The FSD60-3 is a combination fire and smoke damper designed with airfoil blades for the lowest pressure drop that provides point-of-origin fire containment and operational flexibility in static and dynamic smoke management systems. The FSD60-3 may be installed vertically in walls or horizontally in concrete floors and has been qualified to 2,000 fpm and 4" w.g. on all sizes and 4,000 fpm and 8" w.g. on select sizes (consult Ruskin for size information).

**APPLICATION**

**STANDARD CONSTRUCTION**

<table>
<thead>
<tr>
<th>Description</th>
<th>FSD60-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame</td>
<td>5&quot; x 16 gauge (127 x 1.6) galvanized, single piece, hat-shaped channel, structurally superior to 13 (2.4) gauge channel frame.</td>
</tr>
<tr>
<td>Blades</td>
<td>One-piece airfoil, nominal 6&quot; (152) wide and 14 (2.0) gauge galvanized steel equivalent strength. Blades are approximately 6&quot; (152) on center.</td>
</tr>
<tr>
<td>Bearings</td>
<td>Stainless steel sleeve type, pressed into frame.</td>
</tr>
<tr>
<td>Jamb Seals</td>
<td>Stainless steel, flexible metal compression type.</td>
</tr>
<tr>
<td>Blade Seals</td>
<td>Silicone edge type for smoke seal to 450°F (232°C) and galvanized steel for flame seal to 1900°F (1038°C) mechanically fastened to the blade edge.</td>
</tr>
<tr>
<td>Linkage</td>
<td>Concealed in frame.</td>
</tr>
</tbody>
</table>

**MAXIMUM OPERATIONAL RATINGS**

<table>
<thead>
<tr>
<th>Description</th>
<th>FSD60-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL555S Leakage Rating</td>
<td>Class I</td>
</tr>
<tr>
<td>UL555 Hourly Rating</td>
<td>1½ Hour</td>
</tr>
<tr>
<td>Maximum Velocity</td>
<td>4000 FPM (20.3 m/s)</td>
</tr>
<tr>
<td>Maximum Pressure</td>
<td>8 in. w.g (2kPa)</td>
</tr>
<tr>
<td>Temperature</td>
<td>350°F (177°C)</td>
</tr>
</tbody>
</table>

**MONITORING OPTIONS**

- FM Approvals as Specification Tested Product.
- DTS (Damper Test Switch) test switch for cycle testing.
- TS150 for reopenable operation in dynamic smoke management systems.
- DSDF/DSDN Duct Smoke Detector (Flow rated or No-Flow).
- SP100 Switch Package to allow remote indication of damper blade position.
- MCP control panels for testing or monitoring purposes or smoke management systems.
- Factory Sleeves of various lengths and gauges to ensure field compliance with UL installation requirements.
- PFMA Angles factory supplied for labor saving angles two-side installation. Other angles of various sizes and gauges also available for two-side installation.
- Stainless Steel Linkage – 304 stainless steel.

**UL CLASSIFIED**

UL555 Listing R5531, UL555S Listing R5531

Model FSD60-3 meets the requirements for fire, smoke and combination fire and smoke dampers established by:

- ICC International Building Codes
- CSFM California State Fire Marshal Listing (#3225-245:1026)
- New York City (MEA 252-05-3)
Ruskin Company certifies that the FSD60-3 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 FSD60-3.

To determine the AMCA Licensed air performance:

Locate the applicable feet per minute face velocity on the bottom of the velocity vs. pressure drop chart below. Move up the chart to the most appropriate size damper line. From the intersection point, move left to determine the pressure drop on the left side of the chart. For other damper sizes refer to Air Performance Data For All Fire and Smoke Dampers spec sheet.
Combination fire smoke dampers are required by the UL listing to have all actuators and accessories factory mounted, wired and/or piped. The Ruskin standard is for the actuator to be located on the right hand side of the damper (onto a factory installed sleeve or side plate) as viewed from the jackshaft face of the unit. Larger units may require multiple actuators which are located on the right, left and maybe internal mount locations. See the “Multiple Section Detail” specification sheet for details. Ruskin’s fire smoke dampers are not air flow directional, so the dampers may be rotated 180° or turned over as long as the blades are running horizontally in a position to accommodate installation obstructions.

The adjacent chart indicates an “S” and a “T” dimension for the space envelope that each actuator requires for installation. The “S” dimension is the “side” clearance, the “T” dimension is the “top” clearance required for the various actuators approved for use with Ruskin fire smoke dampers.

**FSD60-3 SPACE ENVELOPE**

Combination fire smoke dampers are required by the UL listing to have all actuators and accessories factory mounted, wired and/or piped. The Ruskin standard is for the actuator to be located on the right hand side of the damper (onto a factory installed sleeve or side plate) as viewed from the jackshaft face of the unit. Larger units may require multiple actuators which are located on the right, left and maybe internal mount locations. See the “Multiple Section Detail” specification sheet for details. Ruskin’s fire smoke dampers are not air flow directional, so the dampers may be rotated 180° or turned over as long as the blades are running horizontally in a position to accommodate installation obstructions.

The adjacent chart indicates an “S” and a “T” dimension for the space envelope that each actuator requires for installation. The “S” dimension is the “side” clearance, the “T” dimension is the “top” clearance required for the various actuators approved for use with Ruskin fire smoke dampers.

**FSD60-3 INTERNAL MOUNT ACTUATOR DIMENSION**

Ruskin model FSD60-3 has been tested for internal mount actuators and accessories. These applications may be preferred where space is limited on the outside of the damper. Internally mounted actuators do not require the damper to have a factory installed sleeve or side plate.
DUCT TRANSITION CONNECTIONS

**FSD60-3 Style A**

- **Height B**
- **Width A**

**FSD60-3 Style C and WC**

- **Sleeve Length**
- **‘A’**
- **‘A’ + 2” (51)**
- **‘B’**
- **‘B’ + 2” (51)**

**FSD60-3 Style R, CR and WR**

- **Sleeve Length**
- **Dia. + 2” (51)**
- **Dia.**

**FSD60-3 Style LO, CO & WO**

- **Sleeve Length**
- **‘A’**
- **‘A’ + 2” (51)**
- **‘B’**
- **‘B’ + 2” (51)**

**MINIMUM and MAXIMUM SIZES**

- **Round Transitions**
  - Minimum 4” (102) diameter
  - Maximum 94” (2388) diameter

- **Rectangular and Oval Transitions**
  - Minimum 6”w x 4”h (152 x 102)
  - Maximum 118”w x 94”h (2997 x 2388) in diameter

- **‘B’ Style Transitions**
  - Minimum height 4” (102) ‘B’ style transitions are utilized on units where the damper height is less than 6” (152).
  - Consult Ruskin for other available styles and sizes.

**Note:** For low and medium pressure units (Styles R, CR, C and CO) the collar extends 11½” (38) beyond the sleeve length and for high pressure units (Styles WR, WC and WO) the collar extends 21½” (64) beyond the sleeve length.

The square damper size will be 2” (51) larger in width and height than the round, oval or rectangular duct size ordered.

Approximate damper assembly weight: 17 lbs. per sq. ft. for Style A
Combination fire smoke dampers meeting or exceeding the following specifications shall be furnished and installed at locations shown on plans or as described in schedules. Combination fire smoke dampers shall be produced in an ISO 9001 certified factory and shall be warranted to be free from defects in material and workmanship for a period of 5 years after date of shipment. Dampers shall meet the requirements of NFPA80, 90A, 92A, 92B, 101 and 105 and shall have a fire rating of 3 hours in accordance with the latest edition of UL555 and shall be classified as Leakage Class I Smoke Dampers in accordance with the latest version of UL555S. Dampers shall be AMCA Licensed and the product literature shall bear the AMCA certified rating seal for air performance. AMCA certified testing shall verify pressure drop does not exceed .03" w.g. on a 24" x 24" (305 x 305) damper at a face velocity of 1000 fpm.

Dampers (when size permits) shall be constructed using the UniFrame Design Concept (UDC) and shall be minimum 16 gauge (1.6) galvanized steel formed into a structural hat channel superior to 13 gauge (2.4) channel frame. Damper blades shall be single piece airfoil shaped with 14 (2.0) gauge equivalent strength. Blade edge seals shall be inflatable silicone mechanically locked into blade edge. Jamb seals shall be stainless steel compression type. Bearings shall be stainless steel, permanently lubricated sleeve type turning in an extruded hole in the frame for maximum life.

Optional FM Approvals Specification
Each combination fire smoke damper shall be listed in Factory Mutual (FM) approvals Specification Tested Product and labeled accordingly.

Combination fire smoke dampers shall be Ruskin FSD60-3. (Consult www.ruskin.com for electronic version of this "Quick" spec as well as for complete 3-part CSI MasterFormat Specifications)