

**Combination Fire/Smoke Damper ▲ 3 Hr. Rated ▲ Airfoil Blades ▲ Leakage Class II ▲ 250°F or 350°F Rated ▲ Galvanized Steel**

**STANDARD MATERIALS AND CONSTRUCTION**

- FRAME:** 5½" x 7/8" x 16 GA. galvanized steel hat channel; Flat 16 GA. galvanized head and sill for maximum free area on dampers less than or equal to 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 angles at head and sill
- BLADE SEALS:** Silicone.
- JAMB SEALS:** Stainless steel.
- SLEEVE:** Minimum 20 GA. galvanized steel by 18" long.
- CAULKING:** Hardcast Irongrip 601 or UL-listed equivalent.
- ACTUATOR:** Electric with heat response device (EHRD) or pneumatic with heat response device (PHRD). Factory-installed for power-open/spring-close (fail close) operation. External left hand mounted as viewed from jackshaft side of damper.
- FINISH:** Mill or galvanized steel.

**NOTES**

- 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
- Sensotherm Re-Openable Heat Response Device (ESOT) for electric actuators
- Sensotherm Re-Openable Heat Response Device (PSOT) for pneumatic actuators
- Model SM-501 flow-rated smoke detector
- 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
- Copper tubing (for pneumatic actuators)
- Sleeves of various depths and gauge thicknesses (restriction apply)
- No sleeves (restriction apply)
- Round or oval transitions
- Short-width (<8") and/or short-height (<6") transitions

**OPTIONS**

1. Nominal deductions will be made to the opening size given.
2. Dampers greater than or equal to 12" in height with factory mounted SM-501 smoke detectors require a minimum 19" deep sleeve (10½" on the actuator side). Detectors will be mounted on the side of the damper opposite actuator.
3. Dampers less than 12" in height with factory mounted SM-501 smoke detectors require a minimum 20" deep sleeve (11½" on the actuator side). Detectors will be mounted on the bottom or top of damper.
4. Smoke detectors can be ordered for field mounting with standard 18" deep sleeve.
5. Dampers for horizontal installation can only be mounted in a fire barrier constructed of masonry/concrete materials.

**DAMPER SIZES**

Orientation	Horz & Vert	2000 fpm, 4 in. w.g.				** 4000 fpm, 6 in. w.g.	
		Horizontal		Vertical		Horizontal or Vertical	
Panels	Min Panel 250°F / 350°F	Max Panel 250°F / 350°F	Max Assy 250°F / 350°F	Max Panel 250°F / 350°F	Max Assy 250°F / 350°F	Max Panel 250°F only	Max Assy 250°F only
Rectangular	4"W x 4"H (8"W x 6"H frame)	30"W x 48"H	60"W x 48"H	30"W x 48"H	60"W x 48"H	24"W x 24"H	60"W x 24"H
Round	4" dia. (8"W x 6"H frame)	28" dia.	46" dia.	28" dia.	46" dia.	22" dia.	22" dia.
Oval	4"W x 4"H (8"W x 6"H frame)	28"W x 46"H	58"W x 46"H	28"W x 46"H	58"W x 46"H	22"W x 22"H	22"W x 22"H

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

\*\* See sizing chart on page 3 for additional ratings.

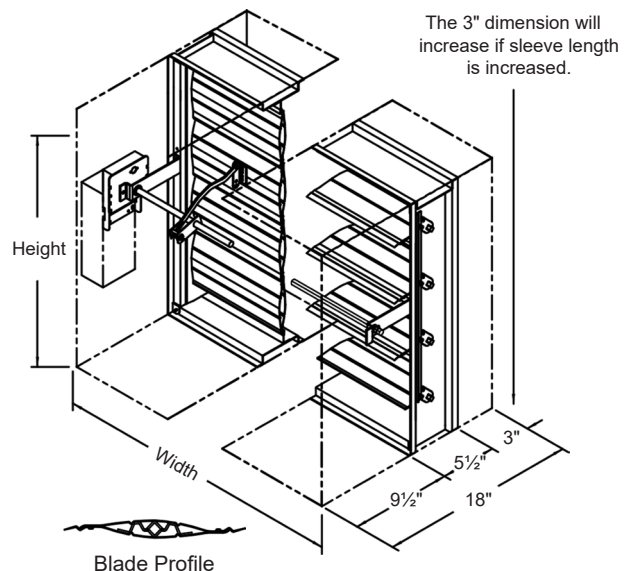
**UNDERWRITERS LABORATORIES INC.®**  
 CLASSIFIED DYNAMIC FIRE AND SMOKE DAMPER  
 FIRE RESISTANCE RATING 3 HR  
 LEAKAGE RESISTANCE CLASS II

**air balance**  
Dampers ▲ Louvers  
 UL Life Safety Products

**FILE # R4708**

This combination fire/smoke damper meets the construction and performance requirements of:

- Underwriters Laboratories Inc. Standards 555 and 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 #3225-1328:118
- 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 II 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.



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### OPERATIONAL RATING

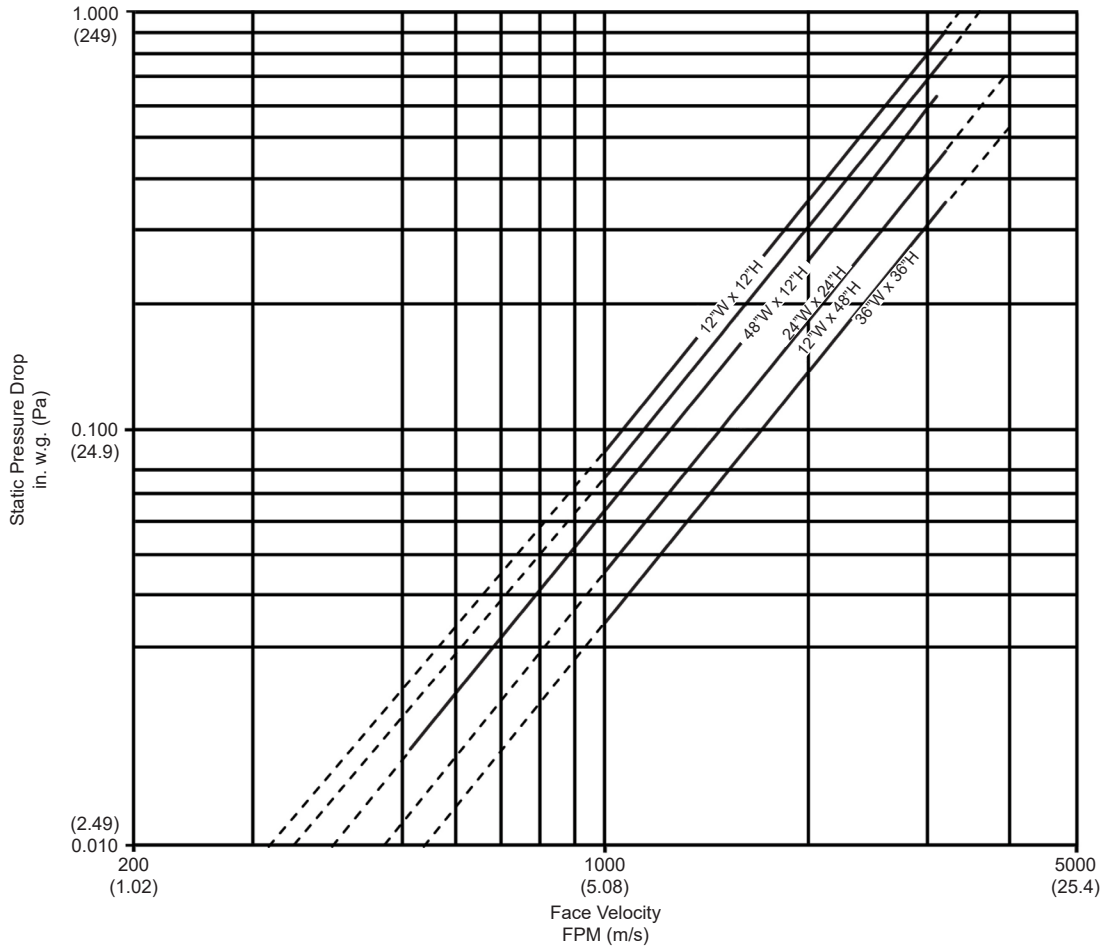
Maximum Differential Pressure: 4 in. wg (6 in. wg for selected size/actuators combinations)  
 Maximum Velocity: 2000 fpm (4000 fpm for selected size/actuator combinations)

### LEAKAGE RATING

UL Leakage 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


### PRESSURE DROP RATING

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, Figure 5.3.

Intake air converted to standard air density.

Item #	Qty	Damper Size	Horizontal	Vertical	250°F	350°F	Velocity	Pressure	
			Orientation		Temp. Rating		Operational Rating		
Arch. / Eng.:					EDR:		ECN:		Job:
Contractor:									
Project:					Date:		DWN:		DWG:

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**SIZING CHART**

Damper Style	Temp. Rating (°F)	Velocity and Pressure	Minimum Panel (Horz & Vert)	Horizontal (Floor Mount)		Vertical (Wall Mount)	
				Max Panel	Max Assy	Max Panel	Max Assy
No Transition	250° or 350°	2000 FPM, 4in. w.g.	8"W x 6"H frame	30"W x 48"H frame	60"W x 48"H frame	30"W x 48"H frame	60"W x 48"H frame
		3000 FPM, 4in. w.g.		24"W x 36"H frame or 30"W x 24"H frame	60"W x 36"H frame or 60"W x 48"H frame	24"W x 36"H frame or 30"W x 24"H frame	60"W x 48"H frame or 60"W x 36"H frame
		4000 FPM, 4in. w.g.		24"W x 24"H frame	60"W x 24"H frame	24"W x 24"H frame	60"W x 24"H frame
	250°	4000 FPM, 6in. w.g.		16"W x 24"H frame	32"W x 24"H frame	16"W x 24"H frame	32"W x 24"H frame
	350°	4000 FPM, 6in. w.g. (external actuator)					
C-round or C-square	250° or 350°	2000 FPM, 4in. w.g.	4" dia. duct or 4"W x 4"H duct  (8"W x 6"H frame)	28" dia. duct or 28"W x 28"H duct	46" dia. duct or 46"W x 46"H duct	28" dia. duct or 28"W x 28"H duct	46" dia. duct or 46"W x 46"H duct
		3000 FPM, 4in. w.g.		22" dia. duct or 22"W x 22"H duct	46" dia. duct or 46"W x 46"H duct or 34" dia. duct or 34"W x 34"H duct	22" dia. duct or 22"W x 22"H duct	46" dia. duct or 46"W x 46"H duct or 34" dia. duct or 34"W x 34"H duct
		4000 FPM, 4in. w.g.		22" dia. duct or 22"W x 22"H duct			
	250°	4000 FPM, 6in. w.g.		14" dia. duct or 14"W x 14"H duct	22" dia. duct or 22"W x 22"H duct	14" dia. duct or 14"W x 14"H duct	22" dia. duct or 22"W x 22"H duct
	350°	4000 FPM, 6in. w.g. (external actuator)					
C-oval or C-rectangle	250° or 350°	2000 FPM, 4in. w.g.	4"W x 4"H duct  (8"W x 6"H frame)	28"W x 46"H duct	58"W x 46"H duct	28"W x 46"H duct	58"W x 46"H duct
		3000 FPM, 4in. w.g.		22"W x 34"H duct or 28"W x 22"H duct	58"W x 34"H duct	22"W x 34"H duct or 28"W x 22"H duct	58"W x 34"H duct
		4000 FPM, 4in. w.g.		22"W x 22"H duct	58"W x 22"H duct	22"W x 22"H duct	58"W x 22"H duct
	250°	4000 FPM, 6in. w.g.		14"W x 22"H duct	30"W x 22"H duct	14"W x 22"H duct	30"W x 22"H duct
	350°	4000 FPM, 6in. w.g. (external actuator)					

**NOTES**

- For dampers with no transition, the size to order will be frame size, which is equal to the size of the ductwork unless otherwise noted.
- For dampers with transition, the size to order will be as follows: width + 2" by height + 2"
- When the damper is 6" high, width is limited to 16". If the damper is ordered as 6" high and its width is less than 16", an 8" high damper with a 2" short-height transition will be supplied.