Model FSD60-2 meets the requirements for fire, smoke and combination fire and smoke dampers established by:
• National Fire Protection Association NFPA Standards 90A, 92A, 92B and 101
• BOCA National Building Codes
• ICBO Uniform Building Codes
• SBCCI Standard Building Codes
• ICC International Building Codes
• CSFM California State Fire Marshal Fire Damper Listing (#3225-245:102) and Smoke Damper Listing (#3230-245:110)
• New York City (BSA Listing #176-82-SM)

FEATURES
The FSD60-2 offers:
• EFL (Electric Fuse Link) or PFL (Pneumatic Fuse Link) heat-actuated release devices permit controlled (rather than instantaneous) closure through the damper actuator. The EFL and PFL allow the damper to automatically reopen after a test, smoke detection or power failure condition.
• EFL is standard on dampers with electric actuators.
• PFL is standard on dampers with pneumatic actuators.
• EFL’s may be ordered on dampers with pneumatic actuators but require an additional EP switch.

ALL STATED SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE OR OBLIGATION.
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Ruskin Company certifies that the FSD60-2 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 FSD60-2.

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.

![Velocity vs. Pressure Drop Chart](image-url)
The drawing and corresponding table show the position of the damper when mounted in a factory sleeve. The standard mounting locations provide enough space for the mounting of actuators, controls and allow space for installation of retaining angles and duct connections. The minimum factory sleeve length is 17" (432). Consult Ruskin for shorter sleeve lengths.

The standard location of a damper mounted in a factory sleeve ("L" dimension) is shown at right.

NOTE: The entire damper frame is not required to be installed within the wall. The damper blades, when closed should be contained within the wall.

*Minimum Sleeve Length Formula:*

Sleeve Length = "L" dimension + wall/floor thickness + 3" sleeve non-motor side

The most commonly used electric actuators are shown in the table below. Refer to the Actuators And Accessories Space Envelopes For All Fire and Smoke Dampers data sheet for actuators and space information not shown.

<table>
<thead>
<tr>
<th>ACTUATORS</th>
<th>H (Damper Height)</th>
<th>S</th>
<th>T</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML4202, H2000, H2024</td>
<td>15&quot; (381)</td>
<td>4&quot;</td>
<td>0&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>MS4209, MS8209</td>
<td>15&quot; (381)</td>
<td>4&quot;</td>
<td>0&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>MS4120, MS8120</td>
<td>17&quot; (432)</td>
<td>5&quot;</td>
<td>0&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>FSNF120, GGD221</td>
<td>17&quot; (432)</td>
<td>5&quot;</td>
<td>0&quot;</td>
<td>N/A</td>
</tr>
</tbody>
</table>

NOTES:
1. The "H" dimension represents the required height to encompass the actuator and accessories with nothing protruding above or below the damper.
2. The "B" (bottom) dimension does Not Apply to the "H" sizes shown. The MS4120, MS8120, FSNF120 and GGD221 will hang below the damper on sizes 10" (254) high and shorter.

<p>|</p>
<table>
<thead>
<tr>
<th>All dampers with EFL or PFL</th>
<th>Electric Actuators</th>
<th>All dampers with TS150 or SP100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 10&quot; (254) High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10&quot; (254) High and Under</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 21&quot; (533) High</td>
<td>331-4827(P)</td>
<td></td>
</tr>
<tr>
<td>Over 21&quot; (533) High and Under</td>
<td>331-2961(P)</td>
<td></td>
</tr>
<tr>
<td>21&quot; (533) High and Under</td>
<td>331-3060(P)</td>
<td></td>
</tr>
<tr>
<td>28&quot; (711) High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28&quot; (711) High and Under</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32&quot; (813) High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32&quot; (813) High and Under</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 40&quot; (1016) High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 40&quot; (1016) High and Under</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The 21" (533) dimension becomes 32" (813) when the MS4120, MS8120, GGD221 or FSNF120 are utilized.
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. Dampers shall meet the requirements of NFPA90A, 92A and 92B. Dampers shall have a fire rating of 11/2 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 warranted to be free from defects in material and workmanship for a period of 5 years after date of shipment.

Each fire smoke damper shall be equipped with a “controlled closure” quick detect heat-actuated release device to prevent duct and HVAC component damage. Instantaneous damper closure through the use of fusible links is unacceptable.

Damper frame (when size permits) shall be constructed using the UniFrame Design Concept (UDC) and shall be a roll-formed structural hat channel, reinforced at the corners, formed from a single piece of minimum 16 gage (1.6) galvanized steel. Damper blades shall be airfoil shaped with 13 gage (2.3) equivalent thickness formed from a single piece of galvanized steel. Bearings shall be stainless steel turning in an extruded hole in the frame. Blade edge seals shall be silicone rubber and galvanized steel mechanically locked in to the blade edge (adhesive type seals are not acceptable). Each damper shall be supplied with a factory mounted sleeve of 17” (432) minimum length. Dampers shall be Ruskin model FSD60-2.

(Consult Ruskin for detailed CSI MasterFormat Specification).

MINIMUM SIZES
Nominal – 8”w x 6”h (203 x 152).
Actual – 7½”w x 5¼”h (197 x 146).
Dampers with heights (B dimension) less than 6” (152) require Style B transitions and a sleeve. The damper itself remains 6” (152) high.

DIMENSIONAL INFORMATION

ROUND, OVAL RECTANGULAR DUCT TRANSITION CONNECTION
FSD60-2 dampers supplied with round connections (R for low pressure, CR for medium pressure or WR welded for high pressure) are:
Minimum 4” (102) in diameter
Maximum 94” (2388) in diameter
The square size of the damper will be 2” (51) larger than the diameter dimension ordered.
FSD60-2 dampers supplied with rectangular connections (C for low to medium pressure or WC welded for high pressure) are:
Minimum 6”w x 4”h (152 x 102)
Maximum 118” x 94”h (2997 x 2388)
The square size of the damper will be 2” (51) larger than the width and height of the damper A x B dimensions.
FSD60-2 dampers supplied with oval connections (LO for low pressure, CO for medium pressure or WO welded for high pressure) will be 2” (51) larger than the width and height of the damper A x B dimensions.

Maximum UL Classified Size
Single Section:
32”w x 48”h (813 x 1219)
Multiple Section Assembly
Vertical Installation –
120”w x 96”h (3048 x 2438)
Horizontal Installation
144”w x 96”h (3658 x 2438)
For dampers exceeding these dimensions consult Ruskin for specific recommendations.