STANDARD CONSTRUCTION

FRAME: 5½” x ¾” x 16 GA. galvanized steel hat channel. Flat 16 GA. galvanized steel head and sill for maximum free area on dampers less than or equal to 13” high.

BLADES: 16 GA. galvanized steel single thickness, parallel action.

AXLES: Plated solid steel stub.

BEARINGS: Oil impregnated bronze.

LINKAGE: Plated steel angle and crank plates with stainless steel pivots, in-jamb type or on-blade type.

STOPS: 18 GA. galvanized steel angles at head and sill.

BLADE SEALS: Silicone.

JAMB SEALS: Stainless steel.

SLEEVE: Minimum 20 GA. galvanized steel by 18” long (sizes greater than 84” wide or 84” high require minimum 18 GA.)

CAULKING: Hardcast iron gripping 601 or UL-listed equivalent.

ACTUATOR: Electric with heat response device (EHRD) or pneumatic with heat response device (PHRD). Factory-installed for Power-Open/Spring-Close (fail close) operation. External left hand mounted as viewed from jackshaft side of damper.

FINISH: Mill

OPTIONS

Exact size (no undercut)
Actuators - 120V, 24V, 230V or Pneumatic
Right hand and/or internal actuator mounting locations (restrictions apply)
Dual Position Indication (DPI) Switches
Sensotherm Re-Openable Heat Response Device (ESOT) for electric actuators
Sensotherm Re-Openable Heat Response Device (EPOT) for pneumatic actuators
Model SM-501 flow-rated smoke detector
Model 2151 no-flow smoke detector (12” minimum damper height)
Momentary test switch
Remote test boxes
Copper tubing (for pneumatic actuators)
Transformers
Tab-lock retaining angles - 1 or 2 Sets
Stainless steel bearings
Stainless steel axles
Security bars
Sleeves of various depths and gauge thickness (restriction apply)
No sleeves (restriction apply)
Round or oval transitions
Short-width (less than 8”) and/or short-height (less than 6”) transitions

NOTES

1. Damper frames are provided approximately ¼” undercut. The addition of a sleeve will increase the size of the assembly.
2. Dampers greater than or equal to 12” in height with factory mounted SM-501 smoke detectors require a minimum 19” deep sleeve (10½” on the actuator side); detectors will be mounted on the side of the damper opposite actuator.
3. Dampers less than 12” in height with factory mounted SM-501 smoke detectors require a minimum 20” deep sleeve (11½” on the actuator side). Detectors will be mounted on the bottom or top of damper.
4. Smoke detectors can be ordered for field mounting with standard 18” deep sleeve. Dampers for horizontal installation can only be mounted in a fire barrier constructed of masonry/concrete materials.

DAMPER SIZES

<table>
<thead>
<tr>
<th>Orientation</th>
<th>2000 fpm, 4 in.wg</th>
<th>3000 fpm, 4 in.wg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horz &amp; Vert</td>
<td>Horizontal</td>
</tr>
<tr>
<td>Panels</td>
<td>Min Panel</td>
<td>Max Panel 250° / 350°</td>
</tr>
<tr>
<td>Rectangular</td>
<td>4”W x 4’H (8”W x 6’H frame)</td>
<td>36”W x 48’H</td>
</tr>
<tr>
<td>Round</td>
<td>4” dia. (8”W x 6’H frame)</td>
<td>34” dia.</td>
</tr>
<tr>
<td>Oval</td>
<td>4”W x 4’H (8”W x 6’H frame)</td>
<td>34”W x 46’H</td>
</tr>
</tbody>
</table>

This combination fire/smoke damper meets the construction and performance requirements of:

- Underwriters Laboratories Inc. Standard 555 and 555S
- National Fire Protection Association Standards 80 and 90A
- ICC’s International Building Code
- California State Fire Marshal Listing #3224-1328:119.
- New York City MEA Listing #111-99-M
- Underwriters Laboratories Inc. Approved for dual direction airflow and dynamic conditions
- Underwriters Laboratories Inc. Classified for use in fire resistive ratings of less than 3 hours
- Underwriters Laboratories Inc. Classified for use in smoke control systems for Leakage Class II and 250°F or 350°F.
- Actuators must be arranged to operate automatically, must fail closed upon loss of power, and must be controlled by a smoke detection system.

In the interest of product development, Louvers & Dampers reserves the right to make changes without notice.
### OPERATIONAL RATINGS

Maximum Differential Pressure: 4 in. w.g.
Maximum Face Velocity: 2000 fpm (3000 fpm for selected size/actuator combinations)

### LEAKAGE RATINGS

UL Leakage Class II
- 10 cfm per sq.ft. maximum @ 1 in.wg
- 20 cfm per sq.ft. maximum @ 4 in.wg

### SOUND RATINGS

The Noise Criterion data below was tested in accordance with ASTM E477.99 in the center octave band.

<table>
<thead>
<tr>
<th>Damper Size</th>
<th>1000</th>
<th>2000</th>
<th>3000</th>
<th>4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;W x 12&quot;H</td>
<td>31</td>
<td>53</td>
<td>64</td>
<td>71</td>
</tr>
<tr>
<td>24&quot;W x 24&quot;H</td>
<td>33</td>
<td>54</td>
<td>65</td>
<td>-</td>
</tr>
</tbody>
</table>

### PRESSURE DROP RATINGS

The pressure drop data shown below is based on laboratory conditions. The test setup does not take into account elbows or other duct fittings that are part of every actual duct system. The configuration of the actual duct system immediately upstream and downstream of the damper often contributes more pressure loss than the damper itself.

This product was tested in accordance with AMCA Standard 500D, Figure 5.3.

Intake air converted to standard air density.

Louvers & Dampers certifies that the MS2 damper shown here 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 Ratings only.