

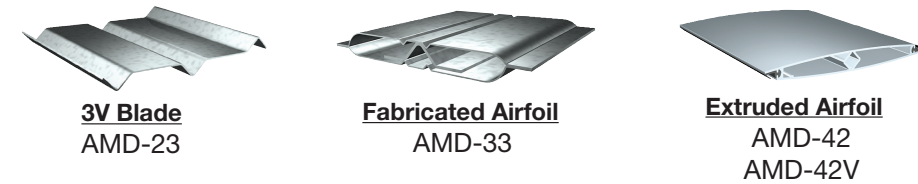
Features



Blade Styles

3V blades are fabricated from a single thickness of galvanized steel incorporating three longitudinal V-type grooves running the full length of the blade to increase strength.

Airfoil blades are constructed of double-skin galvanized steel or extruded aluminum. This blade design results in lower resistance to airflow and increased strength for use in pressure systems.



Easily Programmed Field-Supplied Controllers

Field-supplied controllers can easily be programmed to work with any of Greenheck's airflow measuring products. The formula for converting pressure to CFM is shown on the "AMS/AMD Label" affixed to the side of every AMS and AMD series unit. On AMD-TD units, the analog output of the transmitter is directly proportional to airflow.

Sales Order : 7524813 Line 20
 Prod Order : 70351876 AMD-23
 Width : 78.000 Height : 13.000
 $Q_v = \text{Area} \cdot K \cdot \sqrt{P}$
 Q_v : cfm @ standard air conditions
 P : Pressure (in"wc)
 Area = 7.04 ft² K = 2,094 m = 0.49
 Vmax: 1,500 fpm
 Transducer Range: 0 - 1.00 INLWC
 Transducer Output: 0-10 VDC
AMD LABEL 10/20/17/17

AMS/AMD Label

✓ = Standard O = Optional		AMS	AMD-23	AMD-33 AMD-42	AMD-42V
Velocity Range ft/min (m/s)	Minimum	300 (1.5)	300 (1.5)	300 (1.5)	300 (1.5)
	Maximum	3000 (15.2)	2000 (10.2)	3000 (10.2)	3000 (15.2)
Accuracy		5%	5%	5%	5%
Temperature Range °F (°C)	Minimum	-20° (-29°)	-20° (-29°)	-20° (-29°)	-20° (-29°)
	Maximum	180° (82°)	180° (82°)	180° (82°)	180° (82°)
Factory-Supplied Transducer		✓	✓	✓	✓
Factory-Supplied Controller		O	O	O	O
Airflow Straightener		O	✓	✓	✓
Blade Operation		-	Parallel	Parallel	Parallel
Blade Orientation		-	Horizontal	Horizontal	Vertical
Minimum Unit Depth inches (mm)		8 (203)	12 (305)	12 (305)	12 (305)
Minimum Size inches (mm)		6 x 6 (152 x 152)			
Maximum Size inches (mm)		60 x 72 (1524 x 1829)	144 x 148 (3658 x 3759)	144 x 148 (3658 x 3759)	74 x 48 (1880 x 1219)
Quick Build Program Available		✓	✓	✓	✓

Controls

Factory-Supplied Controls

By adding a factory-supplied controller, the AMD series airflow measuring dampers become a turnkey solution for measuring and controlling the flow of air. A factory-supplied controller can also be added to an AMS airflow measuring station to convert the signal from the pressure transducer to CFM. The CFM signal can then be used to control a field-supplied damper, regulate a fan's VFD, or signal an under-ventilation alarm. Go to www.greenheck.com for complete instructions on this controller.

Vari-Green® Constant Volume Controller

Greenheck's Vari-Green® Constant Volume Controller is a highly configurable analog-based controller. The controller can accept a CFM set point either remotely by way of an analog input or locally by using touch sensitive buttons on its cover. The controller then regulates the position of the AMD's actuator to deliver the requested CFM. An analog output on the controller also supplies a signal that is proportional to the real-time CFM.

The Vari-Green® Constant Volume Controller features a two-line backlit LCD display to show the user the current CFM set point, the real-time CFM, the current pressure reading, and the AMD's actuator position.



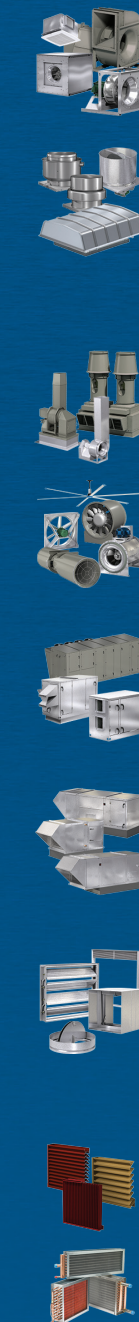
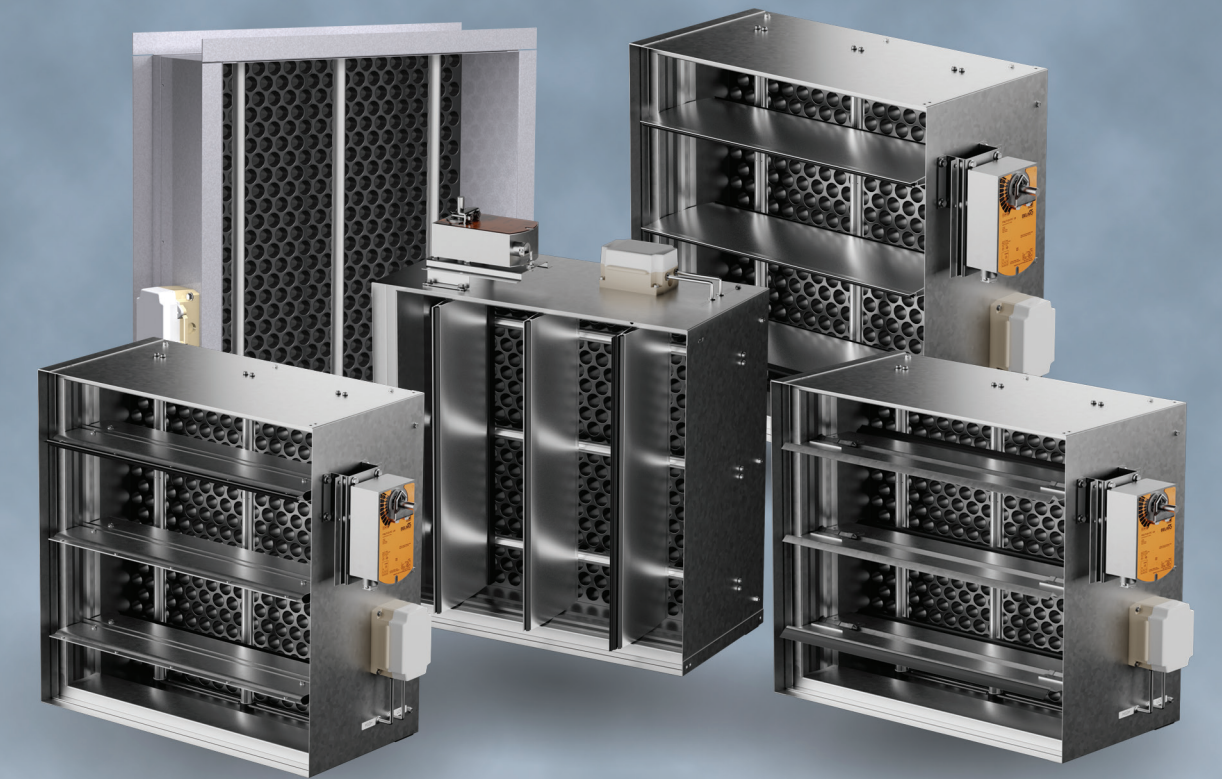
LEARN MORE
Air Measuring
Products



LEARN MORE
Air Measuring
Station

Air Measuring Damper Products Models AMS and AMD

- Air Measuring Station
- Differential Pressure Dampers



Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Product warranties can be found online at Greenheck.com, either on the specific product page or in the literature section of the website at Greenheck.com/Resources/Library/Literature.



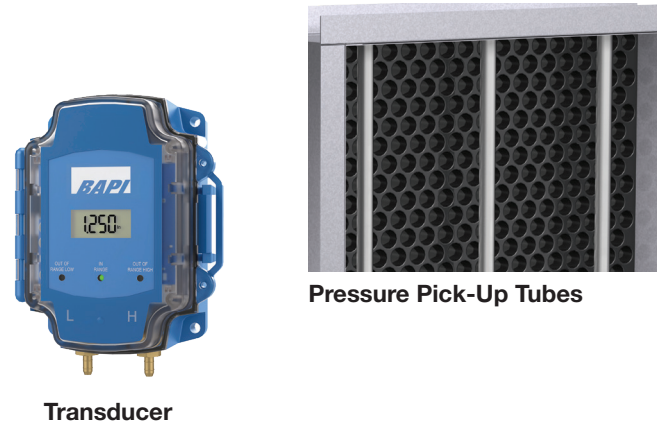
How do differential pressure-based airflow measuring products work?

Differential pressure-based airflow measuring products use an array of air pressure pick-ups to compare the total pressure going through the airflow station with the static pressure in the station. The design of the pressure pick-up assembly amplifies the difference between these two pressures. The resulting differential pressure is an amplified “velocity pressure” which is proportional to the velocity going through the flow station.

Airflow volume is then calculated using the formula:

$$Q = \text{Area} * K * P^m$$

- Q = airflow (CFM)
- Area = the face area of the damper
- K = a damper-specific flow coefficient that is provided with the unit
- P = amplified velocity pressure measured by the supplied pressure transducer
- m = a damper-specific exponent that is provided with the unit



Transducer

Pressure Pick-Up Tubes

Differential Pressure Products

AMS - Airflow Measuring Station

The AMS is an accurate airflow measuring station furnished with a properly sized pressure transducer that outputs a 0-10 VDC signal proportional to the pressure. The pressure signal from the transducer can then be converted to CFM using the flow formula supplied with the unit.

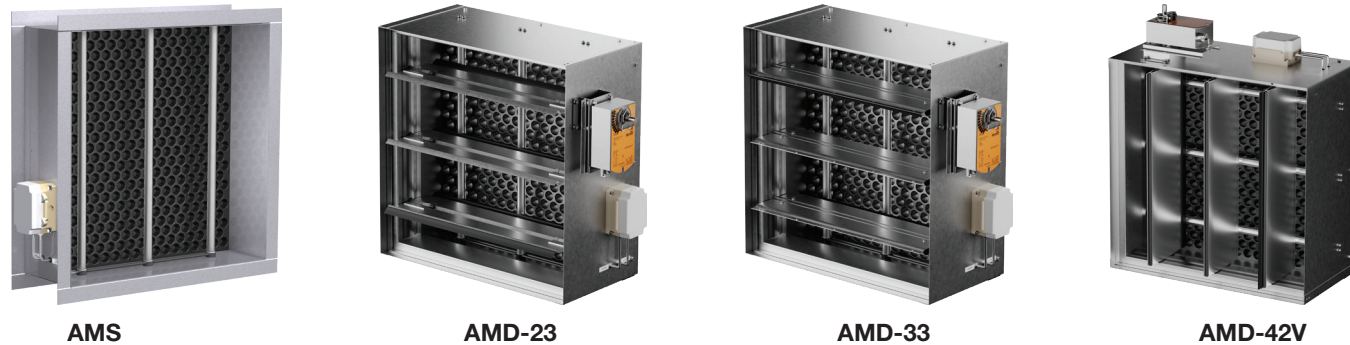
A field-supplied or factory-supplied controller (see controls section) can position a damper's actuator to deliver a target CFM set point. An output from the controller can also communicate the measured airflow rate to a building management system, which can use that signal to regulate a fan's Variable Frequency Drive (VFD) or signal an under-ventilation alarm.

AMD - Airflow Measuring Dampers

The AMD series combines the functionality of an accurate airflow measuring station and a low leakage control damper into one compact assembly that both measures and controls airflow volume to a target set point.

Available with 3V, steel airfoil or extruded airfoil blades, these models come standard with a modulating actuator and a properly sized pressure transducer that outputs a signal proportional to pressure. The pressure signal from the transducer can then be converted to CFM using the flow formula supplied with the unit.

A field-supplied or factory-supplied controller (see controls section) can position the damper's actuator to deliver a target CFM set point. An output from the controller can also communicate the measured airflow rate to a building management system, which can use that signal to regulate a fan's VFD or signal an under-ventilation alarm.



AMS

AMD-23

AMD-33

AMD-42V

Damper leakage (with blades fully closed) meets Class 1A and Class 1 requirements at appropriate pressures.

Test Information

Air leakage is based on operation between 32°F and 120°F (0° to 49°C).

Tested for leakage in accordance with ANSI/AMCA Standard 500-D, Figure 5.5.

Tested for air performance in accordance with ANSI/AMCA Standard 500-D, Figures 5.2, 5.3 and 5.5.

Torque

Data is based on a torque of 5.0 in-lb/ft² (0.56 N-m) applied to close and seat the damper during the test.

AMD-23	Leakage Class*	
Maximum Damper Width	1 in. wg (0.25 kPa)	4 in. wg (1 kPa)
60 in. (1524 mm)	1A	1

Data is based on a torque of 7.0 in-lb/ft² (0.79 N-m) applied to close and seat the damper during the test.

AMD-33	Leakage Class*		
Maximum Damper Width	1 in. wg (0.25 kPa)	4 in. wg (1 kPa)	8 in. wg (2 kPa)
60 in. (1524 mm)	1A	1	1

*Leakage Class Definitions

The **maximum** allowable leakage is defined by AMCA as the following:

- Leakage Class 1A - 3 cfm/ft² @ 1 in. wg (Class 1A is only defined at 1 in. wg)
- Leakage Class 1 - 4 cfm/ft² @ 1 in. wg
- 8 cfm/ft² @ 4 in. wg
- 11 cfm/ft² @ 8 in. wg
- 12.6 cfm/ft² @ 10 in. wg

Model	Maximum Leakage cfm/sq. ft. (cmh/sq.m)	
	Pressure	
	@ 1 in. wg (.25 kPa)	@ 4 in. wg (1 kPa)
AMD-42, AMD-42V	3 (55)	6 (110)

Pressure Drop

Pressure drop testing was conducted in accordance with AMCA Standard 500-D. All data has been corrected to represent standard air at a density of .075 lb/ft³ (1.201 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.

AMD-23

Dimension inches	12 x 12			24 x 24			36 x 36			12 x 48			48 x 12		
AMCA figure	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5
Velocity (ft/min)	Pressure Drop in. wg														
500	.05	.04	.07	.03	.03	.05	.03	.03	.05	.04	.03	.06	.03	.03	.05
1000	.15	.12	.25	.10	.09	.20	.09	.07	.17	.11	.10	.20	.11	.09	.20
1500	.31	.24	.54	.21	.17	.41	.18	.14	.36	.23	.20	.43	.22	.19	.42
2000	.52	.40	.92	.36	.28	.71	.31	.23	.62	.39	.34	.74	.38	.33	.72
2500	.80	.60	1.41	.54	.43	1.10	.46	.35	.96	.58	.51	1.13	.57	.50	1.11
3000	1.12	.84	2.02	.76	.60	1.54	.64	.48	1.36	.81	.72	1.59	.79	.71	1.56
3500	1.51	1.12	2.73	1.01	.80	2.09	.86	.64	1.84	1.10	.97	2.14	1.06	.96	2.12
4000	1.92	1.44	3.53	1.32	1.03	2.76	1.12	.82	2.40	1.43	1.26	2.78	1.38	1.24	2.77

AMD-33

Dimension inches	12 x 12			24 x 24			36 x 36			12 x 48			48 x 12		
AMCA figure	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5
Velocity (ft/min)	Pressure Drop in. wg														
500	.04	.04	.07	.03	.03	.05	.03	.03	.05	.03	.03	.06	.04	.03	.05
1000	.13	.12	.24	.10	.09	.19	.08	.07	.16	.10	.10	.19	.10	.09	.19
1500	.27	.24	.50	.22	.17	.41	.16	.14	.34	.21	.20	.41	.21	.19	.41
2000	.44	.40	.86	.39	.28	.71	.26	.23	.57	.36	.34	.71	.36	.33	.71
2500	.66	.60	1.33	.62	.43	1.10	.39	.35	.88	.54	.51	1.09	.55	.50	1.10
3000	.93	.84	1.89	.89	.60	1.56	.53	.48	1.24	.76	.72	1.54	.77	.71	1.55
3500	1.25	1.12	2.57	1.21	.80	2.13	.71	.64	1.67	1.02	.97	2.08	1.03	.96	2.10
4000	1.59	1.44	3.30	1.58	1.03	2.80	.91	.82	2.19	1.33	1.26	2.70	1.34	1.24	2.75

AMD-42

Dimension inches	12 x 12			24 x 24			36 x 36			12 x 48			48 x 12		
AMCA figure	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5
Velocity (ft/min)	Pressure Drop in. wg														
500	.05	.03	.07	.01	.01	.04	.01	.01	.02	.01	.01	.03	.03	.02	.05
1000	.18	.12	.28	.05	.03	.17	.04	.02	.12	.01	.04	.18	.11	.06	.19
1500	.43	.28	.62	.12	.06	.37	.09	.05	.28	.14	.09	.40	.25	.14	.44
2000	.76	.49	1.11	.22	.11	.66	.17	.08	.50	.25	.16	.72	.44	.25	.78
2500	1.19	.77	1.73	.34	.17	1.04	.26	.13	.78	.39	.25	1.12	.69	.39	1.21
3000	1.71	1.11	2.50	.49	.24	1.50	.38	.19	1.13	.57	.36	1.62	1.00	.57	1.75
3500	2.33	1.51	3.41	.66	.33	2.04	.51	.26	1.53	.77	.49	2.21	1.36	.77	2.38
4000	3.04	1.98	4.45	.87	.43	2.66	.67	.34	2.01	1.01	.64	2.88	1.78	1.01	3.11

AMD-42V

Dimension inches	12 x 12			24 x 24			36 x 36			12 x 48			48 x 12		
AMCA figure	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5	5.2	5.3	5.5
Velocity (ft/min)	Pressure Drop in. wg														
500	.05	.03	.07	.01	.01	.04	.01	.01	.02	.03	.02	.05	.01	.01	.03
1000	.18	.12	.28	.05	.03	.17	.04	.02	.12	.11	.06	.19	.01	.04	.18
1500	.43	.28	.62	.12	.06	.37	.09	.05	.28	.25	.14	.44	.14	.09	.40
2000	.76	.49	1.11	.22	.11	.66	.17	.08	.50	.44	.25	.78	.25	.16	.72
2500	1.19	.77	1.73	.34	.17	1.04	.26	.13	.78	.69	.39	1.21	.39	.25	1.12
3000	1.71	1.11	2.5	.49	.24	1.5	.38	.19	1.13	1.00	.57	1.75	.57	.36	1.62
3500	2.33	1.51	3.41	.66	.33	2.04	.51	.26	1.53	1.36	.77	2.38	.77	.49	2.21
4000	3.04	1.98	4.45	.87	.43	2.66	.67	.34	2.01	1.79	1.04	3.11	1.04	.64	2.88



Greenheck Fan Corporation certifies that the model AMD-23 and 33 shown herein are 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.

