AMS050

Airflow Measuring Station with Integral Damper Differential Pressure Technology

RUSKIN
AUTHORITY IN AIR CONTROL

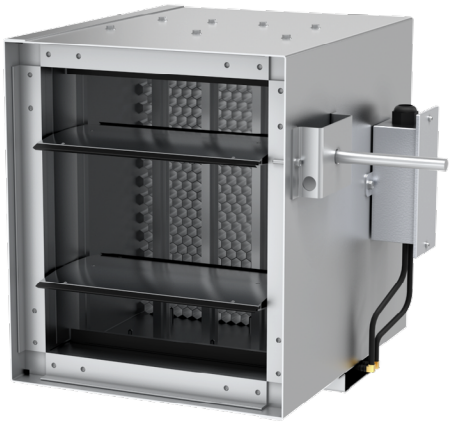
APPLICATION

The AMCA certified model AMS050 combines Ruskin model AMS airflow measuring station with the high performance model CD50 control damper. The complete assembly is utilized to provide effective set point monitoring and control. The AMS050 offers custom-designed extruded sensing blades which capture the static and total pressure data from the air stream, a Class 1A leakage rated control damper, aluminum airflow straightener, and factory piped and mounted pressure transducer. The AMS050 can be used with any BAS and offers optional features to meet your specific installation & operational requirements.

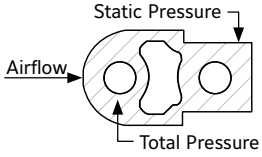
STANDARD CONSTRUCTION

Sleeve	15" (381) long x 16 gauge (1.6) galv. G60 (for slip-fit duct connection).
Air Flow Straightener	.50" (13) Honeycomb Cell x 3" (76) 3000 series aluminum alloy.
Sensor Blade	6063T6 extruded aluminum, clear anodize finish.
Sensor Port Fittings	Brass tees, elbows, and unions, as required.
Pressure Transducer	Model RU-274-R2-VDC. NEMA 4 (IP65) rated enclosure. Supply voltage: 12-40VDC or 12-35VAC. Six field-selectable pressure ranges with choice of 0-5 or 0-10 VDC output. Output signal is proportional to the flow. (NOTE: alternate transducer models are available to meet your system requirements)
Accuracy	3% Deviation Average Across Measurement Range.
Damper Frame	6063T6 extruded aluminum with 0.125" (3.2) minimum wall thickness.
Damper Blades	6" (152) wide, 6063T6 extruded aluminum, airfoil shape.
Damper Seals	Santoprene blade edge seals and stainless jamb seals.
Damper Axle Bearings	Molded synthetic.
Damper Linkage	Plated steel, concealed in frame.
Damper Axles	.50" (13) plated steel hex.
Minimum Size	6"w x 6"h (152 x 152).
Maximum Size	Single section - 60"w x 72"h (1524 x 1829). Multiple section assembly - unlimited.
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). - Standard units with RU274-R2-VDC (1.5 to 25 m/s). Operating Range - 300 to 5,000 FPM. - Units that include Ruskin's Air Measurement Actuator/ Controller (models VAFB24-BAC or VAMB24-BAC) and/or models AMS8100 or AMS8100-LR transducers.
Operating Temperature	-22° F to +140° F standard (-30°C to 60°C).

Ruskin Company certifies that the AMS050 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. The AMCA Certified Ratings Seal applies to airflow measurement performance only.



AMS050 shown above with standard sleeved casing, standard external right hand (RH) actuator/transducer mounting, and 6" extended axle.



FEATURES

- Low-leak Class 1A Damper
- Honeycomb airflow straightener
- Anodized aluminum sensing blades
- Factory piped low pressure transducer

Ruskin AMS050 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 AMS050 is available with several options to fit your specific application.

- Stainless steel axle bearings
- Stainless steel linkage (includes axles, tie bars & control arms)
- Flanged Sleeve (Front Flange, Rear Flange, Double Flange, Offset Flange)
- Transducers AMS8100-LR, AMS8100, and DPT-IQ. See model's product data sheets for details.
- Ruskin's VAFB24-BAC RAMS or VAMB24-BAC RAMS air measurement actuator/controller for complete turn-key system. See model's product data sheet for details.

NOTES:
- Values shown in ( ) indicate metric units.
- Refer to installation manual for additional details
- To order, send completed Order Process Sheet with purchase order.

AIRFLOW PERFORMANCE

AMCA Test Figure 1									AMCA Test Figure 2								
PAMS		Reference Volume		Reference Velocity		Indicated Volume		% Deviation	PAMS		Reference Volume		Reference Velocity		Indicated Volume		% Deviation
In. W.G.	Kpa	CFM	l/s	FPM	m/s	CFM	l/s		In. W.G.	Kpa	CFM	l/s	FPM	m/s	CFM	l/s	
Air Performance Size 12" X 12" (305mm X 305mm)																	
4.190	1.004	5,070	2,393	5,070	25.76	5,199	2,454	2.55%	4.040	1.006	5,008	2,364	5,008	25.44	5,104	2,049	1.93%
2.010	0.501	3,563	1,682	3,563	18.10	3,585	1692	0.62%	2.260	0.563	3,791	1,789	3,791	19.26	3,804	1,795	0.35%
0.650	0.162	2,074	979	2,074	10.54	2,025	956	-2.37%	0.670	0.167	2,163	1,021	2,163	10.99	2,056	970	-4.94%
0.150	0.037	995	470	995	5.05	964	455	-3.12%	0.190	0.047	1,085	512	1,085	5.51	1,087	513	0.14%
0.045	0.011	498	235	498	2.53	524	247	5.25%	0.040	0.010	548	25	548	2.78	494	233	-9.89%
Air Performance Size 24" X 24" (610mm X 610mm)																	
4.070	1.014	20,030	9,453	5,008	25.44	20,669	9,755	3.19%	3.75	0.934	20,174	9,521	5,044	25.62	19,924	9,403	-1.24%
1.905	0.475	13,888	6,554	3,472	17.64	13,902	9,894	0.10%	1.77	0.441	14,094	6,652	3,524	17.90	13,659	6,446	-3.09%
0.610	0.152	7,925	3,740	1,981	10.06	7,669	3,619	-3.23%	0.54	0.135	8,056	3,802	2,014	10.23	7,518	3,518	-6.67%
0.170	0.042	4,017	1,896	1,004	5.10	3,934	1,857	-2.06%	0.14	0.035	4,006	1,891	1,002	5.09	3,813	1,800	-4.81%
0.100	0.025	3,004	1,418	751	3.82	2,982	1,407	-0.74%	0.13	0.032	3,983	1,880	996	5.06	3,674	1,734	-7.77%
0.018	0.004	1,183	558	296	1.50	1,217	574	2.90%	0.04	0.0101	1,996	942	499	2.53	2,031	959	1.75%
Air Performance Size 36" X 36" (914mm X 914mm)																	
3.790	0.944	45,485	21,467	5,054	25.67	48,031	22,668	5.60%	0.894	1.006	45,100	21,285	5,011	25.46	46,707	22,043	3.56%
1.780	0443	31,557	14,893	3,506	17.81	32,532	15,353	3.09%	0.428	0.563	31,650	14,937	3,517	17.87	31,962	1,5084	0.99%
0.570	0.142	18,158	8,570	2,018	10.25	18,086	8,536	-0.40%	0.135	0.167	18,193	8,586	2,021	10.27	17,589	8,301	-3.32%
0.150	0.037	9,052	4,272	1,006	5.11	9,087	4,289	0.39%	0.032	0.047	8,774	4,141	975	495	8,441	3,984	-3.79%
0.140	0.05	8,757	4,133	973	4.94	8,770	4,139	0.15%	0.010	0.010	4,491	2,120	499	2.53	4,597	2,170	2.37%
0.015	0.004	2760	1,303	307	1.56	2,773	1309	0.46%	0.004	0.001	2,763	1,304	307	1.56	2,773	1,309	0.35%

Volume (Q) = (A* K) * (PAMS$^{1/m}$)		
Face Area (A)	**K-Factor (K)**	**1/m**
Less than or equal to 2.5 ft^2 (0.232 m^2)	2518 FPM (12.79 m/s)	0.5061
Greater than 2.5 ft^2 (0.232 m^2) and Less than or equal to 6.5 ft^2 (0.603 m^2)	2482 FPM (12.61 m/s)	0.5224
Greater than 6.5 ft^2 (0.603m^2)	2685 FPM (13.64 m/s)	0.5156

NOTES:
1. 1/m = dimensionless decimal number
2. K = "K factor" (a multiplication factor of the pressure at 1.0" w.g. equal to the airflow velocity)

AIRFLOW RESISTANCE

Pressure Drop		Volume		Velocity	
in WG	Pa	CFM	l/s	FPM	m/s
Air Flow Resistance 12" X 12" (305mm X 305mm)					
2.174	541.5	5,040	2,378	5,040	25.60
1.052	148.2	3,562	1,681	3,562	18.10
0.352	51.1	2,082	982	2,082	10.58
0.093	17.4	1,000	472	1,000	5.08
0.042	10.0	500	236	500	2.54
0.005	2.5	144	68	144	0.73
Air Flow Resistance 24" X 24" (610mm X 610mm)					
1.235	307.6	20,762	9,799	5,191	26.37
0.595	148.2	14,173	6,689	3,543	18.00
0.205	51.1	7,994	3,773	1,999	10.15
0.070	17.4	4,204	1,984	1,051	5.34
0.040	10.0	3,220	1,520	805	4.09
0.010	2.5	1,359	641	339	1.73
Air Flow Resistance 36" X 36" (914mm X 914mm)					
0.643	160.2	45,176	21,320	5,020	25.50
0.307	76.5	31,469	14,851	3,497	17.76
0.113	28.	18,153	8,567	2,017	10.25
0.036	9.0	9,051	4,272	1,006	5.11
0.031	7.7	8,763	4,136	974	4.95
0.010	2.5	4,486	2,117	498	2.53
0.005	1.2	2,760	1,303	307	1.56

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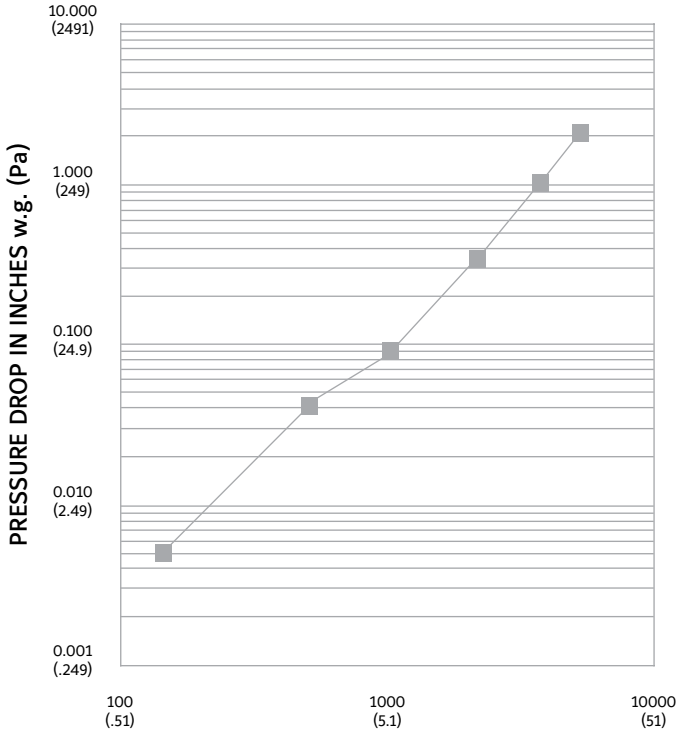
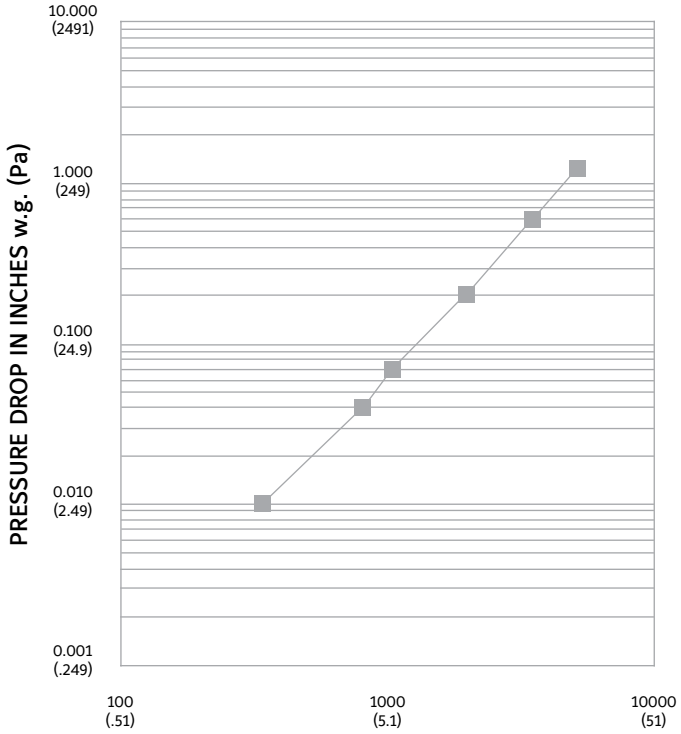
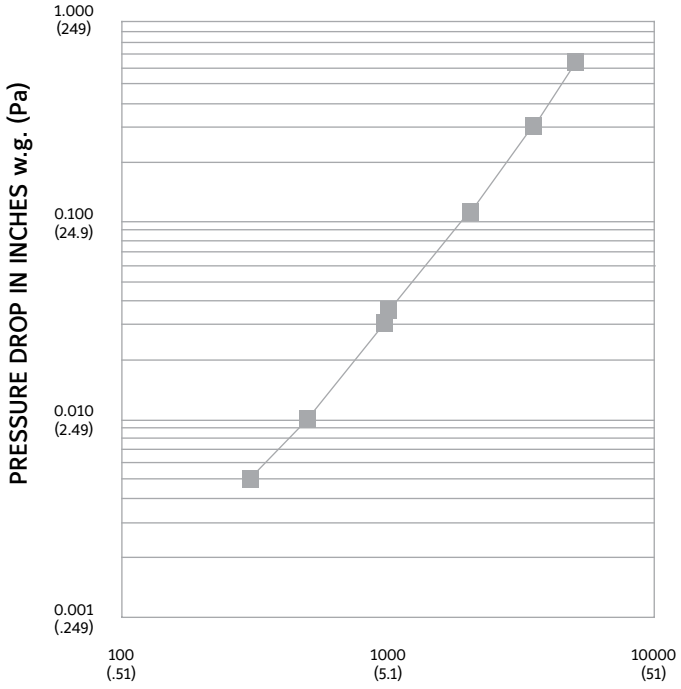
AIRFLOW RESISTANCE



FACE VELOCITY - FPM (m/s)
SIZE 12" x 12" (305mm x 305mm)



FACE VELOCITY - FPM (m/s)
SIZE 24" x 24" (610mm x 610mm)



FACE VELOCITY - FPM (m/s)
SIZE 36" x 36" (914mm x 914mm)

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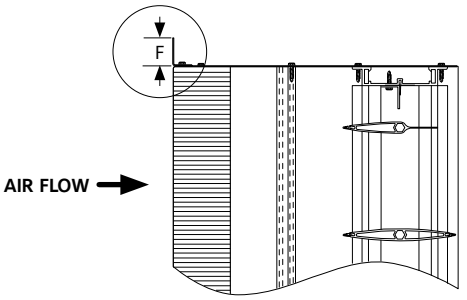
NOTES:

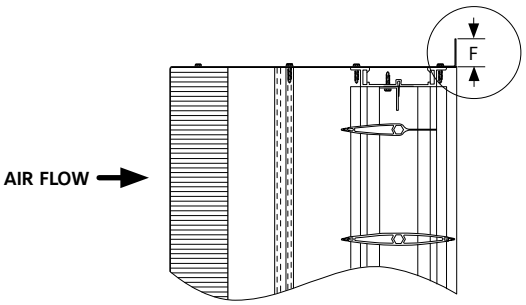
1. Ratings are based on AMCA Standard 610 Test Setup figure 1 using differential pressure output.
2. Performance of the AMS050 will be ±3% of curve shown for AMCA 610 Test Fig. 1 applications.
3. Size and shape tested include 12" x 12", 24" x 24" (305mm x 305mm, 610mm x 610mm) and 36" x 36" (914mm x 914mm) rectangular. Rated sizes from 0.5 square feet to 18 square feet (1.67m^2).
4. Indicated Volume Q (CFM) = (A* K) * ($PAMS^{1/m}$)

INSTALLATION: MOUNTING FLANGE OPTIONS



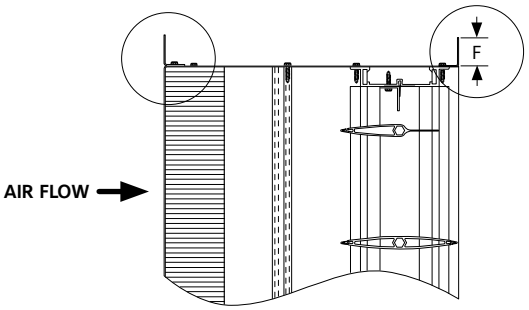
FRONT FLANGE

F = 1.5" Standard
(Option for 0.5", 1.0", 2.0", & 2.5")



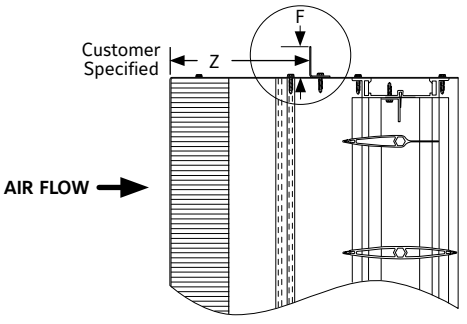
REAR FLANGE

F = 1.5" Standard
(Option for 0.5", 1.0", 2.0", & 2.5")



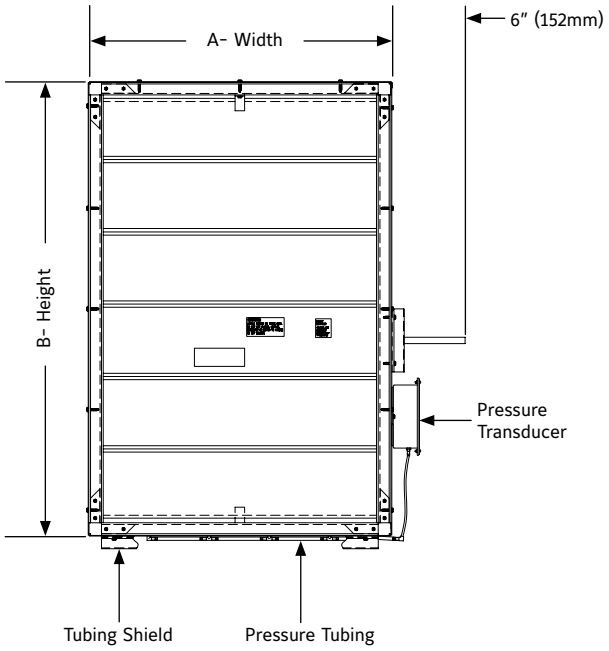
DOUBLE (FRONT & REAR) FLANGE

F = 1.5" Standard
(Option for 0.5", 1.0", 2.0", & 2.5")

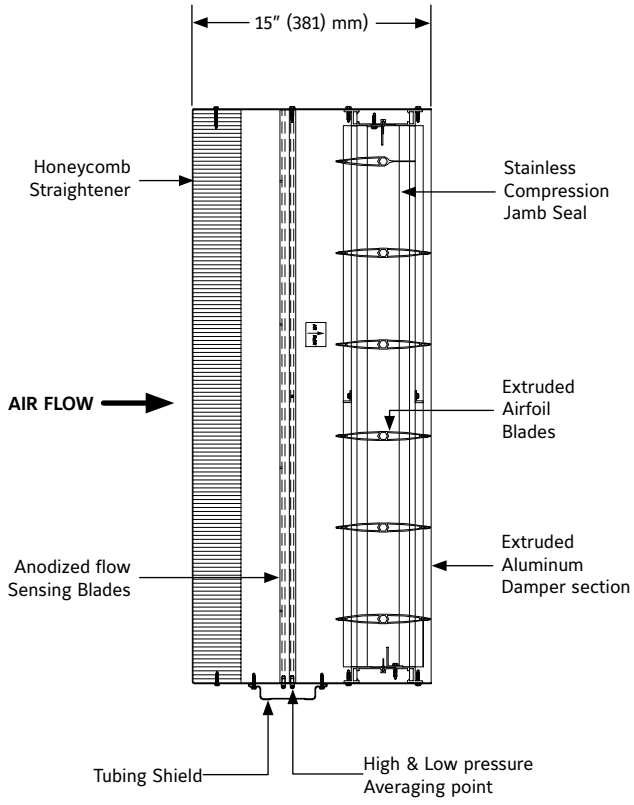


OFFSET FLANGE

F = 1.5" Standard
(Option for 0.5", 1.0", 2.0", & 2.5")



NOTE: Right Hand (RH) actuator/transducer mounting configuration shown above. Mounting configurations, either Left Hand (LH) or Right Hand (RH) are determined from the perspective of viewing the AMS050 from downstream of the installation.



SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans or as in accordance with schedules, an air measuring station with integral pressure transducer and Class 1A leakage extruded aluminum control damper. The complete air measuring package shall be factory assembled into one turnkey product and calibrated for the specific job requirements. Unit shall have a measuring range from 300 to 2,000 FPM (1.5 to 10.2 m/s). The Air measuring station shall consist of .50" x 3" (13mm x 76mm) 3000 series aluminum alloy honeycomb, 6063T6 extruded aluminum sensing blades with anodized finish and a glass-on-silicone GL-Si capacitance sensor pressure transducer 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. Tubing and associated fittings to be contained in a formed steel protective tubing shield to protect pressure station during transit. The damper section shall consist of 6063T6 extruded aluminum frame and blades. Blade edge seals shall be extruded TPR double edge design with inflatable pocket to enable air pressure to assist in seal-off and shall be mechanically locked in extruded blade slots. Adhesive or clip-on type seals are not acceptable. Axle bearings shall be non-corrosive molded synthetic and shall be molded to fit the hexagonal damper shaft to reduce leakage. 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. Air Measuring Stations accuracy shall be 3% deviation average across the entire range. The damper and measuring station assembly shall be tested as a complete assembly and shall be licensed to bear the AMCA Certified Ratings Seal for Airflow Measurement Stations. Turnkey assembly shall be, in all respects, equivalent to Ruskin Model AMS050.

LINKS TO IMPORTANT DOCUMENTS

Document Title
Limited Warranty Document

RUSKIN®
AUTHORITY IN AIR CONTROL

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