INSTALLATION INSTRUCTIONS
1 1/2 HOUR UL CLASSIFIED
CURTAIN TYPE (D)IBD2, (D)IBD2SS AND IBDT FIRE DAMPERS

APPLICATION
The fire damper models shown on this sheet are marked with a 1 1/2 hour fire damper label and are approved for use in fire walls or masonry floors with ratings of less than 3 hours. Fire Dampers require a field-or factory-installed sleeve. Select a sleeve of sufficient length to permit mounting angles attachment. Static and Dynamic dampers must be installed with leading edge of the closed blades within the wall or floor.

STATIC FIRE DAMPERS – IBD models
Not for use in Dynamic (fans on) Systems.

MODEL IBD2 MAXIMUM SIZE
Single Section
Vertical Installation – 48”w x 30”h or 33”w x 72”h (1219 x 762 or 838 x 1829) or 36”w x 36”h (914 x 914).
Horizontal Installation – 30”w x 45 1/2”h (762 x 1156) or 33”w x 38”h (838 x 965).
Multiple Section Assembly
Vertical Installation – 120”w x 72”h (3048 x 1829).
Horizontal Installation – 90”w x 91”h (2286 x 2311) or 114”w x 38”h (2896 x 965).

MODEL IBD2SS MAXIMUM SIZE
Single Section
Vertical Installation – 48”w x 30”h or 33”w x 72”h (1219 x 762 or 838 x 1829) or 36”w x 36”h (914 x 914).
Horizontal Installation – 30”w x 45 1/2”h (762 x 1156) or 33”w x 38”h (838 x 965).
Multiple Section Assembly
Vertical Installation – 99”w x 72”h (2515 x 1829).
Horizontal Installation – 90”w x 91”h (2286 x 2311) or 114”w x 38”h (2896 x 965).

MODEL IBDT, IBDT1 and IBDT2 MAXIMUM SIZE
Single Section
Vertical Installation – 40”w x 48”h (1016 x 1219).
Horizontal Installation – 60”w x 12”h (1524 x 305).

DYNAMIC FIRE DAMPERS
Use in Dynamic (fans on) or Static (fans off) Systems

MODEL DIBD2 MAXIMUM SIZE
Single Section
Vertical Installation – 33”w x 36”h (838 x 914).
Horizontal Installation – 24”w x 24”h (610 x 610).
Multiple Section Assembly
Vertical Installation – 72”w x 48”h (1828 x 1219) or 48”w x 72”h (1219 x 1828) or 120”w x 24”h (3048 x 610).

MODEL DIBD2X MAXIMUM SIZE
Single Section
Vertical Installation – 18”w x 24”h (457 x 610).
Horizontal Installation – 18”w x 24”h (457 x 610) or 24”w x 18”h (610 x 457).
Multiple Section Assembly
Horizontal Installation – 36”w x 48”h (914 x 1219) or 48”w x 36”h (1219 x 914).

MODEL DIBD2SS MAXIMUM SIZE
Single Section
Vertical or Horizontal Installation – 24”w x 24”h (610 x 610).
Multiple Section Assembly
Vertical Installation – 72”w x 48”h (1828 x 1219) or 48”w x 72”h (1219 x 1828) or 90”w x 24”h (2286 x 610).

INSTALLATION SUPPLEMENTS
Refer to the appropriate Ruskin installation instruction 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/Smoke Dampers Installation in Concrete Floor with Steel Deck
• Drivevane No. 14880 Breakaway Connection
• Flanged System Breakaway Connections
• Mullions for Dampers in Oversized Concrete Wall Openings

Notes:
1. Dimensions shown in parentheses ( ) indicate millimeters.
2. All multiple section dampers are constructed of equal single section sizes no greater than the maximum single section sizes indicated above.

California State Fire Marshal Listing No. 3225-245:005
SEE COMPLETE MARKING ON PRODUCT
1. Opening Clearance
The opening in the wall or floor shall be larger than the damper/sleeve assembly to permit installation or expansion. For two angle installations 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\(^{\circ}\) (51), nor shall the opening be less than \(1/4\) (6) larger than the damper/sleeve assembly. For one angle installations, the opening shall be a minimum of \(1/4\) (6) to a maximum of 1\(^{\circ}\) (25) larger than the overall size of the damper/sleeve assembly. The opening may be as much as 2\(^{\circ}\) (51) larger than the damper/ sleeve assembly if a 16ga (1.6) mounting angles is utilized.

2. Fasteners and Multiple Section Assembly
Use No. 10 (M5) bolts or screws, \(3/4\) (5) rivets, tack welds or spot welds as depicted in figures 3 and 4 and spaced as follows when joining individual dampers to make multiple section damper assemblies or when fastening damper to the sleeve:
- Vertical Mount (In wall)
  - Galvanized steel dampers: 12\(^{\circ}\) (305) spacing
  - Stainless steel dampers: 6\(^{\circ}\) (152) spacing
- Horizontal Mount (In floor)
  - All dampers: 6\(^{\circ}\) (152) spacing

Multiple section horizontal mount dampers require a 14 gage thick x 4\(1/2\) (2 x 114) wide steel reinforcing plate sandwiched between the damper frames with \(3/8\) (13) long welds staggered intermittently and spaced on maximum 6\(^{\circ}\) (152) centers. The reinforcing steel must be the same material as the dampers. The length must be equal to the damper width of two or more adjoining damper sections. Reinforcing plates are not required for assemblies consisting of two dampers attached end-to-end or three dampers attached side-to-side as depicted in figure 5.

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\(^{\circ}\) (914) wide x 24\(^{\circ}\) (610) high and 14 gage (2.0) for dampers exceeding 36\(^{\circ}\) (914) wide x 24\(^{\circ}\) (610) high. Damper sleeve shall not extend more than 6\(^{\circ}\) (152) beyond the fire wall or partition unless damper is equipped with a factory installed access door. Sleeve shall terminate at both sides of wall in dimensions shown.

4. Damper Orientation
Use “Air Flow” and “Mount with Arrow Up” labels on Dynamic DIBD and DIBDX models for proper damper orientation. For Static IBD models use only "Mount With Arrow Up" label on damper for proper damper orientation. Static and Dynamic dampers must be installed with leading edge of the closed blades within the wall or floor.

5. Mounting Angles
Mounting angles shall be a minimum of \(11/2\times 11/2\times 20\) gage steel (38 x 38 x 1.0). For openings in metal stud, wood stud walls or concrete/masonry walls and floors of sizes 90\(^{\circ}\) x 49\(^{\circ}\) or 49\(^{\circ}\) x 90\(^{\circ}\) (2286 x 1245 or 1245 x 2286) and less mounting angles are only required on one side of the wall or top side of the floor and must be attached to both the sleeve and the wall or floor. Mounting angles may be installed directly to the metal stud under the wall board on metal stud wall installations only. Larger openings require mounting angles on both sides of the partition and must be attached only to the sleeve. Mounting angles must overlap the partition a minimum of 1\(^{\circ}\) (25). Do not weld or fasten angles together at corners of dampers. Ruskin fire dampers may be installed using Ruskin FAST angle for one angle installation or Ruskin PFMA for two angle installations.

a. Mounting Angle Fasteners
Sleeve: \#10 bolts or screws, \(3/4\) (5) steel rivets or \(1/2\) (13) long welds.
Masonry/Wall or Floor: \#10 self-tapping concrete screws.
Wood/Steel Stud Wall: \#10 screws

b. Mounting Angle Fastener Spacing
For one angle installations the sleeve fasteners shall be spaced at 6\(^{\circ}\) (152) o.c. and the wall or floor fasteners shall be spaced at 12\(^{\circ}\) (305) o.c. with a minimum of 2 fasteners on each side, top and bottom. Screw fasteners used in metal stud must engage the metal stud a minimum of \(1/4\) (13). Screw fasteners used in wood stud must engage the wood stud a minimum of \(3/4\) (19). Screw fasteners used in masonry walls or floors must engage the wall a minimum of 1\(1/2\) (38). For two angle installations the fasteners shall be spaced at 8\(^{\circ}\) (203) o.c.

6. Duct/Sleeve Connections
a. Break-away Duct/Sleeve Connections
Rectangular ducts must use one or more of the connections depicted: below:

```
<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain &quot;S&quot; Slip</td>
<td></td>
</tr>
<tr>
<td>Hemed &quot;S&quot; Slip</td>
<td></td>
</tr>
<tr>
<td>Double &quot;S&quot; Slip</td>
<td></td>
</tr>
<tr>
<td>Inside Slip Joint</td>
<td></td>
</tr>
</tbody>
</table>
```

A maximum of two \#10 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\(^{\circ}\) (508) long on the sides may also be used.

b. Round and Oval Break-away Connections
Round and oval break-away connections must use either a 4\(^{\circ}\) (102) wide drawband or \#10 sheet metal screws spaced equally around the circumference of the duct as follows:
- Duct diameters 22\(^{\circ}\) (559) and smaller – Maximum 3 screws.
- Duct diameters over 22\(^{\circ}\) (559) and including 36\(^{\circ}\) (914) – Maximum 5 screws.
- Duct diameters over 36\(^{\circ}\) (914) and up to and including 191\(^{\circ}\) (4851) total perimeter – Maximum 8 screws. For flat oval ducts, the diameter is considered the largest (major) dimension of the duct.

Note: When optional sealing of these joints is desired, the following sealants may be applied in accordance with the sealant manufacturer’s instructions:
- Design Polymers – 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 connections when installed as shown on the Flanged System Breakaway Connections Supplement.

TDC and TDF roll-formed flanged connections using \(3/4\) (10) steel bolts and nuts, and metal cleats, as tested by SMACNA, are approved break-away connections when installed as shown on the Flanged System 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\(^{\circ}\) (914) wide x 24\(^{\circ}\) (610) high and 14 gage (2.0) for dampers exceeding 36\(^{\circ}\) (914) wide x 24\(^{\circ}\) (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. Each fire damper should be maintained and tested on a regular basis and in accordance with the latest editions of NFPA 90A and local codes. Care should be exercised to ensure that such tests are performed safely and do not cause system damage.
VERTICAL INSTALLATION

FIGURE 1

ONE ANGLE INSTALLATION

HORIZONTAL INSTALLATION

FIGURE 2

TWO ANGLE INSTALLATION

TWO ANGLE INSTALLATION
FASTENER SPACING

HORIZONTAL INSTALLATION

6" (152) Max. c-c

3" (76) Max.

See Note 2

Mullion Plate

See Note 2

VERTICAL INSTALLATION

6" (152) or 12" (305) Max. c-c

3" (76) Max.

See Note 2

Mullion Required on 2 or more adjoining sections

See Note 2

REINFORCING PLATE

No Mullion Plate Req'd

Mullion Required on 2 or more adjoining sections

See Note 2

No Mullion Plate Req'd

FIGURE 3

FIGURE 4

FIGURE 5
INSTRUCTIONS

1. Frame wall openings as shown in figure 1 or 2.
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.