

## INSTALLATION INSTRUCTIONS DFD60-3 AND FD60-3 FIRE RATED MULTIPLE BLADE DAMPER 3 HOUR UL555 RATING FOR USE IN DYNAMIC AND STATIC SYSTEMS

### APPLICATION

The DFD60-3 dynamic fire damper is designed for use in dynamic (fans on) or static (fans off) systems. The FD60-3 static fire dampers are for use in static (fans off) systems only. Multiple blade fire dampers are designed to operate with the blades running horizontally. The standard application is with the leading edge of the closed blades within the walls, partitions or masonry floors; with fire resistance rating of 3 hours or more.

#### DYNAMIC FIRE DAMPERS

Use in Dynamic (fans on) or Static (fans off) Systems

#### DFD60-3 MAXIMUM UL CLASSIFIED SIZES

Single section vertical and horizontal installation  
30"w x 48"h (762 x 1219)

Multiple section assembly vertical and horizontal installation  
60"w x 96"h (1524 x 2438) or 120"w x 48"h (3048 x 1219) or  
90"w x 64"h (2286 x 1626)

#### STATIC FIRE DAMPERS

Not for use in Dynamic (fans on) Systems

#### FD60-3 MAXIMUM UL CLASSIFIED SIZES

Single section vertical and horizontal installation  
30"w x 48"h (762 x 1219)

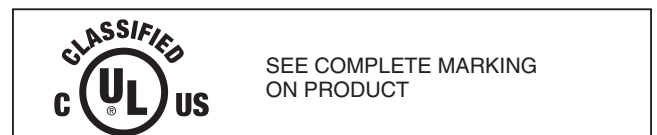
Multiple section assembly vertical and horizontal installation  
120"w x 96"h (3048 x 2438)

Dimensions shown in parentheses ( ) indicate millimeters.

### INSTALLATION SUPPLEMENTS

Refer to the appropriate Ruskin installation instructions supplements for additional information or special requirements:

- Optional Sealant of Dampers in Fire Rated Wall or Floor Openings
- Transfer Openings and Duct Terminations
- Optional FireStop Material
- Extension of Fire and Combination Fire and Smoke Damper Sleeves
- Fire and Combination Fire and Smoke Damper Installation in Concrete Floor with Steel Deck
- Drivemate No. 14880 Breakaway Connection
- Flanged System Breakaway Connections
- Cavity Shaft Wall Metal Stud Framing
- SP100 Switch Package



California State Fire Marshal Listing No. (D)FD60-3 3225-245:0004

## 1. Opening Clearance

The opening in the wall or floor shall be larger than the damper/sleeve assembly to permit installation and expansion. The opening shall be a minimum of 1/8" per foot (3 per 305) larger than the overall size of the damper/sleeve assembly. The maximum opening size shall not exceed 1/8" per foot (3 per 305) plus 2" (51), nor shall the opening be less than 1/4" (6) larger than the damper/sleeve assembly.

## 2. Fasteners and Multiple Section Assembly

When joining multiple damper assemblies or fastening the damper to the sleeve, dampers shall be fastened with 1/4-20 (M6) bolts, number 10 (M5) screws, or 1/2" (13) long welds staggered intermittently on both sides. Space fasteners 6" (152) on center and a maximum 2" (51) from the ends of the joining sections or from each corner.

## 3. Damper Sleeve

Sleeve thickness must be equal to or thicker than the duct connected to it. Sleeve gage requirements are listed in the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems and in NFPA90A. If a breakaway style duct/sleeve connection is not used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide by 24" (610) high and 14 gage (1.9) for dampers exceeding 36" (914) wide by 24" (610) high. Damper sleeve shall not extend more than 6" (152) beyond the fire wall or partition unless damper is equipped with an actuator and/or factory installed access door. Sleeve may extend up to 16" (406) beyond the fire wall or partition on sides equipped with actuator and/or factory installed access door. Sleeve shall terminate at both sides of wall within dimensions shown.

## 4. Damper Orientation

Damper is designed to operate with blades running horizontally and must be installed with center line of damper blades within the wall or floor when they are in the closed position. Use "Mount With Arrow Up" label as a guide for proper damper orientation. Horizontal mount dampers may be installed with the jackshaft above or below the floor.

## 5. Mounting Angles

Mounting angles shall be a minimum of 1 1/2" x 1 1/2" x 20 gage steel (38 x 38 x 1.0), installed on both sides of the partition and attached only to the sleeve. Mounting angles must overlap the partition a minimum of 1" (25). Do not weld or fasten angles together at the corners of damper. Ruskin fire dampers may be installed using Ruskin PFMA for two angle installations.

### a. Mounting Angle Fasteners

#10 (M5) bolts or screws, 3/16" (3) steel rivets or 1/2" (13) long welds.

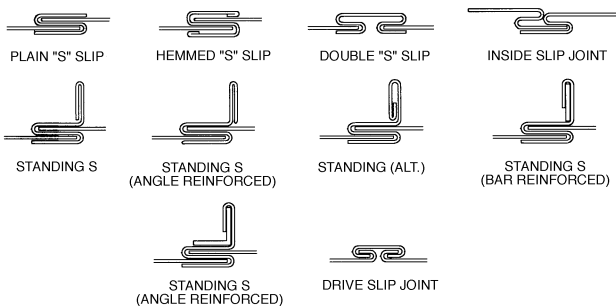
### b. Mounting Angle Fastener Spacing

Fasteners shall be spaced at 8" (203) o.c. with a minimum of 2 on each side, top and bottom.

## 6. Duct/Sleeve Connections

### a. Break-away Duct/Sleeve Connections

Rectangular ducts must use one or more of the connections depicted below:



A maximum of two #10 (M5) sheet metal screws on each side and the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used. Connections using these slip joints on the top and bottom with flat drive slips up to 20" (508) long on the sides may also be used.

### b. Round and Oval Break-away Connections

Round and flat oval break-away connections must use either a 4" (102) wide drawband or #10 (M5) sheet metal screws spaced equally around the circumference of the duct as follows:

- Duct diameters 22" (559) and smaller – maximum 3 screws.
- Duct diameters over 22" (559) and including 36" (914) – maximum 5 screws.
- Duct diameters over 36" (914) and up to and including 191" (4851) total perimeter – maximum 8 screws.

For flat oval ducts, the diameter is considered the largest (major) dimension of the duct. These connections are depicted in the SMACNA Fire, Smoke, and Radiation Damper Installation Guide.

**Note:** When optional sealing of these joints is desired, the following sealants may be applied in accordance with the sealant manufacturer's instructions:

Design Polymerics – DP 1010                      Precision – PA2084T  
Hardcast, Inc. – Iron Grip 601                      Eco Duct Seal 44-52

### c. Flanged Break-away Style Duct/Sleeve Connections.

Flanged connection systems manufactured by Ductmate, Nexus or Ward are approved break-away when installed as shown on the Flanged Systems Breakaway Connections Supplement.

TDC and TDF roll-formed flanged connections using 3/8" (10) steel bolts and nuts, and metal cleats, as tested by SMACNA, are approved break-away connections when installed as shown on the Flanged Systems Breakaway Connections Supplement.

### d. Non-Break-away Duct/Sleeve Connections

If other duct/sleeve connections are used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide x 24" (610) high and 14 gage (2.0) for dampers 36" (914) wide x 24" (610) high.

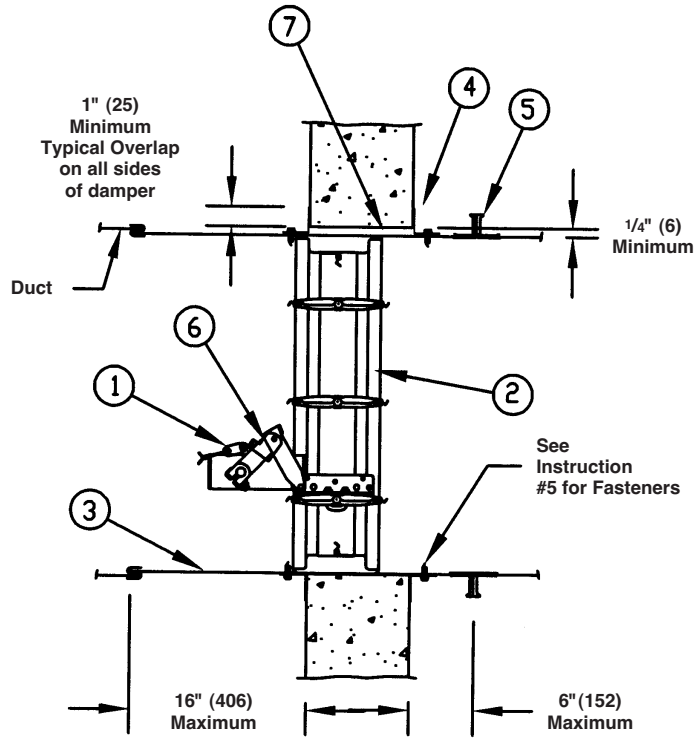
## 7. Installation and Maintenance

To ensure optimum operation and performance, the damper must be installed so it is square and free from racking. Do not compress or stretch the damper frame into the duct or opening. Lift or handle the damper using sleeve or frame. Do not lift damper using blades or jackshaft. Dampers must be maintained, cycled and tested in accordance with the latest editions of NFPA 80, 90A, 92A, 92B, 105, UL864, AMCA 503 and local codes. Care should be exercised to ensure that such tests are performed safely and do not cause system damage.

**VERTICAL INSTALLATION  
TWO ANGLE INSTALLATION**

Angles are required on both sides of the partition

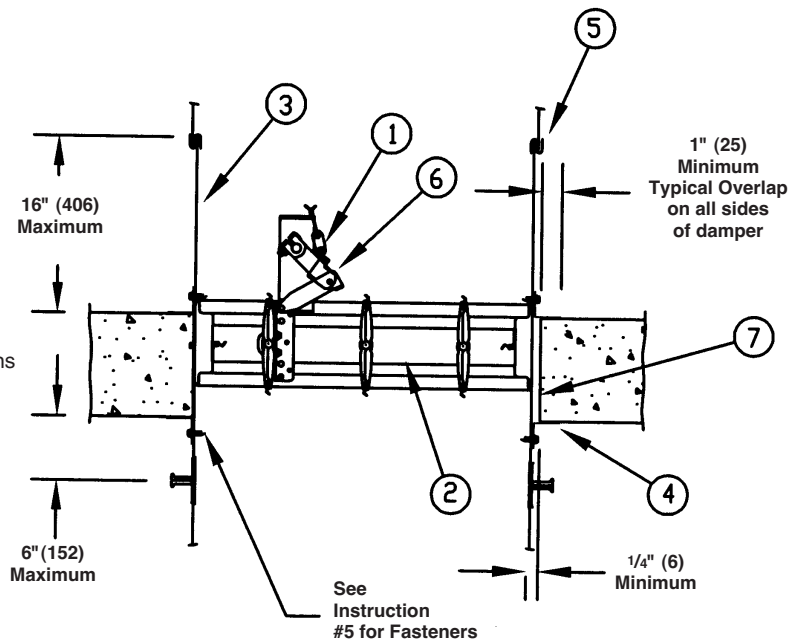
- | ITEM | DESCRIPTION           |
|------|-----------------------|
| 1.   | Fusible Link          |
| 2.   | Damper Frame          |
| 3.   | Sleeve                |
| 4.   | Mounting Angles       |
| 5.   | Breakaway Connections |
| 6.   | Overcenter Link       |
| 7.   | Opening Clearance     |



**HORIZONTAL INSTALLATION  
TWO ANGLE INSTALLATION**

Angles are required on both sides of the floor

- | ITEM | DESCRIPTION           |
|------|-----------------------|
| 1.   | Fusible Link          |
| 2.   | Damper Frame          |
| 3.   | Sleeve                |
| 4.   | Mounting Angles       |
| 5.   | Breakaway Connections |
| 6.   | Overcenter Link       |
| 7.   | Opening Clearance     |



## RECOMMENDED FRAMING FOR OPENINGS IN WOOD AND METAL STUD WALLS

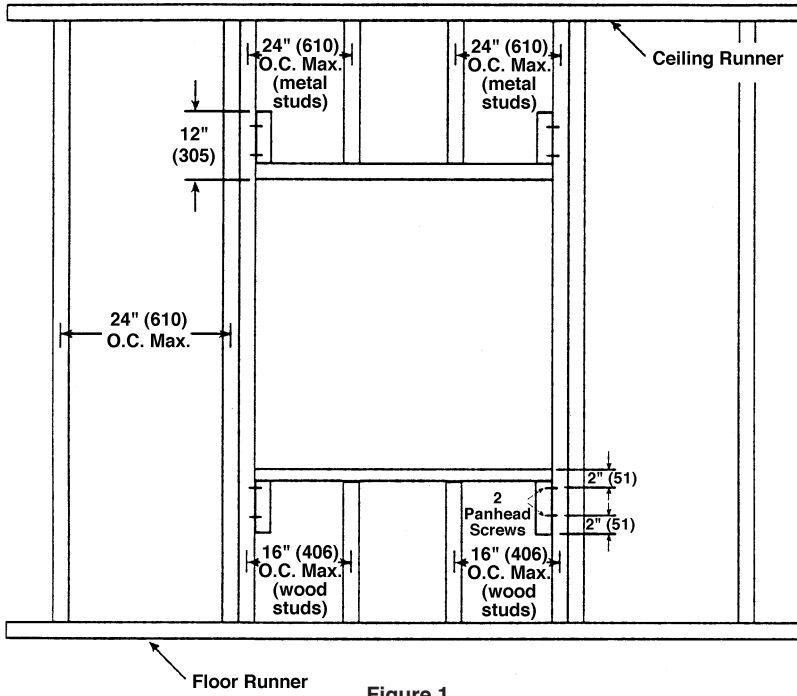


Figure 1

### INSTRUCTIONS

1. Frame wall openings as shown.
2. Double vertical studs are not required for openings 36" w x 36" h (914 x 914) or smaller.
3. All construction and fasteners must meet the requirements of the appropriate wall design and/or local codes.
4. Consult the authority having jurisdiction for other acceptable framing methods.

### NOTE:

The Metal Stud Construction and Wood Stud Construction figures at the bottom of the page depict mounting angles installed on both sides of the partition. A single angle may be sufficient. Refer to the instructions for single angle installation requirements.

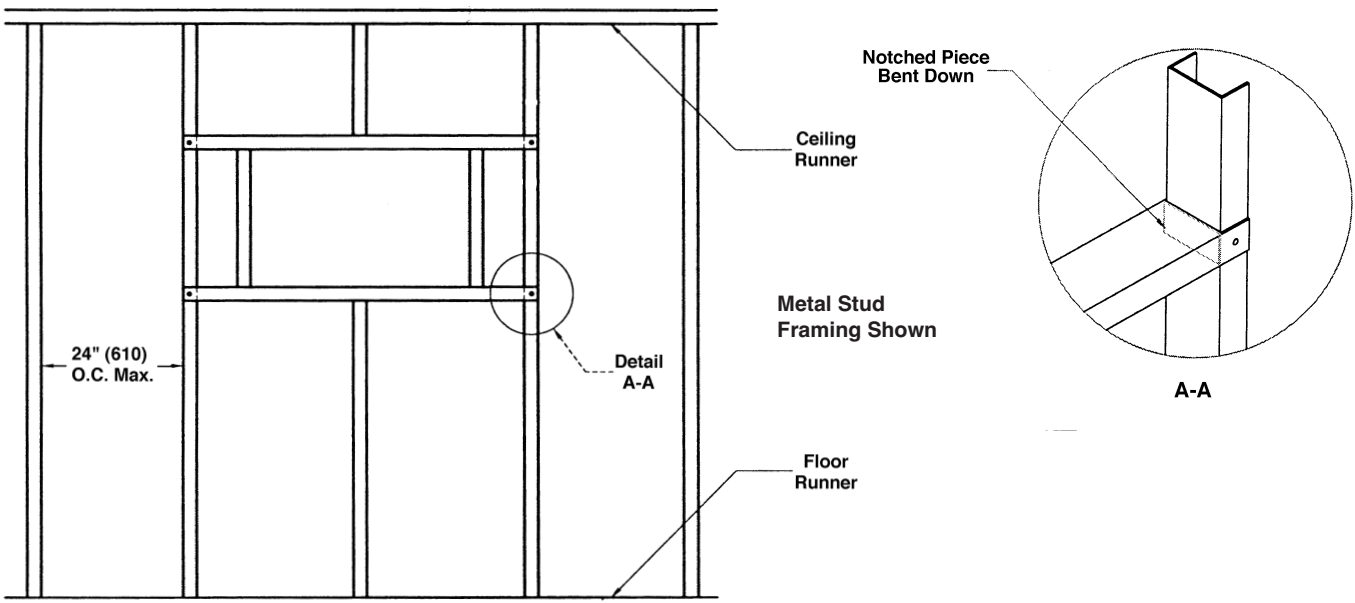


Figure 2

