COMBINATION FIRE & SMOKE DAMPERS
COMBINATION FIRE & SMOKE DAMPERS

Types
- Galvanized Steel Construction as Standard.
  1. Sleeve Type, Model: CFSD - 40 - 100
  2. Circular Type, Model: CFSD - 50 - 100
  3. Oval Type, Model: CFSD - 60 - 100
  4. With factory installed Sleeves, Model: CFSD - 80 - 100

Optional Construction:
- Same as the standard construction but blades, stub shaft (latch) with 4 pieces Ø6mm bolts & nuts, axles and linkage brackets with axle in stainless steel Grade 304.

Optional: Blades from stainless steel Grade 316 or 316L.
- 1. Sleeve Type, Model: CFSD - 40 - 110
- 2. Circular Type, Model: CFSD - 50 - 110
- 3. Oval Type, Model: CFSD - 60 - 110
- 4. With factory installed Sleeves, Model: CFSD - 80 - 110

Same as the standard construction but frame, blades, installation sleeves and all accessories in stainless steel Grade 304.

Optional: Frame, blades and installation sleeve from stainless steel Grade 316 or 316L.
- 1. Sleeve Type, Model: CFSD - 40 - 120
- 2. Circular Type, Model: CFSD - 50 - 120
- 3. Oval Type, Model: CFSD - 60 - 120
- 4. With factory installed Sleeves, Model: CFSD - 80 - 120

Standard Construction
- Finish: M5 Galvanized
- Sleeve: 1.5mm thick (Ga.16) galvanized steel sheet.
- Frame: 1.5 x 24.5 x 1.5mm thick (Ga.16) galvanized steel hat channel.
- Blades: 1.5mm thick (Ga.16) galvanized steel "Triple Vee" (3V) groove type (standard).
- Blade Stop: 1.5mm thick (Ga.16) galvanized steel sheet bend at 45° angle.
- Linkage: Side linkage concealed in frame (Standard).

Product Description
Combination fire and smoke dampers provide an automatic means of localizing areas of smoke and or fire in ventilation systems that is greatly contribute to the safety of life and property in the early stage of fire. It prevents the spread of fire and/or smoke through ventilation ductworks or wall openings. These types of dampers offer effective fire or smoke barrier maintaining the integrity in a fire situation and it is combined with low leakage characteristic for smoke management. It is suitable for installation in sheet metal ductworks, openings in walls or floor slabs made from concrete, bricks and in lightweight partition walls.

SAFID introduces “ERL” Thermoelectric Tripping Device (heat sensor) to replace the existing high torque spring/fusible link fire closure mechanism in all Combination Fire & Smoke dampers and blade type Fire dampers. The “ERL” is thermally responsive bimetal disc/sensor that open and close the electrical contacts at a specific factory calibrated temperature setting. The “ERL” is available in fixed temperature setting at 165°F (74 °C) only. The “ERL” requires factory installation and wiring together with the qualified actuator to meet “UL” requirements.

Dampers which allow remote resetting of the damper from a remote location are dangerous. All damper moving parts must be inspected and cycled at every six months and in accordance to the latest NFPA90A/92A and local codes.

UL Test Ratings
- Fire Resistance: 11/2 Hour and 3 Hours
- Air Leakage Test: Class I and Class II
- Elevated Temp. Test: 350°F and 250°F
- Dynamic Closure Test: Rated at 2000 FPM and 4000 FPM Air Velocity
- Rated Pressure: Rated at 4 inch W. G.

Types
- Galvanized Steel Construction as Standard.
  1. Sleeve Type, Model: CFSD - 40 - 100
  2. Circular Type, Model: CFSD - 50 - 100
  3. Oval Type, Model: CFSD - 60 - 100
  4. With factory installed Sleeves, Model: CFSD - 80 - 100

Optional Construction:
- Same as the standard construction but blades, stub shaft (latch) with 4 pieces Ø6mm bolts & nuts, axles and linkage brackets with axle in stainless steel Grade 304.

Optional: Blades from stainless steel Grade 316 or 316L.
- 1. Sleeve Type, Model: CFSD - 40 - 110
- 2. Circular Type, Model: CFSD - 50 - 110
- 3. Oval Type, Model: CFSD - 60 - 110
- 4. With factory installed Sleeves, Model: CFSD - 80 - 110

Same as the standard construction but frame, blades, installation sleeves and all accessories in stainless steel Grade 304.

Optional: Frame, blades and installation sleeve from stainless steel Grade 316 or 316L.
- 1. Sleeve Type, Model: CFSD - 40 - 120
- 2. Circular Type, Model: CFSD - 50 - 120
- 3. Oval Type, Model: CFSD - 60 - 120
- 4. With factory installed Sleeves, Model: CFSD - 80 - 120

Standard Construction
- Finish: M5 Galvanized
- Sleeve: 1.5mm thick (Ga.16) galvanized steel sheet.
- Frame: 1.5 x 24.5 x 1.5mm thick (Ga.16) galvanized steel hat channel.
- Blades: 1.5mm thick (Ga.16) galvanized steel "Triple Vee" (3V) groove type (standard).
- Blade Stop: 1.5mm thick (Ga.16) galvanized steel sheet bend at 45° angle.
- Linkage: Side linkage concealed in frame (Standard).
**Types**

**Sleeve Type**
Model: CFSD-40

1. Casing (Frame)
2. Linkage Bracket
3. Blade
4. Linkage Bar
5. Bearings
6. Blade Stop
7. Side Seal
8. Blade Tip Seal
9. Lock Washer and GI Round Washer
10. Pinlock
11. Jackshaft

**Circular Type**
Model: CFSD-50

**Flat Oval Type**
Model: CFSD-60

130

W - 5

H - 5

275 + WALL THICKNESS

DIA + 25
**Types**

- **CFSD with Factory Installed Sleeve, ERL and Actuator**
  - Model: CFSD-80

**Dimensions - Single Section**

- **CFSD With Factory Installed Sleeve, ERL and Actuator**
  - Model: CFSD-80
  - Height: Up to 220 mm

**Thermoelectric Tripping Device (ERL)**

- Model: BAE165 US or SF74 (165ºF Klixon)
- Bimetallic Manual Reset Type
- 165°F (74°C) rated

**Schedule of Damper Sizes and Actuator Types**

**A. Single section damper with two position (open/close) spring return type actuators:**

1. **BELIMO Model: FSLF-S-US (24 / 230VAC) with built-in auxiliary switch.**
   - Torque: 3.5Nm for W = 610 mm maximum.

2. **Model: MS804F200 / MS4604F210 (24 / 230VAC) with built-in auxiliary switch.**
   - Torque: 3.5Nm for W = 610 mm maximum.

3. **BELIMO Model: BF-S-ME (24 / 230VAC) with built-in auxiliary switch.**
   - Torque: 15 Nm for W = 914 mm maximum.

Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.
COMBINATION FIRE & SMOKE DAMPERS

Dimensions - Single Section

CFSD with Factory Installed Sleeve, ERL and Actuator
Model: CFSD-80
Height: Up to 914 mm

Thermoelectric Tripping Device (ERL)
Model: BAE65 US or SFN (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated

Schedule of Damper Sizes and Actuator Types
A. Single section damper with two position (open/close) spring return type actuators:
   Torque: 3.5 Nm
   Damper size: W=810mm maximum, H=406mm maximum
   Torque: 3.5 Nm
   Damper size: W=810mm maximum, H=406mm maximum
   Torque: 8 Nm
   Damper size: W=810mm maximum, H=610mm maximum
   Torque: 15 Nm
   Damper size: W=914mm maximum, H=914mm maximum

Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.

COMBINATION FIRE & SMOKE DAMPERS

Dimensions - Multiple Section

CFSD With Factory Installed Sleeve, ERL and Actuator
Model: CFSD-80
Width: Up to 1200 mm
Height: Up to 914 mm

Thermoelectric Tripping Device (ERL)
Model: BAE65 US or SFN (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated

Schedule of Damper Sizes and Actuator Types
A. Multiple section damper with two position (open/close) spring return type actuators:
   MS810DF1203 (24VAC) with built-in auxiliary switch.
   Torque: 20 Nm
   Note: Location of the actuator can be INSIDE or OUTSIDE the airstream.

Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.
**Dimensions - Multiple Section**

**CFSD with Factory Installed Sleeve, ERL and Actuator**
- Model: CFSD - 80
- Width: Up to 1828 mm
- Height: Up to 914 mm

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**Thermoelectric Tripping Device (ERL)**
- Model: BAE165 US or SFN (165°F Klixon)
- Bimetallic Manual Reset Type
- 165°F (74°C) rated

**Schedule of Damper Sizes and Actuator Types**

**A. Multiple section damper with two position (open/closed) spring return type actuators:**


- Torque: 20 Nm

**Note:** Location of the actuator can be INSIDE or OUTSIDE the airstream. Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.

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**COMBINATION FIRE SMOKE DAMPERS**

**Dimensions - Multiple Section**

**CFSD With Factory Installed Sleeve, ERL and Actuator**
- Model: CFSD - 80
- Width: Up to 1200 mm
- Height: Up to 1828 mm

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**Thermoelectric Tripping Device (ERL)**
- Model: BAE165 US or SFN (165°F Klixon)
- Bimetallic Manual Reset Type
- 165°F (74°C) rated

**Schedule of Damper Sizes and Actuator Types**

**A. Multiple section damper with two position (open/closed) spring return type actuators:**


- Torque: 20 Nm

**Note:** Location of the actuator can be INSIDE or OUTSIDE the airstream. Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.
Thermoelectric Tripping Device (ERL)
Model: BAE165 US or SF74 (165ºF Klixon)
Bimetallic Manual Reset Type
165ºF (74°C) rated

Schedule of Damper Sizes and Actuator Types
A. Multiple section damper with two position (open/close) spring return type actuators:
1. Model: MS4620F2120 (230VAC) with built-in auxiliary switch.
   MS8120F2120 (24VAC) with built-in auxiliary switch.
   Torque: 20 Nm

Note: Location of the actuator can be INSIDE or OUTSIDE the airstream. Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.

Notes:
1. Airflow can be at opposite direction.
2. The actuator and ERL can be located in either side of the wall.
3. Refer to installation manual for further installation detail.
**Sequence of Operation**

**Fire Mode:** The ERL (Thermoelectric Tripping Device) resettable link has a thermal sensor switch that interrupts the power supply to the fire & smoke control actuator as soon as the duct temperature exceeds 165°F caused by a fire. When the power supply is interrupted, the energy stored in the spring of the fire and smoke damper actuator moves the damper back to its safe position. The damper can be open again by pressing the reset button on ERL after the temperature cooled down below 165°F.

**Smoke Mode:** When a signal detected through normally closed smoke detector (by others) connection, the power supply to the fire and smoke damper actuator will be interrupted. The energy stored in the damper actuator moves the damper back to its safe position and remains closed until the smoke signal close down. The system will reset after power is reapplied to the actuator and damper will open. By placing an optional control switch (by others), the damper blades at open position can be closed at any time if required.

**Typical Wiring Diagram**
Order Details

Order Code: CFSD-80 - 100 - 3V - PB - R - A1S - V1 - ER / 500 x 500

Variants
- CFSD-40 = Sleeve Type
- CFSD-60 = Circular Spigot
- CFSD-60 = Oval Spigot
- CFSD-80 = Factory Installed Sleeve

Types
- 100 = Galvanized Steel Construction
- 110 = Blades of Stainless Steel Grade 304
- Optional: Grade 316 or 316L
- 120 = Stainless Steel Construction S/S Grade 304
- Optional: Grade 316 or 316L

Types of Blades
- 3V = V Groove Type

Linkage
- PB = Slide Linkage Parallel Blades Operation
- R = Right Hand (Standard Supply)
- L = Left Hand

Types of Sensor
- ERL = Thermoelectric Tripping Device

Power Supply
- V1 = 24 VAC
- V2 = 230 VAC

Specifications
Combination fire and smoke dampers with the following specifications shall be used in Heating, Ventilating and Air Conditioning (HVAC) duct systems passing through openings in masonry walls, concrete floor slabs, and in gypsum walls or partitions which required to have a fire resistance rating to restrict the spread of fire. It shall be also used in Smoke Control Systems and in Smoke Proof Stair Enclosure if the wall penetrations required to be fire rated in accordance with NFPA 90A Standard for Installation of Air Conditioning and Ventilating Systems, and with NFPA 101 Life Safety Code.

Combination fire and smoke dampers shall be tested and classified by Underwriters Laboratories Inc. (UL) in accordance with the standards; UL 555 Standard for Safety, Fire Dampers and UL 555S Standard for Safety, Smoke Dampers.

Combination fire and smoke dampers with Fire Resistance Rating of 1½ hour shall be used in fire barrier with Fire Resistance Rating of less than 3 hours, and dampers with 3 hours Fire Resistance Rating shall be used in fire barrier with Fire Resistance Rating of 3 hours or more. Leakage Resistance Rating shall be Class I at 350°F or Class II at 250°F elevated temperature. It shall be UL Certified for dynamic closure test with airflow velocity of minimum 2000 FPM and maximum 4000 FPM with rated Pressure Class of 4 inch of Water Gauge (W.G.).

Combination fire and smoke dampers shall be fitted with UL Listed spring return actuator and Thermoelectric Tripping Device (ERL) with temperature rating of 165°F (74°C). ERL shall cut-off power supply to the actuator in case of fire that will activate the built-in spring return to close the damper blades.

Damper blades shall be with external linkage and parallel action, Ga.16 galvanized steel with 3V groove type for longitudinal reinforcement. Blade’s tip seal shall be Type 60 Durometer Dense Silicone, meets gasket requirements in accordance with UL 555S.

Order Example
SAFID’s combination fire and smoke dampers, galvanized steel construction, 3V groove blade for parallel blades operation, 500mm width X 500mm height duct size and right hand side external controls. Damper shall be with factory installed sleeve and 230 VAC BELIMO actuator with built-in auxiliary switch and with thermoelectric tripping device (ERL) with temperature rating of 165°F (74°C).

Make: SAFID
Type: CFSD-80-100-3V-PB-R-A1S-V2-ERL
Size: 500 W x 500 H
Qty: 1
Combination fire and smoke dampers type, FSD 30 provide an automatic means of localizing areas of smoke and/or fire in ventilation systems. It prevent the distribution of fire and/or smoke through ventilation ductworks. FSD offer an effective barrier maintaining integrity in a fire situation and this is combined with low leakage characteristic for smoke management. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls.

**Standard Construction**

- **Frame:** 180mm x 30mm x 1.5mm (16 ga) galvanized steel, formed for flange connections.
- **Blades:** 250mm max. width, 1.5mm (16 ga.) galvanized steel.
- **Finish:** Mill galvanized.
- **Linkage:** Face linkage, parallel blade operation is standard. Linkage consist of 6mm dia. S/S steel pivot pins.
- **Case Bearings:** Made sintered bronze (silite), operational temp. resistance up to 200°C.
- **Fusible Link:** Standard release 74°C (165°F) is std. (UL listed) other temperatures available on request.
- **Axles & Control Shaft:** 12mm diameter zinc plated mild steel.

**Seals:**
Side seal are compression type stainless steel grade 304 to close gap between case & blades.

**Minimum Size:**
150 x 150mm, dampers up to 250mm high is single blade construction.

**Maximum Size:**
1000 x 1000mm, as single section. Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

**FSD 30 - 100**
General construction as type FSD 30 - 100 damper but with case, blades and blade to spindle fixing in stainless steel (Grade 304).

**FSD 30 - 110**
General construction as type FSD 30 - 100 damper but with case, blades and blade to spindle fixing in stainless steel (Grade 304).

**FSD 30 - 120**
General construction as type FSD 30 - 100 damper but with case, blades and blade to spindle fixing and linkage all from stainless steel (Grade 304).

**Standard Sizes**

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<th>Width (mm)</th>
<th>Height (mm)</th>
<th>No. of Blades</th>
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Description
Combination fire and smoke dampers type, FSD 40 provide an automatic means of localizing areas of smoke and/or fire in ventilation systems. It prevent the distribution of fire and/or smoke through ventilation ductworks. FSD offer an effective barrier maintaining integrity in a fire situation and this is combined with low leakage characteristic for smoke management. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls.

Standard Construction
Frame: 100mm x 40mm x 1.5mm (16 ga.) galvanized steel, structurally designed hat section.
Blades: 3200mm max. width x 5mm (16 ga.) galvanized steel.
Finish: Mill galvanized.
Linkage: Face linkage, parallel blade operation is standard. Linkage consist of 6mm dia. S/S steel pivot pins.
Case Bearings: Made sintered bronze (oilite), operational temp. resistence up to 200°C.
Fusible Link: Standard release 74 °C (165 °F) is std. (UL listed)
Other temperatures available on request.
Axles & Control Shaft: 12mm diameter zinc plated mild steel.

Seals:
Side seal are compression type stainless steel grade 304 to close gap between case and blades.

Minimum Size:
200 x 200mm, damper up to 300mm high is single blade construction.

Maximum Size:
1000 x 1000mm, as single section. Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

FSD 40 - 110
General construction as type FSD 40 - 100 damper but blades, shafts and blade to spindle fixing in stainless steel (Grade 304).

FSD 40 - 120
General construction as type FSD 40 - 100 damper but with case, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).
**Description**

Combination fire and smoke dampers, FSD 50 provide an automatic means of localizing areas of smoke and/or fire in ventilation systems. It prevent the distribution of fire and/or smoke through ventilation ductworks. FSD offer an effective barrier maintaining integrity in a fire situation and this is combined with low leakage characteristic for smoke management. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls.

**Standard Construction**

**Frame (Spigot Type):**
105mmx1.5mm (16 ga) galvanized steel L=530mm

**Blades:**
250mm max. width,1.5mm (16 ga.) galvanized steel.

**Finish:**
Mill galvanized.

**Linkage:**
Face linkage, parallel blade operation is standard. Linkage consist of 6mm dia. S/S steel pivot pins.

**Case Bearings:**
Made sintered bronze (oilite), operational temp. resistance up to 200 °C.

**Fusible Link:**
Standard release 74 °C (165 °F) is std. (UL listed) Other temperatures available on request.

**Axles & Control Shaft:**
12mm diameter zinc plated mild steel.

**Seals:**
Side seal are compression type stainless steel grade 304 to close gap between case and blades.

**Minimum Size:**
200mm diameter, damper up to 250mm dia. high is single blade construction.

**Maximum Size:**
1000mm diameter as single section. Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

**FSD 50 - 110**
General construction as type FSD 50 - 100 damper but with case, blades shafts and blade to spindle fixing in stainless steel (Grade 304).

**FSD 50 - 120**
General construction as type FSD 50 - 100 damper but with case, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

**Circular Spigot Type**

**FSD SERIES [FSD 50 - 100, FSD 50 - 110, FSD 50 - 120]**

**Dimensions**

1. Casing
2. Blade
3. Drive Shaft
4. Face Linkage
5. Linkage Bar
6. Landing Angles
7. Fusible Link 74 °C (UL listed)
8. Closing Spring
9. Side Seal

**Standard Sizes**

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<th>Diameter (mm)</th>
<th>No. of Blades</th>
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Description
Combination fire and smoke dampers type, FSD 60 provide an automatic means of localizing areas of smoke and/or fire in ventilation systems. It prevent the distribution of fire and/or smoke through ventilation ductworks. FSD offer an effective barrier maintaining integrity in a fire situation and this is combined with low leakage characteristic for smoke management. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls.

Standard Construction
Frame (Spigot Case):
105mmx1.5mm (16 ga) galvanized steel L=530mm

Blades:
250mm max. width, 1.5mm (16 ga.) galvanized steel.

Finish:
Mill galvanized.

Linkage:
Face linkage, parallel blade operation is standard. Linkage consist of 6mm dia. S/S steel pivot pins.

Case Bearings:
Made sintered bronze (oilite), operational temp. resistance up to 200 °C.

Fusible Link:
Standard release 74 °C (165 °F) is std. (UL listed) Other temperatures available on request.

Axes & Control Shaft:
12mm diameter zinc plated mild steel.

Seals:
Side seal are compression type stainless steel grade 304 to close gap between case and blades.

Minimum Size:
250 × 200mm, damper up to 250mm high is single blade construction.

Maximum Size:
1100 × 1000mm, as single section. Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

FSD 60 - 110
General construction as type FSD 60 - 100 damper but blades, shafts and blade to spindle fixing in stainless steel (Grade 304).

FSD 60 - 120
General construction as type FSD 60 - 100 damper but with case, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

FSD SERIES OVAL SPIGOT TYPE

Dimensions

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<th>Width (mm)</th>
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For details of multiple sections consult SAFID.

FSD SERIES [FSD 60 - 100, FSD 60 - 110, FSD 60 - 120]
Description
Combination fire and smoke dampers type, FSD 70 provide an automatic means of localizing areas of smoke and/or fire in ventilation systems. It prevent the distribution of fire and/or smoke through ventilation ductworks. FSD offer an effective barrier maintaining integrity in a fire situation and this is combined with low leakage characteristic for smoke management. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls.

Standard Construction
Frame (Spigot Case):
105mmx1.5mm (16 ga.) galvanized steel L=530mm
Blades:
250mm max. width,1.5mm (16 ga.) galvanized steel.
Finish:
Mill galvanized.
Linkage:
Parallel blade have standard face linkage, parallel blade operation is standard. Linkage consist of 6mm dia. S/S steel pivot pins.
Case Bearings:
Made sintered bronze (silite), operational temp. resistance up to 200 ˚C.
Fusible Link:
Standard release 74 ˚C (165 ˚F) is std. (UL listed) Other temperatures available on request.
Axles & Control Shaft:
12mm diameter zinc plated mild steel.

Seals:
Side seal are compression type stainless steel grade 304 to close gap between case and blades.

Minimum Size:
200 x 200mm, damper up to 250mm high is single blade construction.

Maximum Size:
1000 x 1000mm, as single section. Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

FSD 70 - 100, 110, 120
General construction as type FSD 70 - 100 damper but blades, shafts and blade to spindle fixing in stainless steel (Grade 304).

FSD 70 - 120
General construction as type FSD 70 - 100 damper but with case, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

FSD SERIES [FSD 70 - 100, FSD 70 - 110, FSD 70 - 120]

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>1 - Casing</th>
<th>2 - Blade</th>
<th>3 - Drive Shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - Face Linkage</td>
<td>5 - Linkage Bar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - Fusible Link 74 ˚C (UL listed)</td>
<td>8 - Closing Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - Jack Shaft Device</td>
<td>6 - Landing Angles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 - Side Seal</td>
<td>7 - Fusible Link 74 ˚C (UL listed)</td>
<td></td>
<td></td>
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</tbody>
</table>

FSD 70 - 100, 110, 120

Standard Sizes

<table>
<thead>
<tr>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>No. of Blades</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>200</td>
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<td>6</td>
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<tr>
<td>1000</td>
<td>1000</td>
<td>6</td>
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</tbody>
</table>
Removable Spindle

For Sleeve Type Only

Mounting Bracket

Damper with Mounting Bracket for Actuator

Blade Seal

Side Seal (Jamb Seal)

Type S1 (Silicone Rubber)

Type S2 (Stainless Steel Type 304)

Note: Type S3 (Combination of S1 & S2)

Jack Shaft Device

1 - Bracket Case Mounted
2 - Shaft Bearing
3 - Through Shaft
4 - Coil Spring
5 - Fixed Link Arm
6 - Free Link Arm
7 - Blade Rotation Ink
8 - Fuse Link
9 - Connecting Link Arm
10 - Shaft Joint
11 - Drive Spindle

Section of Drive Device

Closed Position

Open Position

Closed Position

By Firing of Fuse Link
Flange Installation Details

Flange Type FSD 30

<table>
<thead>
<tr>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>No. of Holes 8 Dim.</th>
<th>No. of Holes H Dim.</th>
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</thead>
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<tr>
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</table>

Flange Drilling Details, Type FSD 30

Installation Details

FSD 50

FSD 60

FSD 70
HEVAC Frame Installation Details

FSD 60

FSD 70

Seals

<table>
<thead>
<tr>
<th>Construction Variants</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>No seals. Not applicable.</td>
</tr>
<tr>
<td>S1</td>
<td>Blade edge seal to seal blades to blade joint. Blade seal is silicone rubber with temperature resistance up to 175 °C, for low leakage characteristic. Not applicable.</td>
</tr>
<tr>
<td>S2</td>
<td>Side seals. Fitted to close gap between frame and blades. Not applicable.</td>
</tr>
<tr>
<td>S3</td>
<td>Combination of S1 &amp; S2, fitted to close gap between frame and blades and blade edge seals to seal blade to blade joint. Blade seals is silicone rubber with temperature resistance up to 175 °C, for ultra low leakage characteristic.</td>
</tr>
</tbody>
</table>

Linkage

<table>
<thead>
<tr>
<th>Construction Variants</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P8</td>
<td>Standard supply construction internal face linkage, parallel blade operation.</td>
</tr>
</tbody>
</table>

Bearings

<table>
<thead>
<tr>
<th>Construction Variants</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Construction sintered bronze oilite (standard).</td>
</tr>
<tr>
<td>B2</td>
<td>Sintered Bronze Oilite</td>
</tr>
</tbody>
</table>

Belimo Actuators

<table>
<thead>
<tr>
<th>Code</th>
<th>Type/Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01</td>
<td>BF230 spring return</td>
</tr>
<tr>
<td>A02</td>
<td>BF24 spring return</td>
</tr>
<tr>
<td>A03</td>
<td>AF230 spring return</td>
</tr>
<tr>
<td>A04</td>
<td>AF230-S spring return with limit switch</td>
</tr>
<tr>
<td>A05</td>
<td>AF230 US spring return</td>
</tr>
<tr>
<td>A06</td>
<td>AF230 US spring return</td>
</tr>
<tr>
<td>A07</td>
<td>AF230-S US spring return with limit switch</td>
</tr>
<tr>
<td>A08</td>
<td>AF230-S US spring return with limit switch</td>
</tr>
<tr>
<td>A09</td>
<td>AF24 US spring return</td>
</tr>
<tr>
<td>A10</td>
<td>AF24-S US spring return with limit switch</td>
</tr>
<tr>
<td>A11</td>
<td>AF24-SR spring return</td>
</tr>
<tr>
<td>A12</td>
<td>NF24 US spring return</td>
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<tr>
<td>A13</td>
<td>NF24 US spring return with limit switch</td>
</tr>
<tr>
<td>A14</td>
<td>NF24-S US spring return with limit switch</td>
</tr>
<tr>
<td>A15</td>
<td>NF24-S US spring return with limit switch</td>
</tr>
<tr>
<td>A16</td>
<td>NF24-SR US Modulating</td>
</tr>
<tr>
<td>A17</td>
<td>SM230A open/closed</td>
</tr>
<tr>
<td>A18</td>
<td>SM24A open/closed</td>
</tr>
<tr>
<td>A19</td>
<td>SM250A-SR Modulating</td>
</tr>
<tr>
<td>A20</td>
<td>NM230 open/closed</td>
</tr>
<tr>
<td>A21</td>
<td>NM24 open/closed</td>
</tr>
<tr>
<td>A22</td>
<td>NM24-SR Modulating</td>
</tr>
<tr>
<td>A23</td>
<td>GM240 open/closed</td>
</tr>
<tr>
<td>A24</td>
<td>GM24 open/closed</td>
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<tr>
<td>A25</td>
<td>GM24-SR Modulating</td>
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</tbody>
</table>

Note:
For Belimo Actuators details, models and voltages see pages 230 - 249 or contact SAFID.
Order Details

<table>
<thead>
<tr>
<th>Order Code</th>
<th>FSD 30</th>
<th>100</th>
<th>PB</th>
<th>S3</th>
<th>B1</th>
<th>R</th>
<th>500 x 500</th>
<th>A01</th>
</tr>
</thead>
</table>

Variants
- *FSD30 = Flange (Standard Supply)
- FSD40 = Sleeve
- FSD50 = Circular Spigot
- FSD60 = Oval Spigot
- FSD70 = Rectangular Spigot

Type
- *100 (Standard Supply)
  - 110
  - 120

Linkages
- *PB - Parallel Blades

Variants - Seals
- S = No Seal, not applicable for FSD type
- S1 = Blade Seal Only (Not Applicable)
- S2 = Side Seal Only (Not Applicable)
- *S3 = Side & Blade Seal (175 °C), (Standard Supply)

Variants - Bearings
- *B1 = Sintered Bronze (Oilite)
- B2 = Stainless Steel

* - Stands for Standard Supply.

Specifications
Combination fire and smoke dampers designed for the fire/smoke isolation of sections for ducting in ventilation systems. Basically consisting of a flanged casing, shut off blades with overlapping interlocking joints, with seals to close off gap between frame & blades. Blades are connected by internal linkage for parallel action. Damper is fitted to internal jack shaft incorporating fusible link assembly.

Manual and electric operation with low leakage blades construction are available. Side seal are compression type stainless steel grade 304 to close gap between case and blades.

Order Example
Standard
Make: SAFID
Type: FSD30-100-PB-S3-B1-R-500x500 / A01
Qty: 1

External Controls
- "R" = Right Hand (Standard Supply)
- "L" = Left Hand

Actuator
(See page 193)

Duct Size
- Square or rectangular dimension "W" x "H" mm circular "D" mm dia.
- Flat oval "W" x "H" mm.
- All dampers spigots are manufactured down on duct size to fit inside ductwork connections.

ORDER REFERENCE DETAILS