

# MODEL AA1

## MODEL AA1 250 • MODEL AA1 350 LEAKAGE AND TEMPERATURE RATED AIRFOIL BLADE SMOKE DAMPER

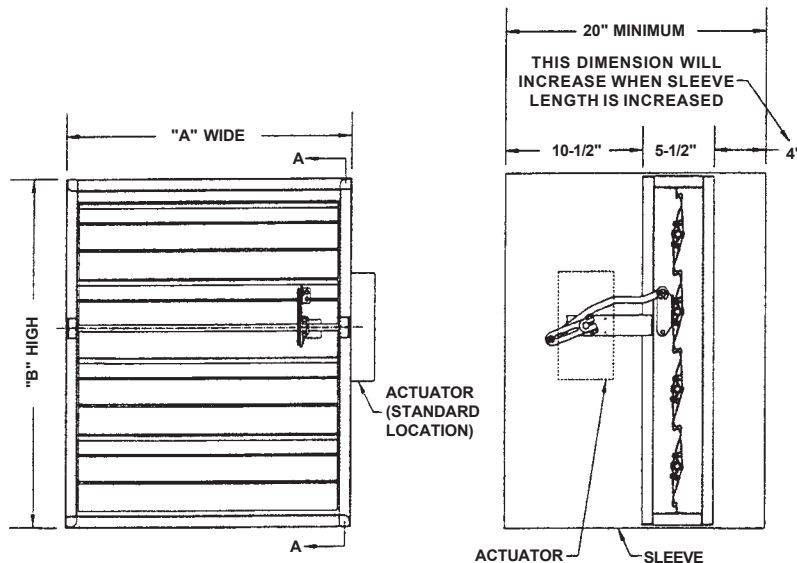
**LEAKAGE CLASS I\*  
TEMPERATURE CLASS 250°F or 350°F**

**U.L. Approved for Dual Directional Air Flow**

### STANDARD MATERIALS AND CONSTRUCTION

- FRAME:** 5 1/2" x 7/8" x 16-GA galvanized steel hat channel.
- BLADES:** 20-GA Double-skinned galvanized steel. (Equal to 14-GA), parallel action.
- STOPS:** 18-GA galvanized steel at head and sill.
- SEALS:** Silicone blade edges, and stainless steel compression type at jambs.
- AXLES:** Square plated steel.
- BEARINGS:** Oil Impregnated Bronze.
- LINKAGE:** Concealed in-jamb, plated steel tie bar, stainless steel pivots
- SLEEVE:** Minimum 20-GA galvanized steel by 20" long. 18-GA is standard for sizes over 84" wide.
- CAULKING:** Hardcast Irongrip 601, or UL-listed equivalent.
- FINISH:** Mill on galvanized steel.

\*UNITS UNDER 12 INCHES IN WIDTH ARE LEAKAGE CLASS II.




**NOTES:**

1. Approved for vertical and horizontal installation.
2. Outside of damper frame (inside of sleeve) will be fabricated 1/4" undersize.
3. Dampers narrower than 12" wide will be Leakage Class II

Damper Classified By  
**UNDERWRITERS LABORATORIES INC.®**  
AS TO LEAKAGE RESISTANCE  
CLASS I

R4708



This smoke damper meets the construction and performance requirements of:

- Underwriters Laboratories Inc. Standard 555S
- National Fire Protection Association Standards 90A, 92A, 92B
- ICC's International Building Code
- ICBO's Uniform Building Code
- SBCCI's Standard Building Code
- BOCA's National Building Code
- New York City MEA Listing #112-99-M
- California State Fire Marshall Listing #3230-1328-111

### DIMENSIONAL DATA

#### RECTANGULAR DAMPERS

**Minimum Size:** 8"W x 8"H (See Note #3)

**NOTE:** Dampers can be furnished with a duct size minimum of 4"W x 4"H using a type B or C enclosure in a factory furnished sleeve. The overall frame is 8"W x 8"H.

**Maximum Size:**  
Single Section: 36"W x 48"H  
Multiple Section: 108"W x 48"H

#### ROUND AND OVAL DAMPERS

(Type C Housing, Duct Dimensions)  
Frame Width = Duct Width + 2"  
Frame Height = Duct Height + 2"  
(For small sizes, see **NOTE** above)

- Minimum Size:**  
Round: 4" Diameter
- Maximum Size:**  
Single Panel  
Round: 34" Diameter  
Oval: 34"W x 46"H  
Multiple Panel  
Round: 46" Diameter  
Oval: 106"W x 46"H

**NOTE:** Dampers 13" high and less have a single blade.

**PROJECT:** \_\_\_\_\_

**LOCATION:** \_\_\_\_\_

**ARCHITECT:** \_\_\_\_\_

**ENGINEER:** \_\_\_\_\_

**CONTRACTOR:** \_\_\_\_\_

**PONUMBER:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

# ARROW UNITED INDUSTRIES SUBMITTAL DATA

## ACTUATOR SELECTION

Underwriters Laboratories requires that all UL-555S rated dampers be accompanied with their matching UL-approved factory supplied actuators. The factors for proper actuator selection are actuator type (electric or pneumatic), voltage requirement, temperature rating, and damper size. Arrow United will factory install actuators for all combination fire/smoke dampers.

### ELECTRIC

	Honeywell <b>ML4115 (120VAC) ML8115 (24VAC)</b>	Honeywell <b>MS 4209 (120 VAC) MS 8209 (24 VAC)</b>	Honeywell <b>MS 4120 (120 VAC) MS 8120 (24 VAC)</b>
<b>Max Panel Size at 250°</b>	24" x 16"	36" x 24" (Sizes up to 24" x 24" rated up to 3000 FPM, 4 in. wg.)	36" x 48"
<b>Max Panel Size at 350°</b>	Contact Factory	24" x 24"	36" x 48"

**Min. size for Internal mount:**                      12" x 12"                                      12" x 12"                                      12" x 20"

### PNEUMATIC

	Siemens <b>331-2997</b>	Siemens <b>331-2996</b>
<b>Max Panel Size at 250°</b>	24" x 24" (@20 PSI)	36" x 48" (@20PSI)
<b>Max Panel Size at 350°</b>	24" x 24" (@25 PSI)	36" x 48" (@20PSI)

**Min. size for Internal Mount:**                      12" x 20"                                      16" x 24"

### AMP DRAW

**ML4115**—run .18 hold .11  
**ML8115**—run .70 hold .35  
**MS 4209**—run .25 hold .13  
**MS 8209**—run 1.0 hold .13  
**MS 4120**—run .35 hold .15  
**MS 8120**—run 1.8 hold .42

## AVAILABLE OPTIONS: (Must Be Specified)

- Normally, actuators are externally mounted on the right side of the sleeve, as viewed from the jackshaft side of the damper. Actuators may be mounted on the left side at no additional charge, if specified on the order, except where two actuators are used on multiple panel assemblies.
- Sleeve thicknesses heavier than 20 gauge are available.
- Sleeve lengths longer than the standard 20" are available.
- Dual position indication package. Optional auxiliary blade position indication switches are rated at 11A, 1/3HP, 125VAC. These snap action switches are intended to make or break a circuit and will not provide variable or proportional resistance.
- Smoke detector (damper height must be 10" minimum).

## GENERAL NOTES

- Underwriters Laboratories Inc. classified leakage damper for use in smoke control systems designed for Leakage Class I and Temperature Class 250°F or 350°F, in accordance with UL Standard 555S.
- Refer to UL-approved Installation Instructions for detailed operational information.
- Smoke dampers must be installed within 24" of a smoke barrier. Some codes require that the smoke damper be installed within the smoke barrier.

## PERFORMANCE

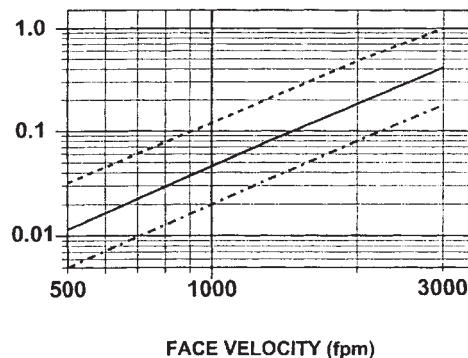
### LEAKAGE

Definition: UL 555S **Class I:**  
 Leakage Not Greater Than:  
 4 CFM per sq. ft. @ 1 in. wg  
 8 CFM per sq. ft. @ 4 in. wg

**MAXIMUM DIFFERENTIAL PRESSURE:** 4 in. wg.  
**MAXIMUM VELOCITY:**  
 2000 / 3000 FPM Based on Actuator Model

PRESSURE DROP IN INCHES OF WATER

### PRESSURE DROP



**FACE VELOCITY IN FEET PER MINUTE**  
**TYPICAL PERFORMANCE CURVE**  
 TESTED PER AMCA STANDARD 500-D; FIGURE 5.3:  
 (IN-DUCT MOUNT)  
 SMALLER SIZES WILL HAVE HIGHER PRESSURE DROPS

----- 12x12  
 \_\_\_\_\_ 24x24  
 - - - - - 36x36

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