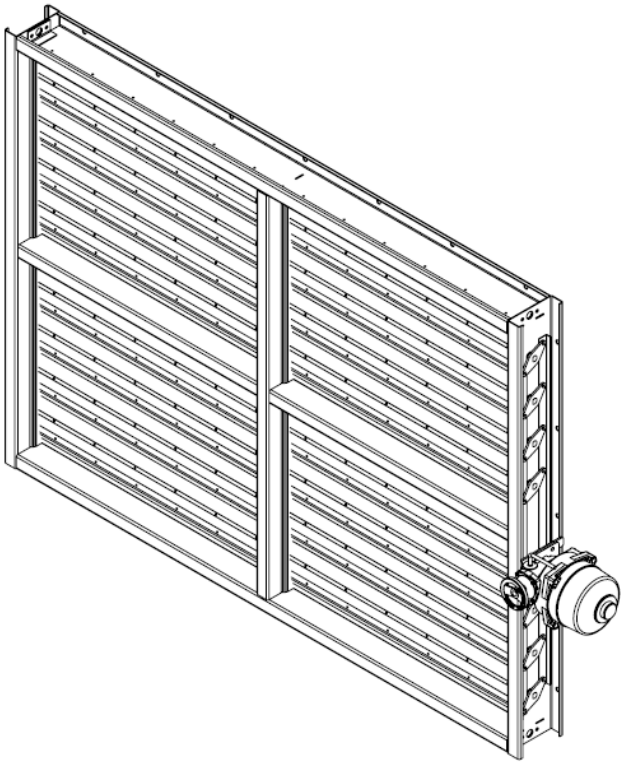


Rating:

Max velocity: Up to 20.2 m/s.
Max pressure: Up to 3.0 kPa.
Air leakage: Class IA@0.25 kPa, Class I@1.0 kPa,
Class I@3.0 kPa.

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.



Standard Construction

	Standard Construction
Flange Frame	150mm x 50mm galvanized steel
Blades	2.0mm thickness galvanized steel
Jackshaft	Plated steel hex.
Bearing	Stainless steel iolite, sleeve-type
Jamb seal	Stainless steel and flexible
Blade seal	Silicone blade edge seals
Single Size	W. 610 mm x H. 610 mm [min.]
	W. 1220mm x H. 1220 mm [max.]
Multiple Size	W. 2440mm x H. 2440 mm [max.]

Options Construction

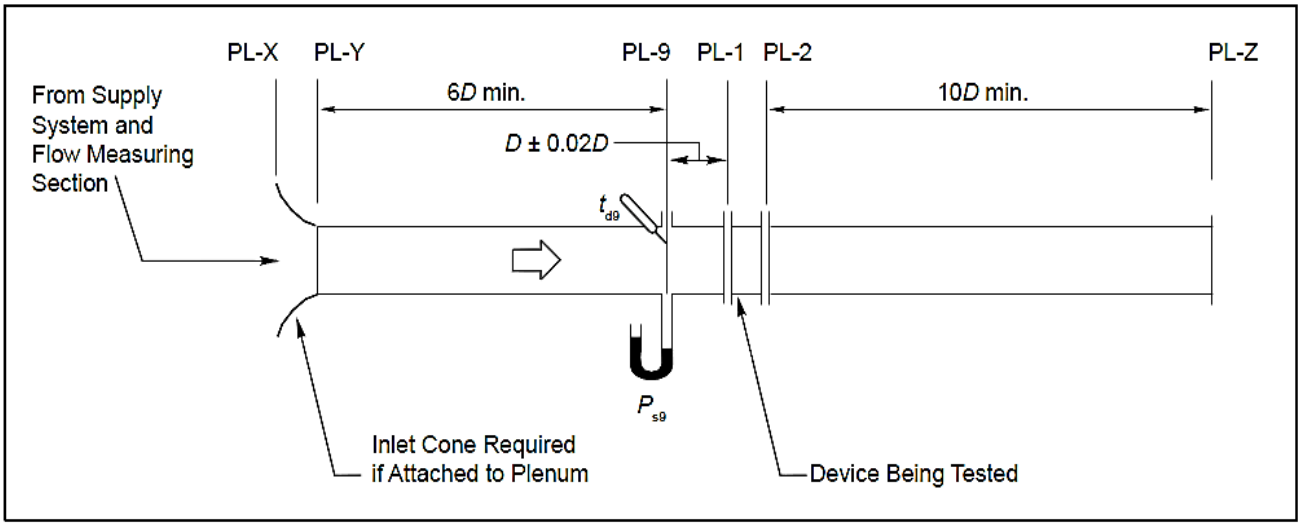
	Options Construction
Flange Frame	☐ Stainless steel ☐ 2.5 mm or ☐ 3.0 mm thickness
Blades	☐ Stainless steel ☐ 1.5 mm thickness
Bearing	☐ Bronze alloy ☐ Stainless steel
Jackshaft/Axle	☐ Galvanized steel ☐ Stainless steel
Actuator	☐ Electrical ☐ Pneumatic

FLOWTECH CO.,LTD., certifies that the TD shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

AMCA Test Figures

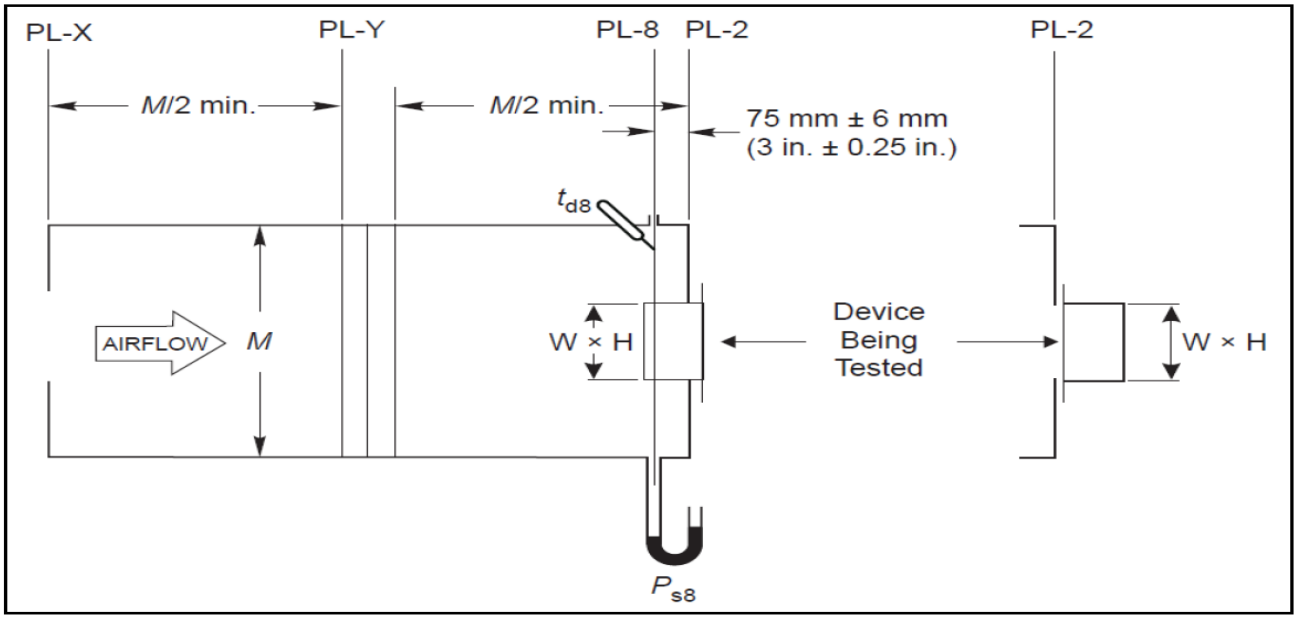
This pressure drop testing was conducted in accordance with ANSI/AMCA Standard 500-D using the two configurations shown. All data has been corrected to represent standard air at a density of 1.2 kg/m^3.

Figure 5.3 —Test Damper Setup with Inlet and Outlet Ducts



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.

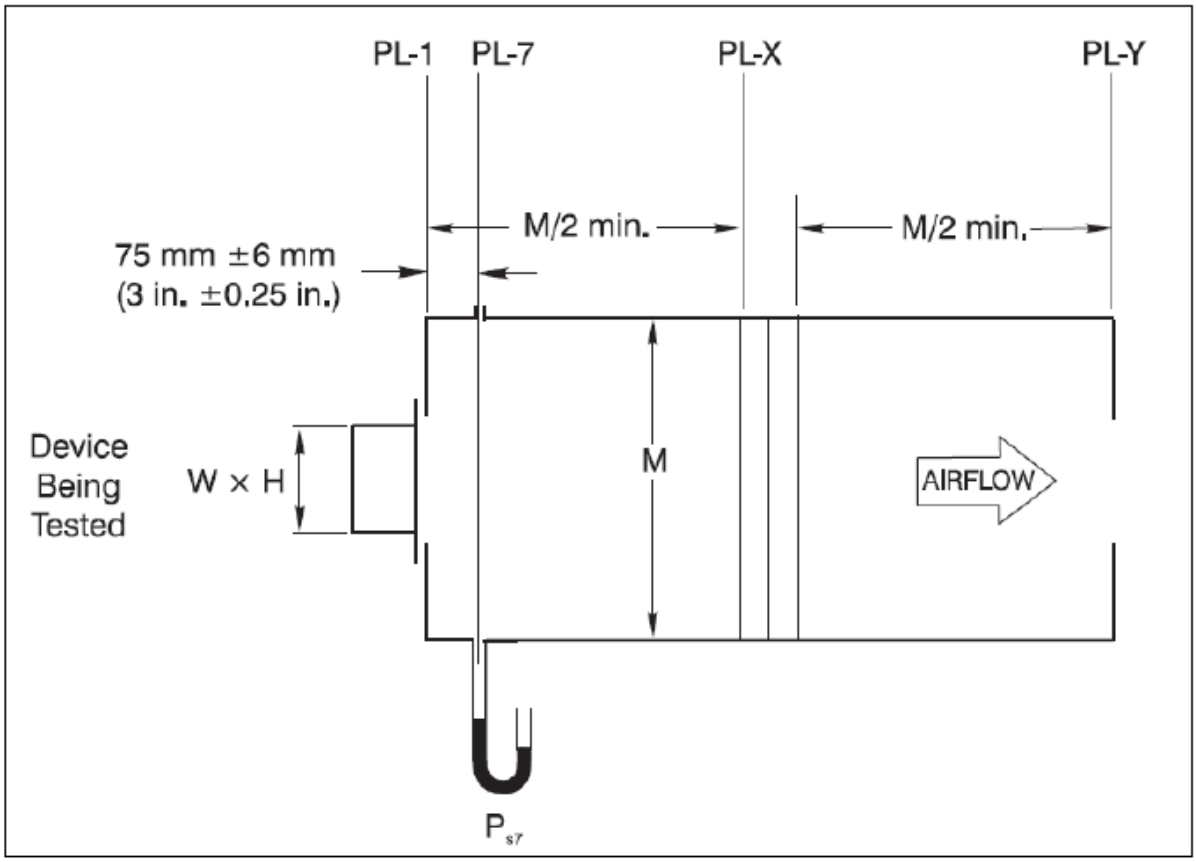
Figure 5.5 — Test Damper Setup with Inlet Chamber



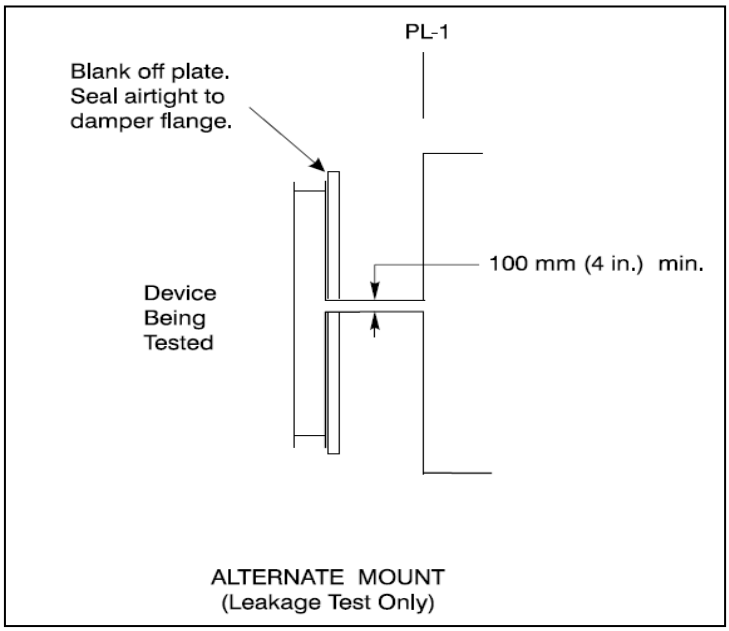
Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

This air leakage testing was conducted in accordance with ANSI/AMCA Standard 500-D using the Figure 5.4.

Figure 5.4 — Test Damper Setup with Outlet Chamber

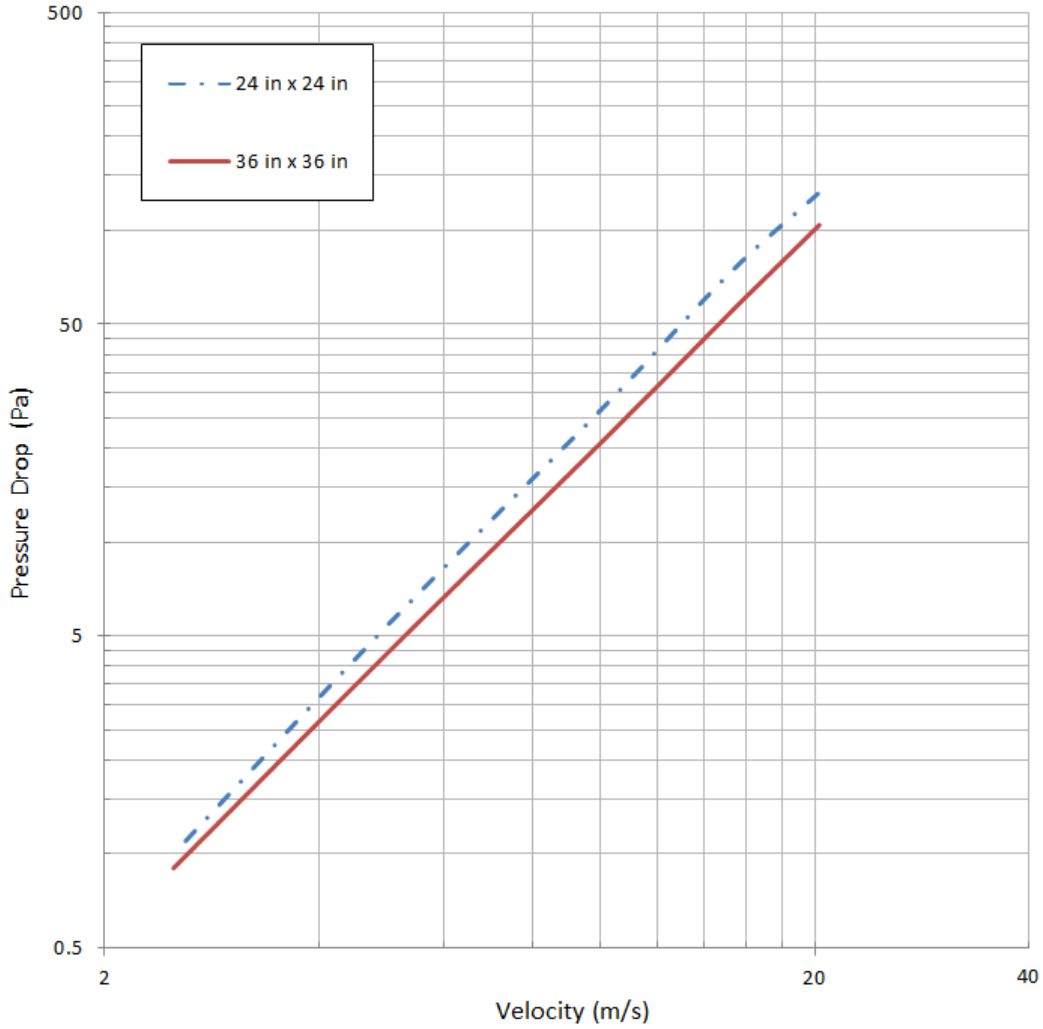


ALTERNATE MOUNT (Leakage Test Only)



All data has been corrected to represent standard air at a density of 1.2 kg/m^3. Air leakage is based on operation between 0 and 49℃ (32 and 120℉).

Pressure Drop Data



Tested in accordance with ANSI/AMCA 500-D, Figure 5.3

24 in × 24 in		36 in × 36 in	
Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop(Pa)
2.6	1	2.5	1
5.0	5	5.1	5
10.1	27	10.2	22
15.2	73	15.3	55
20.2	131	20.3	104

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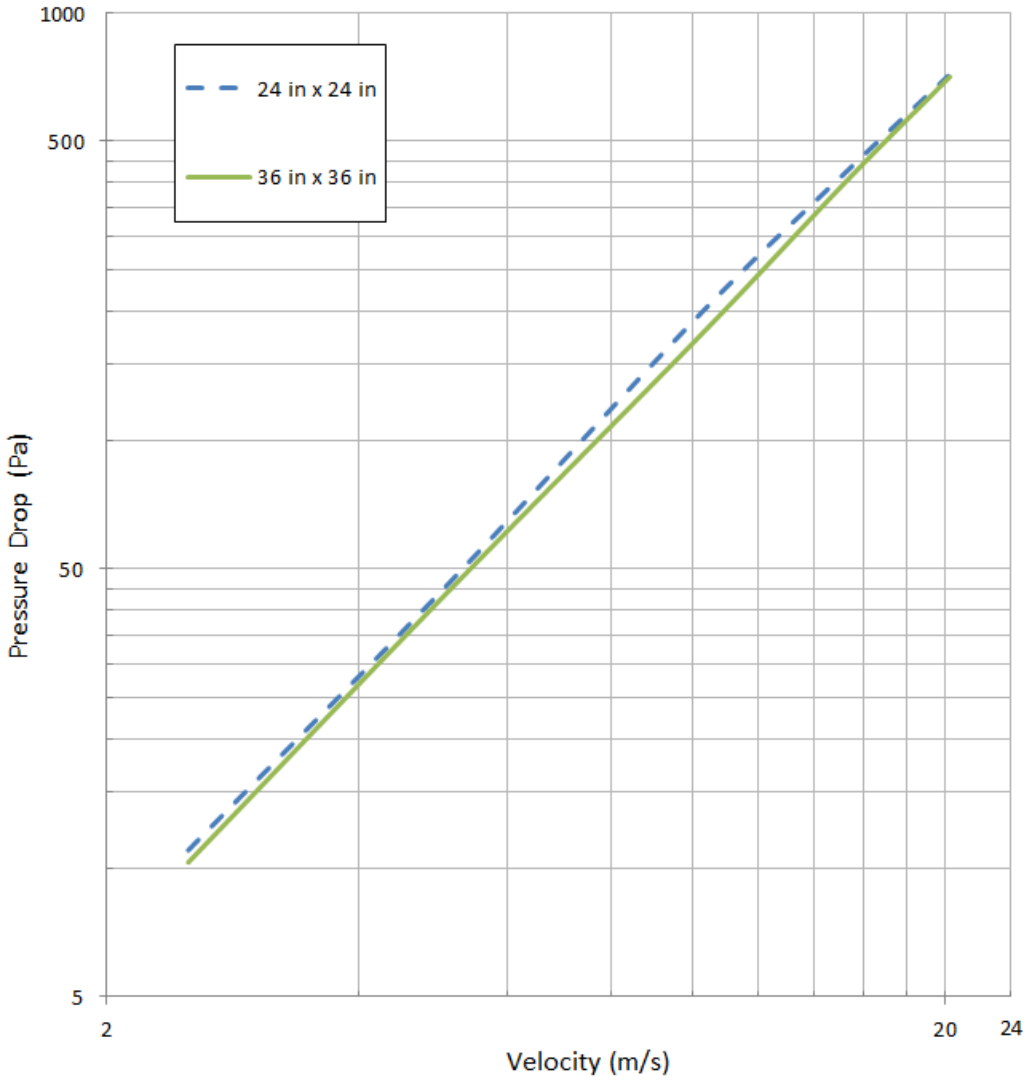

Tested in accordance with ANSI/AMCA 500-D, Figure 5.5

24 in × 24 in		36 in × 36 in	
Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop(Pa)
2.5	11	2.6	10
5.1	46	5.1	44
10.1	193	10.2	175
15.2	420	15.3	404
20.2	710	20.3	706

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Air leakage Data

The damper can to fit Class I leakage rate under 0.5 kPa, 1 kPa, 1.5 kPa, 2 kPa and 3 kPa pressure conditions.

Besides, the TD require to low leakage (Class IA) under the 0.25 kPa pressure.

The TD series Leakage Rate ($L/s/m^2$)

Damper Size Width × Height mm(in) W/Torque	Pressure in kPa				
	0.25kPa	1kPa	1.5kPa	2kPa	3kPa
914mm(36”) x 914mm (36”) Torque = 20 N · m	14.6	21.1	29.1	43.1	51.9
1220mm (48”) x 914mm (36”) Torque = 20 N · m	9.4	12.7	16.7	23.1	28.9

Data are based on a torque of 24 N-m/m^2 applied to close and seat the damper during the test.

The TD series Leakage Class

Damper Width mm(in)	Pressure in kPa				
	0.25kPa	1kPa	1.5kPa	2kPa	3kPa
610mm (24”) to 1220mm (48”)	1A	1	1	1	1

Air leakage is based on operation between 0℃ and 49℃ (32℉ and 120℉).

Tested in accordance with ANSI/AMCA Standard 500-D Figure 5.4.

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