RUSKIN®

Life Safety DAMPERS

QUICK SELECTION GUIDE

PROTECTING LIVES AND PROPERTY WITH INNOVATIVE DAMPER SOLUTIONS

COMBINATION FIRE/SMOKE DAMPERS

Combination Fire/Smoke dampers are low leak damper and actuator assemblies that have passed the UL555 and UL555S test requirements for both a dynamic fire damper and a smoke damper. They are used in HVAC systems where both a fire damper and smoke damper are required at the same location.

Fire/Smoke Damper Selection

The process of selecting a fire/smoke damper involves the following considerations:

1. Fire Resistance Rating – 1-1/2 or 3 hours based on code requirements and building design.
2. Leakage Rating – Classes I, II & III (IBC requires minimum Class II).
3. Elevated Temperature Rating – 250°F or 350°F
4. Operational Ratings – Minimum 2000 fpm @ 4 in. w.g. or higher.
5. Blade Design – Airfoil, triple v-groove and low-profile aerodynamic design.

Fire Resistance Rating

Fire/smoke dampers are typically rated for 1-1/2 or 3 hours fire resistance. A 1-1/2 hour rated damper is sufficient for walls or floors having a rating of less than 3 hours. If the wall or floor has a rating of 3 hours or more, a 3 hour rated damper is required for sufficient protection. (IBC Chapter 7 and NFPA90A Chapter 5).

Leakage Rating

UL Standard 555S identifies three leakage classes as follows:

MAXIMUM LEAKAGE IN CFM/SQ. FT.			
Leakage Class	**@4" w.g.**	**@8" w.g.**	**@12" w.g.**
Class I	8	11	14
Class II	20	28	35
Class III	80	112	140
IBC Chapter 7			

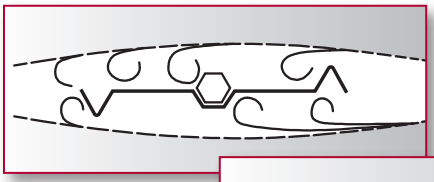
HVAC system designers are advised to select the lowest leakage class damper. However, there are some smoke control applications when a higher leakage class damper is acceptable.

Elevated Temperature and Operational Rating

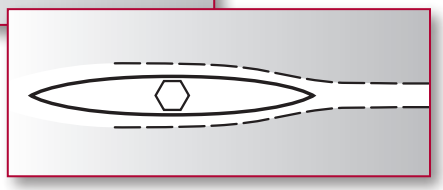
Under ambient airflow temperature the damper is cycled (open/closed) three times @ 4" w.g., then returned to full-open position where heat is introduced at an average temperature rise of 30° to 50°F (17° to 28°C) per minute until the specified elevated temperature of 250° F (121°C) is attained. The system shall maintain the elevated temperature of up to a maximum 50°F (28°C) above specified elevated temperature for a minimum of 15 minutes. At that time damper is to be fully closed and then fully opened using the actuator. Cycle times shall not exceed 75 seconds for both opening and closing. Minimum operational rating is 2000 fpm @ 4" w.g. and 250°F. Other higher ratings that may be desired are conducted in increments of 1000 fpm and/or increments of 2" w.g., and up to 350°F.

Blade Design

The most common damper blade shapes are triple v-groove and airfoil. Triple v-groove blades are used in HVAC systems with velocities less than 2,000 fpm. Airfoil blades may be used in all HVAC systems and should be utilized in systems greater than 2000 fpm.



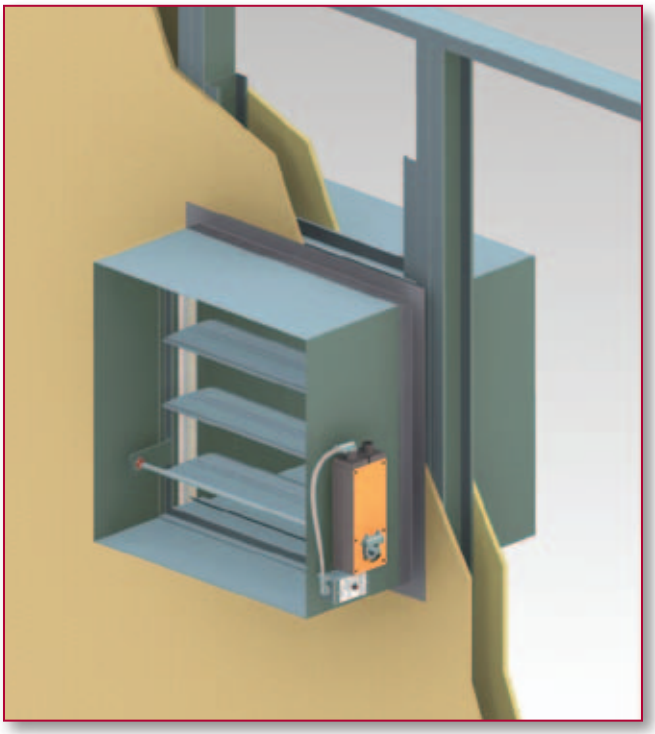
Triple V-groove Blade



Airfoil Blade

Fire/Smoke Damper Installation

Fire/smoke dampers must be installed so the leading edge of the closed blades are within the barrier it is intended to protect (unless specifically designed for out of wall or floor applications). Refer to the UL approved installation instructions for specific requirements.



Note: 3 hour and large 1-1/2 hour applications require mounting angles two sides.

COMBINATION FIRE/SMOKE DAMPER MODELS

SEE PAGE #	MODEL	HOURLY RATING	LEAKAGE CLASS	BLADE TYPE/ DESCRIPTION	MAXIMUM VELOCITY* (FPM)	MAXIMUM PRESSURE* (IN. W.G.)	MAXIMUM ASSEMBLY TEMP. (°F)*
Standard							
4	FSD60LP	1-1/2	I	Aerodynamic	2000	4	350
4	FSD60LP-2	1-1/2	II	Aerodynamic	2000	4	350
4	FSD60	1-1/2	I	Airfoil	4000	8	350
4	FSD60-2	1-1/2	II	Airfoil	4000	8	350
4	FSD60-3	3	I	Airfoil	4000	8	350
4	FSD60V	1-1/2	II	Airfoil	2000	4	350
7	FSD37	1-1/2	I	Triple V-Groove	2000	4	350
7	FSD36	1-1/2	II	Triple V-Groove	2000	4	350
7	FSD35	1-1/2	III	Triple V-Groove	2000	4	350
Grille & Grille Access							
5	FSD60FA	1-1/2	I	Airfoil	2000	4	350
5	FSD60GA	1-1/2	I	Airfoil	4000	4	350
	FSD60-VGA	1-1/2	I	Airfoil	2000	4	350
	FSD60G	1-1/2	I	Airfoil	4000	8	350
	FSD60-2GA	1-1/2	II	Airfoil	4000	4	350
8	FSD36FA	1-1/2	II	Triple V-Groove	2000	4	350
8	FSD36GA	1-1/2	II	Triple V-Groove	2000	4	350
	FSD36G	1-1/2	II	Triple V-Groove	2000	4	350
8	FSD35GA	1-1/2	III	Triple V-Groove	2000	4	350
	FSD35G	1-1/2	III	Triple V-Groove	2000	4	350
Out of Wall/Floor							
5	FSD60OW	1-1/2	I	Airfoil	4000	4	350
	FSD60-2OW	1-1/2	II	Airfoil	4000	4	350
	FSD60-VOW	1-1/2	I	Airfoil	2000	4	350
8	FSD36OW	1-1/2	II	Triple V-Groove	2000	4	350
8	FSD35OW	1-1/2	III	Triple V-Groove	2000	4	350
True Round							
8	FSDR25	1-1/2	I	True Round	4000	4	350
Stainless Steel							
7	FSD37SS	1-1/2	I	Triple V-Groove	2000	4	350
7	FSD36SS	1-1/2	II	Triple V-Groove	2000	4	350
	FSD35SS	1-1/2	III	Triple V-Groove	2000	4	350
Modulating & Balancing							
5	FSD60-3M	3	I	Airfoil	2000	4	350
5	FSD60M	1-1/2	I	Airfoil	2000	4	350
	FSD60-3BAL	1-1/2	I	Airfoil	2000	4	350
6	FSD60-BAL	1-1/2	I	Airfoil	2000	4	350
6	FSD60FA-BAL	1-1/2	I	Airfoil	2000	4	350
	FSD60FA-M	1-1/2	I	Airfoil	2000	4	350
Inspector™ Ready							
7	FSDXX-IR™	1-1/2	I	Triple V-Groove & Airfoil	2000	4	350
Explosion Proof							
6	FSD60XP	1-1/2	I	Airfoil	2000	4	350
Corridor							
9	DFSDR1	1	I	True Round	2000	4	350
9	FSD36C	1	II	Triple V-Groove	2000	4	350
9	FSD60C	1	I	Airfoil	2000	4	350
9	FSDR25C	1	I	True Round	2000	4	350

Ruskin Life Safety Dampers meet Agency Listings shown on back cover.

**For metric units, please see back cover.*

FSD60LP and FSD60LP-2 are Ruskin's latest high-performance combination fire/smoke dampers. They provide point-of-origin fire and smoke containment, and the lowest pressure drop in the industry. LP models are rated for system velocities up to 2000 fpm @ 4" w.g.

Features:

- Integral sleeve/frame
- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3225-0245:0005
- Controlled closure technology
- Galvanized steel construction

FSD60LP 1-1/2 hour, Leakage Class I

FSD60LP-2 1-1/2 hour, Leakage Class II

FSD60LP

FSD60 airfoil blade combination fire smoke dampers provide point-of-origin fire and smoke containment. The Ruskin airfoil blade design can be used in system velocities to 2000 fpm @ 4" w.g. maximum on all sizes, and up to 4000 fpm @ 8" w.g. on specific sizes.

FSD60 series offers the most versatility and highest level of performance in the industry.

Features:

- Ruskin Airfoil blade
- UL555 & UL555S Classified
- Meets NFPA requirements
- AMCA Certified
- CSFM Listing 3235-0245:0126
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product

FSD60 1-1/2 hour, Leakage Class I

FSD60-3 3 hour, Leakage Class I

FSD60-2 1-1/2 hour, Leakage Class II

Our highly specified base models are installed in wall (vertical) or floor (horizontal) applications.

FSD60-V 1-1/2 hour, Leakage Class II, vertical blades

The FSD60V provides vertical blades which allows actuator to be located on the top or bottom of damper when space is limited on the sides.


FSD60

Ruskin Company certifies that models FSD60, FSD60-2 and FSD60-3 shown hereon 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 Program. The AMCA Certified Ratings Seal applies to air performance for models FSD60, FSD60-2 and FSD60-3.

The AMCA certified ratings seal does not apply to models FSD60LP, FSD60LP-2, and FSD60-V.

FSD60FA 1-1/2 hour, Leakage Class I, Front Access

FSD60GA 1-1/2 hour, Leakage Class I, Grille Access

FSD60OW 1-1/2 hour, Leakage Class I, Out of Wall/Floor

The FA & GA models provide point-of-origin fire and smoke containment, plus installation from one side of wall, access through grille to actuator & components, and no requirement for mounting angles. These models are best suited for shaft wall applications rated less than 3 hours.

The OW (Out of Wall/Floor) models allow the damper to be installed up to 8" outside of the rated partition or floor. OW dampers install with angle one side on either side of the wall or top side of the floor.

FSD60FA

Features:

- Ruskin Airfoil blade
- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3225-0245:0126
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product

FSD60GA

FSD60M 1-1/2 hour, Leakage Class I, Modulating

FSD60-3M 3 hour, Leakage Class I, Modulating

The FSD60M provides point-of-origin fire and smoke containment, plus volume control via modulating electric or pneumatic actuator. This 3-in-1 damper eliminates the need for a separate control damper.

Features:

- Ruskin Airfoil blade
- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3235-0245:0126
- AMCA Certified
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product

FSD60M

Ruskin Company certifies that models FSD60M and FSD60-3M shown hereon 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 Program. The AMCA Certified Ratings Seal applies to air performance for models FSD60M and FSD60-3M.

The AMCA certified ratings seal does not apply to models FSD60FA, FSD60GA or FSD60OW.

FSD60-BAL 1-1/2 hour, Leakage Class I, 3-position Balancing

FSD60FA-BAL 1-1/2 hour, Leakage Class I, 3-position Balancing with Front Access

The FSD60-BAL & FA-BAL provide point-of-origin fire and smoke containment, plus a balancing damper in one. The built-in potentiometer allows positioning of damper blades without the need for an input control signal. When energized in normal conditions damper goes to open set position to balance air flow, or full open/closed in fire conditions to contain or exhaust smoke depending on system design.

The FSD60FA-BAL offers access through grille to actuator and components making it the best choice for supply or return shaft wall applications.

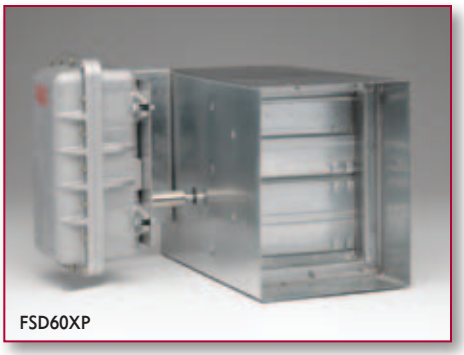

FSD60FA-BAL

Features:

- Ruskin Airfoil blade
- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3235-0245:0126
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product

FSD60XP 1-1/2 hour, Leakage Class I

The FSD60XP provides point-of-origin fire and smoke containment in hazardous locations. FSD60XP Actuator Enclosure meets the following applications: UL & CSA, Class I, II & III, Group B, C, D, E, F & G; NEMA 7, Class 1, Groups B, C & D; NEMA 9, Class II, Groups E, F & G.


FSD60XP

Features:

- Ruskin Airfoil blade
- UL555 & UL555S Classified
- Meets NFPA requirements
- Galvanized steel construction
- FM Approvals – Specification Tested Product

FSD37LP and FSD36LP are Ruskin's latest high-performance combination fire/smoke dampers. They provide point-of-origin fire and smoke containment, and the lowest pressure drop in the industry. LP models are rated for system velocities up to 2000 fpm @ 4" w.g.

FSD37LP

Features:

- Integral sleeve/frame
- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3225-0245:0005
- Controlled closure technology
- Galvanized steel construction

FSD37LP 1-1/2 hour, Leakage Class I

FSD36LP 1-1/2 hour, Leakage Class II

FSD35, 36 & 37 series combination fire smoke dampers provide point-of-origin fire and smoke containment for systems less than 2000 fpm. The triple v-groove blade design ensures excellent performance in systems with airflow from either direction.

Features:

- UL555 & UL555S Classified
- Meets NFPA requirements
- AMCA Certified
- Controlled closure technology
- Galvanized steel and stainless steel construction
- FM Approvals – Specification Tested Product

FSD37 1-1/2 hour, Leakage Class I

FSD36 1-1/2 hour, Leakage Class II

FSD35 1-1/2 hour, Leakage Class III

FSD36SS 1-1/2 hour, Leakage Class II, Stainless Steel Construction

Our highly specified base models are installed in wall (vertical) or floor (horizontal) applications.

FSD36

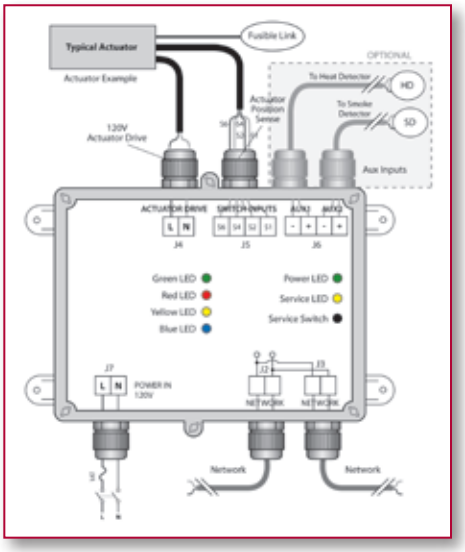
Ruskin Company certifies that models FSD35, FSD36, FSD37, and FSD36SS shown hereon are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance for models FSD35, FSD36, FSD37, FSD36SS and FSD37SS.

FSDXX-IR™ Ruskin Inspector Ready™

Dampers ordered with Ruskin Inspector Ready™ option include a Fire Smoke Damper Interface (FSDI) compatible with Ruskin Inspector™ PC-based system.

Features:

- Continuously monitors damper status
- Data logs all activity
- Automates testing and reports
- UL555 & UL555S Classified
- Meets NFPA requirements
- Controlled closure technology



To other devices.
Continuously monitor, log, and automatically test up to 500 devices through a Ruskin Inspector™ Panel PC System.

The AMCA certified ratings seal does not apply to model FSDXX-IR option.

FSD36FA 1-1/2 hour, Leakage Class I, Front Access
FSD36GA 1-1/2 hour, Leakage Class II, Grille Access
FSD35GA 1-1/2 hour, Leakage Class III, Grille Access

The FA & GA models provide installation from one-side of wall, access through the grille to actuator & components, making them the best choice for shaft wall applications.

Features:

- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3235-0245:0124
- Controlled closure technology
- Galvanized steel construction
- FM Approvals — Specification Tested Product


FSD36GA

FSD36OW 1-1/2 hour, Leakage Class II, Out of Wall/Floor
FSD35OW 1-1/2 hour, Leakage Class III, Out of Wall/Floor

The OW (Out of Wall/Floor) models allow the damper to be installed up to 8" outside of the rated partition or floor. OW dampers install with angle one side on either side of the wall or top side of the floor.

Features:

- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3235-0245:0124
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product


FSD36OW

FSDR25 1-1/2 hour, Leakage Class I Fire Smoke Damper

The FSDR25 provides excellent point-of-origin fire and smoke containment for round duct applications in 6" – 24" diameters. This high performing model ensures lowest resistance to airflow in either direction for system velocities to 4000 fpm and 4" w.g.

Features:

- UL555 & UL555S Classified
- Meets NFPA requirements
- CSFM Listing 3235-0245:0128
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product


FSDR25

FSD60C 1 hour rated, Leakage Class I, Corridor damper
FSD36C 1 hour rated, Leakage Class II, Corridor damper

The FSD60C & FSD36C corridor dampers provide point-of-origin fire and smoke containment where air ducts penetrate or terminate at horizontal openings in the ceilings of interior "tunnel" corridors.

Features:

- UL555 & UL555S Classified
- Meets NFPA requirements
- Airfoil blade (FSD60C) and Triple v-groove blade (FSD36C)
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product
- California State Fire Marshal (CSFM) Listed
- FSD60C CSFM Listing 3235-0245:0121
- FSD36C CSFM Listing 3235-0245:0122

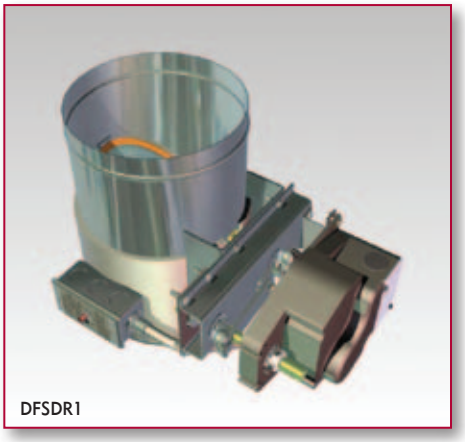

FSD60C

DFSDR1 1 hour rated, Leakage Class I, Corridor Damper
(Also classified as a Ceiling Damper)

The DFSDR1 is a true round corridor damper designed for use on the neck of a diffuser to provide point-of-origin fire and smoke containment at horizontal openings in the ceilings of interior "tunnel" corridors.

Features:

- UL555S Classified
- Meets NFPA requirement
- 6", 8", 10" and 12" diameters
- Galvanized steel construction
- FM Approvals – Specification Tested Product
- California State Fire Marshal (CSFM) Listed
- CSFM Listing 3230-0245:0114
- CSFM Listing 3225-0245:0101


DFSDR1

FSDR25C 1 hour rated, Leakage Class I, Corridor Damper

The FSDR25C provides excellent point-of-origin fire and smoke containment for round duct applications in 6" – 24" diameters. This high performing model ensures lowest resistance to airflow in either direction for system velocities to 4000 fpm and 4" w.g.

Features:

- UL555 & UL555S Classified
- Meets NFPA requirements
- Controlled closure technology
- Galvanized steel construction
- FM Approvals – Specification Tested Product
- California State Fire Marshal (CSFM) Listed
- CSFM Listing 3235-0245:0120


FSDR25C

Smoke dampers are low leak damper and actutator assemblies constructed to restrict the spread of smoke in HVAC systems that are designed to be automatically shut down in the event of a fire, or open to control the movement of smoke within a building when the HVAC system is part of an engineered smoke control system.

Smoke dampers are tested and labeled in accordance with UL555S.

Smoke Damper Selection

The process of selecting a smoke damper involves the following considerations:

1. Leakage Rating – Classes 1, 2, or 3.
2. Elevated Temperature Rating – 250°F or 350°F
3. Operational Ratings – 2,000 fpm, 3,000 fpm or 4,000 fpm and 4 in. w.g., 6 in. w.g. or 8 in.
4. Blade Design – Airfoil or triple v-groove.

Leakage Rating

UL Standard 555S identifies four leakage classes as follows:

MAXIMUM LEAKAGE IN CFM/SQ. FT.			
Leakage Class	**@4" w.g.**	**@8" w.g.**	**@12" w.g.**
Class I	8	11	14
Class II	20	28	35
Class III	80	112	140

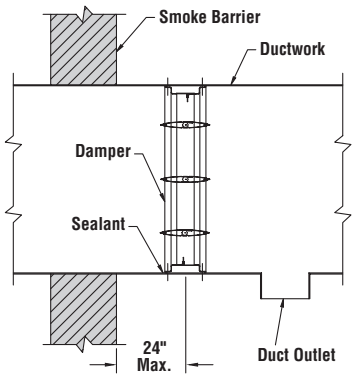
HVAC system designers are advised to select the lowest leakage class damper. However, there are some smoke control applications when a higher leakage class damper is acceptable.

Elevated Temperature and Operational Rating

Under ambient airflow temperature the damper is cycled (open/closed) three times @ 4" w.g., then returned to full-open position where heat is introduced at an average temperature rise of 30° to 50°F (17° to 28°C) per minute until the specified elevated temperature of 250° F (121°C) is attained. The system shall maintain the elevated temperature of up to a maximum 50°F (28°C) above specified elevated temperature for a minimum of 15 minutes. At that time damper is to be fully closed and then fully opened using the actuator. Cycle times shall not exceed 75 seconds for both opening and closing. Minimum operational rating is 2000 fpm (10.2 m/s) @ 4" w.g. (1.0 kPa) and 250°F (121°C). Other higher ratings that may be desired are conducted in increments of 1000 fpm and/or increments of 2" w.g. and up to 350°F.

Smoke Damper Installation

The smoke damper must be installed no more than 24" from the smoke barrier it is intended to protect.



SMOKE DAMPERS MODELS

SEE PAGE #	MODEL	HOURLY RATING	LEAKAGE CLASS	BLADE TYPE/ DESCRIPTION	MAXIMUM VELOCITY* (FPM)	MAXIMUM PRESSURE* (IN. W.G.)	MAXIMUM ASSEMBLY TEMP. (°F)*
Standard							
11	SD50	NA	I	Airfoil	2000	4	350
11	SD60	NA	I	Airfoil	4000	4	350
11	SD60V	NA	II	Airfoil	2000	4	350
11	SD60-2	NA	II	Airfoil	4000	4	350
12	SD37	NA	I	V-Groove	2000	4	350
12	SD36	NA	II	V-Groove	2000	4	350
12	SD35	NA	III	V-Groove	2000	4	350
True Round							
12	SDRS25	NA	I	True Round	2000	4	350
Stainless Steel							
12	SD37SS	NA	I	V-Groove	2000	4	350
12	SD36SS	NA	II	V-Groove	2000	4	350
	SD35SS	NA	III	V-Groove	2000	4	350
	SDRS25SS	NA	I	True Round	2000	4	350
Modulating & Balancing							
11	SD60M	NA	I	Airfoil	2000	4	250
11	SD60-BAL	NA	I	Airfoil	2000	4	250
Fan Isolation							
12	SD102	NA	II	Airfoil	2000	6	250

Ruskin Life Safety Dampers meet Agency Listings shown on back cover.

**For metric units, please see back cover.*

Ruskin SD50 ultra low leakage smoke dampers provide resistance to the passage of smoke in HVAC systems. The Ruskin airfoil blade design ensures lowest resistance to airflow from either direction in system velocities to 4000 fpm (20.3 m/s) and 8" w.g. (2kPa).

Features:

- UL555S Classified
- Meets NFPA requirements
- 250° or 350° assembly temperature
- AMCA Certified
- Ruskin Airfoil blade
- Power open/spring closed (or power closed/spring open) operation
- Aluminum construction
- FM Approvals – Specification Tested Product

SD50

Ruskin Company certifies that the SD50 shown hereon 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 for the SD50.

Ruskin SD60 ultra low leakage smoke dampers provide resistance to the passage of smoke in HVAC systems. The Ruskin airfoil blade design ensures lowest resistance to airflow from either direction in system velocities to 4000 fpm (20.3 m/s) and 8" w.g. (2kPa).

Features:

- UL555S Classified
- Meets NFPA requirements
- 250° or 350° assembly temperature
- AMCA Certified
- Ruskin Airfoil blade
- Power open/spring closed (or power closed/spring open) operation
- Galvanized steel construction (SD60 series)
- FM Approvals – Specification Tested Product

SD60

Ruskin Company certifies that models SD60, SD60-2, SD60V, SD60M and SD60-BAL shown hereon 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 Program. The AMCA Certified Ratings Seal applies to air performance for models SD60, SD60-2, SD60V, SD60M and SD60-BAL.

SD60 Leakage Class I

SD60-2 Leakage Class II

SD60V Leakage Class II, Vertical Blade

The SD60V provides vertical blades allowing actuator to be on top or bottom of damper.

SD60M Leakage Class II, Modulating

The SD60M provides a smoke damper plus volume control damper in one via modulating electric or pneumatic actuator.

SD60-BAL Leakage Class I, 3-position Balancing

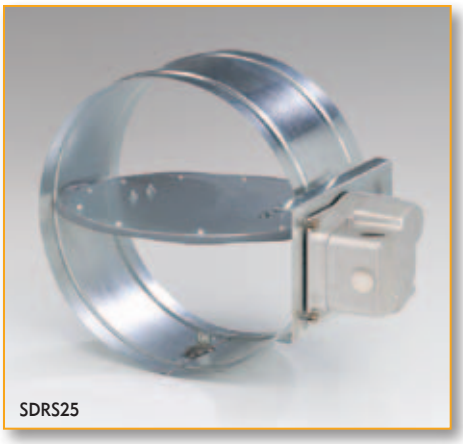
The SD60-BAL provides a smoke damper plus balancing damper in one. The built-in potentiometer allows positioning of damper blades without the need for an input control signal. When energized in normal conditions damper goes to open set position to balance air flow, or full open/closed in fire conditions to contain or exhaust smoke depending on system design.

SDRS25 Leakage Class I Smoke Damper

The SDRS25 provides excellent smoke containment for round duct applications in 6" – 24" diameters. This high performing model ensures lowest resistance to airflow in either direction for system velocities to 4000 fpm and 4" w.g.

Features:

- UL555S Classified
- Meets NFPA requirement
- Galvanized or Stainless steel construction (SDRS25SS)
- FM Approvals – Specification Tested Product
- CSFM Listing 3230-0245:0108



SDRS25

SD35, 36 & 37 Series smoke dampers provide resistance to the passage of smoke in HVAC systems. The triple v-groove blade design ensures excellent performance in systems with airflow from either direction and velocities less than 2000 fpm.

Features:

- UL555S Classified
- Meets NFPA requirement
- AMCA Certified
- 250° or 350° assembly temperature
- Power open/spring closed (or power closed/spring open) operation
- Galvanized steel or stainless steel construction
- FM Approvals – Specification Tested Product

SD37 Leakage Class I
SD36 Leakage Class II
SD35 Leakage Class III

SD37SS Leakage Class I, Stainless Steel Construction
SD36SS Leakage Class II, Stainless Steel Construction
SD35SS Leakage Class III, Stainless Steel Construction

SD37SS, SD36SS and SD35SS provide 304 or 316 stainless steel construction for severe environment applications.

SD36

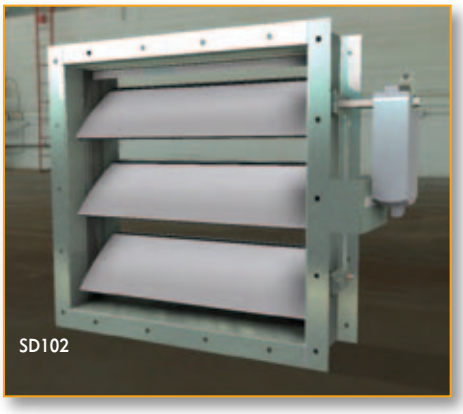
Ruskin Company certifies that SD35, SD36, SD37, SD35SS, SD36SS and SD37SS shown hereon are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance for models SD35, SD36, SD37, SD35SS, SD36SS and SD37SS

SD102 Leakage Class II

The SD102 provides air-handling equipment isolation when the capacity is greater than 15,000 cfm per NFPA90A. The SD102 is UL listed for 2000 fpm and 6" w.g., but is constructed and tested for velocities as high as 5,000 fpm and pressures to 24" w.g.

Features:

- UL555S Classified
- Meets NFPA requirement
- Aluminum Airfoil blades
- FM Approvals – Specification Tested Product



SD102

The AMCA certified ratings seal does not apply to models SDRS25 or SD102.

Fire dampers are UL555 tested and labeled devices installed in ducts and air transfer openings of air distribution systems, designed to close upon the detection of heat. Fire dampers, when closed interrupt migratory airflow, resist the passage of flame and maintain the integrity of the fire rated barrier.

Fire Damper Selection

The process of selecting a fire damper involves the following considerations:

Fire Resistance Rating

Fire dampers are typically rated for 1-1/2 or 3 hours fire resistance. A 1-1/2 rated damper is sufficient for wall or floors having a rating of less than 3 hours. If the wall or floor has a rating of 3 hours or more, a 3 hour rated damper is required for sufficient protection. (IBC Chapter 7 and NFPA90A Chapter 5).

Dynamic Closure Rating

Fire dampers are rated for either static (fans off) or dynamic (fans on) HVAC systems. Static fire dampers have not been tested for closure under airflow and therefore can only be applied in HVAC systems that are designed to shut down in the event of a fire. Dynamic fire dampers have been tested for closure under airflow and carry both an airflow velocity (fpm) and pressure differential (w.g) rating. Minimum operational rating is 2000 fpm and 4" w.g. Other higher ratings that may be desired are conducted in increments of 1000 fpm and/or increments of 2" w.g. A dynamic fire damper should be selected based on the conditions it will operate in after installation.

Installation

Fire dampers can be installed in the floor (horizontal) with vertical airflow or they can be installed in walls (vertical) with horizontal airflow.

The damper blades must close within the plane of the rated barrier, unless an “out of wall/floor” fire damper model is used.

Fire dampers use a variety of spring mechanisms depending on size, rating and vertical or horizontal mounting. So, it is important to recognize that dampers must be ordered according to their installed position for proper operation and features. For a wall opening the damper orientation is vertical mount, and a floor opening the damper orientation is horizontal mount.

Damper Type

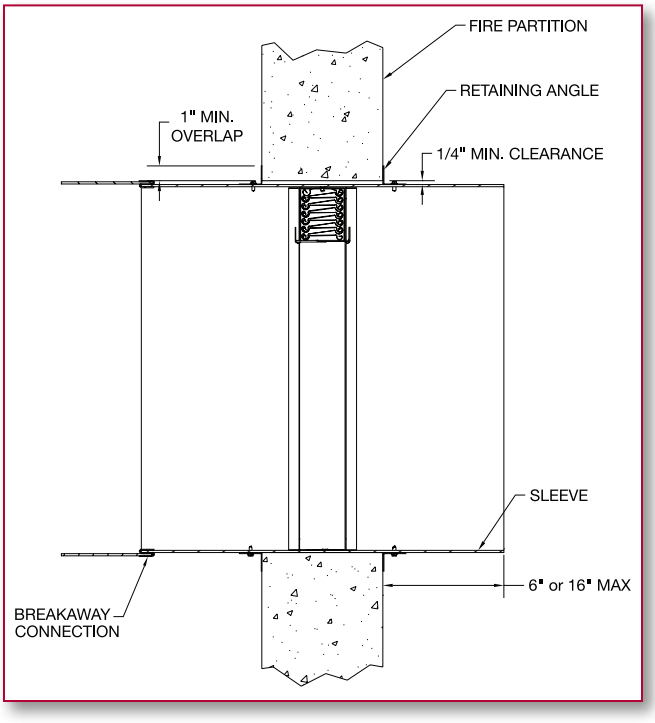
There are two main types of fire dampers: curtain type and multiple blade type. The curtain blade is the most commonly used fire damper because it costs less than the multiple blade type and, in most cases, is less restrictive to the air flow. Multiple blade fire dampers, however, are available in larger sizes and can be easier to test and re-open. Dynamic multiple blade fire dampers are airflow closure rated for higher velocities and pressures than curtain type fire dampers.

Curtain Type Fire Damper

Multiple Blade Fire Damper

Typical Fire Damper Installation

(Fast Angle)



FIRE DAMPERS

FIRE DAMPER MODELS				
MODEL	HOURLY RATING	BLADE TYPE/DESCRIPTION	MAXIMUM VELOCITY** (FPM)	MAXIMUM PRESSURE* (IN. W.G.)
Dynamic 1-1/2 Hour Fire Dampers				
Standard				
DFD60	1-1/2	Airfoil Multi-blade	4000	8
DIBD2	1-1/2	Curtain type	4000	4
DIBD20	1-1/2	Curtain type, Factory Integral sleeve	4000	4
DIBD40	1-1/2	Curtain type, Factory Integral sleeve	4000	4
DIBD60	1-1/2	Curtain type, Factory Integral sleeve	4000	4
DFD35	1-1/2	Triple V-Groove Multi-blade	2000	4
Integral Access Door				
DIBD2-D	1-1/2	Curtain type, Factory Sleeve	3000	4
Grille & Grille Access				
DIBD2GA	1-1/2	Curtain type, Factory Integral sleeve	3000	4
DFD60GA	1-1/2	Airfoil Multi-blade	2000	4
DFD60OW	1-1/2	Airfoil Multi-blade	2000	4
DIBD20G	1-1/2	Curtain type, Factory Integral sleeve	2000	4
DIBD2G	1-1/2	Curtain type, Factory Integral sleeve	2000	4
DFD35GA	1-1/2	Triple V-Groove Multi-blade	2000	4
Out of Wall/Floor				
DIBD2OW	1-1/2	Curtain type, Factory Sleeve	3000	4
DFD35OW	1-1/2	Triple V-Groove Multi-blade, Factory Sleeve	3000	4
True Round				
FDR25	1-1/2	True Round	2000	4
Stainless Steel				
DIBD2SS	1-1/2	Curtain type	3000	4
DIBD2SSG	1-1/2	Curtain type, Grille mount, Factory Sleeve	3000	4
DFD35SS	1-1/2	Triple V-Groove Multi-blade	2000	4
DFD35SSOW	1-1/2	Triple V-Groove Multi-blade, Out of wall/floor, Factory Sleeve	2000	4
DFD35SSGA	1-1/2	Triple V-Groove Multi-blade, Out of wall/floor, Factory Sleeve	2000	4
Dynamic 3 Hour Fire Dampers				
Standard				
DFD60-3	3	Airfoil Multi-blade	4000	8
DIBD23	3	Curtain type	4000	4
DIBD230	3	Curtain type, Factory Integral sleeve	4000	4
DIBD430	3	Curtain type, Factory Integral sleeve	4000	4
DIBD630	3	Curtain type, Factory Integral sleeve	4000	4

Ruskin Life Safety Dampers meet Agency Listings shown on back cover.
**For metric units, please see back cover.*
***Maximum velocity ratings may be different for vertical and horizontal mounted dampers.*


DIBD20

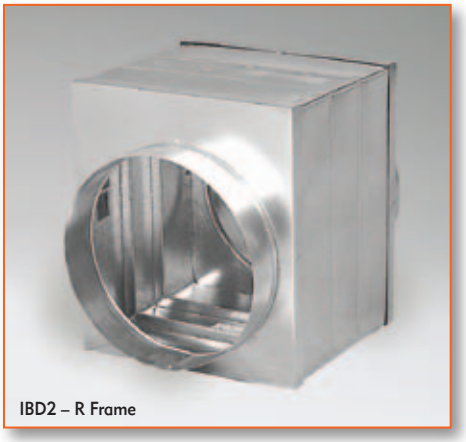

DFD35


DIBD2-D

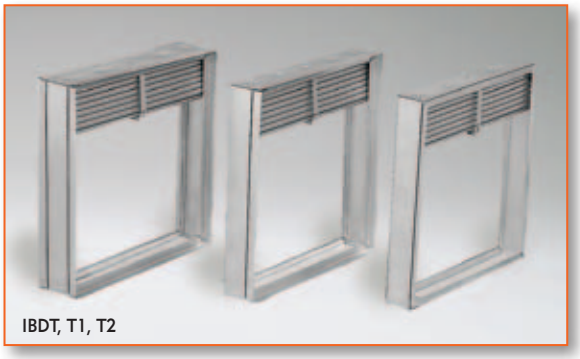
FIRE DAMPER MODELS		
MODEL	**HOURLY RATING**	**BLADE TYPE/DESCRIPTION**
Static 1.5 Hour Fire Dampers		
Standard		
IBD2	1-1/2	Curtain type
IBD20	1-1/2	Curtain type, Factory Integral sleeve
IBD40	1-1/2	Curtain type, Factory Integral sleeve
IBD60	1-1/2	Curtain type, Factory Integral sleeve
Multi-Blade		
FD60	1-1/2	Airfoil Multi-blade
FD35	1-1/2	Triple V-Groove Multi-blade
Thinline		
IBDT, T1, T2	1-1/2	Curtain type
Integral Access Door		
IBD2-D	1-1/2	Curtain type, Factory Sleeve
Grille & Grille Access		
IBD20G	1-1/2	Curtain type, Factory Integral sleeve
IBD2G	1-1/2	Curtain type, Factory Sleeve
IBDTG	1-1/2	Curtain type, thinline, Factory Sleeve
IBD2GA	1-1/2	Curtain type, grille access, Factory Sleeve
FD60G	1-1/2	Airfoil Multi-blade, Factory Sleeve
FD60GA	1-1/2	Airfoil Multi-blade, Factory Sleeve
FD60OW	1-1/2	Airfoil Multi-blade, Factory Sleeve
FD35G	1-1/2	Triple V-Groove Multi-blade, Factory Sleeve
FD35GA	1-1/2	Triple V-Groove Multi-blade, Factory Sleeve
Out of Wall/Floor		
IBD2OW	1-1/2	Curtain type, Factory Sleeve
FD35OW	1-1/2	Triple V Groove Multi-blade, Factory Sleeve
Stainless Steel		
FD35SS	1-1/2	Triple V-Groove Multi-blade
FD35SSGA	1-1/2	Triple V-Groove Multi-blade
FD35SSOW	1-1/2	Triple V-Groove Multi-blade
IBD2SS	1-1/2	Curtain type
IBD2SSG	1-1/2	Curtain type, Grille mount, Factory Sleeve
Static 3 Hour Fire Dampers		
Standard		
IBD23	3	Curtain type
IBD230	3	Curtain type, Factory Integral sleeve
IBD430	3	Curtain type, Factory Integral sleeve
IBD630	3	Curtain type, Factory Integral sleeve
Multi-Blade		
FD60-3	3	Airfoil Multi-blade

IBD2 – A Frame

IBD2 – B Frame



IBD2 – R Frame



IBDT, T1, T2

CEILING DAMPERS

Ceiling fire dampers are also know as "Radiation" dampers and that describes what makes them different from "standard" fire dampers. They are designed and tested to limit the radiant heat transfer through an air inlet/outlet opening in the ceiling membrane of a fire resistance rated floor/ceiling or roof/ceiling assembly. The Test Standard by which they are evaluated is UL555C.

Ceiling Fire Damper Selection

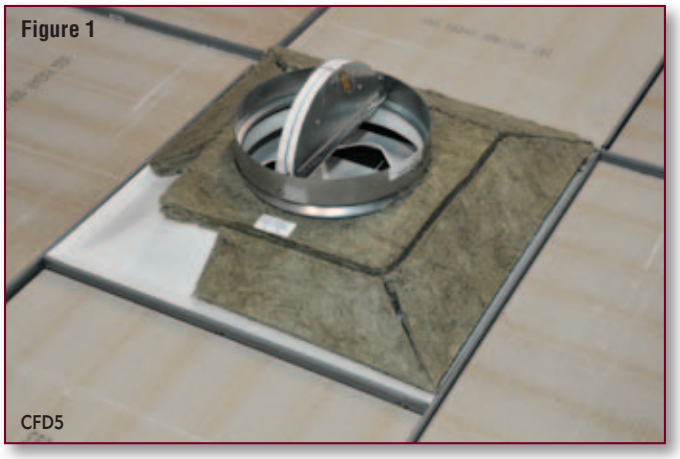
The process of selecting a ceiling fire damper involves one major consideration:

1. Floor/ceiling or roof/ceiling assembly design — Ceiling fire dampers are listed for use as a component in assemblies tested with an air inlet/outlet opening in the membrane. These assemblies have a specific hourly fire resistance rating and ceiling fire dampers can normally be used in any assembly with a restrained or unrestrained rating of 3 hours or less.

Ceiling Fire Damper Installation

Ceiling fire damper installations are typically classified as lay-in or surface mount. Figure 1 represents a lay-in installation and figure 2 represents a surface mount installation. Refer to the manufacturer's UL approved installation instructions for specific information and details.

Figure 1



CFD5

Figure 2

CFD7

CEILING DAMPERS		
MODEL	**HOURLY RATING**	**DESCRIPTION**
For Non-Wood Constructed Ceilings		
CFD2	4	Rectangular
CFD3	4	Rectangular
CFD4	3	Rectangular
CFD5	4	Rectangular
CFD8	4	Rectangular
CFDR2	4	Round
CFDR3	4	Round
CFDR5	4	Round
For Wood Constructed Ceilings		
CFD7	1	Rectangular
CFD7(T)	1	Rectangular
CFDR7T	1	Round
CFD2W	1	Rectangular
CFD3W	1	Rectangular
CFDR2W	1	Round
CFDR3W	1	Round
CFD4W	1	Rectangular

Ruskin ceiling fire (radiation) dampers provide protection to limit the radiative heat transfer through an air inlet/outlet opening in the ceiling membrane of a fire resistance rated floor/ceiling or roof/ceiling assembly.

Models for non-wood constructed ceilings

UL555C Classified

CFD(R)2, CFD(R)3 4 hour rating *(square, rectangular and round)*

CFD4 3 hour rating *(square & rectangular)*

CFD(R)5 4 hour rating *(square, rectangular and round)*

CFD8 4 hour rating *(low-profile, curtain type)*

DFSDR1 1 hour rated

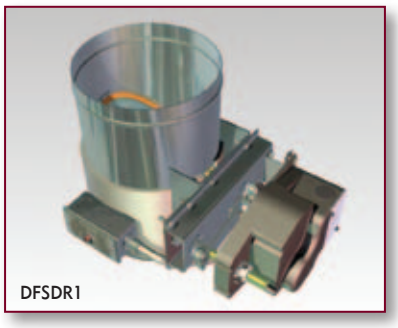
The DFSDR1 is an actuated ceiling damper designed to limit the radiative heat transfer through an air inlet/outlet opening in the ceiling membrane of a fire resistance rated floor/ceiling or roof/ceiling assembly

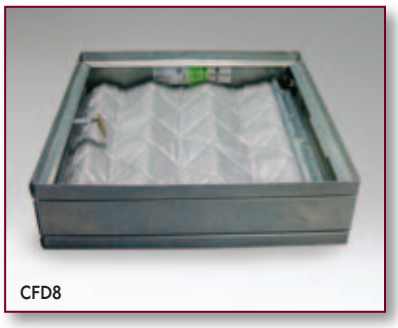
Features:

- UL555C Classified
- Meets NFPA requirement
- 6", 8", 10" and 12" diameters
- Galvanized steel construction
- FM Approvals – Specification Tested Product


CFD2


CFDR2


DFSDR1


CFD8

Models for wood constructed ceilings

UL555C Classified

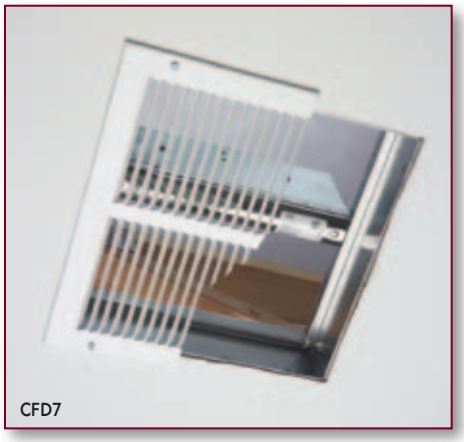
CFD7 1 hour rating *(square, rectangular for wood joist construction)*

CFD7T 1 hour rating *(square, rectangular for wood truss construction)*
The CFD7T can be installed in insulated or non-insulated boots or boxes from the factory.

CFDR7T 1 hour rating *(round for wood truss construction)*

Warnock Hersey Classified

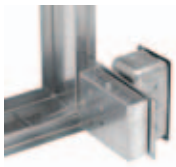
CFD(R)2W , CFD(R)3W & CFD4W 1 hour rating *(wood truss construction)*


CFD7

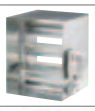

CFDR2W


CFDR7T

LIFE SAFETY DAMPER ACCESSORIES/OPTIONS

ACCESSORIES							
MODEL	IMAGE	DESCRIPTION	SD	FSD	(D)IBD	(D)FD	CFD
SP100		The SP100 switch package is utilized on multi-blade dampers and is connected to the blade to indicate damper open or damper closed position.	●	●		●	
SP200		The SP200 switch package is installed on curtain-type fire dampers and will indicate open until curtain falls and trips switch.			●		
TS150		This dual action safety device utilizes two electronic fuse links (EFL). The primary fuse fails, moving the damper to the fail position. The damper can be reopened to help manage smoke for safe egress until the high limit temperature is reached.		●			
DTS		Use on all life safety dampers requiring a manual test feature. The DTS is a UL tested feature of the damper assembly. It provides a method for manual testing the electronic fuse link. It is a cost effective way to satisfy NFPA test requirements. It features a push button momentary test mechanism. It can be used for 165, 212 and 250 degree applications and wired to 24, 120 or 240 VAC power.	●	●			
DSDF		The DSDF is designed for use with Ruskin UL Classified Smoke and Fire/Smoke Dampers. It detects the presence of smoke in the duct for HVAC systems operating at no less than 300 fpm. The DSDF is well suited for dynamic systems.	●	●			
DSDN		The DSDN (No Flow Duct Smoke Detector) is designed for use with all Ruskin UL555S classified smoke dampers. It detects the presence of smoke in the duct for HVAC systems without a minimum operating velocity. Detection is a critical component in stopping the migration of smoke.	●	●			
MCPB		For use on all life safety dampers requiring a manual test feature., this device can be mounted on the damper assembly or remote. It is a cost effective way to satisfy NFPA test requirements. It features a push button momentary test mechanism and is available for use with 24 and 120 VAC wiring.	●	●			
MCP1.5		Use the MCP1.5 single control station for life safety dampers that require a manual test feature. It can be mounted on the damper assembly or remote. This model is a cost effective way to satisfy NFPA test requirements. It features a toggle switch that can also be used as a disconnect. May be used with 24 and 120 VAC power	●	●			
MCP1		For High rise hotels and institution projects, the MCP1/MCP14 (used in conjunction with TS150) is for use on all life safety dampers that are part of the dynamic smoke management system. The product ships loose for field installation. It features a toggle switch that allows the damper to be manually opened, closed or reopened (override) during a life safety event. Dual heat sensors (primary and high limit) permit override of the high limit temperature. Lights provide visual indication of blade position. Product may be used in 120 or 24 VAC systems.	●	●			

ACCESSORIES							
MODEL	IMAGE	DESCRIPTION	SD	FSD	(D)IBD	(D)FD	CFD
MCP1R		MCP1R/MCP14R (requires TS150) is for use on all life safety dampers that are part of the dynamic smoke management system. It is the same device as the MCP1/MCP14 with the added feature of two isolated relay contacts that can be used to indicate damper position to two independent systems (BAS and fire control panel). The MCP1R relay contact is rated for 120 volt pilot duty, while the MCP14R is rated for 24 volt pilot duty. Contacts are not intended for large electrical loads. Supply power can be either 24 VAC (MCP1R) or 120 VAC (MCP14R)		●			
MCP2		Model MCP2/MCP24 is always used in conjunction with the TS150. It is for use on all life safety dampers that are part of the dynamic smoke management system. The product ships loose for field installation. It features a keyed switch that allows the damper to be manually opened, closed or reopened (override) during a life safety event. Dual heat sensors (primary and high limit) permit damper override up to the high limit temperature. Lights provide visual indication of blade position. Product is suitable for use in 120 or 24 VAC systems.		●			
MCP3		Used as a visual indication of the damper position, this device is generally mounted it in a remote location. It can also be mounted on the damper. It is available for use with 120 or 24 VAC power supply.	●	●			
MCP4		For use on all life safety dampers that require a manual test feature. Similar to model MCPB, it can be mounted on the damper assembly or remote. It is a cost effective way to satisfy NFPA test requirements. It features a push button momentary test mechanism and light s giving indication to the damper position. The product is suitable for 120 and 24VAC	●	●			
FSDI		Ruskin Fire Smoke Damper Interface (FSDI) is part of the *Ruskin Inspector™* damper monitoring and test strategy. The FSDI can be factory mounted to the damper sleeve, or can ship separate for field installation. It makes the FSD series damper "Inspector Ready". For more information about how the complete *Ruskin Inspector™* continuously monitors and automatically tests all life safety dampers in the building, refer to the *Ruskin Inspector™* literature found on our web site.	●	●			

OPTIONS						
IMAGE	DESCRIPTION	SD	FSD	(D)IBD	(D)FD	CFD
	Security bars factory mounted in damper sleeve (1/2", 3/4" & 1" diameter) are available for various security level applications	●	●	●	●	
	Factory mounted sleeve access doors save labor by eliminating the need to field cut an opening. It also satisfies the inspection door requirement.	●	●	●	●	
	Ductmate, TDF, or factory hemmed sleeve for duct to sleeve connection saves labor while providing the required breakaway connection.	●	●	●	●	
FM APPROVED	FM (Factory Mutual) Specification tested product label is placed on products when required by specification.	●	●	●	●	●
	304 & 316 Stainless steel construction is available for use in applications with corrosive environments.	●	●	●	●	
	Various actuator types: Electric (24v/120v/230v), Pneumatic, 24v modulating and 24v 3-position are installed and commissioned in an ISO certified facility.	●	●			

METRIC CONVERSIONS

VELOCITY	
(FPM)	(M/S)
2000	10.2
3000	15.2
4000	20.3
PRESSURE	
(In w.g.)	(kPa)
4.0	1.0
6.0	1.5
8.0	2.0
TEMPERATURE	
(°F)	(°C)
250	121
350	177

AGENCY LISTINGS

Ruskin Life Safety Damper Products meet the following:

- **UL Standards –** UL555, UL555S & UL555C
- **IBC –** International Building Code
- **NFPA**(National Fire Protection Association) Standards, 80, 90, 90A, 92A, 92B, 101 & 105
- **CSFM** (California State Fire Marshall) Listing
- **New York City** (BSA/MEA)

FM Approvals as Specification Tested Product – (on request)

RUSKIN®
Air & Sound Control
Specified by Many – Equaled by None

RUSKIN.com

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LSDB February 2012 (New)