FIRE AND SMOKE DAMPER OPERATION OPTIONS

Ruskin fire/smoke dampers typically utilize quick detect, heat activated, controlled closure devices to make the damper close in the event of a fire. Normal fusible rods and links, when activated, allow instantaneous closure of the damper which can result in damage to the connecting duct work. The table below explains the operation options that are available with Ruskin fire and smoke dampers. Electric fuse links are typically factory installed on dampers utilizing electric actuators and pneumatic fuse links are typically factory installed on dampers utilizing pneumatic actuators.

<table>
<thead>
<tr>
<th>Electric Controlled Closure</th>
<th>Pneumatic Controlled Closure</th>
<th>Controlled Closure/Smoke Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Electric Controlled Closure Diagram" /></td>
<td><img src="image2" alt="Pneumatic Controlled Closure Diagram" /></td>
<td><img src="image3" alt="Controlled Closure/Smoke Management Diagram" /></td>
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</tbody>
</table>

**SMOKE DETECTION/TEST/POWER FAILURE OPERATION**

- When smoke is detected (via a smoke detector), during testing or if power failure occurs, the damper will close and remain closed. When the smoke signal ceases (smoke detector reset), the test is completed or power is restored the damper will automatically RESET to the open position. The damper automatically resets if nuisance alarms occur and the system is reset.

**FIRE OPERATION**

- When the damper is in the power open position it will function like the EFL. Integrated position indicator switches (SP100) allow the position of the damper to be shown in the fire command center or on a separate control panel. When closed, the damper CLOSED indicator light (on the separate control panel or in the fire command center) will light. The damper remains closed until an override signal for smoke management is initiated and the duct temperature has not exceeded the high limit.

- The High Limit Temperature Sensor prevents the damper from reopening when duct temperature is above damper’s UL555S degradation test temperature of 250°F/121°C or 350°F/177°C. Upon cessation of the fire conditions, the damper can be reopened by pressing the RESET button located on the damper assembly.

**Explanation**

- The Electric Controlled Closure uses a traditional fuse link (EFL) that is typically factory installed on dampers utilizing electric actuators. When smoke is detected or during testing, the damper closes and remains closed. Upon smoke detector reset, the damper will automatically reset to the open position.

- The Pneumatic Controlled Closure uses a pneumatic fuse link (PFL) that is typically factory installed on dampers utilizing pneumatic actuators. Similar to the electric closure, the damper closes on smoke detection or during testing and remains closed. On smoke detector reset, the damper resets automatically to the open position.

- The Controlled Closure/Smoke Management option combines both electric and pneumatic controls, providing a hybrid solution for fire and smoke management. The system can be reset manually or automatically based on smoke detector reset or power recovery.

### Additional Notes

- EP (electric-pneumatic switch) or other switches must be present in the system to coordinate the damper's response to various signals.

- The damper can be reopened manually by pressing the reset button on the damper assembly.

- For high-limit conditions, the damper remains closed until an override signal is received.

- The High Limit Temperature Sensor ensures the damper does not reopen until the duct temperature returns to safe levels.

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