

Construction	Standard
Frame Material	Galvanized steel
Frame Material Thickness	16Ga (1.5mm)
Frame Type	5½" X ¾" Galvanized steel Hat Channel
Blade Type	Airfoil type
Blade Material Thickness	20-GA Double skin (equivalent to 14-GA)
Axle materials	Plated Solid Steel stub
Axle Bearings	Oil impregnated bronze
Linkage	Plated steel angle & crank plates with stainless steel pivots; In-jamb type
Blade Seal	Silicone
Jamb Seal	Stainless steel

Options

- Exact Size (no undercut)
- Actuators - 120V, 24V, 230V or Pneumatic
- Right Hand and/or Internal Actuator Mounting Locations (Restrictions Apply) Integral Dual Position Indication (IDPI) Switches
- Model SM-501 Flow-Rated Smoke Detector (10" Minimum Damper Height)
- Model 2151 No-Flow Smoke Detector (12" Minimum Damper Height)
- Momentary Test Switch Remote Test Box
- Transformers
- Tab-Lock Retaining Angles
- Stainless Steel Bearings
- Stainless Steel Axles
- Security Bars
- Sleeves of Various Depths and Gauge Thicknesses (restriction apply)
- No Sleeves (restriction apply) Round or Oval Transitions

Notes

- Damper frames are provided approximately W undersized. The addition of a sleeve will increase the size of the assembly.
- Damper >= 12" in height with factory mounted SM-501 smoke detectors require a minimum 19" deep sleeve (10.5" on the actuator side); detectors will be mounted on the side of the damper opposite actuator.
- Damper < 12" in height with factory mounted SM-501 smoke detectors require a minimum 20" deep sleeve (11.5" on the actuator side); detectors will be mounted on the bottom or top of damper.

UNDERWRITERS LABORATORIES INC.

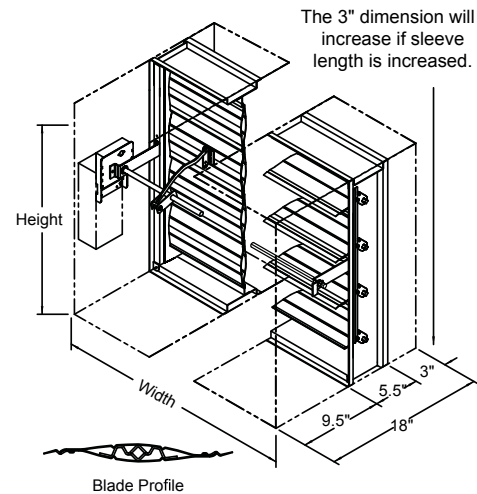
CLASSIFIED DYNAMIC SMOKE DAMPER
LEAKAGE RESISTANCE CLASS I

FILE # R27351



This smoke damper meets the construction and performance requirements of:

- Underwriters Laboratories Inc. 555S
- National Fire Protection Association Standards 80 and 90A
- ICC's International Building Code
- New York City MEA Listing #111-99-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 fire resistive ratings of 3 hours and longer.
- Underwriters Laboratories Inc. Classified for use in smoke control systems for Leakage Class I and 250°F or 350°F.
- Actuators must be arranged to operate automatically, must fail closed upon loss of power, and must be controlled by a smoke detection system.



- Smoke Detectors can be ordered for field mounting with standard 18" deep sleeve.
- Dampers for horizontal installation can only be mounted in a fire barrier constructed of masonry/concrete materials.

2000 fpm, 4 in.wg ** (10m/s , 1000 Pa)**			
Orientation	HORIZONTAL & VERTICAL		
Panels	Min. panel Size Width x Height	Max. Single Panel Size Width x Height	Max. Assembly Size Width x Height
	Inches (mm)	Inches (mm)	Inches (mm)
Rectangular	4"W x 4"H (102mm x 102mm) or (8"W x 6"H - frame) (203mm x 152mm)	36"W x 48"H (914mm x 1219mm)	144"W x 96"H (3658mm x 2438 mm) or 288"W x 48"H (7315mm x 1219mm)
Round	4" dia (102mm dia) or (8"W x 6"H - frame) (203mm x 152mm)	34" dia (864mm dia)	60" dia (1524mm dia)
Oval	4"W x 4"H (102mm x 102mm) or (8"W x 6"H - frame) (203mm x 152mm)	34"W x 46"H (864mm x 1168mm)	106"W x 60"H (2692mm x 1524mm)

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

** See Addendum for Extended Velocity & Pressure Ratings

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

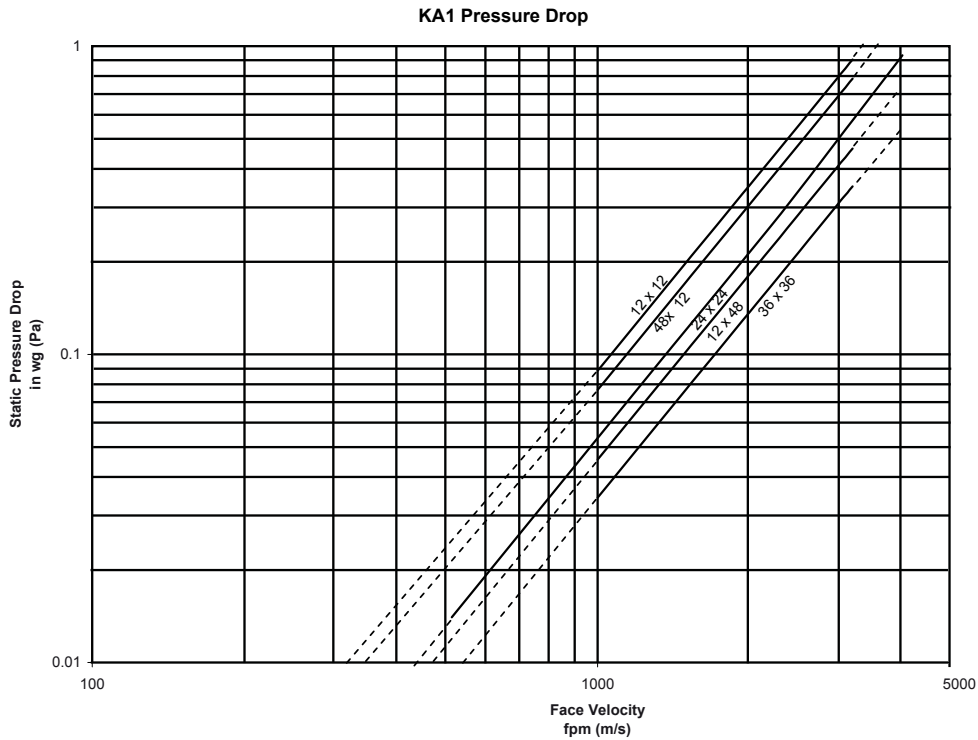
4 cfm per sq.ft. maximum @ 1 in.wg

8 cfm per sq.ft. maximum @ 4 in.wg

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.



This Products was listed in accordance to AMCA Standard 500D



KA1 Extended Pressure & Velocity Ratings					
Damper Style	RATINGS		HORIZONTAL & VERTICAL		
	Temp. Rating	Velocity & Pressure Rating	Min. panel Size Width x Height	Max. Single Panel Size Width x Height	Max. Assembly Size Width x Height
	°F		Inches (mm)	Inches (mm)	Inches (mm)
No Transition	250°F / 350°F	2000 fpm, 4" w.g. (10m/s, 1000 Pa)	8"W x 6"H - frame (203mm x 152mm)	36"W x 48"H (914mm x 1219mm)	144"W x 96"H (3658mm x 2438mm) or 288"W x 48"H (7315mm x 1219mm)
		3000 fpm, 4" w.g. (15 m/s, 1000 Pa)		24"W x 36"H (610mm x 914mm) or 36"W x 24"H (914mm x 610mm)	96"W x 72"H (2438mm x 1829mm)
		4000 fpm, 4" w.g. (20 m/s, 1000 Pa)			96"W x 36"H (2438mm x 914mm) or 108"W x 24"H (2743mm x 610mm)
	250°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa)		16"W x 24"H (406mm x 610mm)	32"W x 24"H (813mm x 610mm)
	350°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa) (external actuator only)			
C-Round or -C-Square	250°F / 350°F	2000 fpm, 4" w.g. (10m/s, 1000 Pa)	4"dia -duct (102mm dia) or 4"W x 4"H - duct (102mm x 102mm) (8"W x 6"H - frame) (203mm x 152mm)	34"dia - duct (864mm dia) or 34"W x 34"H - duct (864mm x 864mm)	81"dia - duct (2057mm dia) or 81" x 81" - duct (2057mm x 2057mm)
		3000 fpm, 4" w.g. (15 m/s, 1000 Pa)		22"dia - duct (559 mm dia) or 22"W x 22"H - duct (559mm x 559mm)	70"dia duct (1778mm dia) or 70" x 70" - duct (1778mm x 1778 mm)
		4000 fpm, 4" w.g. (20 m/s, 1000 Pa)			34"dia - duct (864mm dia) or 34"W x 34"H - duct (864mm x 864mm)
	250°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa)		14"dia - duct (356mm dia) or 14"W x 14"H - duct (356mm x 356mm)	22"dia - duct (559 mm dia) or 22"W x 22"H - duct (559mm x 559mm)
	350°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa) (external actuator only)			
C-Oval or C-Rectangle	250°F / 350°F	2000 fpm, 4" w.g. (10m/s, 1000 Pa)	4"W x 4"H - duct (102mm x 102mm) (8"W x 6"H - frame) (203mm x 152mm)	34"W x 46"H - duct (864mm x 1168 mm)	58"W x 46"H - duct (1473mm x 1168mm)
		3000 fpm, 4" w.g. (15 m/s, 1000 Pa)		22"W x 34"H - duct (559mm x 864 mm) or 34"W x 22"H - duct (864mm x 559mm)	58"W x 46"H - duct (1473mm x 1168mm)
		4000 fpm, 4" w.g. (20 m/s, 1000 Pa)			58"W x 34"H - duct (1473mm x 864mm)
	250°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa)		14"W x 22"H - duct (356mm x 559mm)	58"W x 22"H - duct (1473mm x 559mm)
	350°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa) (external actuator only)			14"W x 22"H - duct (356mm x 559mm)

Smoke Damper

Leakage Class II • Airfoil Blade • 250°F or 350°F • UL Classified Smoke Damper

شركة خالد للصناعة
Khalid Manufacturing Company

Construction	Standard
Frame Material	Galvanized steel
Frame Material Thickness	16ga Galvanized steel
Frame Type	5½" X ⅝" Galvanized steel Hat Channel
Blade Type	Airfoil type
Blade Material Thickness	20-GA Double skin (equivalent to 14-GA)
Axle materials	Plated Solid Steel stub
Axle Bearings	Oil impregnated bronze
Linkage	Plated steel angle & crank plates with stainless steel pivots; In-jamb type
Blade Seal	Silicone
Jamb Seal	Stainless steel

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

UNDERWRITERS LABORATORIES INC.

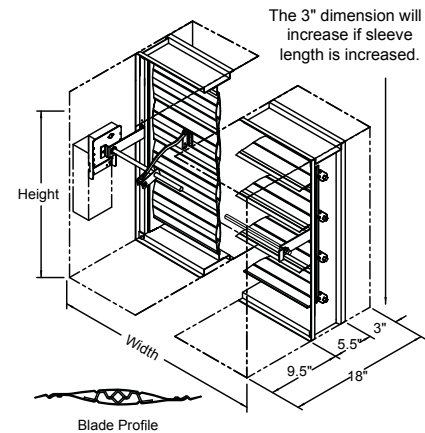
CLASSIFIED DYNAMIC SMOKE DAMPER
LEAKAGE RESISTANCE CLASS II

FILE # R27351



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 II and 250°F or 350°F.
- Actuators must be controlled by a smoke detection system.



Notes

- Damper frames are provided approximately ¼" undersized. The addition of a sleeve will increase the size of the assembly.
- 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.
- 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.
- Smoke detectors can be ordered for field mounting with standard 18" deep sleeves.

2000 fpm, 4 in.wg ** (10m/s, 1000 Pa)**						
Orientation	Horizontal (floor)			Vertical (wall)		
Panels	Min. panel Size Width x Height	Max. Single Panel Size Width x Height	Max. Assembly Size Width x Height	Min. panel Size* Width x Height	Max. Single Panel Size Width x Height	Max. Assembly Size Width x Height
	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)
Rectangular	4"W x 4"H (102mm x 102mm) (8"W x 6"H - frame) (203mm x 152mm)	36"W x 48"H (914mm x 1219mm)	144"W x 96"H (3658mm x 2438mm) or 288"W x 48"H (7315mm x 1219mm)	4"W x 4"H (102mm x 102mm) (8"W x 6"H - frame) (203mm x 152mm)	24"W x 24"H (610mm x 610mm)	96"W x 24"H (2438mm x 610mm)
Round	4" dia (102mm dia) (8"W x 6"H - frame) (203mm x 152mm)	34" dia (864mm dia)	81" dia (2057mm dia)	4" dia (102mm dia) (8"W x 6"H - frame) (203mm x 152mm)	22" dia (559mm dia)	N/A
Oval	4"W x 4"H (102mm x 102mm) (8"W x 6"H - frame) (203mm x 152mm)	34"W x 46"H (864mm x 1168mm)	70"W x 94"H (1778mm x 2388mm) or 94"H x 70"W (2388mm x 1778mm)	4"W x 4"H (102mm x 102mm) (8"W x 6"H - frame) (203mm x 152mm)	22"W x 22"H (559mm x 559mm)	94"W x 22"H (2438mm x 610mm)

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

** See Addendum for Extended Velocity & Pressure Ratings

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 II

10 cfm per sq. ft. maximum @ 1 in. wg

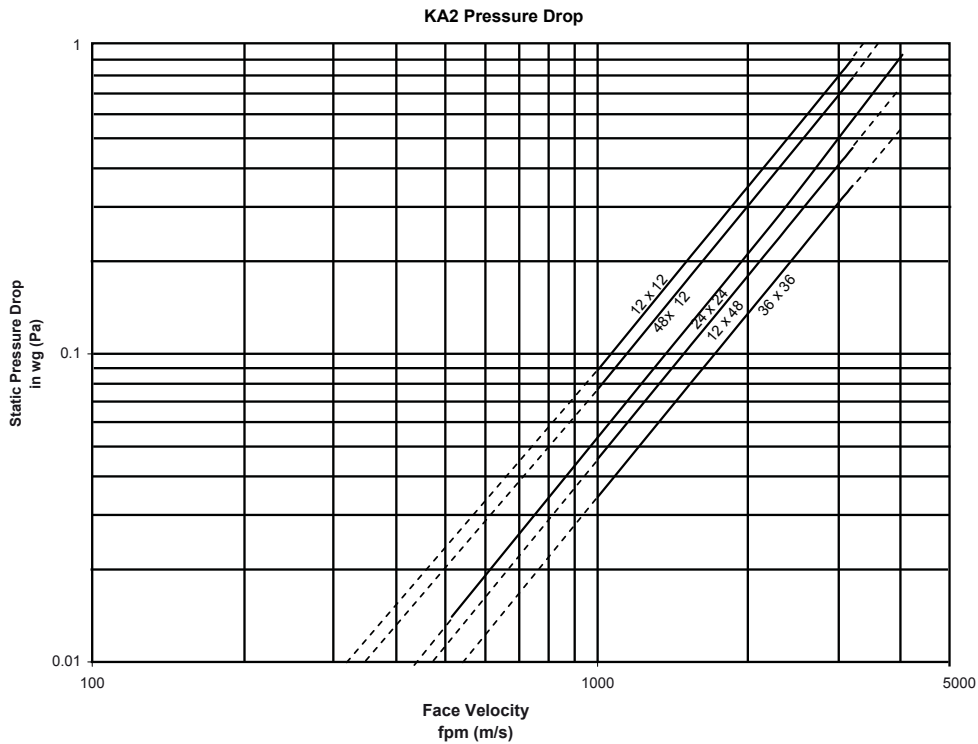
20 cfm per sq. ft. maximum @ 4 in. wg

24.5 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.



This Products was listed in accordance to AMCA Standard 500D



LA2 Extended Pressure & Velocity Ratings					
Damper Style	RATINGS		HORIZONTAL & VERTICAL		
	Temp. Rating	Velocity & Pressure Rating	Min. panel Size Width x Height	Max. Single Panel Size Width x Height	Max. Assembly Size Width x Height
	°F		Inches (mm)	Inches (mm)	Inches (mm)
No Transition	250°F / 350°F	2000 fpm, 4" w.g. (10m/s, 1000 Pa)	8"W x 6"H - frame (203mm x 152mm)	36"W x 48"H (914mm x 1219mm)	144"W x 96"H (3658mm x 2438mm) or 288"W x 48"H (7315mm x 1219mm)
		3000 fpm, 4" w.g. (15 m/s, 1000 Pa)		24"W x 36"H (610mm x 914mm) or 36"W x 24"H (914mm x 610mm)	96"W x 72"H (2438mm x 1829mm) or 96"W x 36"H (2438mm x 914mm) or 108"W x 24"H (2743mm x 610mm)
		4000 fpm, 4" w.g. (20 m/s, 1000 Pa)		24"W x 24"H (610mm x 610mm)	96"W x 24"H (2438mm x 610mm)
	250°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa)		16"W x 24"H (406mm x 610mm)	32"W x 24"H (813mm x 610mm)
	350°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa) (external actuator only)			
C-Round or- C-Square	250°F / 350°F	2000 fpm, 4" w.g. (10m/s, 1000 Pa)	4"dia -duct (102mm dia) or 4"W x 4"H - duct (102mm x 102mm) (8"W x 6"H - frame) (203mm x 152mm)	34"dia - duct (864mm dia) or 34"W x 34"H - duct (864mm x 864mm)	81"dia - duct (2057mm dia) or 81" x 81" - duct (2057mm x 2057mm)
		3000 fpm, 4" w.g. (15 m/s, 1000 Pa)		22"dia - duct (559 mm dia) or 22"W x 22"H - duct (559mm x 559mm)	70"dia - duct (1778mm dia) or 70" x 70" - duct (1778mm x 1778mm)
		4000 fpm, 4" w.g. (20 m/s, 1000 Pa)		22"dia - duct (559 mm dia) or 22"W x 22"H - duct (559mm x 559mm)	34"dia - duct (864mm dia) or 34"W x 34"H - duct (864mm x 864mm)
	250°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa)		22"dia - duct (559mm dia) or 22"W x 22"H - duct (559mm x 559mm)	22"dia - duct (559 mm dia) or 22"W x 22"H - duct (559mm x 559mm)
	350°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa) (external actuator only)		14"dia - duct (356mm dia) or 14"W x 14"H - duct (356mm x 356mm)	22"dia - duct (559 mm dia) or 22"W x 22"H - duct (559mm x 559mm)
C-Oval or C-Rectangle	250°F / 350°F	2000 fpm, 4" w.g. (10m/s, 1000 Pa)	4"W x 4"H - duct (102mm x 102mm) or (8"W x 6"H - frame) (203mm x 152mm)	34"W x 46"H - duct (864mm x 1168 mm)	70"W x 94"H - duct (1778mm x 2388mm)
		3000 fpm, 4" w.g. (15 m/s, 1000 Pa)		22"W x 34"H - duct (559mm x 864 mm) or 28"W x 22"H - duct (711mm x 559mm)	94"W x 70"H - duct (2388mm x 1778mm)
		4000 fpm, 4" w.g. (20 m/s, 1000 Pa)		22"W x 34"H - duct (559mm x 864 mm) or 28"W x 22"H - duct (711mm x 559mm)	94"W x 34"H - duct (2388mm x 864mm) or 106"W x 22"H - duct (2692mm x 559mm)
	250°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa)		22"W x 22"H - duct (559mm x 559mm)	94"W x 22"H - duct (2388mm x 559mm)
	350°F	4000 fpm, 6" w.g. (20 m/s, 1500 Pa) (external actuator only)		14"W x 22"H - duct (356mm x 559mm)	30"W x 22"H - duct (762mm x 559mm)

Construction	Standard
Frame Material	Galvanized steel
Frame Material Thickness	16Ga Galvanized steel
Frame Type	5½" X ¾" Galvanized steel Hat Channel
Blade Type	Airfoil type
Blade Material Thickness	20-GA Double skin (equivalent to 14-GA)
Axle materials	Plated Solid Steel stub
Axle Bearings	Oil impregnated bronze
Linkage	Plated steel angle & crank plates with stainless steel pivots; In-jamb type
Blade Seal	Silicone
Jamb Seal	Stainless steel
Closure Device	Electric heat responsive device
Closure Temperature	165° F (73°C)

Options

- Exact Size (no undercut)
- Flange - Front, Rear or Both
- 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
- Security Bars
- Sleeves of Various Depths and Gauge Thickness (restrictions apply)
- No Sleeves or Side Plates Only (restrictions apply)
- Round or Oval Transitions
- Short-Width (<8") and/or Short-Height (<6") Transitions

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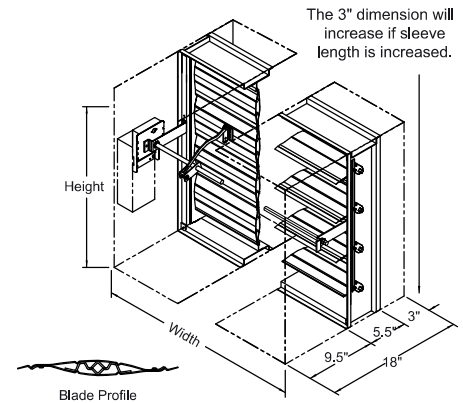
CLASSIFIED DYNAMIC SMOKE DAMPER
LEAKAGE RESISTANCE CLASS II

FILE # R27351



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 II and 250°F.
- Actuators must be controlled by a smoke detection system.



Notes

- Damper frames are provided approximately undersized. The addition of a sleeve will increase the size of the assembly.
- Damper >= 12" in height with factory mounted SM-501 smoke detectors require a minimum 19" deep sleeve (10.5" on the actuator side); detectors will be mounted on the side of the damper opposite actuator.
- Damper < 12" in height with factory mounted SM-501 smoke detectors require a minimum 20" deep sleeve (11.5" on the actuator side); detectors will be mounted on the bottom or top of damper.
- Smoke Detectors can be ordered for field mounting with standard 18" deep sleeve
- Actuator control signal is 2-10 VDC or with addition of 500 ohm resistor (by others) is 4-20 mA.

2000 fpm, 4 in.wg ** (10m/s , 1000 Pa)**			
Orientation	Horizontal & Vertical	Horizontal	Vertical
Panels	Max. Single Panel Size 250° Width x Height	Max. Single Panel Size 250° Width x Height	Max. Assembly Size 250° Width x Height
	Inches (mm)	Inches (mm)	Inches (mm)
Rectangular	8"W x 6"H (203mm x 152mm)	24"W x 24"H (609mm x 609mm)	96"W x 48"H (2438mm x 1219mm)
Round	4"dia (101mm dia) 4"W x 4"H (101mm x 101mm) (8"W x 6"H) (203mm x 152mm)	22"dia (558mm dia) 22"W x 22"H (558mm x 558mm)	46"dia (1168mm dia) 46"W x 46"H (1168mm x 1168mm)
Oval	4"W x 4"H (101mm x 101mm) (8"W x 6"H) (203mm x 152mm)	22"W x 22"H (558mm x 558mm)	94"W x 46"H (2387mm x 1168mm)

* Dampers Smaller than Minimum Frame Size require a transition - Refer SD- TRFS

** See Addendum for Extended Velocity & Pressure Ratings

Leakage Class II • Airfoil Blade • 250°F or 350°F • UL Classified Smoke Damper For Volume Control Applications

Operations Ratings:

Maximum Differential Pressure: 4 in.wg

Maximum Face Velocity: 2000 fpm (3000 fpm for selected size/actuator combinations)

Leakage Ratings:

UL Class II

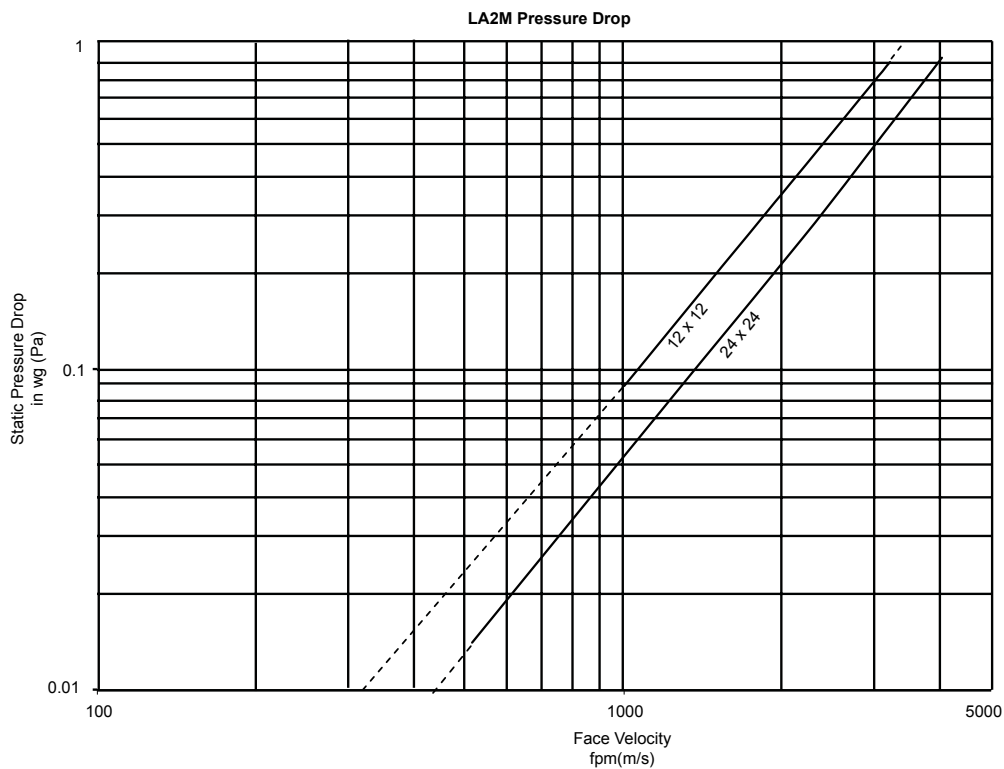
10 cfm per sq.ft. maximum @ 1 in.wg

20 cfm per sq.ft. maximum @ 4 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.



This product was tested in accordance with AMCA Standard 500D.