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AMS060-CT
AIRFLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER

APPLICATION

The AMCA certified AMS060-CT combines an airflow measuring station with an ultra low-leak, high performance control damper. The complete assembly is tested to provide effective setpoint monitoring and adjustment. The AMS060-CT is Class 1A rated for Leakage and Performance and includes a pressure sensing station and a high performance transducer with glass-on-silicone capacitance sensor. The sensing blades are extruded aluminum with a clear anodize finish. The AMS060-CT can be used with any building automation system. Multiple control options are available.

STANDARD CONSTRUCTION

SLEEVE
12" (305) long x 16 gauge (1.6) galv. G60 (for slip-fit duct connection).

DAMPER BLADES
Galvanized steel, one-piece airfoil shaped, 14 gauge (2.0) equivalent thickness, parallel blade action standard (opposed blade optional).

SEALS
Blade Seals: Santoprene; mechanically fastened to blades.
Jamb (Side) Seals: 300 series stainless steel compression type.

BEARINGS
Oil impregnated, self-lubricating, stainless steel sleeve.

LINKAGE
Shake proof Swedgelock™ plated steel assembly, out of airstream

AXLES
.50" (13) plated steel hex.

SENSOR BLADE
6063T5 extruded aluminum, clear anodize finish.

PRESSURE TRANSDUCER
RU-274-R2-VDC.

ACCURACY
AMCA Certified Accuracy* of +/- 3.7% or better in the velocity range of 646 FPM to 1949 FPM. (See AMCA Accuracy Statements on Pg. 5)

POWER REQUIREMENTS
12-40 VDC or 12-35 VAC.

OUTPUT SIGNAL
0-5 or 0-10 VDC output (field selectable). Output signal is proportional to airflow (CFM).

VELOCITY REQUIREMENTS
Product Range - 300 to 5000 FPM (1.5 to 25 m/s).
Operating Range - 300 to 2,000 FPM (1.5 to 10.2 m/s) for units with standard transducer model RU274-R2-VDC or optional model AMS8100-LR.
Operating Range- 300 to 5000 FPM (1.5 to 25 m/s) for units with optional transducer model AMS8100.

OPERATING TEMPERATURE
-22° F to +140° F standard (-30°C to 60°C).

MINIMUM SIZE
Single-8"w x 8"h (203 x 203).

MAXIMUM SIZE
Single section - 60"w x 72"h (1524 x 1829).
Multiple section assembly - unlimited.

Ruskin Company certifies that the AMS060-CT Air Monitoring Station shown herein is licensed to bear the AMCA Certified Rating Seal - Airflow Measuring Station Performance. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 611 and comply with requirements of the AMCA Certified Ratings Program.

FEATURES

- Low-leak Class 1A Airflow Control Damper
- Anodized aluminum sensing blades
- Factory piped low pressure transducer with 0-10 VDC output

Ruskin AMS060-CT helps satisfy the requirements for minimum outside air as required by the following.

- ASHRAE 62.1, 90.1 and 189.1
- California Title 24
- International Mechanical Code (IMC)
- International Energy Conservation Code (IECC)

VARIATIONS

The AMS060-CT is available with several options to fit your specific application.

- Airflow Straightener: 0.50" (13) Honeycomb Cell x 3" (76) 3000 series aluminum alloy (Sleeve length to be 15" with airflow straightener)
- Stainless steel linkage and axles
- Sleeve Flanges (Upstream, Downstream, Both or Offset). 1-1/2" Standard.
- Model AMS8100-LR (Low Range 0-1.0"wg) or model AMS8100 (0-2.5"wg) pressure transducer with LCD display. Each with 0-10VDC or 20mA outputs.
- 24V Modulating Damper Actuator (Accepts signal from BAS to position damper to achieve desired CFM flow.

Values shown in ( ) indicate metric units

AIRFLOW PERFORMANCE WITHOUT OPTIONAL AIRFLOW STRAIGHTENER

AMCA TEST SETUP: Figure 1
Air Performance: Size 12" x 12" (305 x 305). Airflow Formula: Q = 2594.5 x Area x SqRt(Voltage/10)

Voltage from 0-1 inwc Transducer corresponding to 0-10VDC	Reference Volume CFM	Reference Volume l/s	Reference Velocity FPM	Reference Velocity m/s	Indicated Volume CFM	Indicated Volume l/s	% Accuracy to Reference Airflow
5.79	1940	916	1940	9.9	1974	932	1.73%
4.52	1694	799	1694	8.6	1744	823	2.88%
3.26	1447	683	1447	7.4	1481	699	2.32%
2.18	1204	568	1204	6.1	1211	572	0.61%
1.36	961	454	961	4.9	957	452	-0.44%
0.59	646	305	646	3.3	628	296	-2.94%

AMCA TEST SETUP: Figure 1

Pams in W.G.	Pams (Pa)	Reference Volume CFM	Reference Volume l/s	Reference Velocity FPM	Reference Velocity m/s	Indicated Volume CFM	Indicated Volume l/s	% Accuracy to Reference Airflow
Air Performance: Size 24" x 24" (610 x 610), Airflow Formula Q=2541.87 x Area x SqRt(Pams)								
0.625	156	7876	3717	1969	10.0	8038	3794	2.02%
0.446	111	6675	3150	1669	8.5	6790	3205	1.70%
0.294	73	5519	2605	1380	7.0	5513	2602	-0.11%
0.178	44	4337	2047	1084	5.5	4290	2024	-1.10%
0.068	17	2741	1294	685	3.5	2651	1251	-3.38%
0.019	5	1354	639	339	1.7	1401	661	3.39%
Air Performance: Size 36" x 36" (914 x 914), Airflow Formula Q=2523.38 x Area x SqRt(Pams)								
0.641	160	17548	8282	1950	9.9	18182	8581	3.49%
0.452	113	14900	7032	1656	8.4	15268	7206	2.41%
0.296	74	12271	5791	1363	6.9	12356	5831	0.69%
0.178	44	9647	4553	1072	5.4	9582	4522	-0.68%
0.071	18	6150	2902	683	3.5	6051	2856	-1.63%
0.014	3	2781	1312	309	1.6	2687	1268	-3.49%

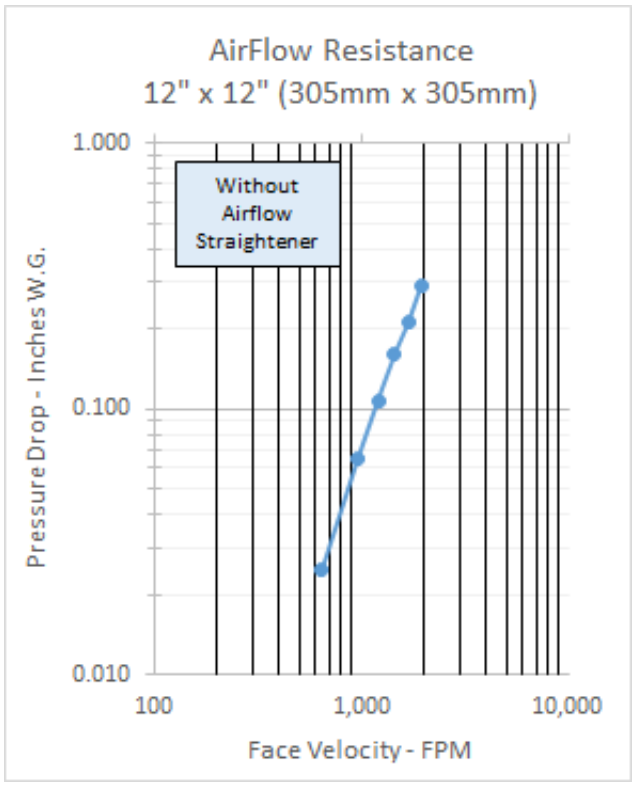
Q= K x Area x SqRt(Pams)		
Size	K	Area
12" x 12"	2594.50	1 SqFt
(305mm x 305mm)	(834.65)	0.093 m^2
24" x 24"	2541.87	4 SqFt
(610mm x 610mm)	(817.72)	0.372 m^2
36" x 36"	2523.38	9 SqFt
(914mm x 914mm)	(812.74)	0.836 m^2

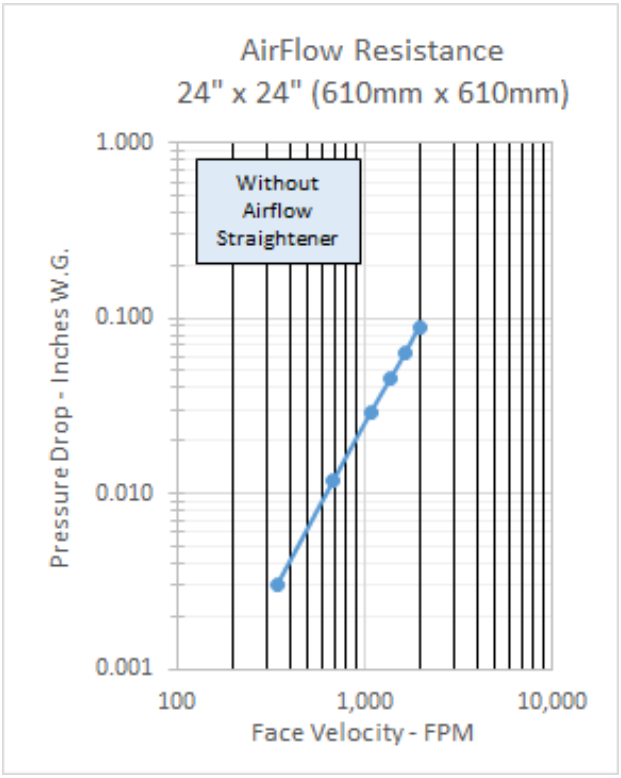
AIRFLOW RESISTANCE WITHOUT OPTIONAL AIRFLOW STRAIGHTENER

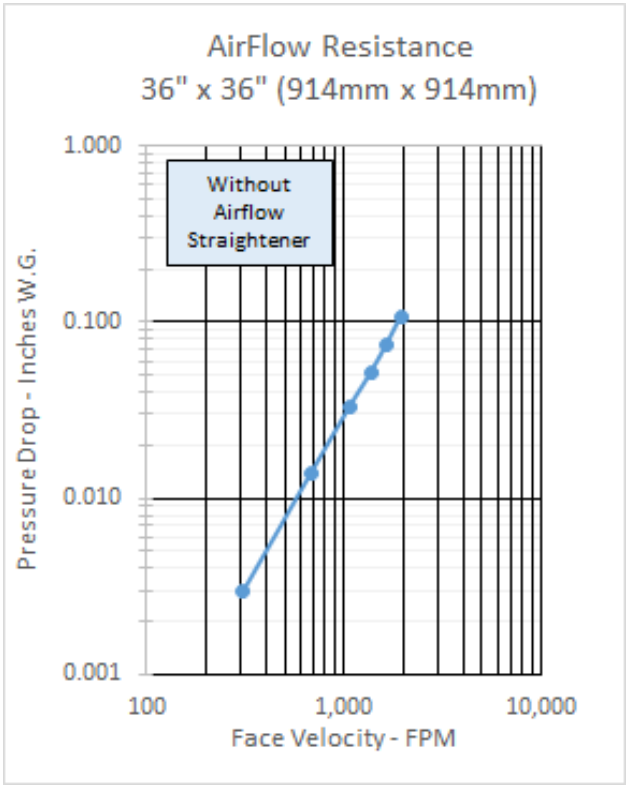
Pressure Drop		Volume CFM		Velocity	
InWG	Pa	CFM	l/s	FPM	m/s
Air Flow Resistance 12" x 12" (305mm x 305mm)					
0.289	72.0	1940	916	1940	9.86
0.214	53.3	1694	799	1694	8.61
0.16	39.9	1447	683	1447	7.35
0.108	26.9	1204	568	1204	6.12
0.065	16.2	961	454	961	4.88
0.025	6.2	646	305	646	3.28
Air Flow Resistance 24" x 24" (610mm x 610mm)					
0.089	22.2	7876	3717	1969	10.00
0.064	15.9	6675	3150	1669	8.48
0.045	11.2	5519	2605	1380	7.01
0.029	7.2	4337	2047	1084	5.51
0.012	3.0	2741	1294	685	3.48
0.003	0.7	1354	639	339	1.72
Air Flow Resistance 36" x 36" (914mm x 914mm)					
0.107	26.7	17548	8282	1950	9.90
0.075	18.7	14900	7032	1656	8.41
0.051	12.7	12271	5791	1363	6.93
0.033	8.2	9647	4553	1072	5.45
0.014	3.5	6150	2902	683	3.47
0.003	0.7	2781	1312	309	1.57

Ruskin Company certifies that the AMS060-CT Air Monitoring Station shown herein is licensed to bear the AMCA Certified Rating Seal - Airflow Measuring Station Performance. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 611 and comply with requirements of the AMCA Certified Ratings Program.

AIRFLOW RESISTANCE WITHOUT OPTIONAL AIRFLOW STRAIGHTENER







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AIRFLOW PERFORMANCE WITH OPTIONAL AIRFLOW STRAIGHTENER

AMCA TEST SETUP: Figure 1
Air Performance: Size 12" x 12" (305 x 305). Airflow Formula: Q = 2485.4 x Area x SqRt(Voltage/10)

Voltage from 0-1 inwc Transducer corresponding to 0-10VDC	Reference Volume CFM	Reference Volume l/s	Reference Velocity FPM	Reference Velocity m/s	Indicated Volume CFM	Indicated Volume l/s	% Accuracy to Reference Airflow
6.41	1953	922	1953	9.9	1990	939	1.85%
4.66	1656	782	1656	8.4	1697	801	2.39%
3.13	1360	642	1360	6.9	1390	656	2.19%
1.908	1068	504	1068	5.4	1086	512	1.62%
0.748	678	320	678	3.4	680	321	0.26%
0.355	480	227	480	2.4	468	221	-2.50%

AMCA TEST SETUP: Figure 1

Pams (in W.G.)	Pams (Pa)	Reference Volume CFM	Reference Volume l/s	Reference Velocity FPM	Reference Velocity m/s	Indicated Volume CFM	Indicated Volume l/s	% Accuracy to Reference Airflow
Air Performance: Size 24" x 24" (610 x 610), Airflow Formula Q = 2343.4 x Area x SqRt (Pams)								
0.739	184	7854	3707	1964	10.0	8058	3803	2.53%
0.531	132	6669	3147	1667	8.5	6831	3224	2.36%
0.365	91	5507	2599	1377	7.0	5663	2673	2.76%
0.222	55	4320	2039	1080	5.5	4417	2084	2.19%
0.092	23	2755	1300	689	3.5	2843	1342	3.10%
0.02	5	1366	645	342	1.7	1326	626	-3.05%
Air Performance: Size 36" x 36" (914 x 914), Airflow Formula Q = 2353.8 x Area x SqRt (Pams)								
0.73	182	17541	8278	1949	9.9	18100	8542	3.09%
0.525	131	14903	7033	1656	8.4	15349	7244	2.91%
0.356	89	12262	5787	1362	6.9	12640	5965	2.99%
0.223	56	9656	4557	1073	5.5	10004	4721	3.48%
0.091	23	6179	2916	687	3.5	6390	3016	3.31%
0.016	4	2779	1312	309	1.6	2680	1265	-3.71%

Q = K x Area x SqRt (Pams)

Size	K	Area
12" x 12"	2485.4	1 SqFt
(305mm x 305mm)	(799.54)	0.093 m^2
24" x 24"	2343.4	4 SqFt
(610mm x 610mm)	(753.87)	0.372 m^2
36" x 36"	2353.8	9 SqFt
(914mm x 914mm)	(758.12)	0.836 m^2

AIRFLOW RESISTANCE WITH OPTIONAL AIRFLOW STRAIGHTENER

Pressure Drop		Volume		Velocity	
InWG	**Pa**	**CFM**	**l/s**	**FPM**	**m/s**
Airflow Resistance 12" x 12" (305mm x 305mm)					
0.328	81.7	1953	922	1953	9.92
0.24	59.8	1656	782	1656	8.41
0.165	41.1	1360	642	1360	6.91
0.099	24.7	1068	504	1068	5.43
0.045	11.2	678	320	678	3.44
0.022	5.5	480	227	480	2.44
Airflow Resistance 24" x 24" (610mm x 610mm)					
0.132	32.9	7854	3707	1964	9.97
0.098	24.4	6669	3147	1667	8.47
0.071	17.7	5507	2599	1377	6.99
0.048	12.0	4320	2039	1080	5.49
0.023	5.7	2755	1300	689	3.50
0.007	1.7	1366	645	342	1.73
Airflow Resistance 36" x 36" (914mm x 914mm)					
0.147	36.6	17541	8278	1949	9.90
0.109	27.2	14903	7033	1656	8.41
0.077	19.2	12262	5787	1362	6.92
0.05	12.5	9656	4557	1073	5.45
0.024	6.0	6179	2916	687	3.49
0.006	1.5	2779	1312	309	1.57

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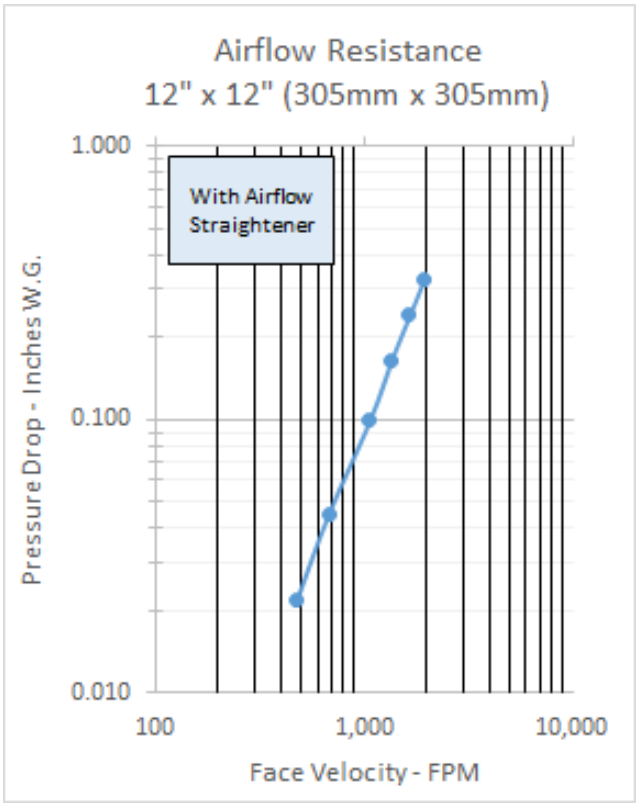
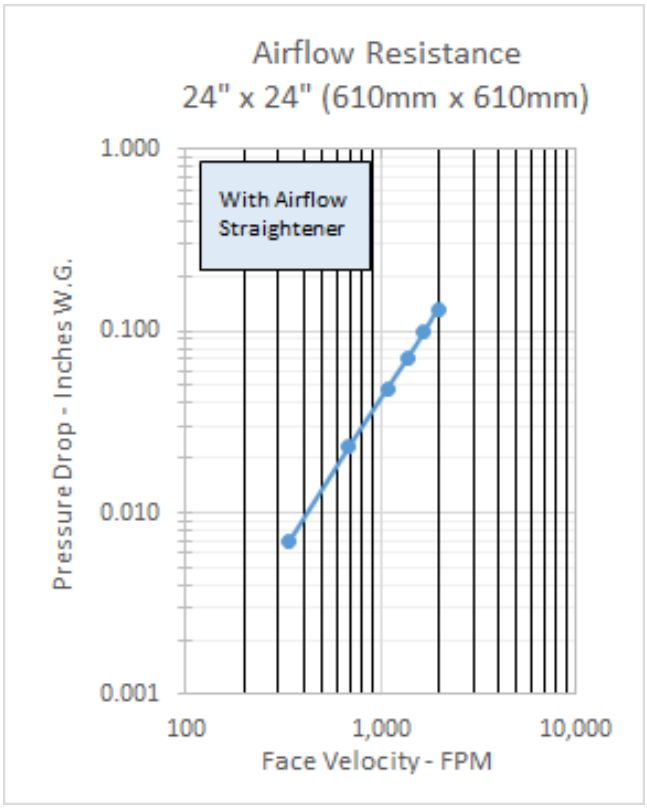
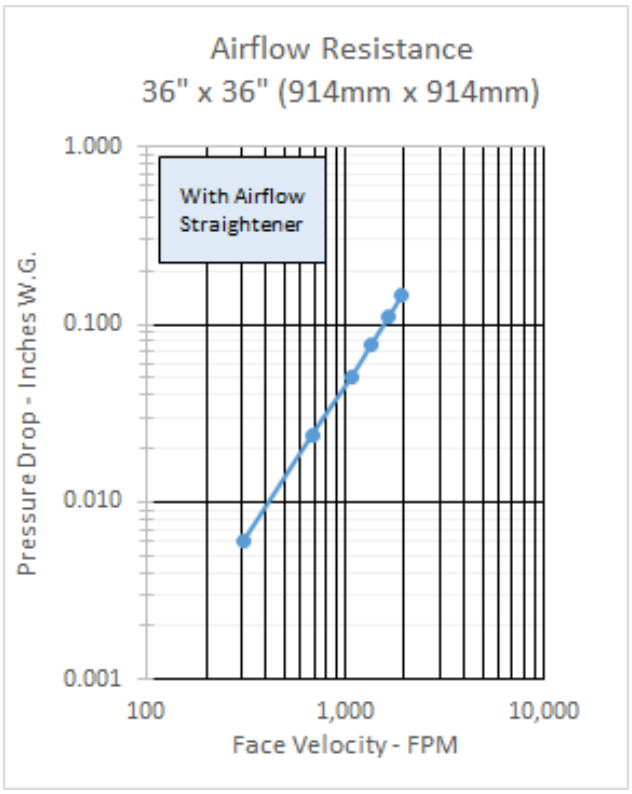
AIRFLOW RESISTANCE WITH OPTIONAL AIRFLOW STRAIGHTENER







*AMCA ACCURACY STATEMENTS

1. AMCA certified accuracy for 12"x12" unit w/o air straightener of **+/-2.9% or better** in the velocity range of 646FPM to 1974FPM
2. AMCA certified accuracy for 24"x24" unit w/o air straightener of **+/-3.4% or better** in the velocity range of 339FPM to 1969FPM
3. AMCA certified accuracy for 36"x36" unit w/o air straightener of **+/-3.5% or better** in the velocity range of 309FPM to 1950FPM
4. AMCA certified accuracy for 12"x12" unit with air straightener of **+/-2.5% or better** in the velocity range of 480FPM to 1953FPM
5. AMCA certified accuracy for 24"x24" unit with air straightener of **+/-3.1% or better** in the velocity range of 342FPM to 1964FPM
6. AMCA certified accuracy for 36"x36" unit with air straightener of **+/-3.7% or better** in the velocity range of 309FPM to 1949FPM

Rated Sizes: 0.5 ft^2 through 18.0 ft^2 (0.046m^2 through 1.67m^2)

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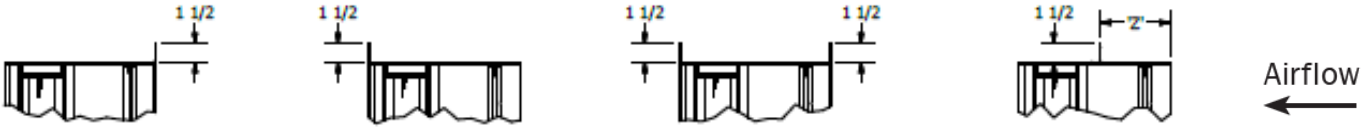
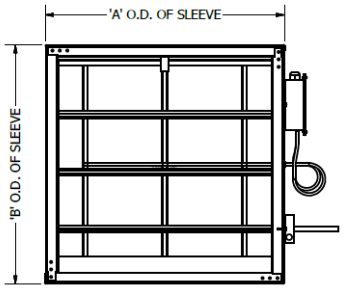
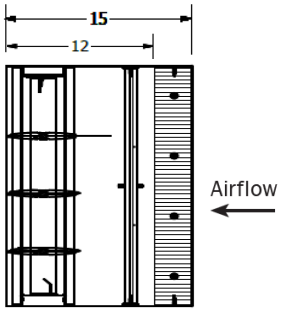
MOUNTING FLANGE OPTIONS & SINGLE / MULTI-SECTION CONFIGURATIONS



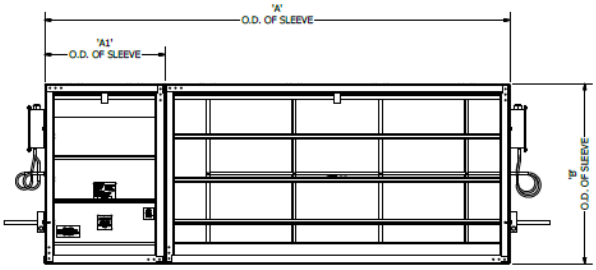
Front Flange Option | Rear Flange Option | Double Flange Option | Front Offset Flange Option



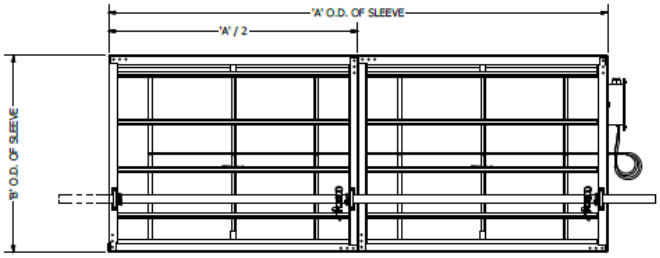
Standard Single Section Unit with Extended Axle



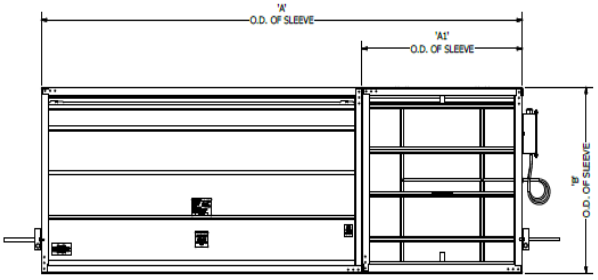
Side View (Shown with Optional Airflow Straightener)



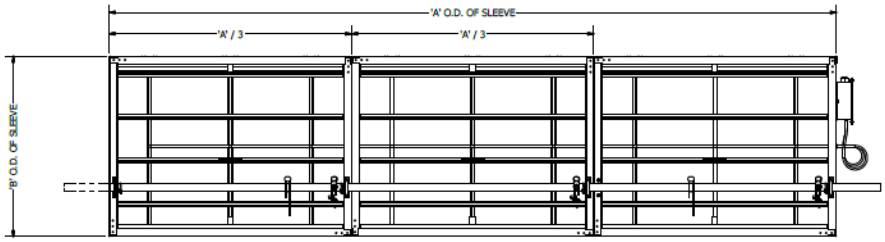
Side-by-Side 'Split' Assembly
(Available in Over-Under Configuration)



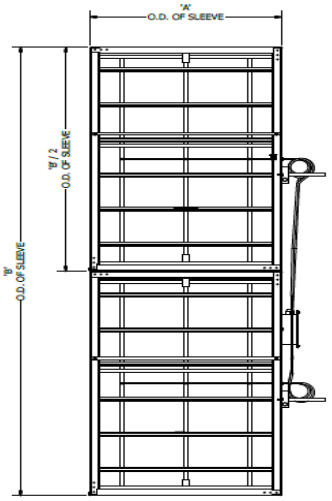
2-Section Wide Assembly



Side-by-side 'Min/Max' with CD60 Economizer Damper (Available in Over-Under Configuration)



3-Section Wide Assembly



2-Section Tall Assembly

SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans or as in accordance with schedules, an airflow measuring station with integral pressure transducer and Class 1A rated low leakage airflow control damper with double-skin galvanized, airfoil shaped blades. The complete airflow measuring package shall be factory assembled into one turnkey product. Unit shall have a standard measuring range from 300 to 2,000 FPM (1.5 to 10.2 m/s). The airflow measuring station shall consist of 1/2" x 3" (13mm x 76mm) 3000 series aluminum alloy honeycomb, 6063T5 extruded aluminum sensing blades with anodized finish and a pressure transducer with glass-on-silicone (GL-Si) capacitance sensor capable of measuring up to six field selectable pressure ranges up to 1" water column (249 Pa). The transducer shall be accurate to ±1% of full scale and be contained in a NEMA 4 (IP-65) painted steel enclosure. Transducer shall be factory mounted and piped to high and low brass pressure fittings from the sensor averaging ports.

All sensor tubing shall terminate in solid brass barbed fittings. Blades shall be equivalent to 14 gauge galvanized steel and shall not exceed 60" in length. Damper bearings shall be stainless steel sleeve type. Damper shall be supplied with stainless steel compression jamb seals and Santoprene blade edge seals that are mechanically fastened. Adhesive or clip-on type seals are not acceptable.

Linkage shall be concealed in a linkage chase with dust cover to prevent collection of airborne particles to accumulate on the mechanical parts. Complete assembly shall be constructed, piped and commissioned in an ISO 9001 certified facility. Airflow Measuring Stations' accuracy shall be +/- 3.7% of reading or better across the entire range. The damper and airflow measuring station assembly shall be tested as a complete assembly and shall be licensed to bear the AMCA Certified Ratings Seal for Airflow Measurement Station Performance. Turnkey assembly shall be, in all respects, equivalent to Ruskin Model AMS060-CT.