

# MODEL AA1

Leakage Class I • Airfoil Blade • 250°F or 350°F • Galvanized Steel • Smoke Damper

### STANDARD MATERIALS AND CONSTRUCTION

- FRAME:** 5½" x 7⁄8" x 16-GA galvanized steel hat channel; A flat head and sill are used for sizes thru 13" high
- BLADES:** 20-GA galvanized steel double skinned (equal to 14-GA); Parallel action
- AXLES:** Plated solid steel stub
- BEARINGS:** Oil impregnated bronze
- LINKAGE:** Plated steel angle and crank plates with stainless steel pivots; In-jamb type
- STOPS:** 18-GA galvanized steel at head and sill
- BLADE SEALS:** Silicone
- JAMB SEALS:** Stainless steel
- SLEEVE:** Minimum 20-GA galvanized steel by 18" long (sizes greater than 84" wide or 84" high require minimum 18-GA)
- CAULKING:** Hardcast Irongrip 601 or UL-listed equivalent
- FINISH:** Mill on galvanized steel
- ACTUATOR:** Electric or pneumatic; Factory-installed for Power-Open/Spring-Close (fail close) operation; External left hand mounted as viewed from jackshaft side of damper

**UNDERWRITERS LABORATORIES INC.®**  
**CLASSIFIED DYNAMIC SMOKE DAMPER**  
**LEAKAGE RESISTANCE CLASS I**

Arrow United **FILE #R19235**

This smoke damper meets the construction and performance requirements of:

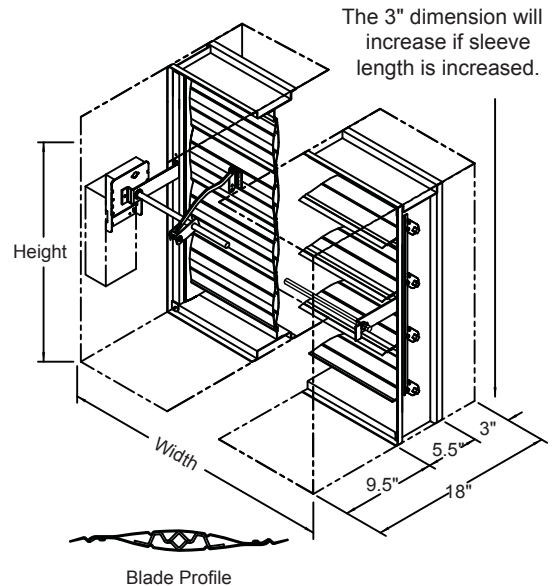
- Underwriters Laboratories Inc. Standards 555S
- National Fire Protection Association Standards 80 and 90A
- ICC's International Building Code
- New York City MEA Listing #112-99-M
- California State Fire Marshal Listing #3230-1328:111
- Underwriters Laboratories Inc. Approved for dual direction airflow and dynamic conditions.
- Underwriters Laboratories Inc. Classified for use in smoke control systems for Leakage Class I and 250°F or 350°F.
- Actuators must be controlled by a smoke detection system.

### OPTIONS

- Exact Size (no undercut)
- Flange - Front, Rear or Both
- Actuators - 120V, 24V, 230V, Pneumatic
- Right Hand and/or Internal Actuator Mounting Locations (Restrictions Apply)
- Dual Position Indication (IDPI) Switches
- Model SM-501 Flow-Rated Smoke Detector
- Model 2151 No-Flow Smoke Detector (12" Minimum Damper Height)
- Remote Test Box
- Momentary Test Switch
- Transformers
- Tab-Lock Retaining Angles - 1 or 2 sets
- Stainless Steel Bearings
- Stainless Steel Axles
- Copper Tubing (pneumatic actuator)
- Sleeves of Various Depths and Gauge Thicknesses (restrictions apply)
- No Sleeve or Sideplate (restrictions apply)
- Round or Oval Transitions
- Security Bars
- Short-Width (<8") and/or Short-Height (<6") Transitions

### NOTES

1. Damper frames are provided approximately ¼" undersized. The addition of a sleeve will increase the size of the assembly.
2. Dampers >= 12" in height with factory mounted SM-501 smoke detectors require a minimum 19" deep sleeve (10.5" on actuator side); detectors will be mounted on side of damper opposite actuator.
3. Damper <12" in height with factory mounted SM-501 smoke detectors require a minimum 20" deep sleeve (11.5" on actuator side) and detectors will be mounted on bottom (or top) of damper.
4. Smoke detectors can be ordered for field mounting with standard 18" deep sleeves.



### DAMPER SIZES

** 2000 fpm, 4 in. w.g.			
Orientation	Horizontal & Vertical		
Panels	Min. Panel	Max. Panel	Max. Assy
Rectangular	4"W x 4"H (8"W x 6"H frame)	36"W x 48"H	144"W x 96"H or 288"W x 48"H
Round	4" dia. (8"W x 6"H frame)	34" dia.	60" dia.
Oval	4"W x 4"H (8"W x 6"H frame)	34"W x 46"H	106"W x 60"H

\*Dampers smaller than minimum frame size require a transition. Reference SD-TRFS.

\*\* See Addendum on page 3 for additional ratings.



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**Operations Ratings:**

Maximum Differential Pressure: 4 in. wg (6 in.wg for selected size/actuator combinations)  
 Maximum Velocity: 2000 fpm (4000 fpm for selected size/actuator combinations)

**Leakage Ratings:**

UL Class I  
 4 cfm per sq. ft. maximum @ 1 in. wg  
 8 cfm per sq. ft. maximum @ 4 in. wg  
 9.8 cfm per sq. ft. maximum @ 6 in. wg

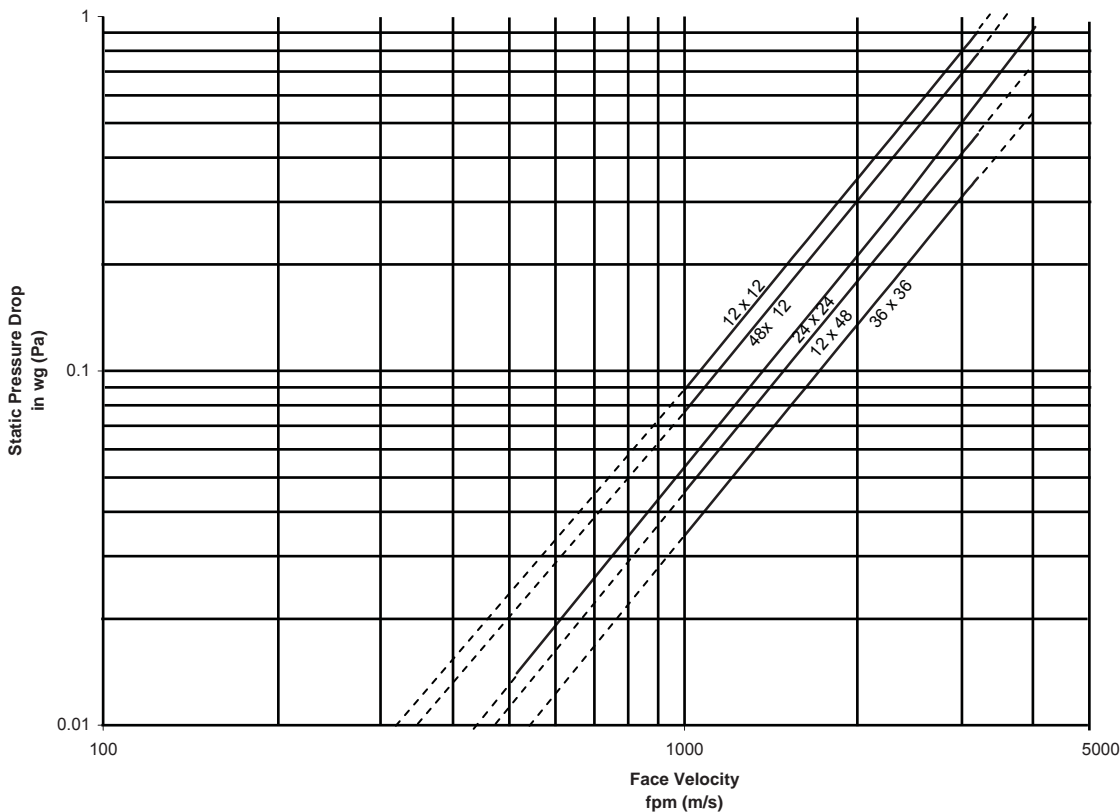
**Sound Ratings:**

None Available

**Pressure Drop Ratings:**

The Pressure drop data shown below is based on laboratory conditions. The test setup does not take into account elbows or other duct fittings that are part of every actual duct system. The configuration of the actual duct system immediately upstream and downstream of the damper often contributes more pressure loss than the damper itself.

SA Pressure Drop



AMCA FIGURE 5.3



Air Balance certifies that the model AA1 damper shown here 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 Program. The AMCA Certified Ratings Seal applies to Air Performance Ratings only.

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### AA1 Extended Pressure & Velocity Ratings

Damper Style	Temp Rating (°F)	Velocity & Pressure	Horizontal & Vertical Min Panel	Horizontal & Vertical	
				Max Panel	Max Assy
No Transition	250° - or - 350°	2000 fpm, 4" w.g.	8" x 6" frame	36" x 48" frame	144" x 96" frame - or - 288" x 48" frame
		3000 fpm, 4" w.g.		24" x 36" frame - or - 36" x 24" frame	96" x 72" frame
		4000 fpm, 4" w.g.			96" x 36" frame - or - 108" x 24" frame
	250°	4000 fpm, 6" w.g.		16" x 24" frame	32" x 24" frame
	350°	4000 fpm, 6" w.g. (external actuator only)			
	C-Round - or - C-Square	250° - or - 350°		2000 fpm, 4" w.g.	4" dia. duct - or - 4" x 4" duct  (8" x 6" frame)
3000 fpm, 4" w.g.			22" dia. duct - or - 22" x 22" duct	70" dia. duct - or - 70" x 70" duct	
4000 fpm, 4" w.g.				34" dia. duct - or - 34" x 34" duct	
250°		4000 fpm, 6" w.g.	14" dia. duct - or - 14" x 14" duct	22" dia. duct - or - 22" x 22" duct	
350°		4000 fpm, 6" w.g. (external actuator only)			
C-Oval - or - C-Rectangle		250° - or - 350°	2000 fpm, 4" w.g.	4" x 4" duct  (8" x 6" frame)	
	3000 fpm, 4" w.g.		22" x 34" duct - or - 34" x 22" duct		94" x 70" duct
	4000 fpm, 4" w.g.				94" x 34" duct - or - 106" x 22" duct
	250°	4000 fpm, 6" w.g.	14" x 22" duct		30" x 22" duct
	350°	4000 fpm, 6" w.g. (external actuator only)			

*all dimensions are shown as width x height  
for **NO TRANSITION**, order size = frame size = duct size  
unless otherwise noted, duct size = order size*

**WITH TRANSITIONS**, damper **frame size** = order width + 2" x order height + 2"

**WHEN A TRUE 6" High**, width is limited to 16"; if ordered as 6" high and width is > 16", an 8" high damper with 2" short-height transition will be supplied.



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In the interest of product development, Air Balance reserves the right to make changes without notice.  
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