SDS 11 Series Smoke Damper Slim Type

Application and Design

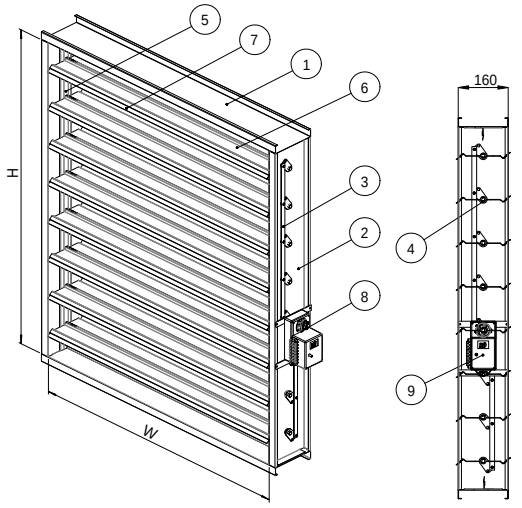
The SDS11 smoke damper slim type employs triple-Vee blades and flange frame for point-of origin control of smoke in static and dynamic smoke management systems. The SDS11 is qualified to 15.3 m/s and 2.0 kPa and may be installed in, or adjacent to vertical walls or partitions, or horizontally in, or adjacent to floors or assemblies. Both CDS11 volume control damper slim type and MDS11 motorized damper application in the HVAC systems for automatic air control and manual balancing. (The control damper and motorized damper their title are same "SDS11 series "and their difference only in using location.)

Standard Construction	
Flange Frame	160mmx30mm galvanized steel
Blades	1.6 mm thickness galvanized steel – triple-v
Jackshaft	Plated steel hex.
Linkage	Outside of flange frame(Maintenance convenience)
Bearing	Stainless steel iolite, sleeve-type
Jamb seal	Stainless steel and flexible
Blade seal	Silicone blade edge seals
Single	200mmx200mm [min.]
Size	1220mmx1220mm [max.]
Multiple Size	2440mmx2440mm [max.]

Options	
Flange Frame	☐Stainless steel ☐1.5mm or☐2mm thickness
Blades	☐Stainless steel ☐1.5mm
Jackshaft/Axle	☐Stainless steel
Bearing	☐Bronze alloy ☐Brass alloy
Alternate actuator	☐Power failure return ☐Pneumatic

Rating: (see Performance and Leakage Data on page 2-6).
Max velocity: Up to 15.3 m/s.
Max pressure: Up to 2.0 kPa.
Air leakage:
Class IA@0.25 kPa, Class I@1.0 kPa, Class I@2.0kPa.

Component



Item	Name
1	Top & Bottom Flange Frame
2	Side Flange Frame
3	Visible Linkage
4	Bearing
5	Jamb Seal
6	Blade
7	Blade Seal
8	Jackshaft/Axle
9	Actuator

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AMCA Certified Pressure Drop Data

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This pressure drop testing was conducted in accordance with ANSI/AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent standard air at a density of 1.2kg/m^2.

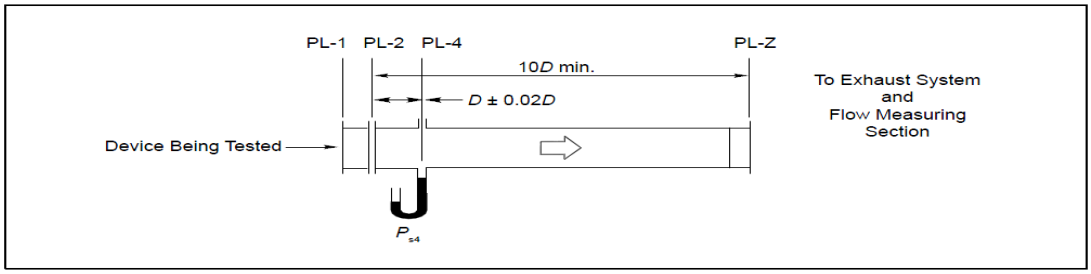
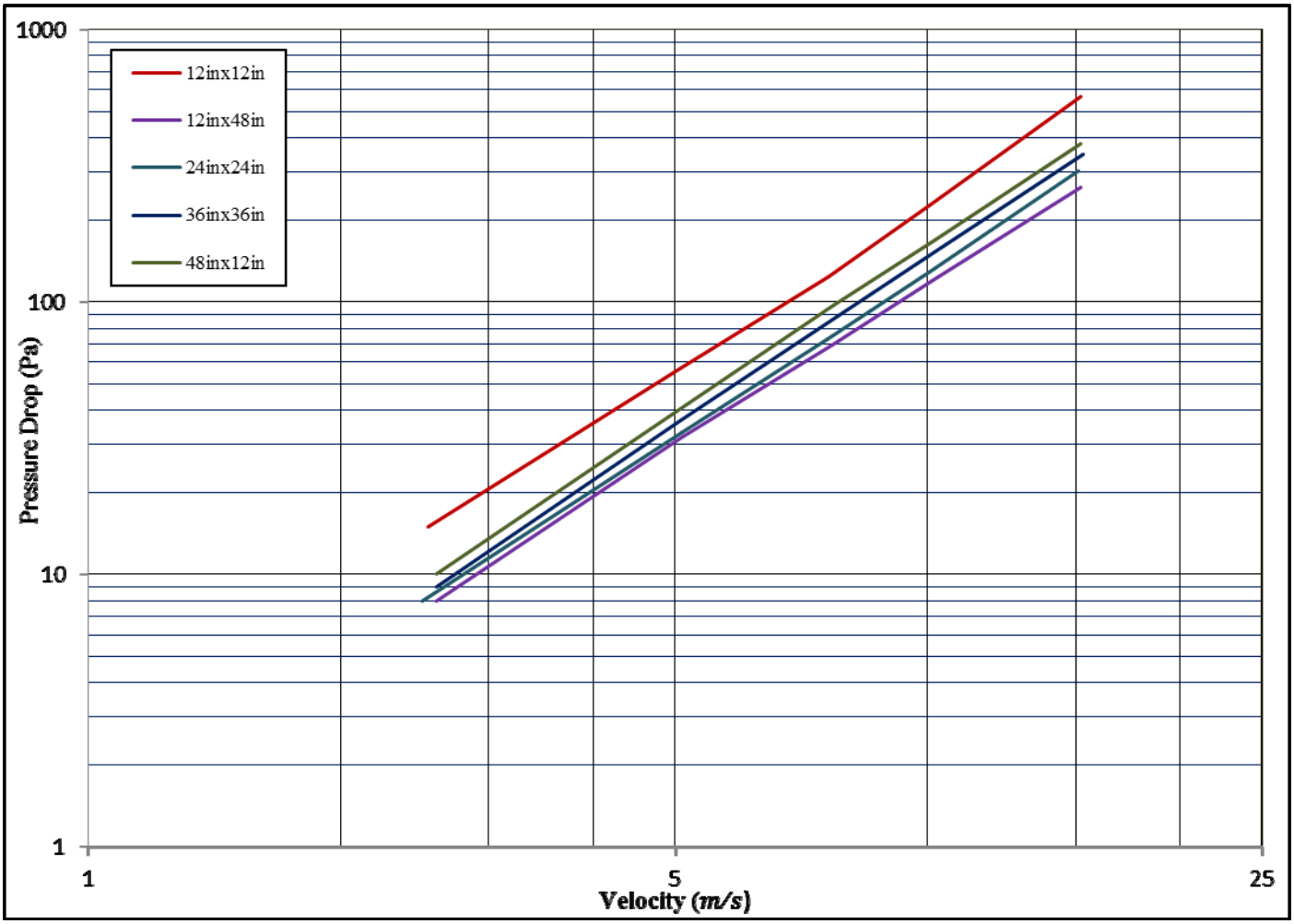


Figure 5.1 Test Device Setup with Outlet Ducts

Air Performance Data



12in×12in		12in×48in		24in×24in		36in×36in		48in×12in	
Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)
2.5	15	2.6	8	2.5	8	2.6	9	2.6	10
5.1	57	5.1	32	5.1	33	5.1	37	5.1	41
7.6	124	7.7	69	7.6	73	7.8	88	7.6	95
10.1	231	10.2	121	10.1	130	10.4	159	10.2	170
15.2	565	15.2	263	15.1	302	15.3	347	15.2	390

AMCA Certified Pressure Drop Data

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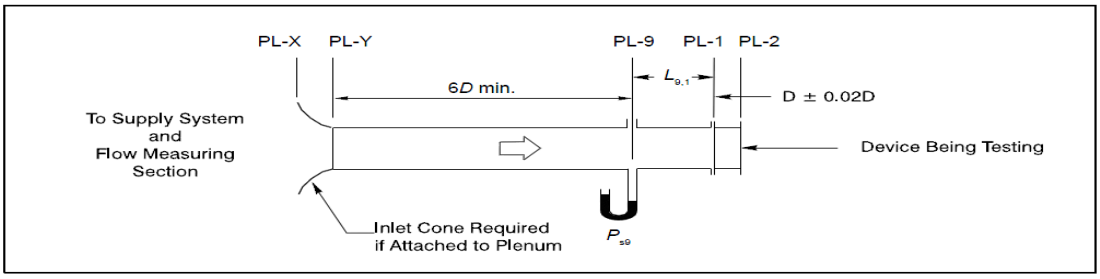
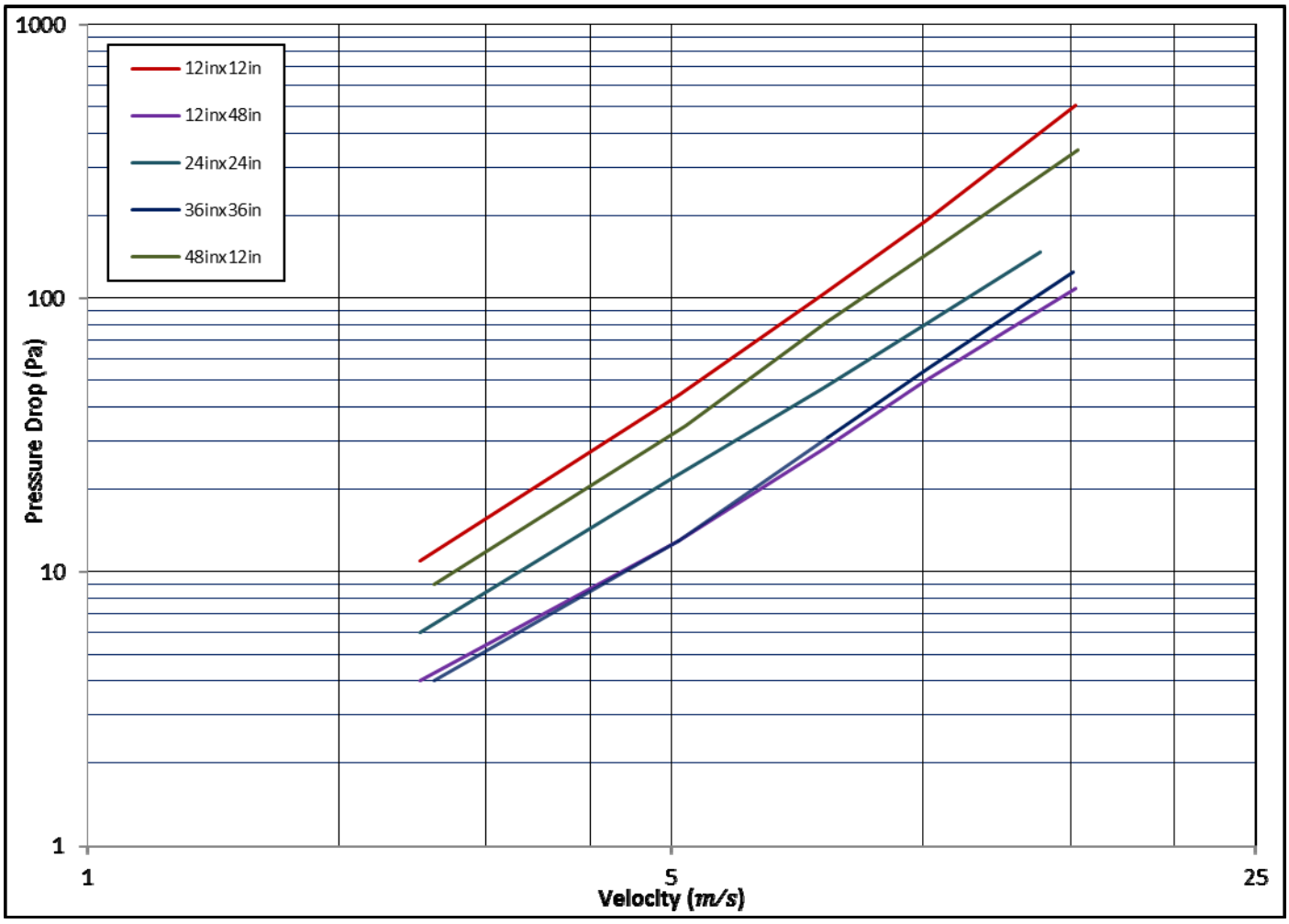


Figure 5.2 Test Device Setup with Inlet Ducts

Air Performance Data



12in×12in		12in×48in		24in×24in		36in×36in		48in×12in	
Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)
2.5	13	2.5	4	2.5	6	2.6	4	2.6	9
5.1	46	5.1	13	5.0	22	5.1	13	5.2	34
7.6	103	7.6	28	7.6	47	7.7	31	7.7	82
10.1	192	10.1	50	10.1	81	10.2	56	10.3	150
15.2	507	15.2	109	13.8	148	15.1	125	15.3	347

AMCA Certified Pressure Drop Data

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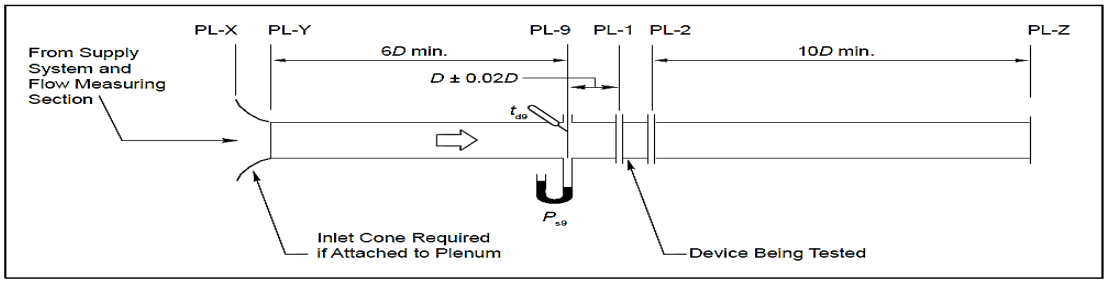
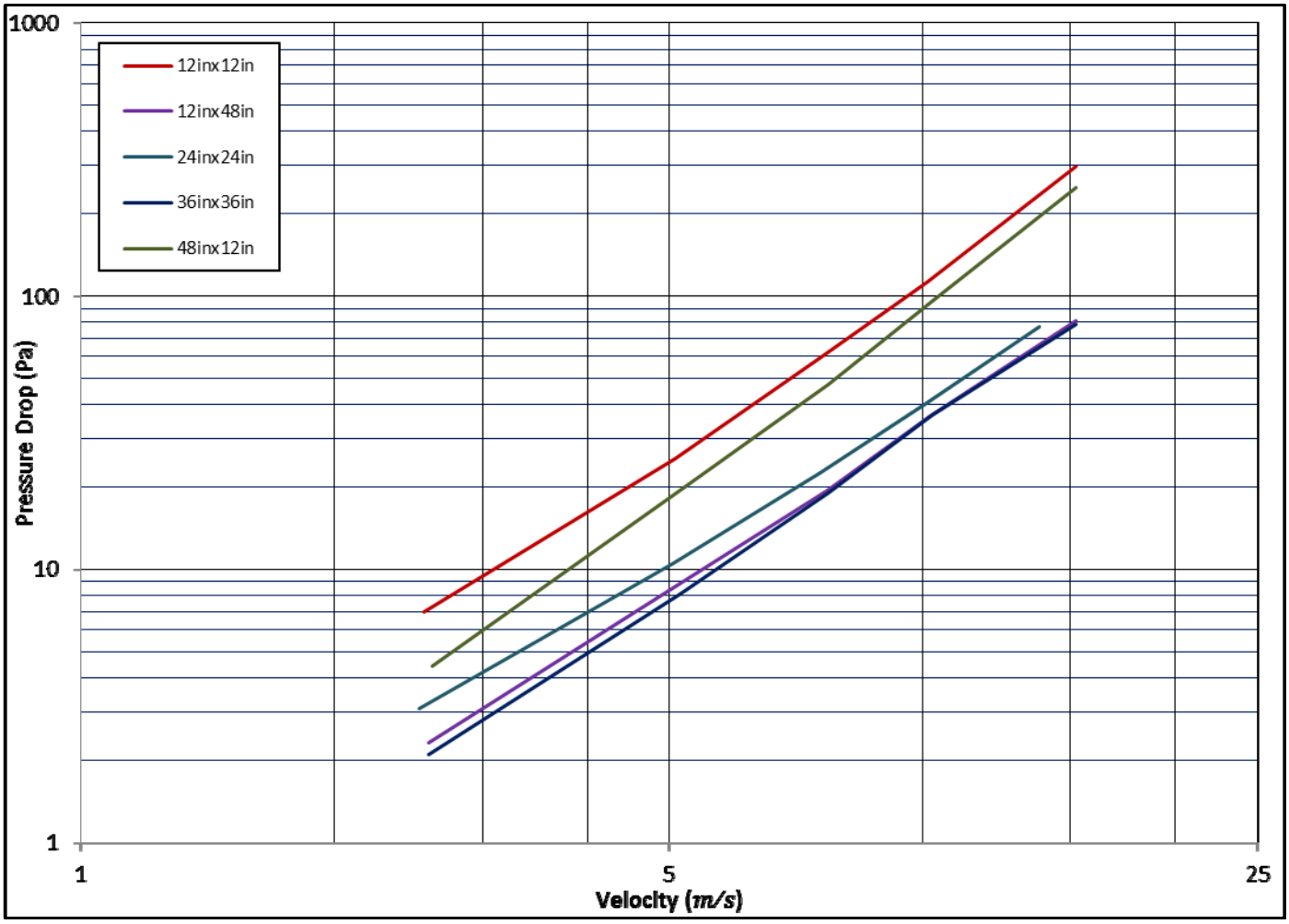


Figure 5.3 Test Device Setup with Inle and Outlet Ducts

Air Performance Data



12in×12in		12in×48in		24in×24in		36in×36in		48in×12in	
Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)
2.6	7	2.6	2	2.5	3	2.6	2	2.6	5
5.1	25	5.2	9	5.1	11	5.2	8	5.1	20
7.6	60	7.7	19	7.6	23	7.8	19	7.7	48
10.1	113	10.2	36	10.1	40	10.3	37	10.2	94
15.2	299	15.2	81	13.8	78	15.3	79	15.2	248

AMCA Certified Pressure Drop Data

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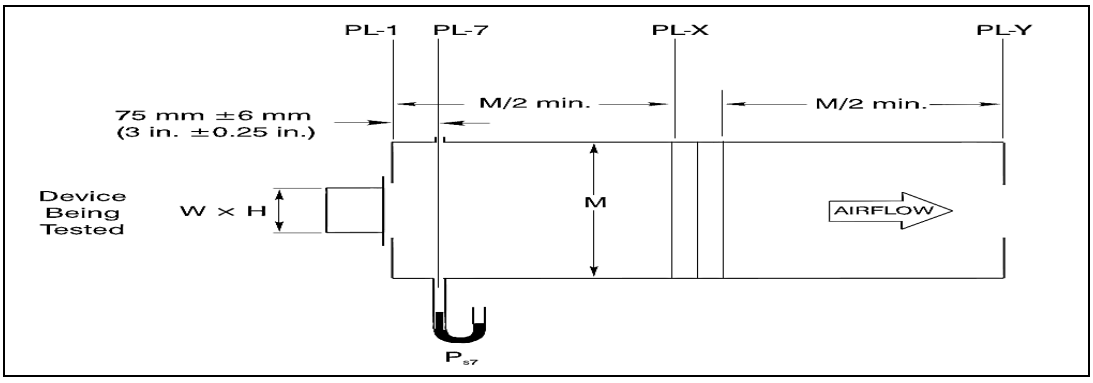
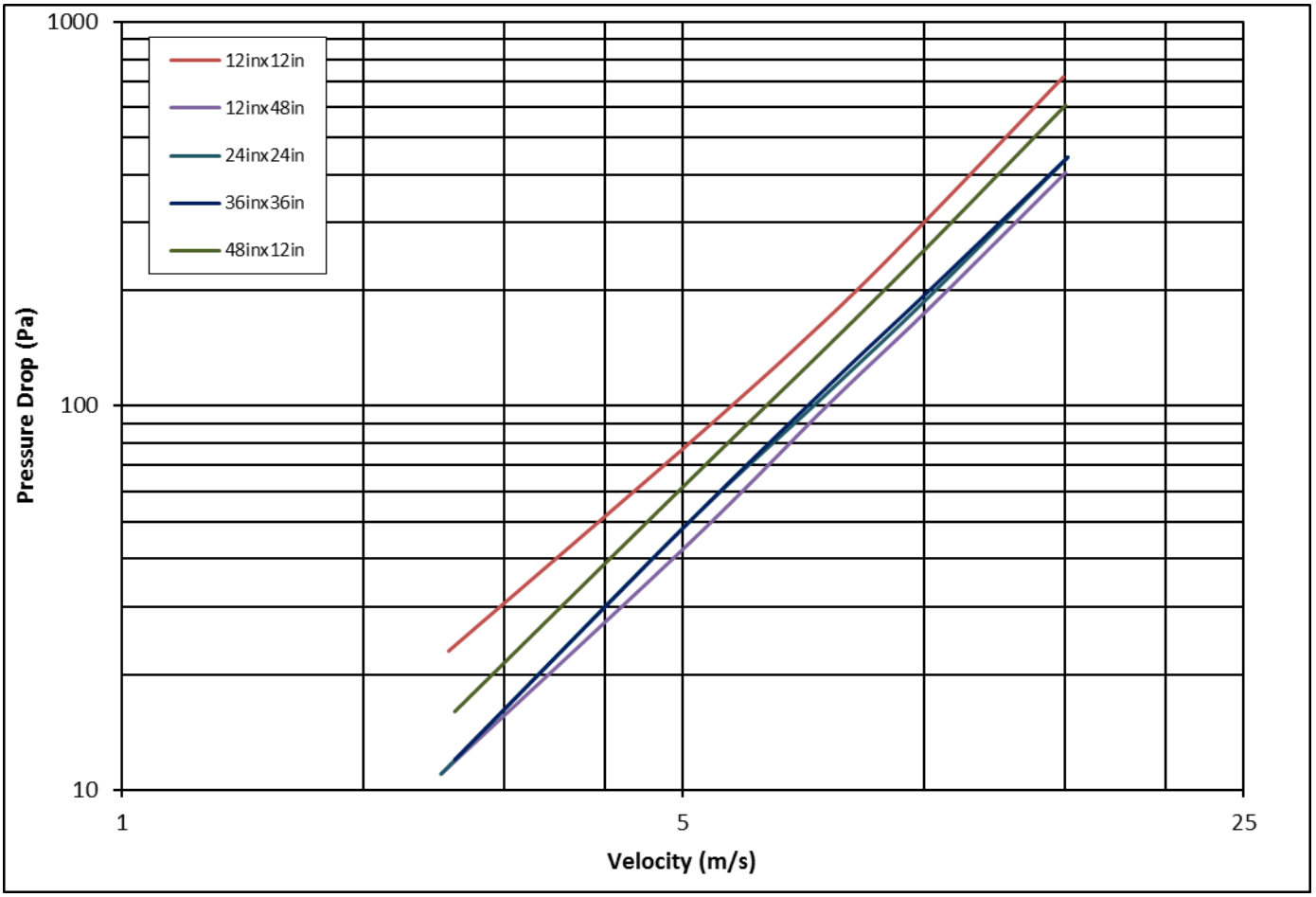


Figure 5.4 Test Device Setup with Outlet Chamber

Air Performance Data



12in×12in		12in×48in		24in×24in		36in×36in		48in×12in	
Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)	Velocity (m/s)	Pressure Drop (Pa)
2.6	23	2.5	11	2.5	11	2.6	12	2.6	16
5.1	79	5.1	44	5.0	48	5.1	50	5.1	64
7.6	169	7.6	101	7.5	106	7.6	113	7.6	144
10.1	305	10.1	178	10.1	191	10.2	202	10.1	260
15.0	720	15	405	15.1	444	15.1	445	15.0	607

AMCA Certified Leakage Data

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Air leakage is based on operation between 0 and 49℃ (32 and 120℉).
Tested for air leakage in accordance with ANSI/AMCA Standard 500-D, Figure 5.4.
All data has been corrected to represent standard air at a density of 1.2㎏/㎥.

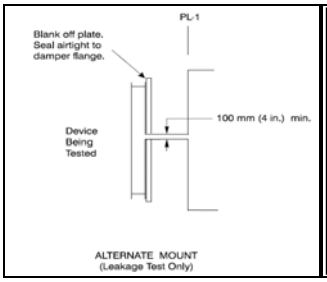

Figure 5.4 Test Damper Setup with Outlet Chamber

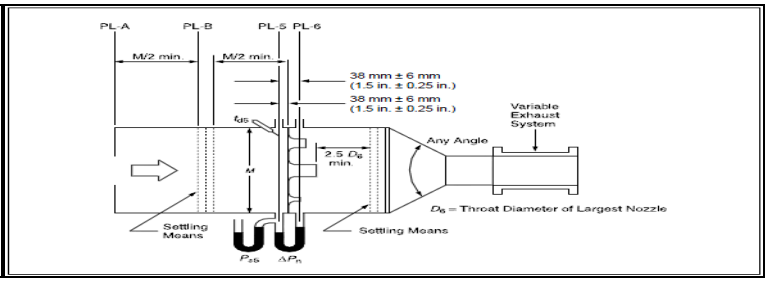

Figure 6.3 Airflow Rate Measurement Setup – Multiple Nozzle Chamber on Fan Inlet

Leakage Data

SDS11 series dampers had pass AMCA certification, the damper can to fit Class I leakage rate under 0.5 kPa, 1 kPa, 1.5 kPa and 2 kPa pressure conditions. Besides, the SDS11 require to low leakage (Class IA) under the 0.25kPa pressure.

The SDS11 series Leakage Rate (L/s/m²)

Damper Size Width×Height mm(in) w/Torque	Pressure in kPa			
	0.25kPa	1kPa	1.5kPa	2kPa
305mm(12")x1220mm(48") Torque = 13.6N • m	9.2	21.8	25.6	31.5
910mm(36")x910mm(36") Torque = 13.6N • m	1.8	4.9	7.0	9.4
1220mm(48")x910mm(36") Torque = 19.8N • m	1.5	5.5	8.5	12.1

Data are based on a torque of 36.5 N-m/m² applied to close and seat the damper during the test.

The SDS11 series Leakage Class*

Damper Width mm(in)	Pressure in kPa			
	0.25kPa	1kPa	1.5kPa	2kPa
305mm(12") to 1220mm(48")	1A	1	1	1