DAMPERS.

TABLE OF CONTENTS.

سافید
SAFID

VOLUME CONTROL DAMPERS

SPK 30 - 100

SPK 30 SERIES
FLANGE TYPE

Description

The single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in air conditioning and ventilation systems.

The SPK 30 dampers are ruggedly built dampers with a casing of robust assembly, formed from channel frame for flanged connection to ductwork. The blades are formed single skin and reinforced with longitudinal structurally designed triple vee shape.

Blade's action can be opposed blades or parallel blades.

Standard Construction

Frame:
160mm x 30mm x 1.5mm (16 Ga.) galvanized steel formed channel for flange connection.

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

Finish:
Mill Galvanized

Linkage:
Side linkage concealed in frame for parallel and opposed blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Control Shaft:
12mm diameter zinc plated mild steel.

Minimum and Maximum Single Section Size:
100 × 100mm minimum and 1000 × 1800mm maximum. Please see "Air Performance" for the minimum and maximum sizes tested by AMCA.

Consult SAFID for multiple section assembly details.

SPK 30 - 110
General construction as type SPK 30 - 100 damper but with blades, shafts and blade to shaft fixing are from stainless steel Grade 304.

Optional: Blades from stainless steel Grade 316 or 316L.

SPK 30 - 120
General construction as type SPK 30 - 100 damper but with frame, blades, linkage, case bearing, axles and control shaft are from stainless steel Grade 304.

Optional: Frame and blades from stainless steel Grade 316 or 316L.

Catalog ID: SPK 30 - 100 September 30, 2013

SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-100-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

FLANGE TYPE VOLUME CONTROL DAMPER

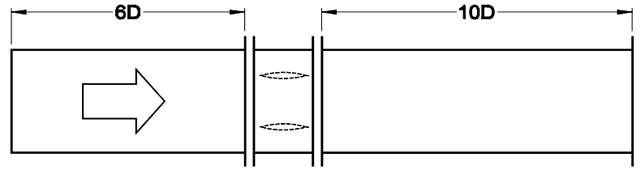
SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

Air Performance

Pressure Drop

The tests for pressure prop of Volume Control Dampers were conducted as per ANSI / AMCA Standard 500-D, Figure 5.3 which simulate the actual site condition when installed in ventilation, supply and return air conditioning ductworks.

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

305 × 305 12 in. x 12 in.		610 × 610 24 in. x 24 in.		914 × 914 36 in. x 36 in.		305 × 1219 12 in. x 48 in.		1219 × 305 48 in. x 12 in.	
Velocity (FPM)	Pressure Drop (in. W.G)	Velocity (FPM)	Pressure Drop (in. W.G)	Velocity (FPM)	Pressure Drop (in. W.G)	Velocity (FPM)	Pressure Drop (in. W.G)	Velocity (FPM)	Pressure Drop (in. W.G)
1519	0.065	2000	0.079	2494	0.110	7706	1.899	7713	1.957
1262	0.046	1752	0.060	1991	0.068	7075	1.585	7079	1.650
1006	0.030	1497	0.044	1494	0.035	6049	1.139	6042	1.156
755	0.022	1001	0.020	994	0.016	4016	0.500	4015	0.492
494	0.006	498	0.006	493	0.004	2043	0.122	2057	0.121

Note:
Extrapolation below the minimum test static pressure drop shall be permitted as per AMCA 511-10, Section 13.2.1.1. The air performance shall not be extrapolated more than 50% of the static pressure range of test downward.

SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-100-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

Catalog ID: SPK 30 - 100 September 30, 2013

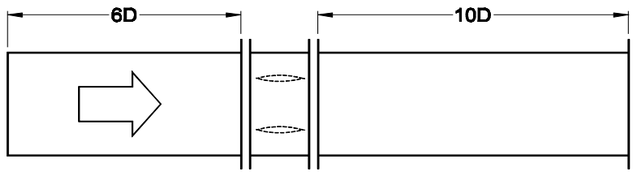
VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

Air Performance

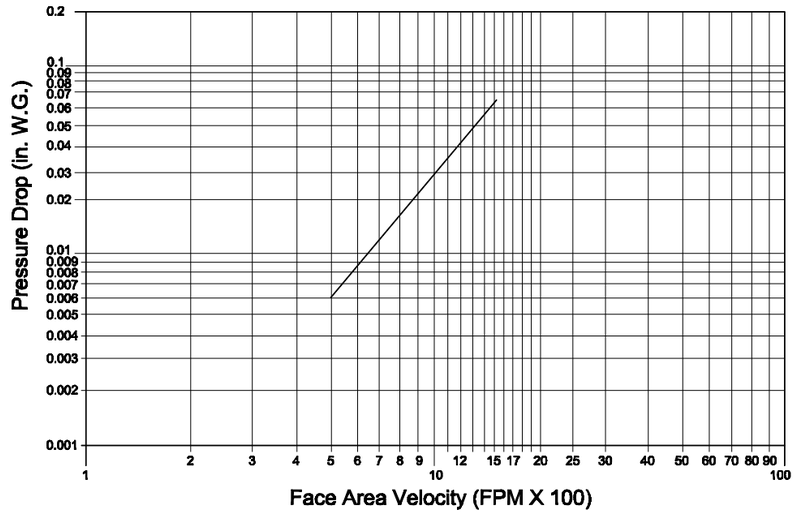
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 12 in. x 12 in. - Fully Open Blades



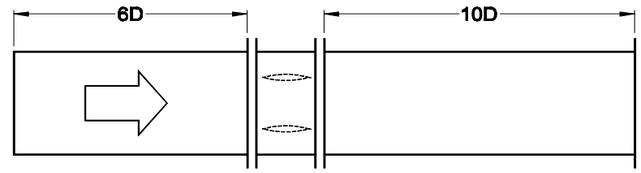
FLANGE TYPE VOLUME CONTROL DAMPER

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

Air Performance

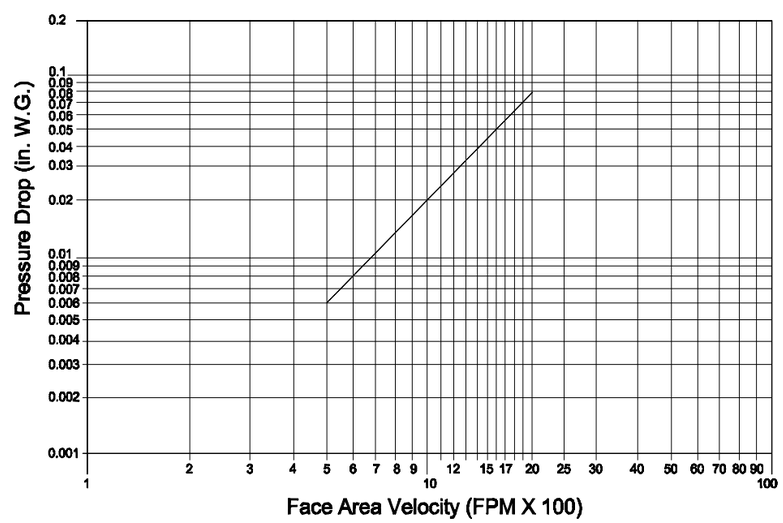
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 24 in. x 24 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-100-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

VOLUME CONTROL DAMPERS

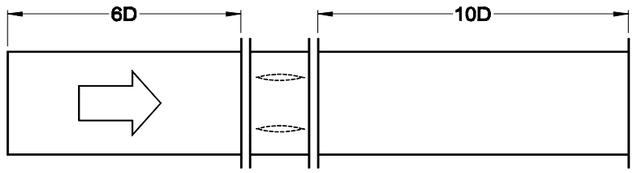
Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

Air Performance

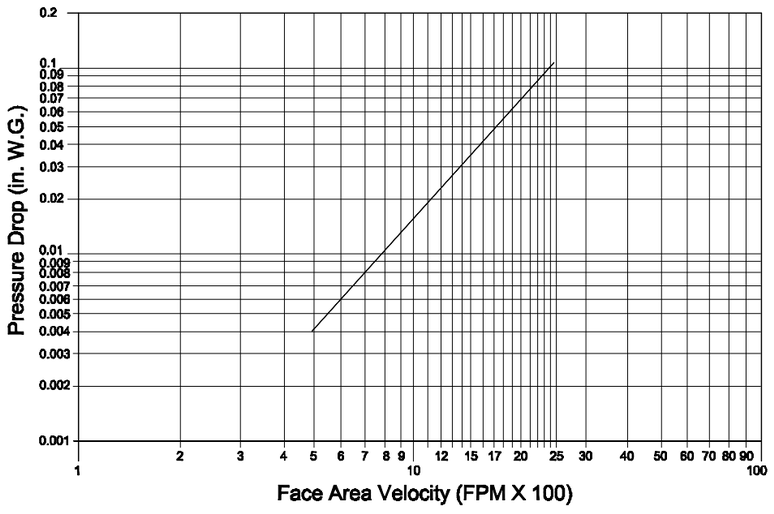
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 36 in. x 36 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-100-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

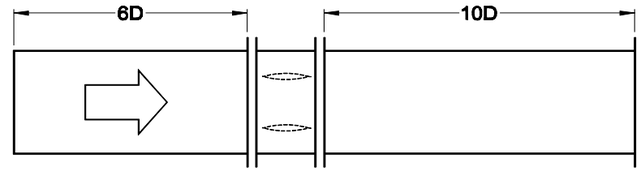
FLANGE TYPE VOLUME CONTROL DAMPER

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

Air Performance

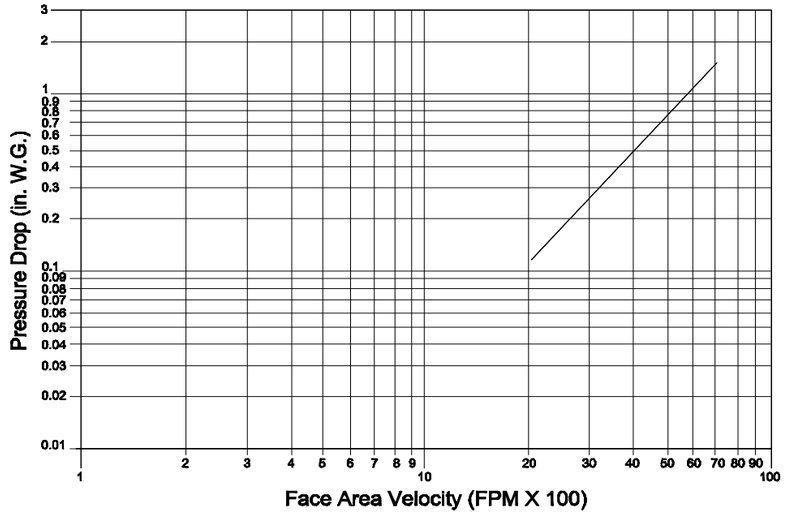
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 12 in. x 48 in. - Fully Open Blades



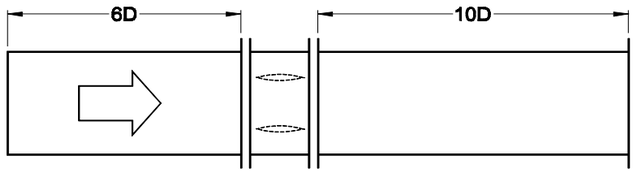
SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-100-OB-S-B-R. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.
The AMCA Certified Ratings Seal applies to Air Performance Ratings.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

Air Performance

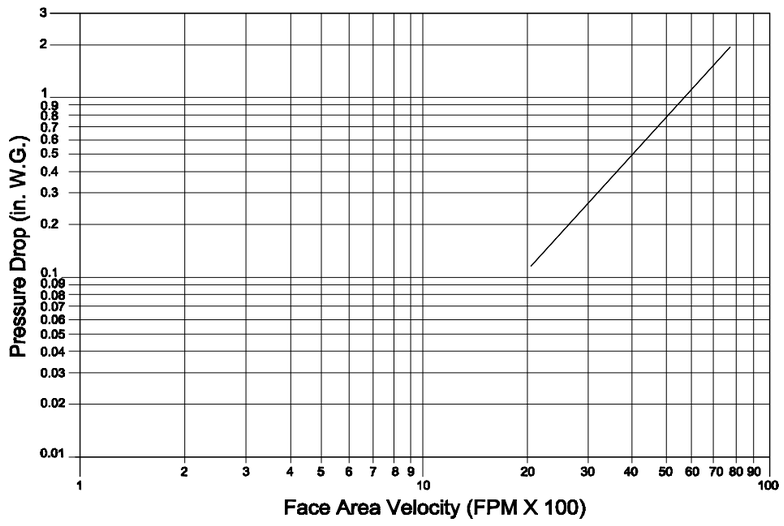
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 48 in. x 12 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-100-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

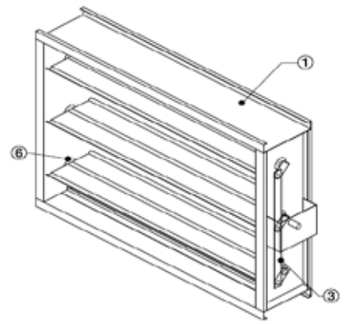
FLANGE TYPE VOLUME CONTROL DAMPER

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

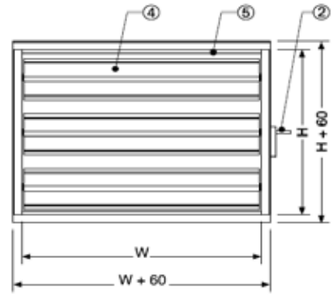
Dimensions

1 - Casing **2** - Drive Shaft **3** - Side Linkage **4** - Blade **5** - Landing Angles **6** - Bearing

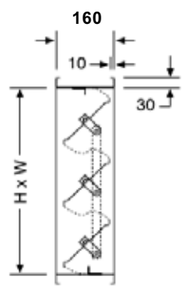
Flange Type



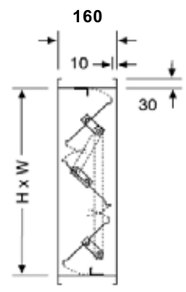
Flange Type



Flange Type, Parallel/Opposed Blades



Parallel Blades (PB)



Opposed Blades (OB)

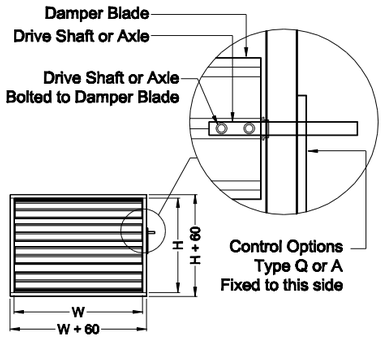
Standard Sizes

Width (mm)	Height (mm)	No. of Blades
100	100	1
150	150	1
200	200	1
250	300	2
300	400	2
350	500	3
400	600	3
450	700	4
500	800	5
550	900	5
600	1000	6
650	1100	7
700	1200	7
750	1300	8
800	1400	9
850	1500	9
900	1600	10
950	1700	11
1000	1800	12

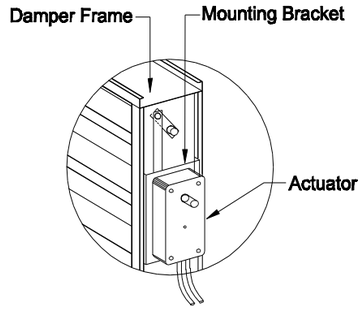
SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

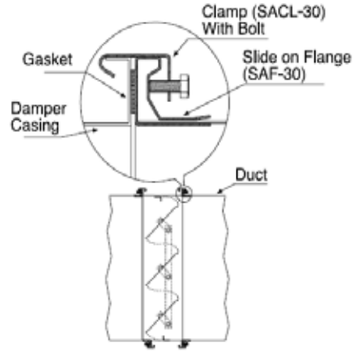
Axle and Drive Shaft Fixing Details



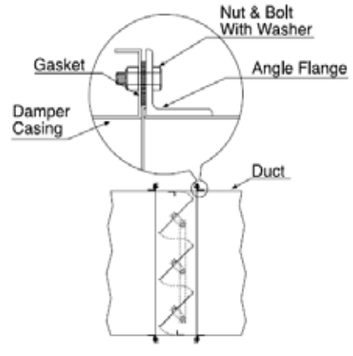
Damper with Control Option Type A



Damper to Slide on Flange Connection

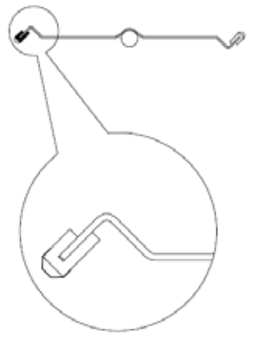


Damper to Angle Flange Connection



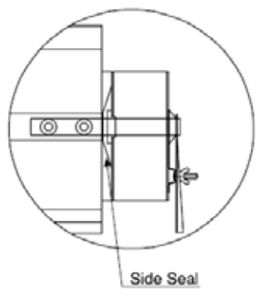
Blade Seal (Optional)

Type S1



Side Seal or Jamb Seal (Optional)

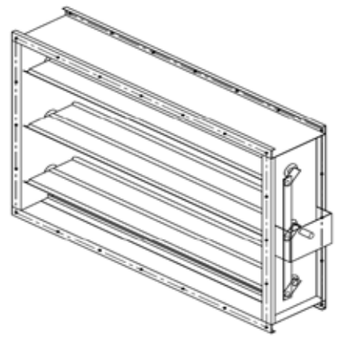
Type S2 (Stainless Steel Type 304)



NOTE

1. Type S3 (Combination of S1 and S2)
2. Hand locking quadrant is shown above - Control Type Q

Flange Drilling Details



Width (mm)	Height (mm)	No. of Holes W Dim.	No. of Holes H Dim.
100	100	1	2
150	150	2	2
200	200	2	2
250	300	2	3
300	400	3	4
350	500	3	5
400	600	4	6
450	700	4	6
500	800	4	7
550	900	4	8
600	1000	5	9
650	1100	5	10
700	1200	6	10
750	1300	6	11
800	1400	7	12
850	1500	7	13
900	1600	8	14
950	1700	8	14
1000	1800	9	15

Catalog ID: SPK 30 - 100 September 30, 2013

Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]

Seals

Construction Variants	Description
S	No Seals.
S1	Blade's edge seals. Fitted to seal blades to blade's joint. Blade seal is silicone rubber with temperature resistance up to 175 °C, to minimize air leakage.
S2	Side seals. Fitted to close gap between frame and blades (jamb seal) to minimize air leakage.
S3	Combination of S1 & S2. Fitted to close gap between frame and blades and blade's edge seals to seal blades to blade's joints. Blade seals is silicone rubber with temperature resistance up to 175 °C for low air leakage characteristic.

Linkage

Construction Variants	Description
PB	Side linkage concealed in frame for parallel blade operation.
OB	Side linkage concealed in frame for opposed blade operation.

Bearings

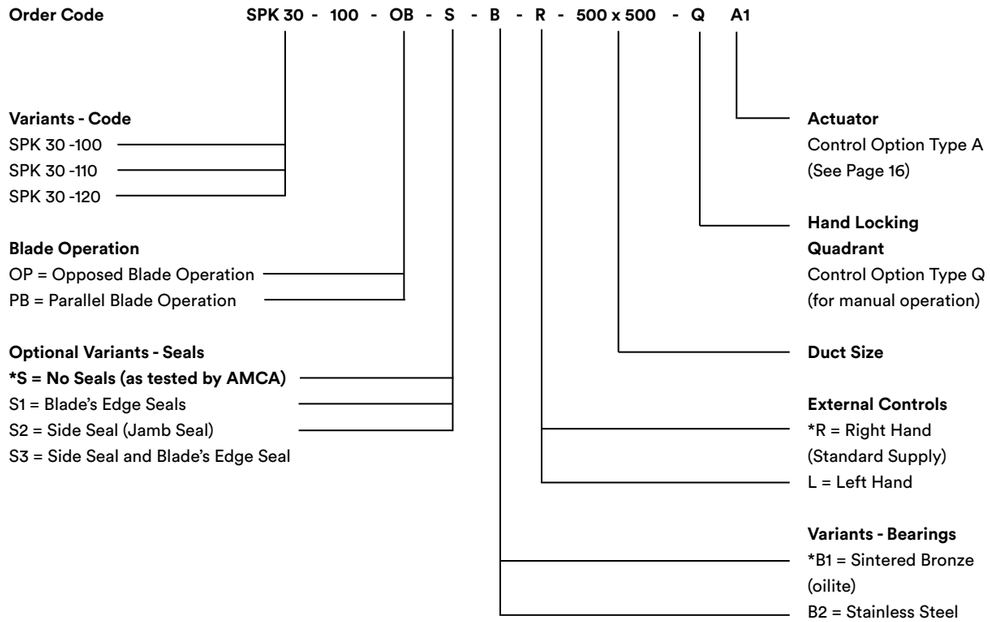
Construction Variants	Description
B1	Sintered bronze oilite.
B2	Stainless Steel.

Actuators

Code	Type/Model
A1	BF230-ME, BF24-M3 Spring-return
A1S	BF230-S-ME, BF24-S-M3 Spring-return
A01	BF230 Spring-return
A02	BF24 Spring-return
A03	AF230 Spring-return
A04	AF230-S Spring-return with limit switch
A05	AF230 US Spring-return
A06	AF230-S US Spring-return with limit switch
A07	AF120 US Spring-return
A08	AF120-S US Spring-return with limit switch
A09	AF24 US Spring-return
A10	AF24-S US Spring-return with limit switch
A11	AF24 SR Spring-return
A12	NF24 US Spring-return
A13	NF120 US Spring-return
A14	NF24-S US Spring-return with limit switch
A15	NF120-S US Spring-return with limit switch
A16	NF24-SR US Modulating
A17	SM230A open/closed
A18	SM24A open/closed
A19	SM230A-SR Modulating
A20	NM230 open/closed
A21	NM24 open/closed
A22	NM24-SR Modulating
A23	GM240 open/closed
A24	GM24 open/closed
A25	GM24-SR Modulating

Note:
Contact SAFID for technical data sheet of actuators.

SPK 30 SERIES [SPK 30 - 100, SPK 30 - 110, SPK 30 - 120]



*** - Stands for Standard Supply**

Order Example

Standard
Make: SAFID
1. Type : SPK 30 - 100 - OB - S - B - R - 500 x 500 - Q
2. Type : SPK 30 - 100 - OB - S - B - R - 500 x 500 - A17

FLANGE TYPE VOLUME CONTROL DAMPER WITH EXTRUDED ALUMINUM AIRFOIL BLADES

سافيد SAFID

SPK 30 - 300

SPK 30 SERIES FLANGE TYPE

Description

The single and multi-leaf volume control dampers with extruded aluminum airfoil blades are designed for quite, efficient and reliable air volume control in air conditioning and ventilation systems.

The SPK 30 dampers are ruggedly built dampers with a casing of robust assembly, formed from a channel frame for flanged connection to ductworks.

The blades with airfoil construction provides a low pressure drop in the open position for smooth airflow and reduced air turbulence.

Standard Construction

Frame:
160mm x 30mm x 1.5mm (16 Ga.) galvanized steel formed channel for flange connection.

Blades:
100mm, 125mm and 150mm wide airfoil shaped blades extruded aluminum.

Finish:
Frame of mill galvanized.
Blades of mill aluminum.

Linkage:
Galvanized steel side linkage concealed in frame for parallel or opposed blade operation.
Hard PVC gear side linkage for opposed blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).
Hard PVC gear integrated with 12mm x 12mm axle for opposed blade operation only.

Control Shaft:
12mm square or round zinc plated mild steel.

Minimum and Maximum Single Section Size:
100 × 100mm minimum and 1000 × 1000mm maximum.

Consult SAFID for multiple section assembly details.

SPK 30 - 310
General construction as type SPK 30 - 300 damper but with frame, linkage, case bearing, axles and control shaft are from stainless steel (Grade 304).

Catalog ID: SPK 30 - 300 December 19, 2013

SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

سافيد SAFID

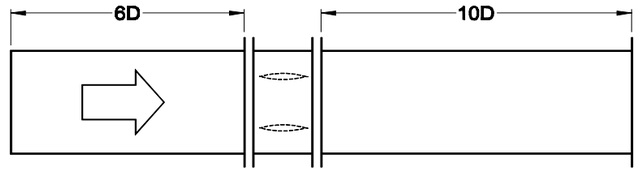
FLANGE TYPE VOLUME CONTROL DAMPER WITH EXTRUDED ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

Air Performance

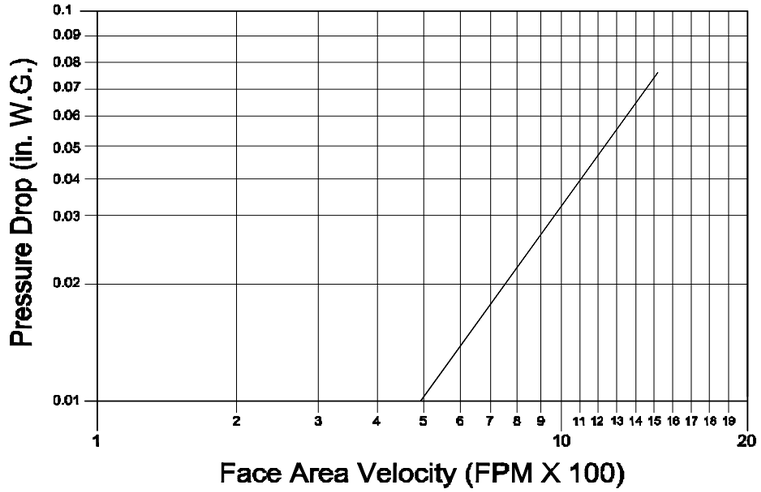
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 12 in. x 12 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

Catalog ID: SPK 30 - 300 December 19, 2013

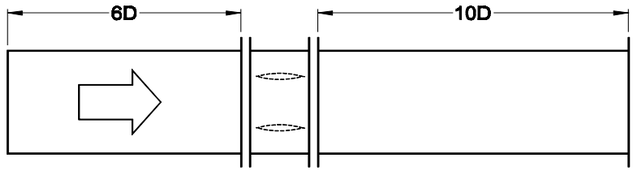
VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

Air Performance

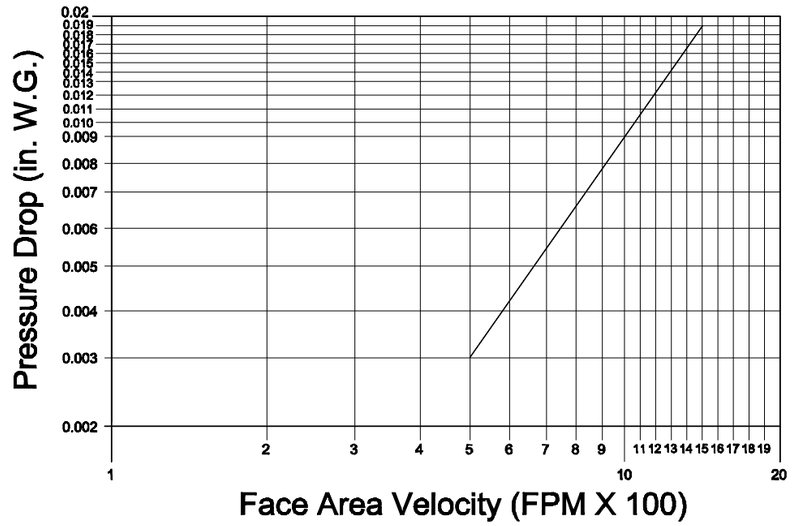
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 24 in. x 24 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

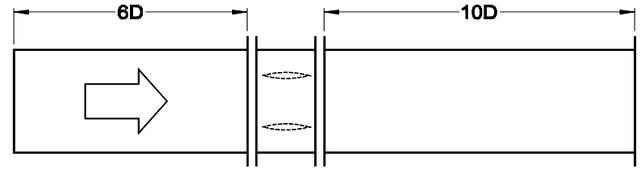
FLANGE TYPE VOLUME CONTROL DAMPER
WITH EXTRUDED ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

Air Performance

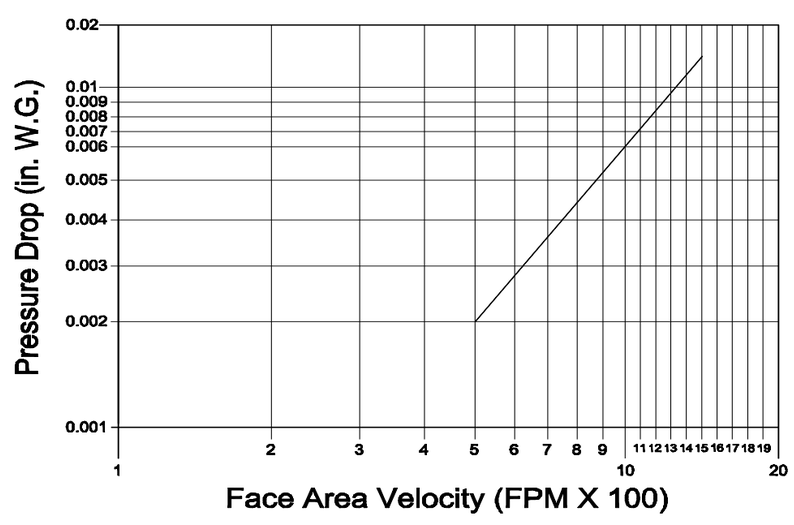
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 36 in. x 36 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

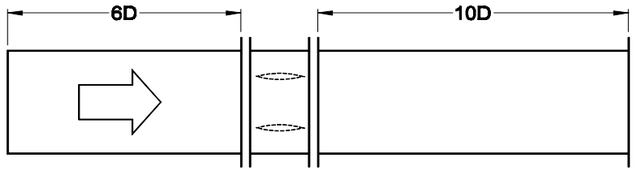
VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

Air Performance

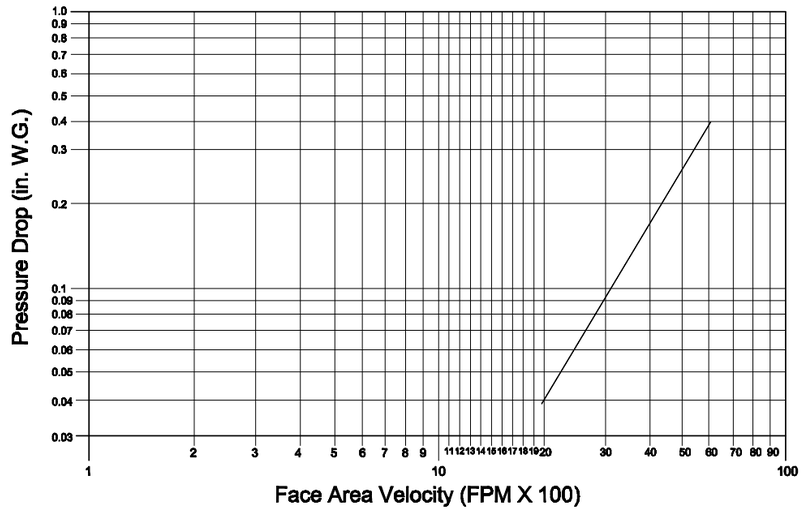
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 12 in. x 48 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

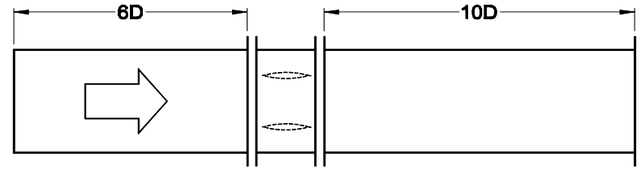
FLANGE TYPE VOLUME CONTROL DAMPER
WITH EXTRUDED ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

Air Performance

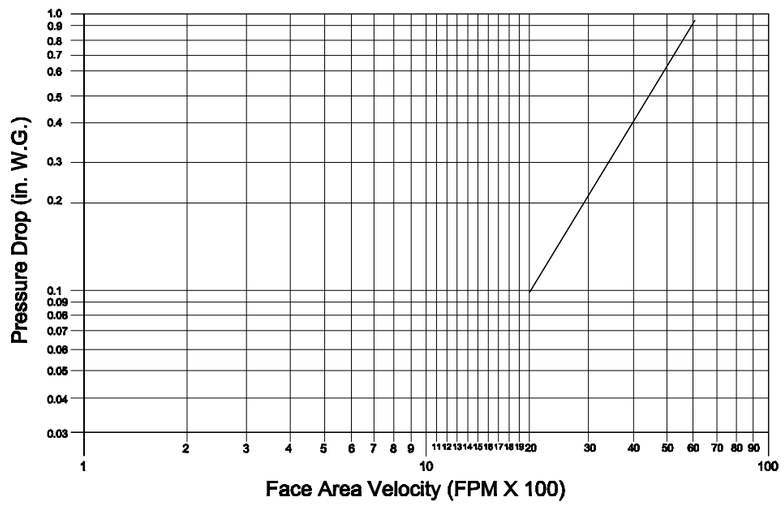
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 48 in. x 12 in. - Fully Open Blades



SAFID certifies that the Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300-OB-S-B-R. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.

Catalog ID: SPK 30 - 300 December 19, 2013

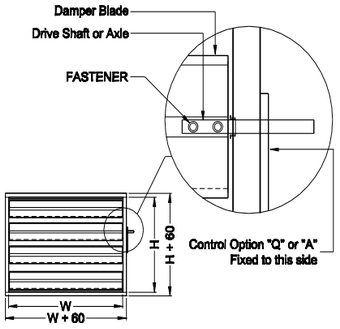
VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

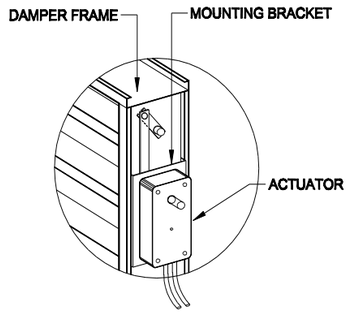
Blade Profile (Standard)

Blade Seal (Optional)

Axle & Drive Shaft Fixing Details

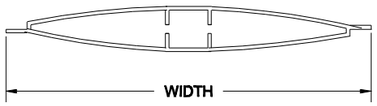


Mounting Bracket for Actuator



Blade Profile (Standard)

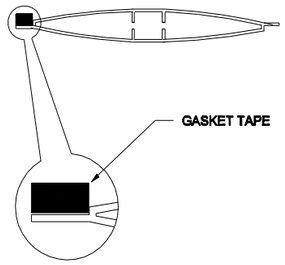
No Blade Seal - Type S



100 mm and 150 mm Wide Blade

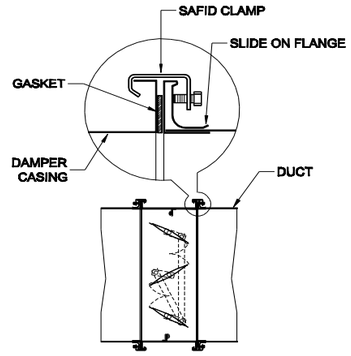
Blade Seal (Optional)

Type S1

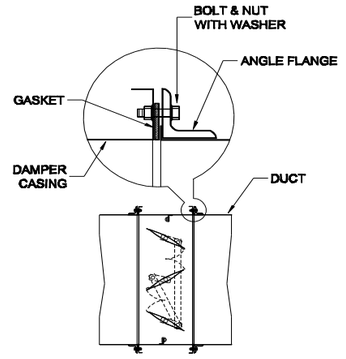


SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

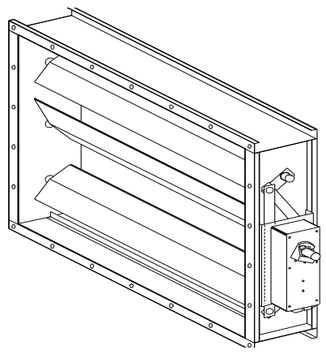
Damper to Slide on Flange Connection



Damper to Angle Flange Connection



Flange Drilling Details



Width (mm)	Height (mm)	No. of Holes W Dim.	No. of Holes H Dim.
200	200	2	2
300	200	3	2
300	300	3	3
400	300	4	3
400	400	4	4
500	400	4	4
600	400	5	4
500	500	4	4
600	500	5	4
700	500	6	4
600	600	5	5
700	600	6	5
800	600	7	5
700	700	6	6
800	700	7	6
900	700	8	6
800	800	7	7
900	800	8	7
900	900	8	8

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]

Seals

Construction Variants	Description
S	No Seals.
S1	Blade's edge seals. Fitted to seal blades to blade's joint. Blade seal is a gasket tape 6mm wide.

Linkage

Construction Variants	Description
PB	Side linkage concealed in frame for parallel blade operation.
OB	Side linkage concealed in frame for opposed blade operation.

Bearings

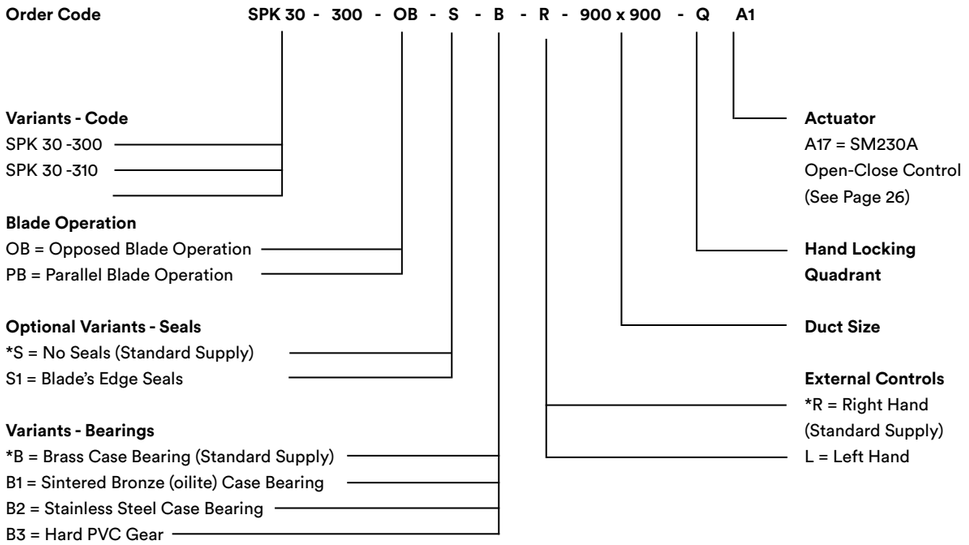
Construction Variants	Description
B	Brass (Standard Supply)
B1	Sintered Bronze Oilite
B2	Stainless Steel
B3	Hard PVC gear integrated with 12mm x 12mm axle (for opposed blades operation only).

Actuators

Code	Type/Model
A1	BF230-ME, BF24-M3 Spring-return
A1S	BF230-S-ME, BF24-S-M3 Spring-return
A01	BF230 Spring-return
A02	BF24 Spring-return
A03	AF230 Spring-return
A04	AF230-S Spring-return with limit switch
A05	AF230 US Spring-return
A06	AF230-S US Spring-return with limit switch
A07	AF120 US Spring-return
A08	AF120-S US Spring-return with limit switch
A09	AF24 US Spring-return
A10	AF24-S US Spring-return with limit switch
A11	AF24 SR Spring-return
A12	NF24 US Spring-return
A13	NF120 US Spring-return
A14	NF24-S US Spring-return with limit switch
A15	NF120-S US Spring-return with limit switch
A16	NF24-SR US Modulating
A17	SM230A open/closed
A18	SM24A open/closed
A19	SM230A-SR Modulating
A20	NM230 open/closed
A21	NM24 open/closed
A22	NM24-SR Modulating
A23	GM240 open/closed
A24	GM24 open/closed
A25	GM24-SR Modulating

Note:
Contact SAFID for technical data sheet of actuators.

SPK 30 SERIES [SPK 30 - 300, SPK 30 - 310]



*** - Stands for Standard Supply**

Order Example

Standard
Make: SAFID
1. Type : SPK 30 - 300 - OB - S - B - R - 900 x 900 - A
2. Type : SPK 30 - 300 - OB - S - B - R - 900 x 900 - Q
3. Type : SPK 30 - 300 - OB - S - B3 - R - 900 x 900 - A

LOW LEAKAGE VOLUME CONTROL DAMPER SPK 30 - 300L

SPK 30 SERIES FLANGE TYPE

Description

SPK 30 - 300L low leakage volume control dampers are recommended for use in multiple Air Conditioning Units with one common air duct system on which one or two A/C Units needs to be isolated during standby mode while the other A/C Unit is on operational mode.

In building pressurization it can be used as an isolation damper to maintain the required pressure in the space.

In office buildings where some occupants are outside most of the time, this type of damper is recommended to shutdown the flow of air when the space is unoccupied on which can save energy consumption.

It is also being used as a fresh air intake damper for Air Conditioning Units where it needs a fresh air damper to be closed upon detection of heavy dust on the fresh air side.

The blades with airfoil construction provides a low pressure drop in the open position for smooth airflow and reduced air turbulence.

Standard Construction

Frame:
160mm x 30mm x 1.5mm (16 Ga.) galvanized steel formed channel for flange connection.

Blades:
100mm, 125mm and 150mm wide airfoil shaped blades extruded aluminum.
250mm max. width, 1.5mm (16 Ga.) galvanized steel.

Finish:
Frame of mill galvanized.
Blades of mill aluminum.

Linkage:
Galvanized steel side linkage concealed in frame for opposed blade and parallel blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Control Shaft:
12mm diameter zinc plated mild steel.

Tip Seal:
Gasket tape 6mm wide.

Side Seal (Jamb Seal):
Compression type stainless steel grade 304 to close gap between frame and blades.

Minimum and Maximum Single Section Size:
200 × 200mm minimum and 900 × 900mm maximum.

Consult SAFID for multiple section assembly details.

SPK 30 - 310L
General construction as type SPK 30 - 300L damper but with frame, linkage, case bearing, axles and control shaft are from stainless steel (Grade 304).

Catalog ID: SPK 30 - 300L December 18, 2013

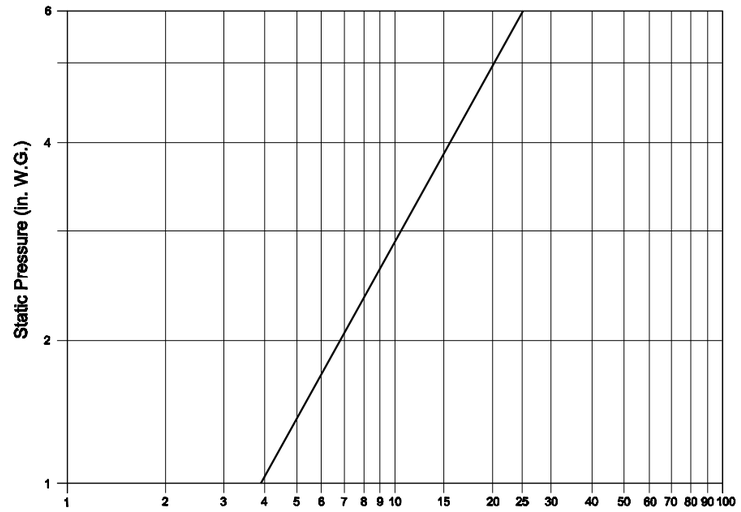
SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

FLANGE TYPE VCD WITH EXTRUDED
ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Air Leakage Performance

Air Leakage Data



36 in. x 36 in. (914 mm x 914 mm) (Face Area = 9 ft²)		
Static Pressure (in. W.G.)	Leakage (cfm/ft²)	Air Leakage Classification
1	3.9	Class 1
2	6.8	Class 2
4	15.6	Class 2
6	25.1	Class 3

36 in. x 36 in. (914 mm x 914 mm) (Face Area = 9 ft²)				
Leakage Class	at 1 in. W.G.	at 2 in. W.G.	at 4 in. W.G.	at 6 in. W.G.
1A	3	N/A	N/A	N/A
1	4	5.6	8	9.8
2	10	14	20	24.5
3	40	56.5	80	98

The torque applied holding the damper blades at closed position is 133 in-lb.

SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

Catalog ID: SPK 30 - 300L December 18, 2013

VOLUME CONTROL DAMPERS

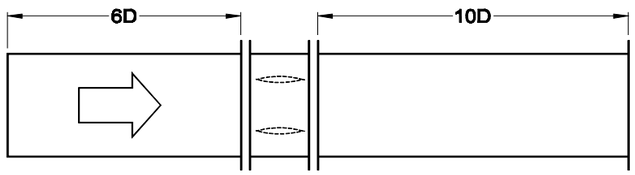
SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Air Performance

Pressure Drop

The tests for pressure prop of Volume Control Dampers were conducted as per ANSI / AMCA Standard 500-D, Figure 5.3 which simulate the actual site condition when installed in ventilation, supply and return air conditioning ductworks.

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

12 in. x 12 in. 305 × 305	
Velocity (FPM)	Pressure Drop (in. W.G)
1519	0.076
1263	0.052
1006	0.033
755	0.020
493	0.010

24 in. x 24 in. 610 × 610	
Velocity (FPM)	Pressure Drop (in. W.G)
1500	0.019
1249	0.013
1000	0.009
746	0.006
499	0.003

36 in. x 36 in. 914 × 914	
Velocity (FPM)	Pressure Drop (in. W.G)
1502	0.015
1246	0.009
997	0.006
748	0.004
500	0.002

12 in. x 48 in. 305 × 1219	
Velocity (FPM)	Pressure Drop (in. W.G)
6059	0.398
5007	0.266
4044	0.181
3000	0.093
1971	0.039

48 in. x 12 in. 1219 z 305	
Velocity (FPM)	Pressure Drop (in. W.G)
6061	0.942
5023	0.633
4053	0.416
3018	0.223
1993	0.098

SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

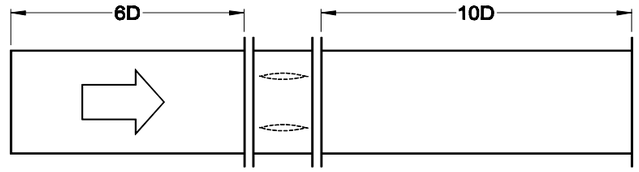
FLANGE TYPE VCD WITH EXTRUDED
ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Air Performance

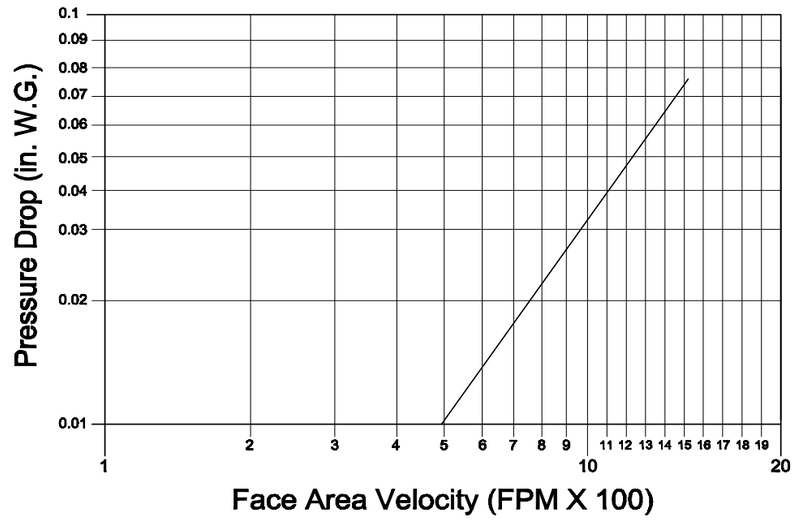
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 12 in. x 12 in. - Fully Open Blades



SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

Catalog ID: SPK 30 - 300L December 18, 2013

VOLUME CONTROL DAMPERS

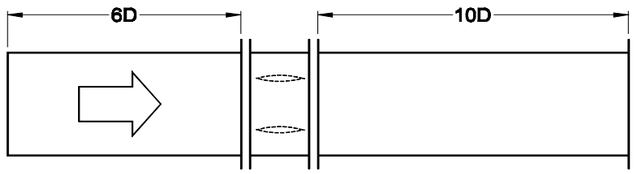
SAFID

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Air Performance

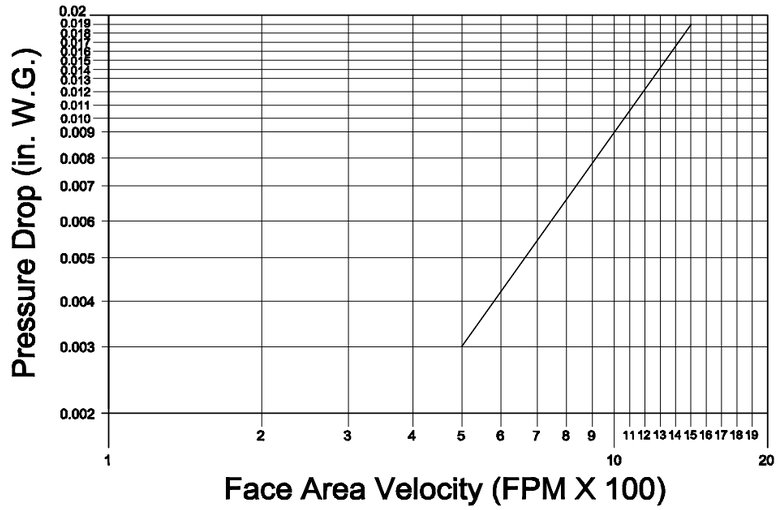
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 24 in. x 24 in. - Fully Open Blades



SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

Catalog ID: SPK 30 - 300L December 18, 2013

FLANGE TYPE VCD WITH EXTRUDED
ALUMINUM AIRFOIL BLADES

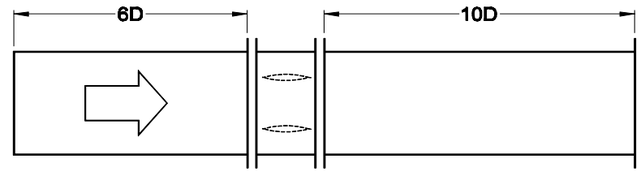
SAFID

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Air Performance

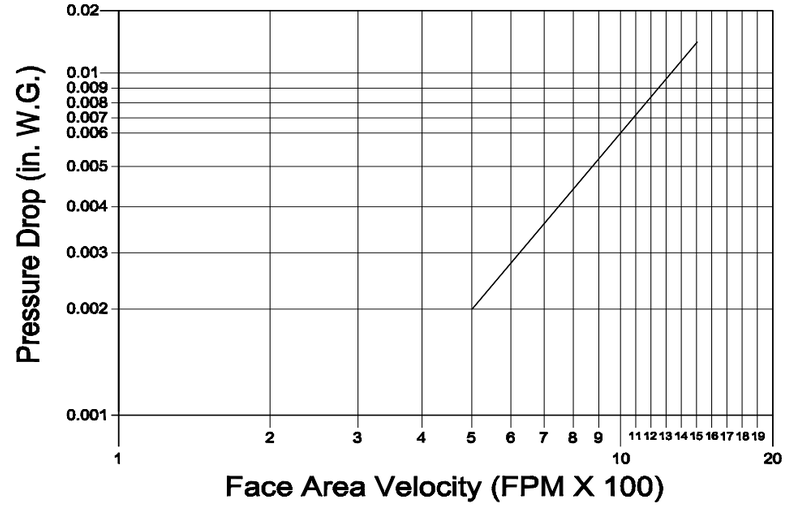
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 36 in. x 36 in. - Fully Open Blades



SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

Catalog ID: SPK 30 - 300L December 18, 2013

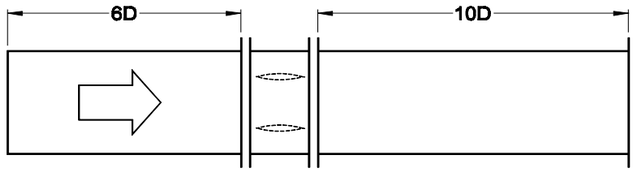
VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Air Performance

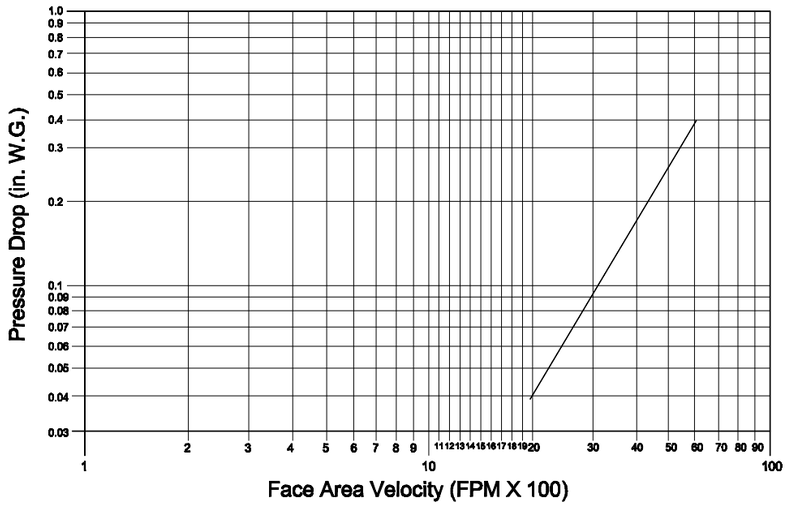
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 12 in. x 48 in. - Fully Open Blades



SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

Catalog ID: SPK 30-300L December 18, 2013

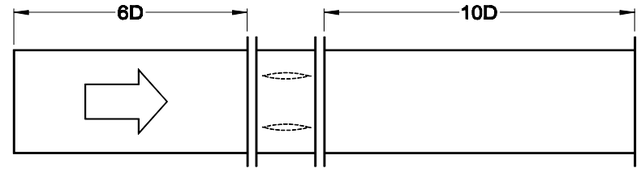
FLANGE TYPE VCD WITH EXTRUDED
ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Air Performance

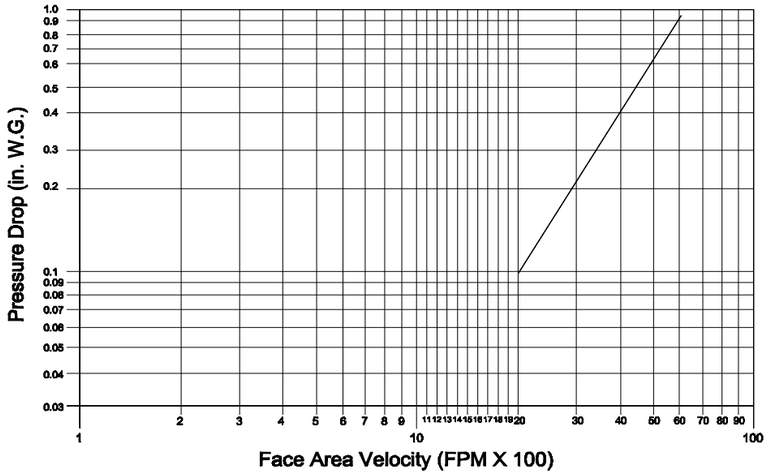
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 48 in. x 12 in. - Fully Open Blades



SAFID certifies that the Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-300L. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07, Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3.
Only 100mm blade width and opposed blade action is AMCA certified.

Catalog ID: SPK 30-300L December 18, 2013

VOLUME CONTROL DAMPERS

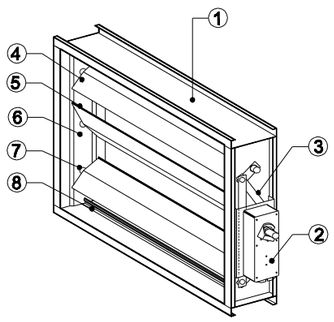
Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

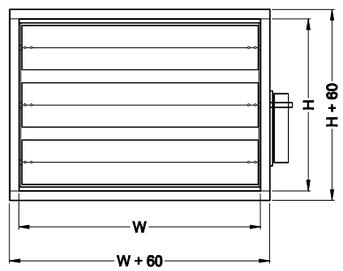
Dimensions

1 - Casing **2** - Actuator **3** - Side Linkage **4** - Blade **5** - Tip Seal **6** - Side Seal (Jamb Seal) **7** - Bearing **8** - Landing Angles

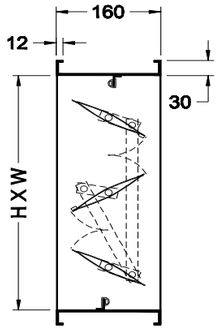
Flange Type



Flange Type



Flange Type, Opposed Blades



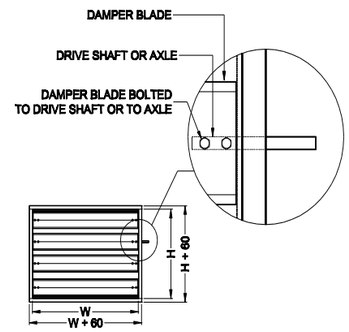
Standard Sizes

Width (mm)	Height (mm)	No. of Blades
200	200	2
300	200	2
300	300	3
400	300	3
400	400	4
500	400	4
600	400	4
500	500	5
600	500	5
700	500	5
600	600	6
700	600	6
800	600	6
700	700	7
800	700	7
900	700	7
800	800	8
900	800	8
900	900	9

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

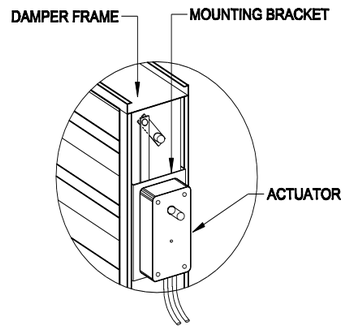
Drive Shaft

Axle and Drive Shaft Fixing Details

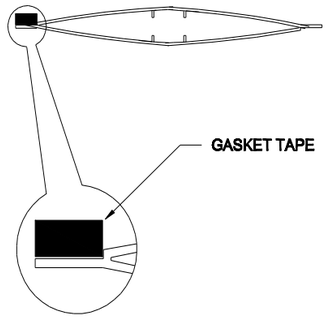


Mounting Bracket

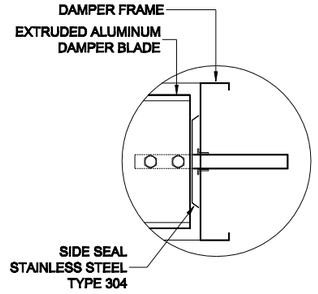
Mounting Bracket for Actuator



Blade Seal

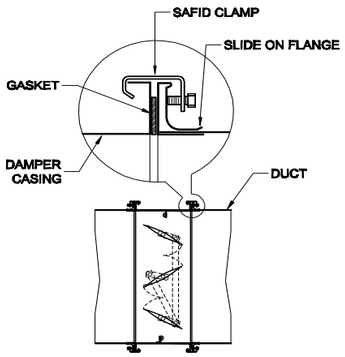


Side Seal or Jamb Seal

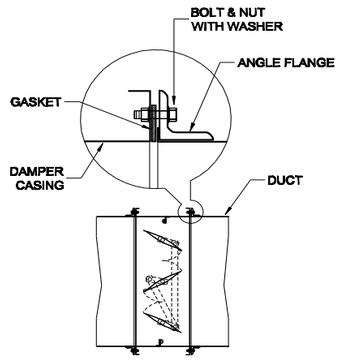


SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

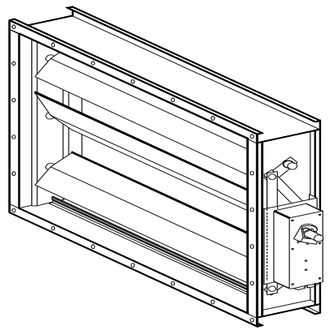
Damper to Slide on Flange Connection



Damper to Angle Flange Connection



Flange Drilling Details



Width (mm)	Height (mm)	No. of Holes W Dim.	No. of Holes H Dim.
200	200	2	2
300	200	3	2
300	300	3	3
400	300	4	3
400	400	4	4
500	400	4	4
600	400	5	4
500	500	4	4
600	500	5	4
700	500	6	4
600	600	5	5
700	600	6	5
800	600	7	5
700	700	6	6
800	700	7	6
900	700	8	6
800	800	7	7
900	800	8	7
900	900	8	8

SPK 30 SERIES [SPK 30 - 300L, SPK 30 - 310L]

Order Code SPK 30 - 300L - OB - B - R - 900 x 900 - A

Variants - Code
SPK 30 -300L
SPK 30 -310L

Blade Operation
OP = Opposed Blade Operation
PB = Parallel Blade Operation

Variants - Bearings
*B = Brass Case Bearing (Standard Supply)
B1 = Sintered Bronze (oilite) Case Bearing
B2 = Stainless Steel Case Bearing

Actuator
SM230A
or equivalent
Open-close control

Duct Size

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

*** - Stands for Standard Supply**

Order Example

Standard
Make: SAFID
1. Type : SPK 30 - 300L - OB - B - R - 900 x 900 - A
2. Type : SPK 30 - 300L - PB - B - R - 900 x 900 - A

CLASS 1A AND CLASS 1 LOW LEAKAGE VOLUME CONTROL DAMPER SPK 30 - 400

SPK 30 SERIES FLANGE TYPE

Description

SPK 30 - 400 **Class 1A** and **Class 1** low leakage volume control dampers are recommended for use in multiple Air Conditioning Units with one common air duct system on which one or two A/C Units needs to be isolated during standby mode while the other A/C Unit is on operational mode.

In building pressurization it can be used as an isolation damper to maintain the required pressure in the space.

In office buildings where some occupants are outside most of the time, this type of damper is recommended to shutdown the flow of air when the space is unoccupied on which can save energy consumption.

It is also being used as a fresh air intake damper for Air Conditioning Units where it needs a fresh air damper to be closed upon detection of heavy dust on the fresh air side.

The blades with airfoil construction provides a low pressure drop in the open position for smooth airflow and reduced air turbulence.

Standard Construction

Frame:
160mm x 30mm x 1.5mm (16 Ga.) galvanized steel formed channel for flange connection.

Blades:
100mm, 125mm and 150mm wide airfoil shaped blades extruded aluminum.

Finish:
Frame of mill galvanized.
Blades of mill aluminum.

External Linkage:
Galvanized steel side linkage concealed in frame for opposed blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Control Shaft:
12mm diameter zinc plated mild steel.

Tip Seal:
Bubble type seal.
For Air Leakage "**Class 1A**" and "**Class 1**".

Side Seal (Jamb Seal):
Compression type stainless steel grade 304 to close gap between frame and blades.

Minimum and Maximum Single Section Size:
100 x 100mm minimum and 900 x 900mm maximum.

SPK 30 - 410
General construction as type SPK 30 - 400 damper but with frame, linkage, case bearing, axles and control shaft are from stainless steel (Grade 304).

Catalog ID: SPK 30 - 400 January 23, 2014

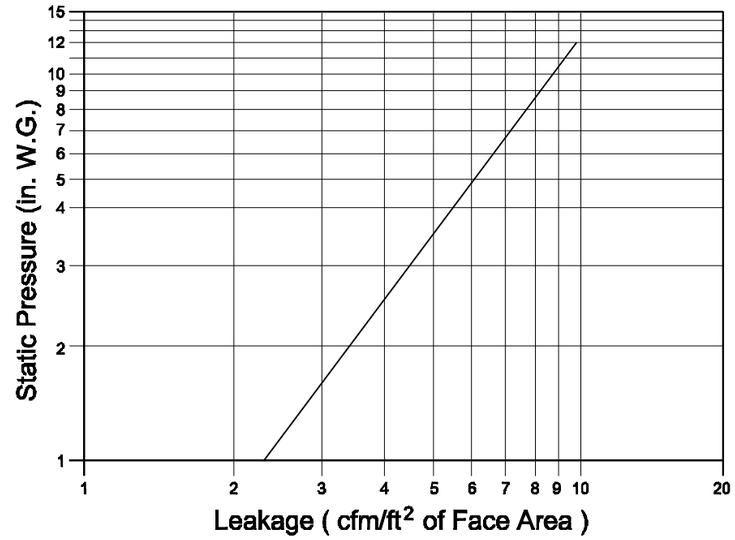
SAFID certifies that the Class 1A & Class 1 Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-400. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07,Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3. Only 150mm blade width is AMCA certified.

FLANGE TYPE VCD WITH EXTRUDED
ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

Air Leakage Performance

Air Leakage Data



36 in. x 36 in. (914 mm x 914 mm) (Face Area = 9 ft²)		
Static Pressure (in. W.G.)	**Leakage (cfm/ft²)**	**Air Leakage Classification**
1	2.336	Class 1A
2	3.549	Class 1
4	5.498	Class 1
6	6.646	Class 1
12	9.796	Class 1

Allowable Air Leakage To Achieve Leackage Classification (cfm/ft²)					
Leakage Class	**At 1 in. W.G.**	**At 2 in. W.G.**	**At 4 in. W.G.**	**At 6 in. W.G.**	**At 12 in. W.G.**
1A	3	N/A	N/A	N/A	N/A
1	4	5.6	8	9.8	9.8
2	10	14	20	24.5	24.5
3	40	56.5	80	98	98

Data are based on a torque of 24.6 in.-lb/ft² applied to close and seat the damper during the test.

SAFID certifies that the Class 1A & Class 1 Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-400. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07,Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3. Only 150mm blade width is AMCA certified.

Catalog ID: SPK 30 - 400 January 23, 2014

VOLUME CONTROL DAMPERS

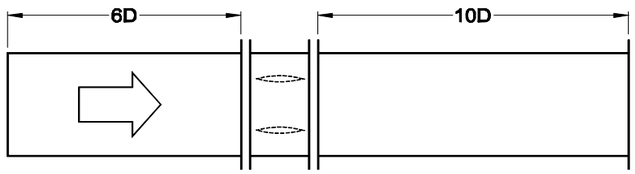
Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

Air Performance

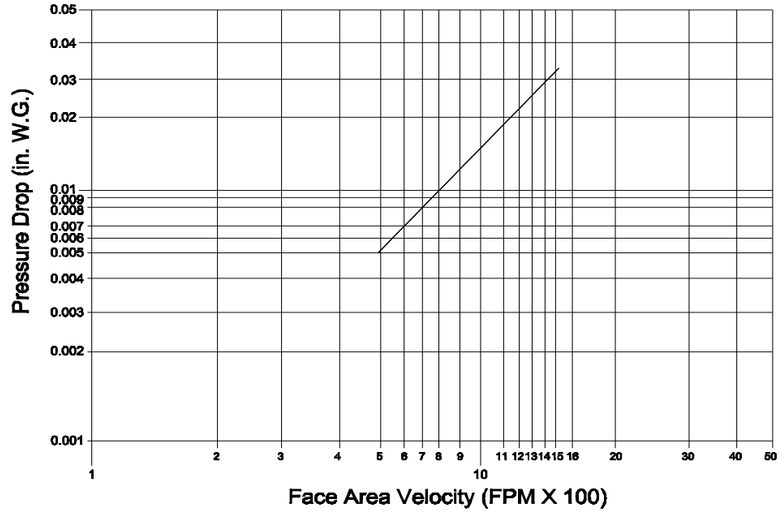
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 12 in. x 12 in. - Fully Open Blades



SAFID certifies that the Class 1A & Class 1 Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-400. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07,Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3. Only 150mm blade width is AMCA certified.

FLANGE TYPE VCD WITH EXTRUDED
ALUMINUM AIRFOIL BLADES

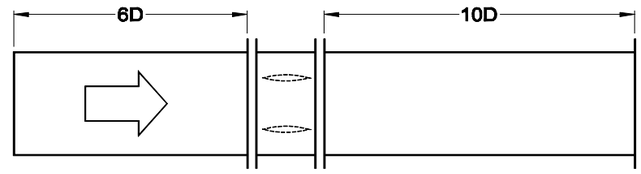
VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

Air Performance

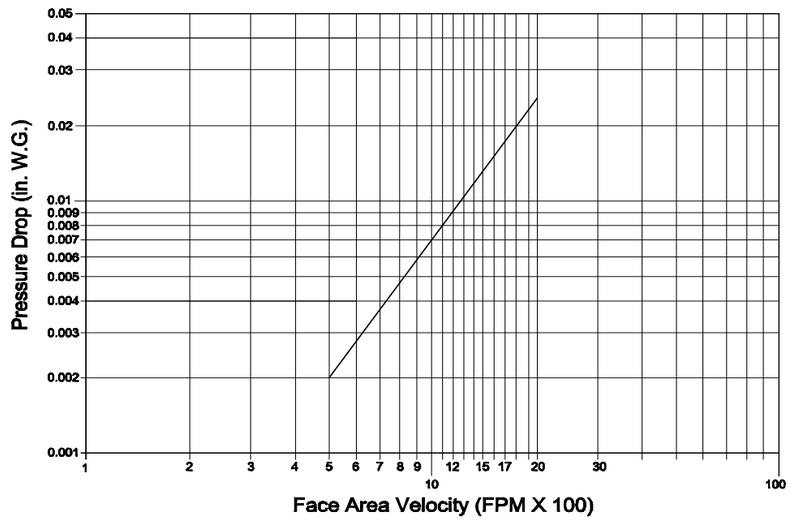
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 24 in. x 24 in. - Fully Open Blades



SAFID certifies that the Class 1A & Class 1 Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-400. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07,Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3. Only 150mm blade width is AMCA certified.

Catalog ID: SPK 30 - 400 January 23, 2014

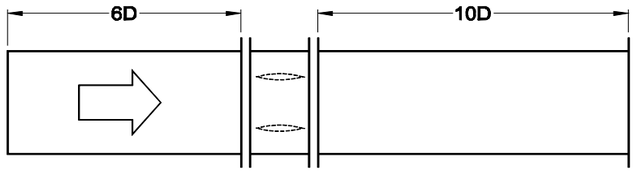
Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

Air Performance

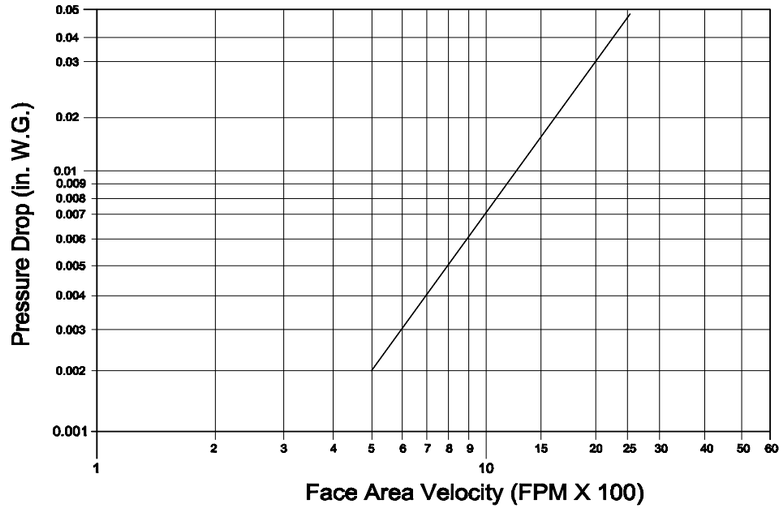
Pressure Drop

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

Damper Size 36 in. x 36 in. - Fully Open Blades



SAFID certifies that the Class 1A & Class 1 Low Leakage Volume Control Damper shown herein is licensed to bear the AMCA Seal for Model SPK 30-400. 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 Leakage and Air Performance Ratings.
Test Information: Tested for air leakage in accordance with ANSI / AMCA Standard 500-D-07,Figure 5.4. Air leakage is based on operation between 32 °F and 120 °F. Tested for air performance in accordance with ANSI / AMCA Standard 500-D-07 (Pressure Drop), Figure 5.3. Only 150mm blade width is AMCA certified.

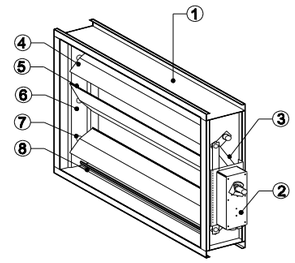
FLANGE TYPE VCD WITH EXTRUDED
ALUMINUM AIRFOIL BLADES

SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

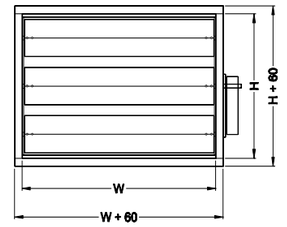
Dimensions

1 - Casing **2** - Actuator **3** - Side Linkage **4** - Blade **5** - Tip Seal **6** - Side Seal (Jamb Seal) **7** - Bearing **8** - Landing Angles

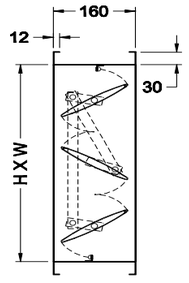
Flange Type



Flange Type



Flange Type, Opposed Blades



Standard Sizes

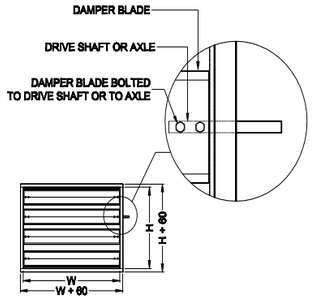
Width (mm)	Height (mm)	No. of Blades		
		100 mm	125 mm	150 mm
150	100	1	-	-
200	150	-	-	1
200	200	2	-	-
250	250	-	2	-
300	300	-	-	2
350	350	1	2	-
400	400	1	-	2
450	450	-	-	3
500	500	2	-	2
550	550	-	2	2
600	600	-	-	4
650	650	2	-	3
700	700	1	-	4
750	750	-	-	5
800	800	2	-	4
850	850	1	-	5
900	900	-	-	6

Catalog ID: SPK 30 - 400 January 23, 2014

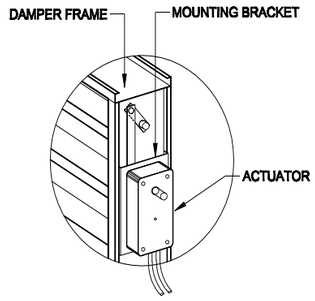
VOLUME CONTROL DAMPERS

SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

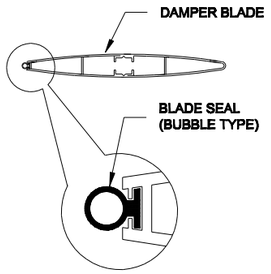
Axle & Drive Shift Fixing Details



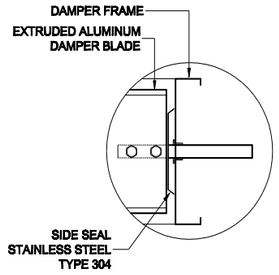
Mounting Bracket for Actuator



Seal

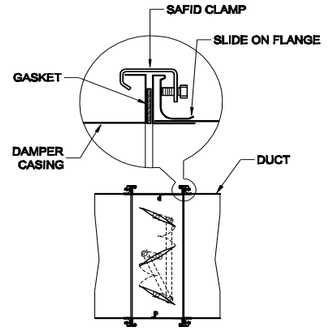


Side Seal or Jamb Seal

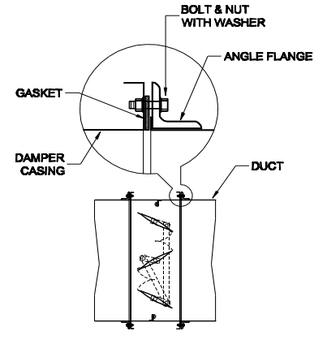


SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

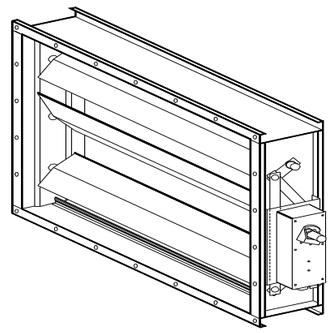
Damper to Slide on Flange Connection



Damper to Angle Flange Connection



Flange Drilling Details



Width (mm)	Height (mm)	No. of Holes W Dim.	No. of Holes H Dim.
150	150	2	2
200	150	2	2
300	300	3	3
400	300	4	3
500	300	4	3
450	450	4	4
500	450	4	4
600	450	5	4
700	450	6	4
800	450	7	4
900	450	8	4
600	600	5	5
700	600	6	5
800	600	7	5
900	600	8	5
750	750	6	5
800	750	7	5
900	750	8	5
900	900	8	8

ORDER REFERENCE DETAILS

SPK 30 SERIES [SPK 30 - 400, SPK 30 - 410]

Order Code SPK 30 - 400 - OB - B - R - 900 x 900 - A

Variants - Code
SPK 30 -400
SPK 30 -410

Blade Operation
OP = Opposed Blade Operation

Variants - Bearings
*B = Brass Case Bearing (Standard Supply)
B1 = Sintered Bronze (oilite) Case Bearing

Actuator
SM230A, SM24A or equivalent
Open-close control

Duct Size

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

*** - Stands for Standard Supply**

Order Example

Standard
Make: SAFID
1. Type : SPK 30 - 400 - OB - B - R - 900 x 900 - A
2. Type : SPK 30 - 400 - PB - B - R - 900 x 900 - A

Catalog ID: SPK 30 - 400 January 23, 2014

SLEEVE TYPE VOLUME CONTROL DAMPER

SPK 40 - 100

SPK SERIES
SLEEVE TYPE

Description

Single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in ventilation systems.

The SPK 40 damper are ruggedly built dampers, with a case of robust structurally designed hat section to slide in ducting for duct connection. The blades are formed single skin reinforced, with longitudinal structurally designed vee.

Blade action is standard as parallel but can be supplied as opposed blade action at no addtional charge.

Blade edge seals and jamb (side) seals can be fitted for low leakage requirements. Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Frame:
100mm x 40mm x 1.5mm (16 ga.) galvanized steel, structurally designed hat section.

Blades:
300mm max. width, 1.5mm (16 ga.) galvanized steel.

Finish:
Mill Galvanized

Linkage:
Face linkage parallel blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Axles:
12mm diameter zinc plated mild steel.

Control Shaft:
12mm diameter zinc plated mild steel. (Removable for sleeve shaft).

Minimum Size:
100 x 100mm, damper up to 300mm high are single blade construction.

Maximum Size:
1200 x 1800mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

Temperature Limits:
-40 ˚C to + 100 ˚C.

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

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

SLEEVE TYPE VOLUME CONTROL DAMPER

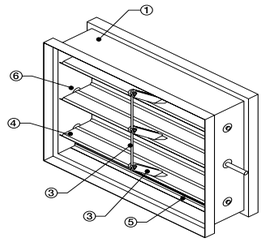
SPK SERIES [SPK 40 - 100, SPK 40 - 110, SPK 40 - 120]

Dimensions

1 - Casing **2** - Drive Shaft/ Removable Spindle (when required) **3** - Bar Linkage **4** - Blade **5** - Landing Angles **6** - BearingAngles

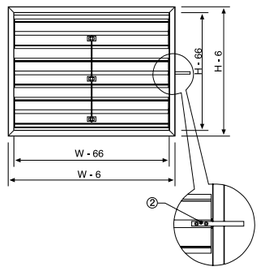
Sleeve Type

SPK 40 - 100, 110, 120

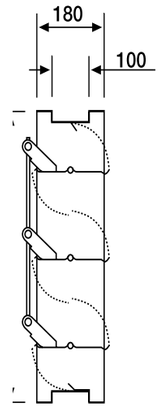


Sleeve Type

SPK 40 - 100, 110, 120



Sleeve Type, Parallel Blades



Parallel Blades (PB)

Standard Sizes

Width (mm)	Height (mm)	No. of Blades
100	100	1
150	150	1
200	200	1
250	250	1
300	300	1
350	350	2
400	400	2
450	450	2
500	500	2
550	600	3
600	700	4
650	800	4
700	900	5
750	1000	6
800	1100	6
850	1200	7
900	1300	8
950	1400	8
1000	1500	9
1050	1600	10
1100	1700	11
1200	1800	12

CIRCULAR SPIGOT TYPE VOLUME CONTROL DAMPER

SPK 50 - 100

SPK SERIES
CIRCULAR SPIGOT TYPE

Description

Single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in ventilation systems.

The SPK 50 dampers are ruggedly built dampers, with a spigot case of robust assembly formed circular spigot connection to ductworks. The blades are formed single skin reinforced, with longitudinal structurally designed vee.

Blade action is standard as parallel but can be supplied as opposed blade action at no addtional charge.

Blade edge seals and jamb (side) seals can be fitted for low leakage requirements. Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Frame:
180mm x 1.5mm (16 ga.) galvanized steel, spigot type 380mm wide with circular spigot duct connection.

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

Finish:
Mill Galvanized

Linkage:
Side linkage concealed in frame for parallel and opposed blade operation.
Face linkage available (optional).

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Axles:
12mm diameter zinc plated mild steel.

Control Shaft:
12mm diameter zinc plated mild steel.

Minimum Size:
From 100 mm diameter damper up to 200 mm diameter high are single blade construction.

Maximum Size:
1000 mm diameter as single section.
Multiple section assembly with unlimited size, where each section operates independently.
For details of multiple sections consult SAFID.

Temperature Limits:
-40 ˚C to + 100 ˚C.

SPK 50 - 110
General construction as type SPK 50 - 100 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

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

CIRCULAR SPIGOT TYPE VOLUME CONTROL DAMPER

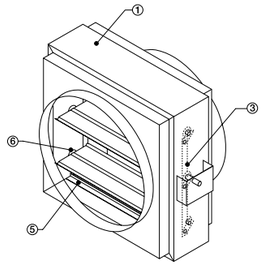
SPK SERIES [SPK 50 - 100, SPK 50 - 110, SPK 50 - 120]

Dimensions

1 - Casing **2** - Drive Shaft/ Removable Spindle (when required) **3** - Bar Linkage **4** - Blade **5** - Landing Angles **6** - BearingAngles

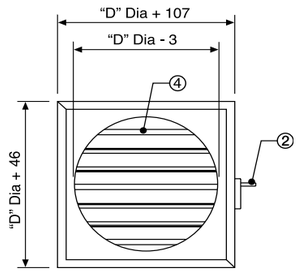
Circular Spigot Type

SPK 50 - 100, 110, 120

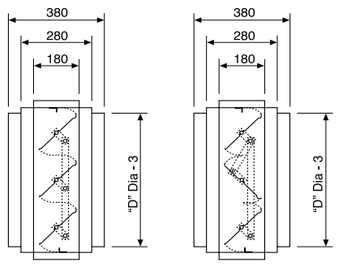


Circular Spigot Type

SPK 50 - 100, 110, 120



Circular Spigot Type, Parallel/Opposed Blades



Parallel Blades (PB) **Opposed Blades (OB)**

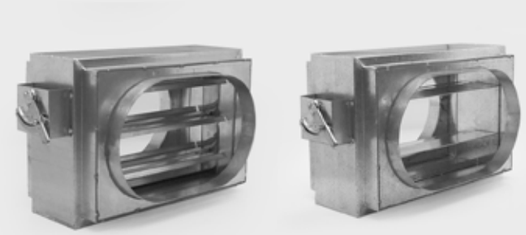
Standard Sizes

Diameter (mm)	No. of Blades
100	1
150	1
200	1
250	2
300	2
350	2
400	2
450	3
500	4
600	4
700	4
800	5
900	6
1000	7
1100	7
1150	7

OVAL SPIGOT TYPE VOLUME CONTROL DAMPER I SPK SERIES

SPK 60 - 100

SPK SERIES
OVAL SPIGOT TYPE



Description

Single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in ventilation systems.

The SPK 60 Dampers are ruggedly built dampers, with a spigot case of robust assembly formed oval spigot connection to ductworks. The blades are formed single skin reinforced, with longitudinal structurally designed vee.

Blade action is standard as parallel but can be supplied as opposed blade action at no addtional charge.

Blade edge seals and jamb (side) seals can be fitted for low leakage requirements. Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Frame:
180mm x 1.5mm (16 ga.) galvanized steel, spigot type 380mm wide with oval spigot duct connection.

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

Finish:
Mill Galvanized

Linkage:
Side linkage concealed in frame for parallel and opposed blade operation.
Face linkage available (optional).

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Axles:
12mm diameter zinc plated mild steel.

Control Shaft:
12mm diameter zinc plated mild steel.

Minimum Size:
200 × 100 mm, damper up to 20 mm high are single blade construction.

Maximum Size:
1000 × 950 mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.
For details of multiple sections consult SAFID.

Temperature Limits:
-40 ˚C to + 100 ˚C.

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

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

OVAL SPIGOT TYPE VOLUME CONTROL DAMPER

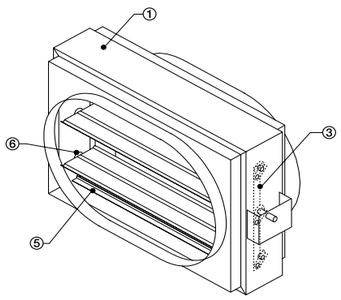
SPK SERIES [SPK 60 - 100, SPK 60 - 110, SPK 60 - 120]

Dimensions

1 - Casing **2** - Drive Shaft **3** - Side Linkage **4** - Blade **5** - Landing Angles **6** - Bearing

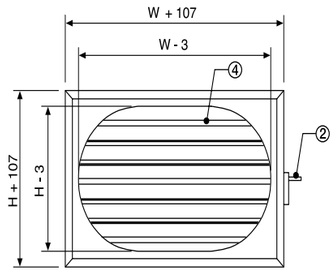
Oval Spigot Type

SPK 60 - 100, 110, 120

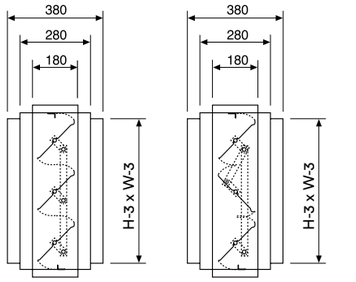


Oval Spigot Type

SPK 60 - 100, 110, 120



Oval pigot Type, Parallel/Opposed Blades



Parallel Blades (PB) **Opposed Blades (OB)**

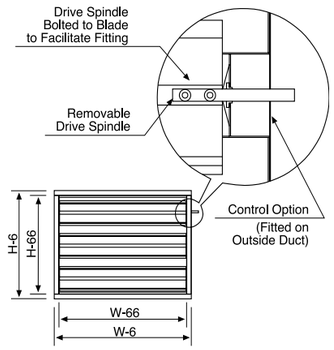
Standard Sizes - Single Section

Width (mm)	Height (mm)	No. of Blades
200	100	1
250	150	1
300	200	1
350	250	2
400	300	2
450	350	2
500	400	2
550	450	3
600	500	4
650	600	4
700	700	4
750	800	5
800	900	6
850		
900		
950		
1000		

SPK SERIES [SPK 60 - 100, SPK 60 - 110, SPK 60 - 120]

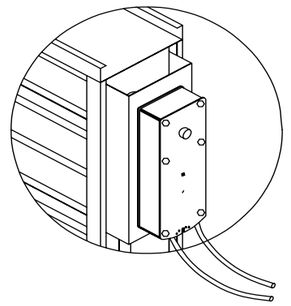
Removable Spindle

For Sleeve Type Only



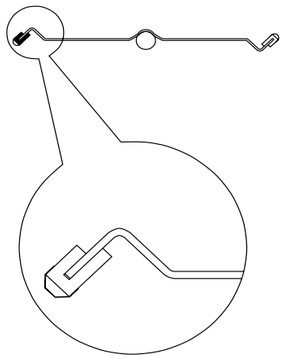
Mounting Bracket

Damper with Mounting Bracket for Actuator



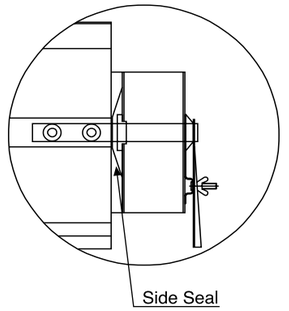
Blade Seal

Type S1



Side Seal (Jamb Seal)

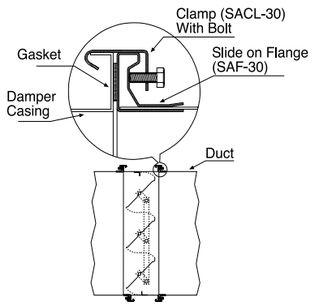
Type S2 (Stainless Steel Type 304)



Note:
Type S3 (Combination of S1 & S2)

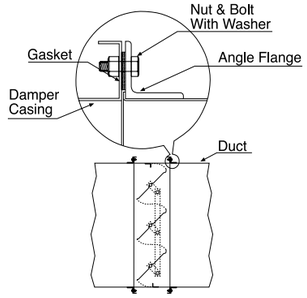
Flange Type SPK 30

Damper to Slide on Flange Connection

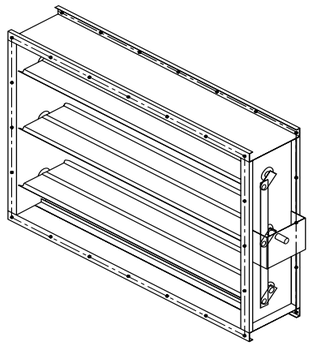


Flange Type SPK 30

Damper to Angle Flange Connection

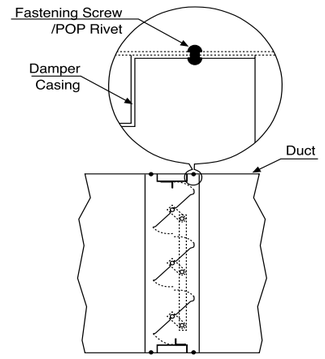


Flange Drilling Details

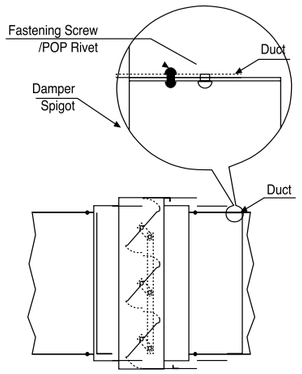


Width (mm)	Height (mm)	No. of Holes W Dim.	No. of Holes H Dim.
100	100	1	2
150	150	2	2
200	200	2	2
250	250	2	3
300	300	3	3
350	350	3	4
400	400	4	4
450	450	4	4
500	500	4	5
600	600	5	6
700	700	6	6
800	800	7	7
900	900	8	8
1000	1000	8	9
1100	1100	9	10
1200	1200	10	10
	1300		11
	1400		12
	1500		13
	1600		14
	1700		14
	1800		15

Sleeve Type SPK 40

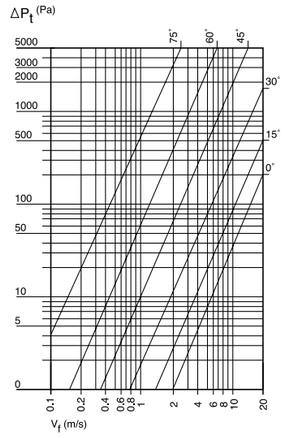


Circular Type SPK 50 and Oval type SPK 60

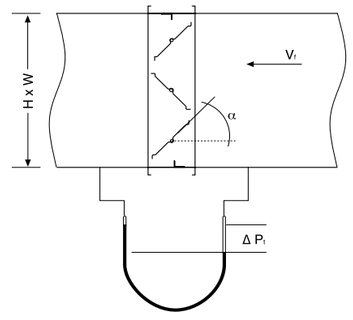


Technical Data

Pressure Loss



ΔP_t in Pa = Total Pressure Drop.
V_f in m/s = Face Velocity based on A.
A in m^2 = Damper cross-sectional area.



α = Blade angle, when $\alpha = 0^\circ$, blades are fully open.

Seals

Construction Variants	Description
S	Standard supply construction. No side seals or blade seals.
S1	Blade edge seal to seal blade to blade joint for low leakage characteristic.
S2	Side seals. Fitted to close gap between frame and blades.
S3	Combination of side seals & blade seals to close gap between frame and blades and blade seals to seal blade to blade joint for ultra low leakage characteristic.

Linkage

Construction Variants	Description
PB	Side linkage concealed in frame for parallel blade operation. Face linkage available (optional)
OB	External side linkage for opposed blade operation.

Bearings

Construction Variants	Description
B	Brass (Standard Supply)
B1	Construction sintered bronze oilite.
B2	Sintered bronze oilite.

Belimo Actuators

Code	Type/Model
A01	BF230 Spring Return
A02	BF24 Spring Return
A03	AF230 Spring Return
A04	AF230-S Spring Return With Limit Switch
A05	AF230 US Spring Return
A06	AF120 US Spring Return
A07	AF230-S US Spring Return With Limit Switch
A08	AF120-S US Spring Return With Limit Switch
A09	AF24 US Spring Return
A10	AF24-S US SPring Return With Limit Switch
A11	AF24-SR Spring Return
A12	NF24 US Spring Return
A13	NF120 US Spring Return
A14	NF24-S US Spring Return With Limit Switch
A15	NF120-S US Spring Return With Limit Switch
A16	NF24-SR US Modulating
A17	SM230A Open/Closed
A18	SM24A Open/Closed
A19	SM230A- SR Modulating
A20	NM230 Open/Closed
A21	NM24 Open/Closed
A22	NM24 SR Modulating
A23	GM240 Open/Closed
A24	GM24 Open/Closed
A25	GM24- SR Modulating

Note:
Other Belimo Actuators models and voltages are available, for inquiry contact SAFID.

Order Code SPK 40 - 100 - PB - S - B - R / 500 x 500 / A17

Variants - Case
SPK40 = Sleeve
SPK50 = Circular Spigot
SPK60 = Oval Spigot

Type
*100 (Standard Supply)
110
120

Variants - Blade Operation
*PB = Slide Linkage Parallel (Standard Supply)
OB = Opposed Blade

Variants - Seals
*S = None (Standard Supply)
S1 = Blade Seals Only
S2 = Side Seal (Jamb)
S3 = Side Seal & Blade Seals

Variants - Bearings
*B = Brass (Standard Supply)
B1 = Sintered Bronze (oilite)
B2 = Stainless Steel

Actuator
(See Page 58)

Duct Size
Square or rectangular Dimensions 'W' x 'H' mm. Circular 'D' mm dia. Flat oval 'W' x 'H' mm. All damper spigots are manufactured down on duct size to fit inside ductwork connections.

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

*** - Stands for Standard Supply**

Specifications

Volume control dampers designed for volume flow and pressure control or to isolate sections of ducting in ventilation systems, shall be of the SPK series as specified.Damper casing shall be constructed of Ga. 16 galvanized steel.Blades shall be single skin reinforced constructed of Ga. 16 galvanized steel (optional with blade seals and/or side seals). Shafts to be 12mm mild plated steel with brass or sintered bronze bearings (optional). Blades to be connected by side or face linkage.Parallel or opposed blade operation dampers; with manual or motorized operation. Limit switches and closed blade low leakage constructions are optional readily available.

Order Example

Standard
Make: SAFID
Type : SPK 40 - 100 PB - S - B - R / 500 x 500
Qty: 1

FLANGE TYPE VOLUME CONTROL DAMPER WITH AIRFOIL BLADES

SPK 30 - 200
FLANGE TYPE

SPK SERIES
AIRFOIL BLADES

Description

Single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in ventilation systems.

The SPK 30 - 200 dampers are ruggedly built dampers, with a casing of robust assembly formed from channel frame for flanged connections to ductwork. The blades are formed of double skin airfoil providing lower pressure drop in the open position for smooth airflow with reduced turbulance.

Blade seals and jamb (side) seals can be fitted for low leakage requirements. Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Frame:
180mm x 30mm x 1.5mm (16 ga.) galvanized steel.
Formed channel for flange connections.

Blades:
Airfoil shaped galvanized steel double skin construction, 16 gauge equivalent thickness, 250mm max. width.

Finish:
Mill Galvanized

Linkage:
Side linkage concealed in frame for parallel and opposed blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

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

Minimum Size:
150 x 150mm, damper up to 250mm high are single blade construction.

Maximum Size:
1050 x 1800mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

SPK 30 - 210
General construction as type SPK 30 - 200 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SPK 30 - 220
General construction as type SPK 30 - 200 damper but with frame, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

FLANGE TYPE VOLUME CONTROL DAMPER WITH AIRFOIL BLADES

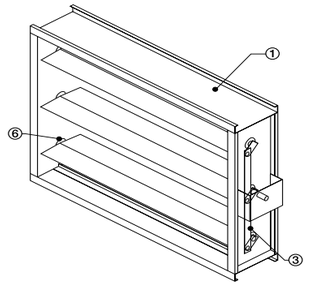
SPK SERIES [SPK 30 - 200, SPK 30 - 210, SPK 30 - 220]

Dimensions

1 - Casing **2** - Drive Shaft **3** - Side Linkage **4** - Blade **5** - Landing Angles **6** - BearingAngles

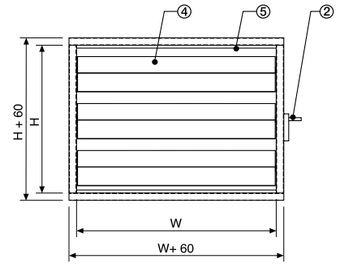
Flange Type

SPK 30 - 200, 210, 220

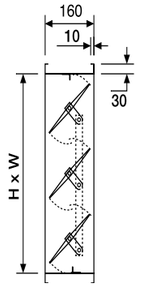


Flange Type

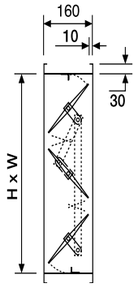
SPK 30 - 200, 210, 220



Flange Type, Parallel/Opposed Blades



Parallel Blades (PB)



Opposed Blades (OB)

Standard Sizes - Single Section

Width (mm)	Height (mm)	No. of Blades
150	150	1
200	200	1
250	250	1
300	300	2
350	450	3
400	600	4
450	750	5
500	900	6
550	1050	7
600	1200	8
650	1350	9
700	1500	10
750	1650	11
800	1800	12
850		
900		
950		
1000		
1050		

SLEEVE TYPE VOLUME CONTROL DAMPER WITH AIRFOIL BLADES

SPK 40 - 200
SLEEVE TYPE

SPK SERIES
AIRFOIL BLADES

Description

Single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in ventilation systems.

The SPK 40 - 200 dampers are ruggedly built dampers, with a casing of robust assembly formed from channel frame for flanged connections to ductwork. The blades are formed of double skin airfoil providing lower pressure drop in the open position for smooth airflow with reduced turbulance.

Blade seals and jamb (side) seals can be fitted for low leakage requirements. Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Frame:
180mm x 30mm x 1.5mm (16 ga.) galvanized steel.
Formed channel for flange connections.

Blades:
Airfoil shaped galvanized steel double skin construction, 16 gauge equivalent thickness, 250mm max. width.

Finish:
Mill Galvanized

Linkage:
Side linkage concealed in frame for parallel and opposed blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

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

Minimum Size:
150 × 150mm, damper up to 250mm high are single blade construction.

Maximum Size:
1050 × 1800mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

SPK 40 - 210
General construction as type SPK 40 - 200 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SPK 40 - 220
General construction as type SPK 40 - 200 damper but with frame, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

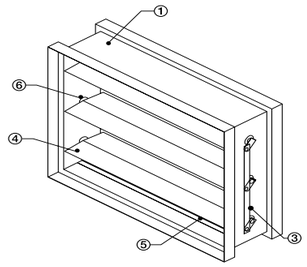
SPK SERIES [SPK 40 - 200, SPK 40 - 210, SPK 40 - 220]

Dimensions

1 - Casing **2** - Drive Shaft **3** - Side Linkage **4** - Blade **5** - Landing Angles **6** - BearingAngles

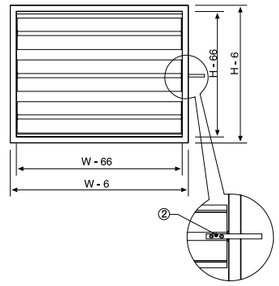
Sleeve Type

SPK 40 - 200, 210, 220

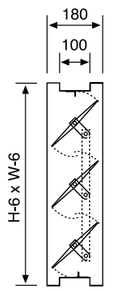


Sleeve Type

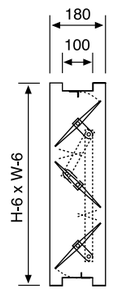
SPK 40 - 200, 210, 220



Sleeve Type, Parallel Blades



Parallel Blades (PB)



Opposed Blades (OB)

Standard Sizes - Single Section

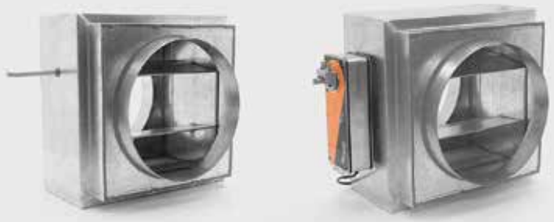
Width (mm)	Height (mm)	No. of Blades
150	150	1
200	200	1
250	250	1
300	350	2
350	450	3
400	600	4
450	750	5
500	900	6
550	1050	7
600	1200	8
650	1350	9
700	1500	10
750	1650	11
800	1800	12
850		
900		
950		
1000		
1050		

CIRCULAR SPIGOT TYPE VOLUME CONTROL DAMPER WITH AIRFOIL BLADES

سـافيد
SAFID

SPK 50 - 200
CIRCULAR SPIGOT TYPE

SPK SERIES
AIRFOIL BLADES



Description

Single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in ventilation systems.

The SPK 50 - 200 dampers are ruggedly built dampers, with a casing of robust assembly formed top hat sleeve to slide in ductwork. The blades are formed of double skin airfoil providing lower pressure drop in the open position for smooth airflow with reduced turbulance.

Blade seals and jamb (side) seals can be fitted for low leakage requirements. Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Frame (Spigot Type):
180mm x 1.5mm (16 ga.) galvanized steel, spigot type 380mm wide with circular spigot duct connection.

Blades:
Airfoil shaped galvanized steel double skin construction, 16 gauge equivalent thickness, 250mm max. width.

Finish:
Mill Galvanized

Linkage:
Side linkage concealed in frame for parallel and opposed blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

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

Minimum Size:
150mm diameter, damper up to 200 mm high are single blade construction.

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

For details of multiple sections consult SAFID.

SPK 50 - 210
General construction as type SPK 50 - 200 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SPK 50 - 220
General construction as type SPK 50 - 200 damper but with frame, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

VOLUME CONTROL DAMPERS

سـافيد
SAFID

CIRCULAR SPIGOT TYPE VOLUME CONTROL DAMPER WITH AIRFOIL BLADES

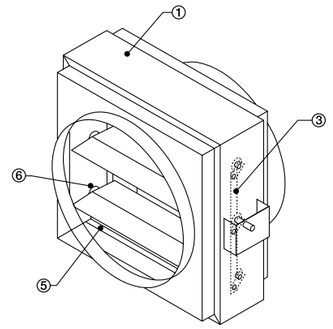
SPK SERIES [SPK 50 - 200, SPK 50 - 210, SPK 50 - 220]

Dimensions

1 - Casing **2** - Drive Shaft **3** - Side Linkage **4** - Blade **5** - Landing Angles **6** - BearingAngles

Circular Spigot Type

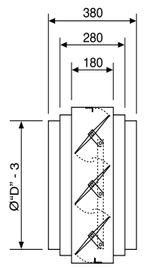
SPK 50 - 100, 110, 120



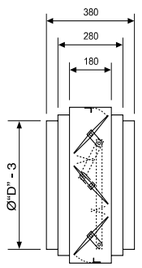
Circular Spigot Type

SPK 50 - 100, 110, 120

Circular Spigot Type, Parallel/Opposed Blades



Parallel Blades (PB)



Opposed Blades (OB)

Standard Sizes

Diameter (mm)	No. of Blades
150	1
200	1
250	2
300	2
450	3
600	4
750	5
900	6
1000	7

VOLUME CONTROL DAMPERS

OVAL SPIGOT TYPE VOLUME CONTROL DAMPER WITH AIRFOIL BLADES

SPK 60 - 200
OVAL SPIGOT TYPE

SPK SERIES
AIRFOIL BLADES

Description

Single and multi-leaf volume control dampers are designed for quiet, efficient and reliable air volume control in ventilation systems.

The SPK 60 - 200 dampers are ruggedly built dampers, with a casing of robust assembly formed top hat sleeve to slide in ductwork. The blades are formed of double skin airfoil providing lower pressure drop in the open position for smooth airflow with reduced turbulance.

Blade seals and jamb (side) seals can be fitted for low leakage requirements. Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Frame (Spigot Type):
180mm x 1.5mm (16 ga.) galvanized steel, spigot type 380mm wide with ova spigot duct connection.

Blades:
Airfoil shaped galvanized steel double skin construction, 16 gauge equivalent thickness, 250mm max. width.

Finish:
Mill Galvanized

Linkage:
Side linkage concealed in frame for parallel and opposed blade operation.

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

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

Minimum Size:
200 × 150 mm, damper up to 200 mm high are single blade construction.

Maximum Size:
1000 × 950 mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

SPK 60 - 210
General construction as type SPK 60 - 200 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SPK 60 - 220
General construction as type SPK 60 - 200 damper but with frame, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

OVAL SPIGOT TYPE VOLUME CONTROL DAMPER WITH AIRFOIL BLADES

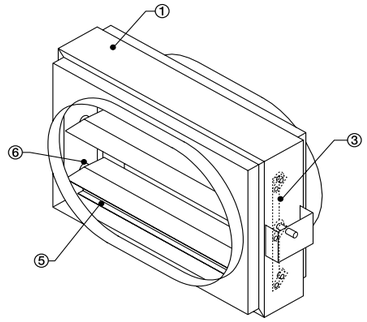
SPK SERIES [SPK 60 - 200, SPK 60 - 210, SPK 60 - 220]

Dimensions

1 - Casing **2** - Drive Shaft **3** - Side Linkage **4** - Blade **5** - Landing Angles **6** - Bearing

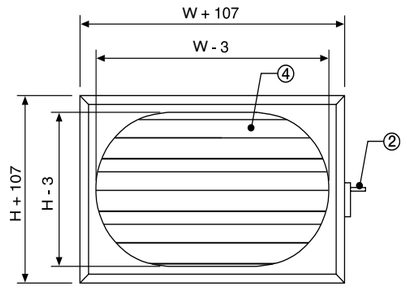
Oval Spigot Type

SPK 60 - 200, 210, 220

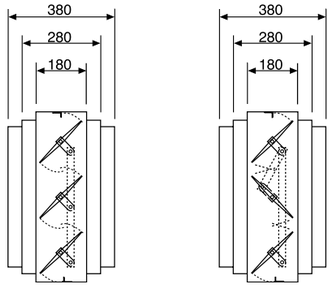


Oval Spigot Type

SPK 60 - 200, 210, 220



Oval Spigot Type, Parallel/Opposed Blades



Parallel Blades (PB)

Opposed Blades (OB)

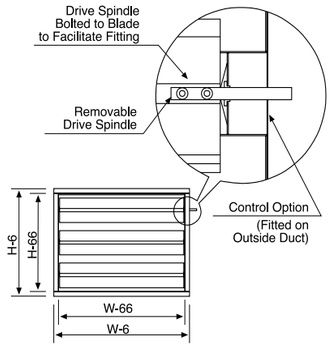
Standard Sizes

Width (mm)	Height (mm)	No. of Blades
200	150	1
250	200	1
300	300	2
350	350	2
400	450	3
450	600	4
500	750	5
550	900	6
600	950	6
650		
700		
750		
800		
850		
900		
950		
1000		

VOLUME CONTROL DAMPERS

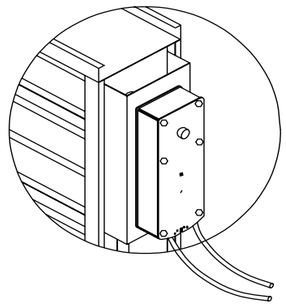
Removable Spindle

Sleeve type SPK 40



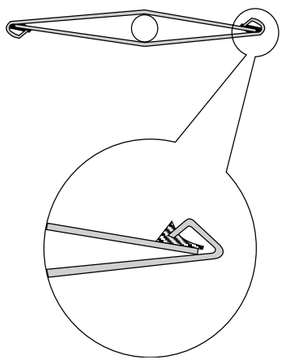
Mounting Bracket

Damper with Mounting Bracket for Actuator



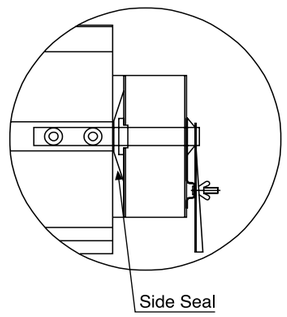
Blade Seal

Type S1



Side Seal (Jamb Seal)

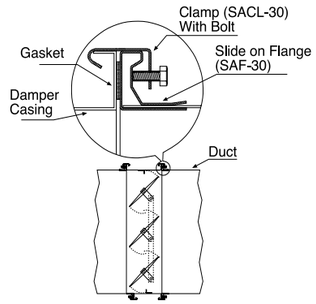
Type S2 (Stainless Steel Type 304)



Note:
Type S3 (Combination of S1 & S2)

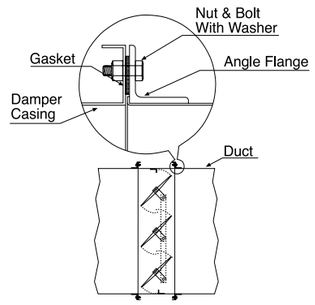
Flange Type SPK 30

Damper to Slide on Flange Connection

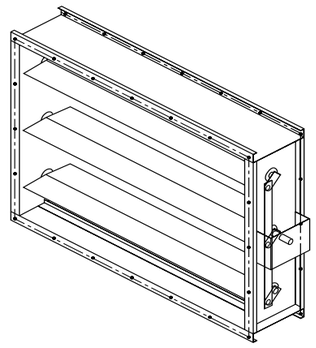


Flange Type SPK 30

Damper to angle Flange Connection

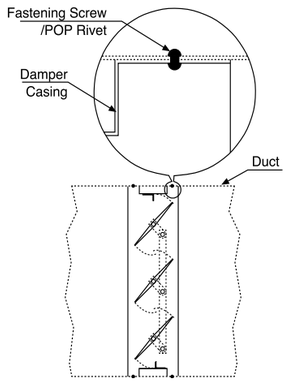


Flange Drilling Details

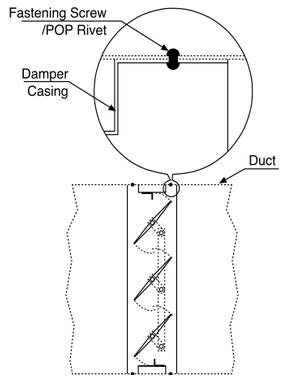


W in mm	H in mm	No. of Holes W Dim.	No. of Holes H Dim.
100	100	1	2
150	150	2	2
200	200	2	2
250	250	2	3
300	300	3	3
350	350	3	4
400	400	4	4
450	450	4	4
500	500	4	5
600	600	5	6
700	700	6	6
800	800	7	7
900	900	8	8
1000	1000	8	9
1100	1100	9	10
1200	1200	10	10
	1300		11
	1400		12
	1500		13
	1600		14
	1700		14
	1800		15

Sleeve type SPK 40

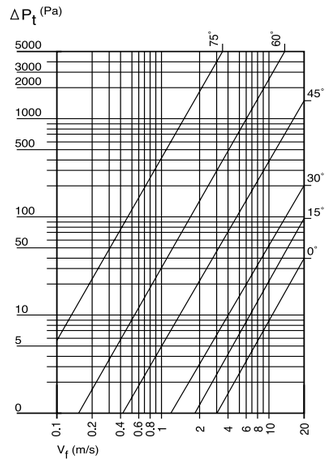


Circular type SPK50 & Oval type SPK60

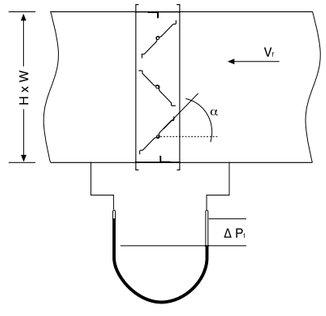


Technical Data

Pressure Loss



ΔPt in Pa = Total Pressure Drop.
Vf in m/s = Face Velocity based on A.
A in m2 = Damper cross-sectional area.



α = Blade angle, when α = 0°, blades are fully open.

Seals

Construction Variants	Description
S	Standard supply construction. No side seals or blade seals.
S1	Blade edge seal to seal blade to blade joint for low leakage characteristic.
S2	Side seals. Fitted to close gap between frame and blades.
S3	Combination of side seals & blade seals to close gap between frame and blades and blade seals to seal blade to blade joint for ultra low leakage characteristic.

Linkage

Construction Variants	Description
PB	Side linkage concealed in frame for parallel blade operation. Face linkage available (optional)
OB	External side linkage for opposed blade operation.

Bearings

Construction Variants	Description
B	Brass (Standard Supply)
B1	Construction sintered bronze oilite.
B2	Sintered bronze oilite.

Belimo Actuators

Code	Type/Model
A01	BF230 Spring Return
A02	BF24 Spring Return
A03	AF230 Spring Return
A04	AF230-S Spring Return With Limit Switch
A05	AF230 US Spring Return
A06	AF120 US Spring Return
A07	AF230-S US Spring Return With Limit Switch
A08	AF120-S US Spring Return With Limit Switch
A09	AF24 US Spring Return
A10	AF24-S US SPring Return With Limit Switch
A11	AF24-SR Spring Return
A12	NF24 US Spring Return
A13	NF120 US Spring Return
A14	NF24-S US Spring Return With Limit Switch
A15	NF120-S US Spring Return With Limit Switch
A16	NF24-SR US Modulating
A17	SM230A Open/Closed
A18	SM24A Open/Closed
A19	SM230A- SR Modulating
A20	NM230 Open/Closed
A21	NM24 Open/Closed
A22	NM24 SR Modulating
A23	GM240 Open/Closed
A24	GM24 Open/Closed
A25	GM24- SR Modulating

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

REFERENCE DETAILS

Order Code SPK 30 - 200 - PB - S - B - R / 500 x 500 / A17

Frame Type
*SPK30 = Flange (Standard Supply)
SPK40 = Sleeve
SPK50 = Circular Spigot
SPK60 = Oval Spigot

Type
*200 (Standard Supply)
210
220

Variants - Blade Operation
*PB = Slide Linkage Parallel (Standard Supply)
OB = Opposed Blade

Variants - Seals
*S = None (Standard Supply)
S1 = Blade Seals Only (175 °C)
S2 = Side Seal (Jamb)
S3 = Side Seal & Blade Seals (175 °C)

Variants - Bearings
*B = Brass (Standard Supply)
B1 = Sintered Bronze oilite (optional)
B2 = Stainless Steel

Actuator
(See Page 71)

Duct Size
Square or Rectangular
Dimensions 'W' x 'H' mm Circular 'D' mm dia. Flat oval 'W' x 'H' mm.All damper spigots are manufactured down on duct size to fit insideductwork connections.

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

*** - Stands for Standard Supply**

ORDER REFERENCE DETAILS

Specifications

Airfoil blades volume control dampers designed for volume flow and pressure control or to isolate sections of ducting in ventilation systems, shall be of the SPK 200 series as specified.

Damper casing will be constructed of Ga. 16 galvanized steel. Blades shall be double skin (airfoil section blades of Ga. 22 galvanized steel (optional) with blade seals and/or side seals).

Shafts to be 12mm mild plated steel with brass or sintered bronze bearings. Blades to be connected by face or external linkage.

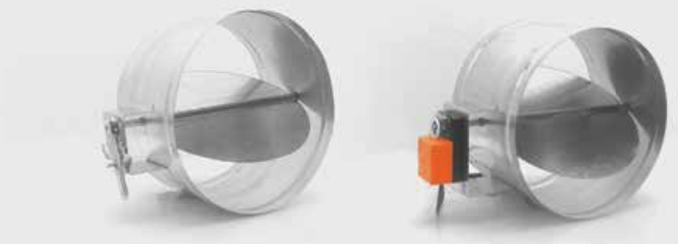
Parallel or opposed blade operation dampers; with manual or motorized operation. Limit switches and closed blade low leakage constructions are optional readily available.

Order Example

Standard
Make: SAFID
Type : SPK 30 - 200 - PB - S - B - R / 500 x 500
Qty: 1

SP 500

SP SERIES



Description

Casing and blades made from galvanized steel sheet.

Adjustable damper blade mounted on brass bushes with manually operated quadrant and position indicator. The damper is used for regulating air flow or as shutt-off damper when complete sealing against air flow is not required.

Dampers can be manual with locking quadrant or motorized with a wide range of electrical actuators readily available.

Standard Construction

Body:
Galvanized steel sheet.
Gauge 20 : from Dia. 80mm to 500mm.
Gauge 18 : above 500 Dia.

Blade:
Plain galvanized steel sheet.
Gauge 18: from Dia. 80mm to 500mm.
Gauge 16: above 500 Dia.
Galvanized steel perforated blade (optional).

Finish:
Mill Galvanized

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Control Shaft:
12mm diameter zinc plated mild steel.

Minimum and Maximum Size:
80mm Dia. damper up to 610 Dia. are single blade construction.

Note: Sizes above 610 Dia. are multiblade type.

SP 510
General construction as type SP 500 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SP 520
General construction as type SP 500 damper but with frame, blades shafts and blade to shaft fixing all from stainless steel (Grade 304).

ROUND VOLUME CONTROL DAMPER

SP SERIES [SP 500, SP 510, SP 520]

Dimensions

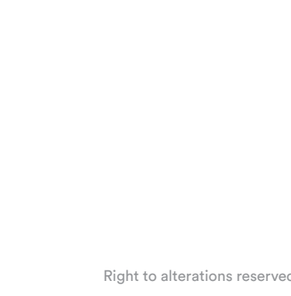
1 - Casing **2** - Blade **3** - Drive Shaft

Standard Construction

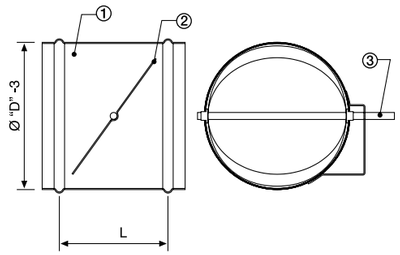
SP 500, 510, 520

Mounting Bracket

Damper with Mounting Bracket and Motor



Section Details



Standard Sizes

Dia (mm)
80
100
125
140
150
160
180
200
224
250
280

Dia (mm)
305
315
350
400
450
500
550
600
610

The end joints are also available with factory applied self sealing gaskets.

VOLUME CONTROL DAMPERS

SP 600

SP SERIES

Description

Casing and blades made from galvanized steel sheet.

Adjustable damper blade mounted on brass bushes and blades with rubber seal, when complete sealing of air flow is required.

Dampers can be manual with locking quadrant and position indicator or motorized with a wide range of electrical actuators readily available.

Standard Construction

Body:
Galvanized steel sheet.
Gauge 20 : from Dia. 80mm to 500mm.
Gauge 18 : above 500 Dia.

Blade:
Gauge 14 (2mm thk) : 2 layers gauge 20 plain galvanized steel bolted together equivalent to gauge 14 with full circumference.

Finish:
Mill Galvanized

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Control Shaft:
12mm diameter zinc plated mild steel.

Minimum and Maximum Size:
80mm Dia. damper up to 610 Dia. are single blade construction.

Note: Sizes above 610 Dia. are multiblade type.

SP 610
General construction as type SP 600 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SP 620
General construction as type SP 600 damper but with frame, blades shafts and blade to shaft fixing all from stainless steel (Grade 304).

ROUND SHUT OFF VOLUME CONTROL DAMPER

SP SERIES [SP 600, SP 610, SP 620]

Dimensions

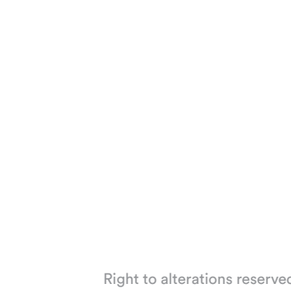
1 - Casing **2** - Blade **3** - Drive Shaft

Standard Construction

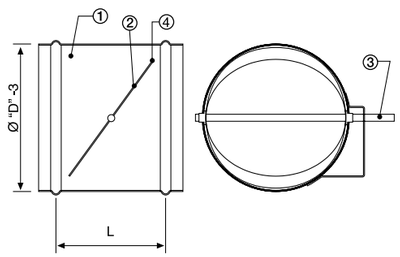
SP 600, 610, 620

Mounting Bracket

Damper with Mounting Bracket and Motor



Section Details



Standard Sizes

Dia (mm)
80
100
125
140
150
160
180
200
224
250
280

Dia (mm)
305
315
350
400
450
500
550
600
610

The end joints are also available with factory applied self sealing gaskets.

VOLUME CONTROL DAMPERS

SP 700

SP SERIES

Description

Casing and blades made from heavy galvanized steel sheet.

Adjustable damper blade mounted on brass bushes with manually operated quadrant damper. The movement of the blade permits regulation from fully open to almost complete shut off.

Dampers can be manual with locking quadrant and position indicator or motorized with a wide range of electrical actuators readily available.

Standard Construction

Body:
Galvanized steel sheet.

Blades:
Plain galvanized steel sheet gauge 10 (3.5mm thk)

Finish:
Mill Galvanized

Case Bearing:
Brass bearing as standard.
Sintered bronze oilite (optional).

Control Shaft:
12mm diameter zinc plated mild steel.

Minimum and Maximum Size:
80mm Dia. damper up to 610 Dia. are single blade construction.

Note: Sizes above 610 Dia. are multiblade type.

SP 710
General construction as type SP 700 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SP 720
General construction as type SP 700 damper but with frame, blades shafts and blade to shaft fixing all from stainless steel (Grade 304).

Option:
Damper with Airtight Blade:
Stopper end for airtight blade, code AT.

ROUND SHUTT OFF DAMPER

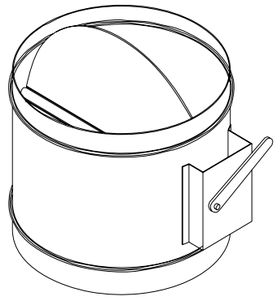
SP SERIES [SP 700, SP 710, SP 720]

Dimensions

1 - Casing **2** - Blade **3** - Drive Shaft **4** - Stopper Ends for Airtight Blade

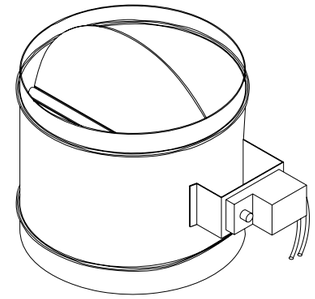
Standard Construction

SP 700, 710, 720

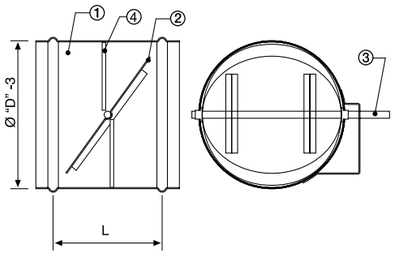


Mounting Bracket

Damper with Mounting Bracket and Motor



Section Details



Standard Sizes

Dia (mm)
80
100
125
140
150
160
180
200
224
250
280

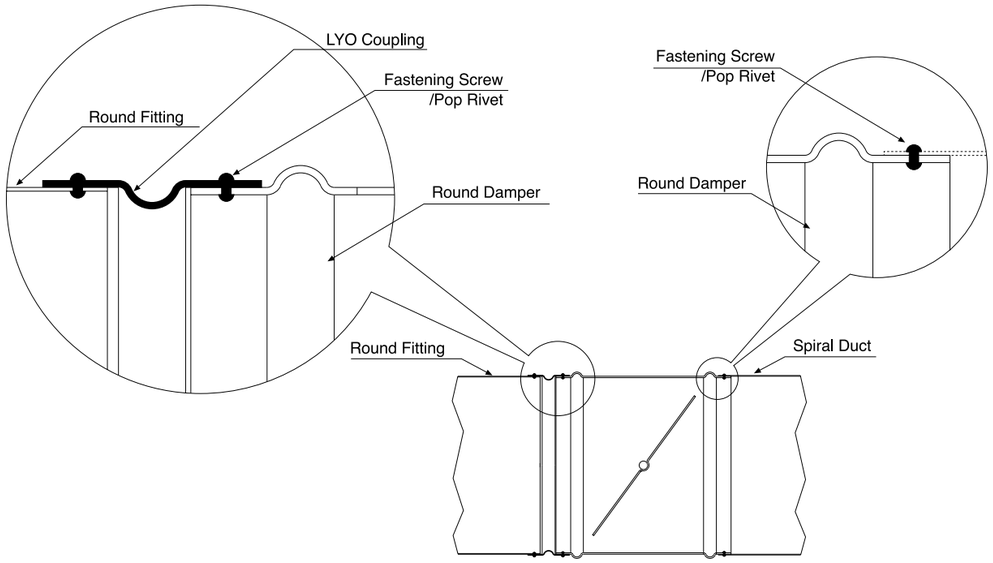
Dia (mm)
305
315
350
400
450
500
550
600
610

The end joints are also available with factory applied self sealing gaskets.

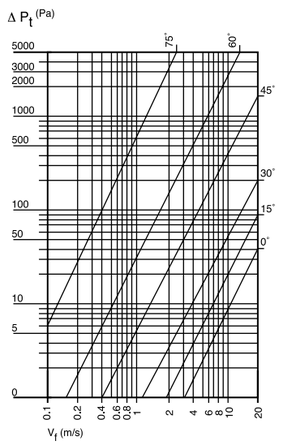
VOLUME CONTROL DAMPERS

PRODUCT DETAILS

Installation Details



Pressure Loss



Order Reference Details

Order Example

Product Code: SP 500 - a

Type
SP 500
SP 600
SP 700

Diameter

For Motorized Dampers:
Wide range of electrical actuators are readily available, see pages 226 - 245 or contact SAFID.

سافید
SAFID

PRESSURE RELIEF DAMPERS

PRD 50 - 100

PRD Series

Description

Pressure relief dampers are used in intake and discharge openings in commercial and residential ventilation systems. When the ventilation system is on, the blades of the pressure relief damper are held in the open position by the airflow. If the system is switched off, the damper blades close automatically, thus preventing reverse airflow and giving protection against the ingress of untempered air, rain and birds into the ventilation system.

Standard Construction

Frame:
Gauge 18 (1.2mm thick) formed galvanized steel sheet.

Blades:
100mm maximum width, 0.75mm thick mill finish aluminum sheet. Sealing strip on blades in foam gasket.

Linkage:
Galvanized steel sheet 28mm x 22 Gauge.

Bearing:
Bearing section in plastic, 6mm diameter.

Shaft:
Blade stub shafts in brass.

Minimum Size:
100mm x 100mm (4in x 4in).

Maximum Size:
700mm x 1000mm (W x H) as single section without mullion.
2000mm x 2000mm (W x H) as single section with horizontal and vertical mullions.

Consult SAFID for multiple section assembly details.

PRD 50 - 110
General construction as type PRD 50 - 100 damper but frame and blades are all from mill finish aluminum sheets.

PRD 50 - 120
General construction as type PRD 50 - 100 damper but frame and blades are all from galvanized steel sheets construction with counter weight.

PRD 50 - 130
General construction as type PRD 50 - 100 damper but with frame built of stainless steel sheet type 304, 2B finish.

SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 50-100 & PRD 50A-100. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4.

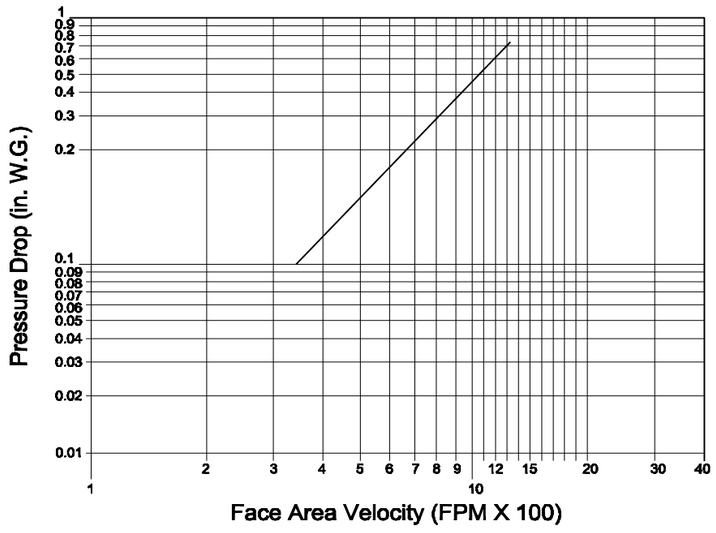
WALL MOUNTED PRESSURE RELIEF DAMPER

PRD 50 SERIES [PRD 50 - 100, PRD 50 - 110, PRD 50 - 120, PRD 50 - 130]

Air Performance

Pressure Drop

Intake Airflow Direction
PRD 50 - 100



SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 50-100 & PRD 50A-100. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4.

Catalog ID: PRD 50 - 100 & PRD 50A - 100, March 11, 2014

PRESSURE RELIEF DAMPERS

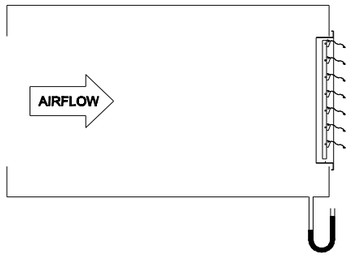
Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

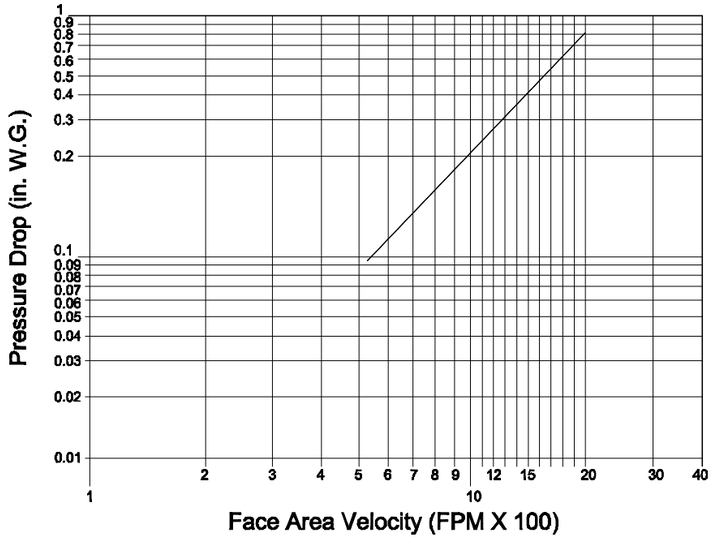
PRD 50A SERIES [PRD 50A - 100, PRD 50A - 110, PRD 50A - 120, PRD 50A - 130]

Air Performance

Pressure Drop

Intake Airflow Direction
PRD 50A - 100





SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 50-100 & PRD 50A-100. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4.

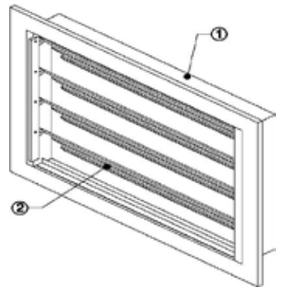
WALL MOUNTED PRESSURE RELIEF DAMPER

PRD 50 SERIES [PRD 50 - 100, PRD 50 - 110, PRD 50 - 120, PRD 50 - 130]

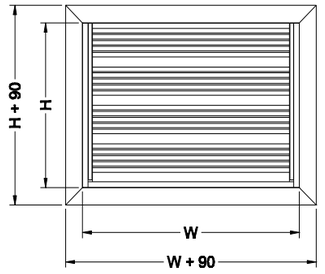
Construction: Dimension and Details

1 - Casing **2** - Blades **3** - Bearing Section **4** - Linkage **5** - Sealing Strip

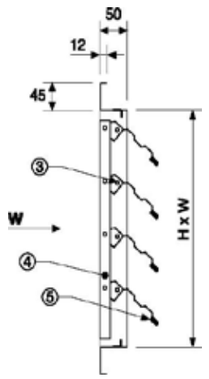
PRD 50



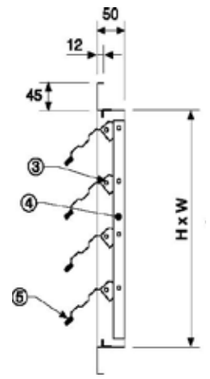
PRD 50 - 100, 110, 120, 130



PRD 50 - 100, 110, 120, 130



PRD 50A - 100, 110, 120, 130

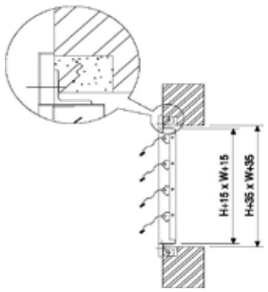


SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 50-100 & PRD 50A-100. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.
The AMCA Certified Ratings Seal applies to Air Performance Ratings.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4.

Catalog ID: PRD 50 - 100 & PRD 50A - 100, March 11, 2014

PRESSURE RELIEF DAMPERS

Installation Details



Order Reference Details

Order Example:

Product Type: PRD-50-100 - aaa x aaa

- PRD 50 - 100
- PRD 50 - 110
- PRD 50 - 120
- PRD 50 - 130
- PRD 50A - 100
- PRD 50A - 110
- PRD 50A - 120
- PRD 50A - 130

Sizes

Standard
Make : SAFID
Type : PRD 50 - 100 - 500 x 500
Type : PRD 50A - 100 - 500 x 500

Standard Sizes

Width (mm)	Height (mm)
100	100
100	200
150	300
200	400
250	500
300	600
350	700
400	800
450	900
500	1000
600	1200
700	1300
800	1400
900	1500
1000	1600
1200	1700

Specifications

Pressure relief dampers are used for intake and discharge openings in ventilation systems to prevent reverse airflow and for protection against ingress of rain into ventilation systems.Basically the frame is built of galvanised steel (standard) or aluminum and corrugated aluminum blades (standard) with blade seals opening and closing automatically.

SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 50 - 100 & PRD 50A - 100. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4.

PRD 40 -100 **PRD Series**

Description

Pressure relief dampers are used in intake and discharge openings in commercial and residential ventilation systems. When the ventilation system is on, the blades of the pressure relief damper are held in the open position by the airflow. If the system is switched off, the damper blades close automatically, thus preventing reverse airflow and giving protection against the ingress of untempered air, rain and birds into the ventilation system.

Standard Construction

Frame:
Gauge 18 (1.2mm thick) formed galvanized steel sheet.

Blades:
100mm maximum width, 1.5mm thick extruded aluminum profile. Sealing strip on blades in foam gasket.

Linkage:
Galvanized steel sheet 15mm x 20 Gauge.

Bearing:
Bearing section in brass, 12mm diameter.

Shaft:
Blade stub shafts in plastic, 6mm x 6mm square.

Minimum Size:
150mm x 100mm (6in x 4in).

Maximum Size:
1000mm x 1000mm (W x H) as single section without mullion.
2000mm x 2000mm (W x H) as single section with horizontal and vertical mullions.

Consult SAFID for multiple section assembly details.

PRD 40 - 110
General construction as type PRD 40 - 100 damper but frame is from mill finish aluminum sheets.

PRD 40 - 120
General construction as type PRD 40 - 100 damper but with counter weight.

PRD 40 - 130
General construction as type PRD 40 - 100 damper but with frame built of stainless steel sheet type 304, 2B finish.

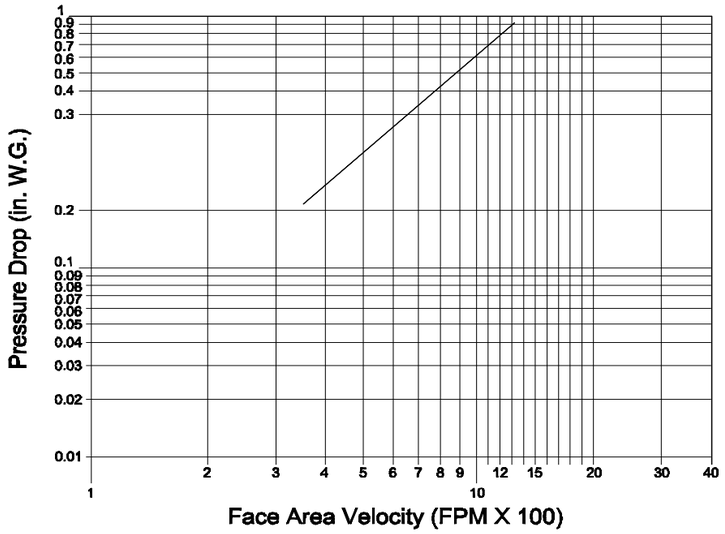
SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 40 - 100 & PRD 40A - 100. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.
The AMCA Certified Ratings Seal applies to Air Performance Ratings.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4.

PRD 40 SERIES [PRD 40 - 100, PRD 40 - 110, PRD 40 - 120, PRD 40 - 130]

Air Performance

Pressure Drop

Intake Airflow Direction
PRD 40 - 100



SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 40 - 100 & PRD 40A - 100. 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.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4 and 5.5.

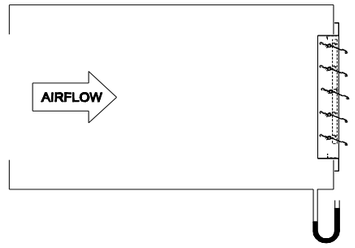
WALL MOUNTED PRESSURE RELIEF DAMPER

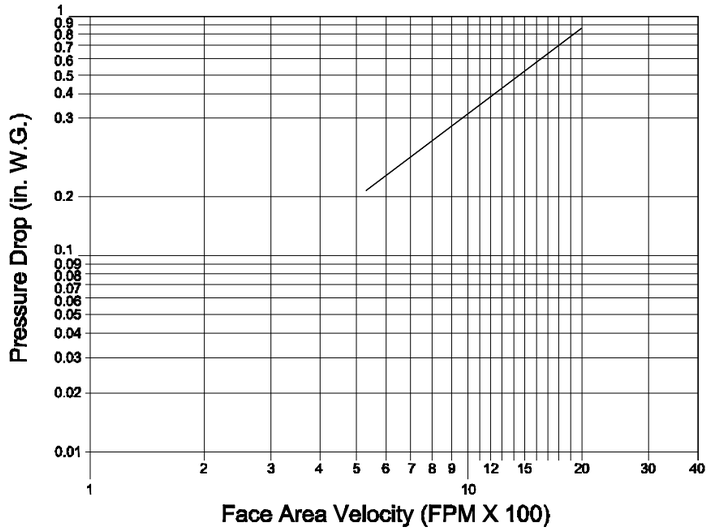
PRD 40A SERIES [PRD 40A - 100, PRD 40A - 110, PRD 40A - 120, PRD 40A - 130]

Construction: Dimension and Details

Pressure Drop

Intake Airflow Direction
PRD 40A - 100





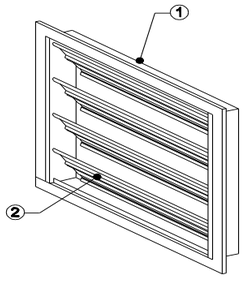
SAFID certifies that the Pressure Relief Damper shown herein is licensed to bear the AMCA Seal for Model PRD 40 - 100 & PRD 40A - 100. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.
The AMCA Certified Ratings Seal applies to Air Performance Ratings.
Test Information
Tested for air performance in accordance with ANSI / AMCA Standard 500-L-12 (Pressure Drop), Figure 5.4 and 5.5.

PRD 40 SERIES [PRD 40 - 100, PRD 40 - 110, PRD 40 - 120, PRD 40 - 130)

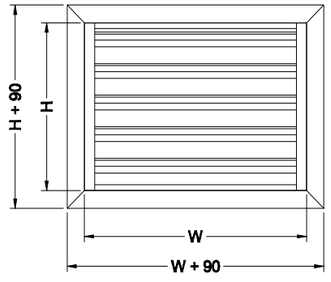
Construction: Dimension and Details

1 - Casing **2** - Blades **3** - Bearing Section **4** - Linkage (Concealed in Frame) **5** - Sealing Strip

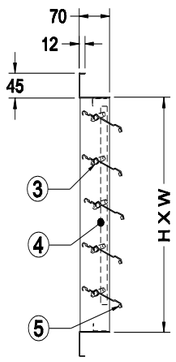
PRD 40



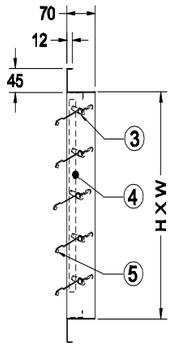
PRD 40 - 100, 110, 120, 130



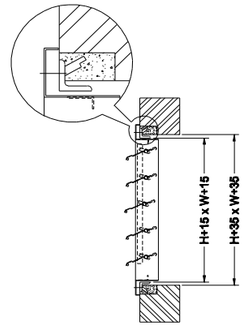
PRD 40 - 100, 110, 120, 130



PRD 40A - 100, 110, 120, 130



Installation Details



Order Reference Details

Order Example

Product Type: PRD-40-100 - aaa x aaa

- PRD 40 - 100
- PRD 40 - 110
- PRD 40 - 120
- PRD 40 - 130
- PRD 40A - 100
- PRD 40A - 110
- PRD 40A - 120
- PRD 40A - 130

Sizes

Standard
Make : SAFID
Type : PRD 40 - 100 - 500 x 500
Type : PRD 40A - 100 - 500 x 500

Standard Sizes

Width (mm)	Height (mm)
100	100
100	200
150	300
200	400
250	500
300	600
350	700
400	800
450	900
500	1000
600	1200
700	1300
800	1400
900	1500
1000	1600
1200	1700

Specifications

Pressure relief dampers are used for intake and discharge openings in ventilation systems to prevent reverse airflow and for protection against ingress of rain into ventilation systems.Basically the frame is built of galvanised steel (standard) or aluminum and extruded aluminum blades with blade seals opening and closing automatically.

PRD 30 - 100

PRD Series

Description

Pressure relief dampers, are used in intake and discharge openings in commercial and residential airconditioning systems. When the ventilation system is on, the blades of the pressure relief damper are held in the open position by the air flow. If the system is switched off, the damper blades close automatically, thus preventing reverse airflow and giving protection against the ingress of untempered air, rain and birds into the airconditioning system.

Standard Construction

Frame:
Gauge 18 ga. (1.2mm thk.) from formed channel frame galvanized steel sheet.

Blades:
100mm max. width, 0.75mm thk. mill finish aluminum sheet. Sealing strip on blades in foam gasket.

Linkage:
Galvanized steel sheet 28mm x 22 gauge.

Bearing:
Bearing section in plastic 6mm.

Shaft:
Blade stub shafts in brass.

Minimum Size:
100 × 100mm, damper up to 200mm high are single blade construction.

Maximum Size:
1000 × 1500mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

Consult SAFID for multiple section assembly details.

PRD 30 - 110
General construction as type PRD 30 - 100 damper but frame and blades, all from mill finish aluminum sheets.

PRD 30 - 120
General construction as type PRD 30 - 100 damper but frame and blades, all from galvanized steel sheets construction with counter weight.

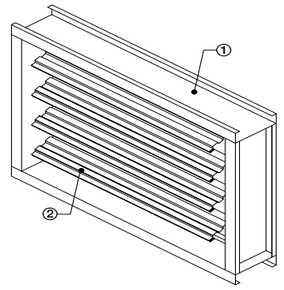
PRD 30 - 130
General construction as type PRD 30 - 100 damper but with frame built of stainless steel sheet type 304, 2B finish and blades built of mill finish aluminum sheets.

PRD 30 SERIES [PRD 30 - 100, PRD 30 - 110, PRD 30 - 120, PRD 30 - 130]

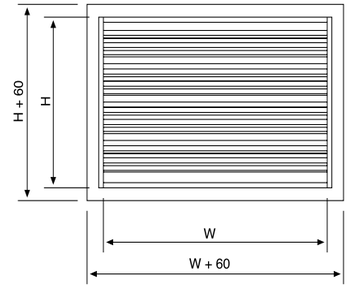
Construction: Dimension and Details

1 - Casing **2** - Blades **3** - Bearing Section **4** - Linkage **5** - Sealing Strip

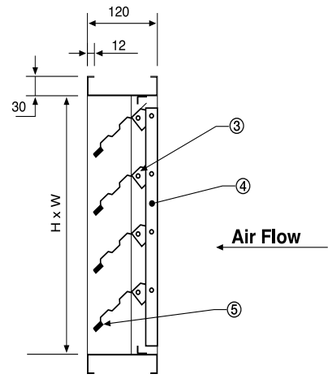
PRD 30



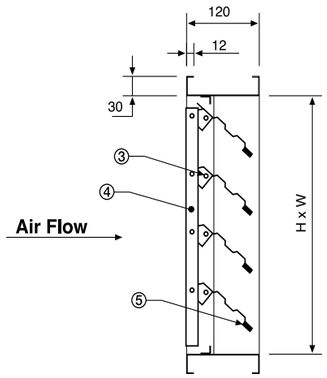
PRD 30 - 100, 120, 130



PRD 30 - 100



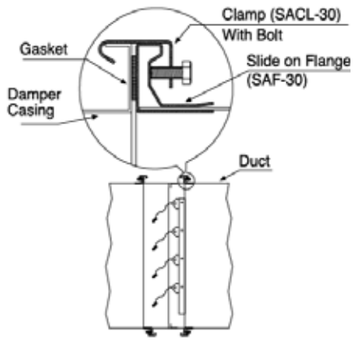
PRD 30 - 100



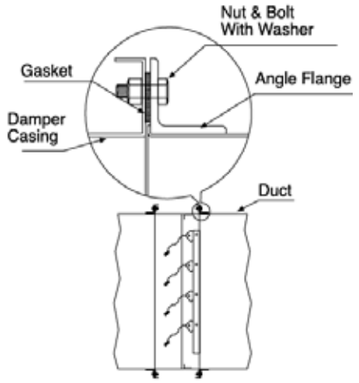
PRD 30 SERIES [PRD 30 - 100, PRD 30 - 110, PRD 30 - 120, PRD 30 - 130]

PRD 30

Flange Type

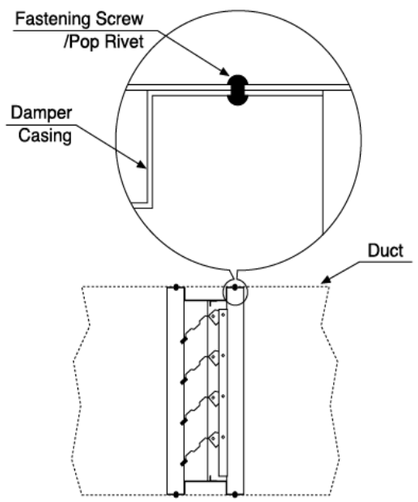


Flange Type



PRD 30

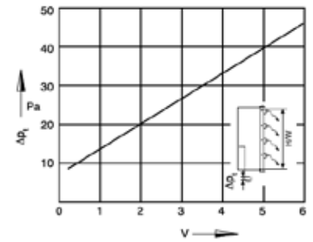
Insert Type



PRD 30 SERIES [PRD 30 - 100, PRD 30 - 110, PRD 30 - 120, PRD 30 - 130]

Air Performance

Pressure Loss



ΔP_t in Pa : Total pressure drop
V in m/s : Air velocity based on W x H

Order Reference Details

Order Example

Product Type: PRD-30-100 - aaa x aaa

PRD 30 - 100
PRD 30 - 110
PRD 30 - 120
PRD 30 - 130

Sizes

Standard
Make : SAFID
Type : PRD 30 - 100 - 500 x 500
Qty : 1

Standard Sizes

Width (mm)	Height (mm)
100	100
100	200
150	300
200	400
250	500
300	600
350	700
400	800
450	900
500	1000
600	1100
700	1200
800	1300
900	1400
1000	1500

Specifications

Pressure relief dampers are used for intake and discharge openings in air conditioning systems to prevent reverse air flow and for protection against ingress of rain into airconditioning systems. Basically the frame is built of galvanised steel (standard) or aluminium and corrugated aluminium blades (standard) with blade seals opening and closing automatically.

Catalog ID: PRD 30 - 100 & PRD 30A - 100, March 11, 2014

سافید
SAFID

SPIN IN DAMPERS

SFLD 10

Spin In Collar with Damper Blade

SFLDE 10

Spin In collar with Damper Blade and Extractor

Description

Casing and blades made from galvanized steel sheet. Adjustable blade mounted with manually operated steel reinforced plastic handle and position indicator. The movement of the blade permits regulation from fully open to almost closed.

The Spin In damper is used as take off or branch connection.

Standard Construction

Frame:
Galvanized steel sheet (24 gauge).

Blades:
Plain galvanized steel sheet (20 gauge).
Galvanized steel perforated blade (optional).

Finish:
Mill galvanized.

Case Bearing:
Plastic bushing

Control Shaft:
6mm diameter zinc plated mild steel

Minimum and Maximum Size:
80mm Dia. damper up to 315mm Dia.

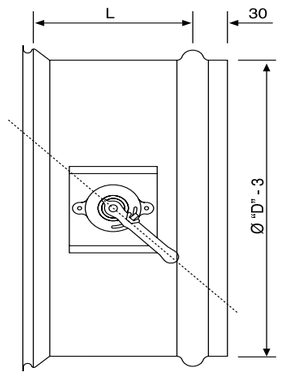
SFLD 11 & SFLDE 11
General construction as type SFLD 10 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SFLD 12 & SFLDE 12
General construction as type SFLD 10 damper but with frame, blades shafts and blade to shaft fixing all from stainless steel (Grade 304).

SFLD SERIES [SFLD 10, SFLDE 11, SFLD 12, SFLDE 12]

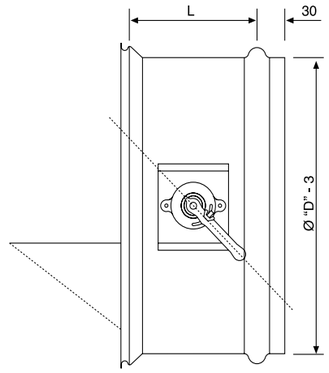
SFLD

Spin Collar with Damper Blade

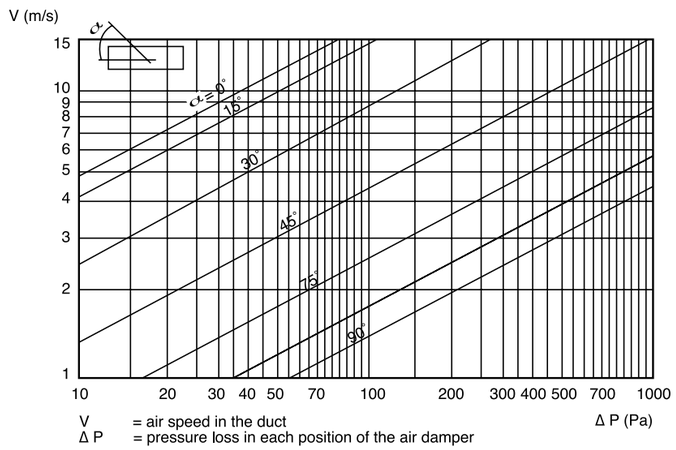


SFLDE

Spin In Collar with Damper Blade and Extractor

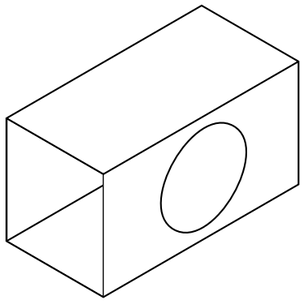


Pressure Loss for SFLD & SFLDE

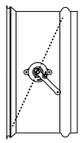


SFLD SERIES [SFLD 10, SFLDE 11, SFLD 12, SFLDE 12]

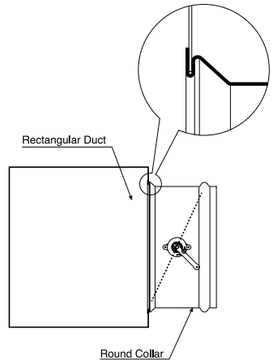
Installation Details



Rectangular Duct With Round Opening



Round Collar



Standard Sizes

Dia (mm)	Length (mm)
80	120
100	120
125	120
140	120
150	120
160	120
180	120
200	120
224	120
250	120
280	120
305	120
315	120

Order Reference Details

Order Example

Product Code: SFLD 10 - aaa

Type
SFLD 10
SFLDE 10

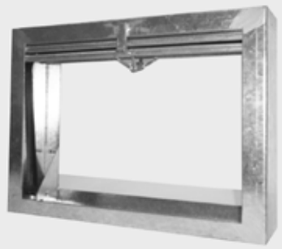
Diameter

سافید
SAFID

CURTAIN TYPE FIRE DAMPERS

CURTAIN TYPE FIRE DAMPER WITH BLADES IN AIR STREAM

BLADES IN AIR STREAM



SSA - 1 Series
Type A

Constructed and Tested in Accordance with British Standards (BS 476: Part 20: 1987)

Fire Damper for use in Static/Dynamic Systems
Fire Resistance: 1 1/2 HR and 3 HRS
Dynamic Closure Rating: 2000 FPM
Closed Damper Pressure Rating: 4 inch W.G.
UL File No.: R22165

Description

Shutter type fire dampers provide an automatic means of localizing areas of fire in ventilation systems.

The SSA range of curtain bladed fire dampers are suitable for installation in walls and ceilings made from concrete or brickwork, and will stop the spread of fire through duct, walls or floors.

There is a wide choice of sizes available for low, medium and high velocity applications and inlcude rectangular, square, circular and flat oval connections.

The dampers are fitted with standard release 74 °C fusible links (UL listed) unless otherwise specified.

SSA-1-A-100 Standard Construction

Frame:
Built of 18 gauge (1.2mm) galvanized steel.

Blades:
Built of 20 gauge (0.93mm) galvanized steel.

Finish:
Mill galvanized.

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

Springs:
Stainless steel closure springs.

Fire Rating:
Up to 4 hours fire rating.

Minimum Size:
100 × 100mm

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

For details of multiple sections consult SAFID.

SSA-1-A-110
General construction as type SSA-1-A-100 damper but blades in stainless steel (Grade 304).

SSA-1-A-120
General construction as type SSA-1-A-100 damper but frame, blades and catchplates all from stainless steel (Grade 304).

CURTAIN TYPE FIRE DAMPER WITH BLADES IN AIR STREAM

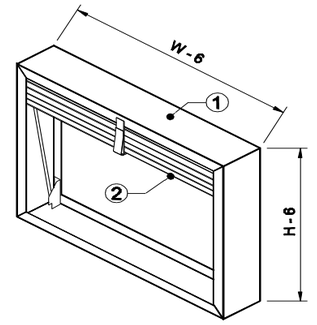
SSA - 1 SERIES [SSA-1-A-100, SSA-1-A-110, SSA-1-A-120]

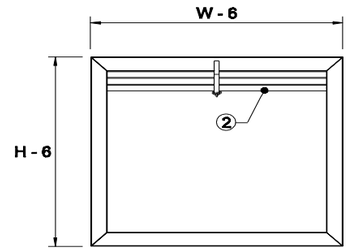
Dimensions

1 - Galvanized or S/S Casing
2 - Galvanized or S/S Blades
3 - Fusible Link 74 °C (UL Listed)
4 - Top Blade Riveted to Frame
5 - S/S Closure Spring
6 - Catch Plates

Damper Blades in Air Stream

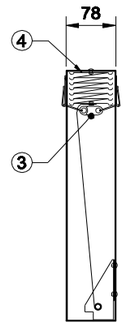
SSA-1-A-100, SSA-1-A-110, SSA-1-A-120



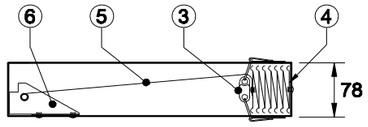


W x H = Duct Size

Vertical Mounting



Horizontal Mounting

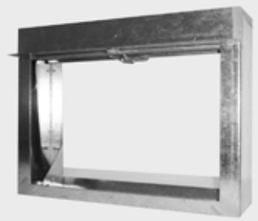


CURTAIN TYPE FIRE DAMPERS

Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

CURTAIN TYPE FIRE DAMPER WITH BLADES OUTSIDE AIR STREAM

DAMPER BLADES OUTSIDE AIR STREAM



SSA - 1 Series
Type B

Constructed and Tested in Accordance with British Standards (BS 476: Part 20: 1987)

Fire Damper for use in Static/Dynamic Systems
Fire Resistance: 1 1/2 HR and 3 HRS
Dynamic Closure Rating: 2000 FPM
Closed Damper Pressure Rating: 4 inch W.G.
UL File No.: R22165

Description

Shutter type fire dampers provide an automatic means of localizing areas of fire in ventilation systems.

The SSA range of curtain bladed fire dampers are suitable for installation in walls and ceilings made from concrete or brickwork, and will stop the spread of fire through duct, walls or floors.

There is a wide choice of sizes available for low, medium and high velocity applications and inlcude rectangular, square, circular and flat oval connections.

The dampers are fitted with standard release 74 °C fusible links (UL listed) unless otherwise specified.

SSA-1-B-100 Standard Construction

Frame:
Built of 18 gauge (1.2mm) galvanized steel.

Blades:
Built of 20 gauge (0.93mm) galvanized steel.

Finish:
Mill galvanized.

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

Springs:
Stainless steel closure springs.

Fire Rating:
Up to 4 hours fire rating.

Minimum Size:
100 × 100mm

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

For details of multiple sections consult SAFID.

SSA-1-B-110
General construction as type SSA-1-B-100 damper but blades in stainless steel (Grade 304).

SSA-1-B-120
General construction as type SSA-1-B-100 damper but frame, blades and catchplates all from stainless steel (Grade 304).

CURTAIN TYPE FIRE DAMPER WITH BLADES OUTSIDE AIR STREAM

SSA - 1 SERIES [SSA-1-B-100, SSA-1-B-110, SSA-1-B-120]

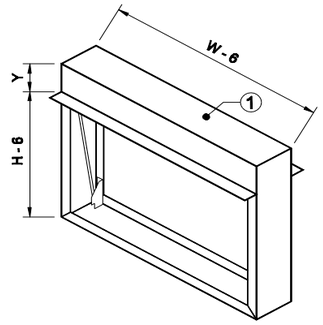
Dimensions

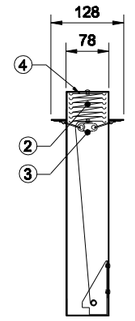
1 - Galvanized or S/S Casing
2 - Galvanized or S/S Blades
3 - Fusible Link 74 °C (UL Listed)
4 - Top Blade Riveted to Frame
5 - S/S Closure Spring
6 - Catch Plates

Damper Blades Outside AIr Stream

Vertical Mounting

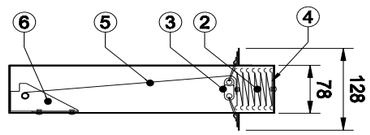
SSA-1-B-100, SSA-1-B-110, SSA-1-B-120





W x H = Duct Size

Horizontal Mounting



Duct Height 'H'	Y	Overall Damper Height (H + Y - 6)
100	35	129
150	40	184
200	50	244
250	55	299
300	60	354
350	65	409
400	75	469
450	85	529
500	95	589
550	100	644
600	105	699
650	110	754
700	120	814
750	125	869
800	130	954
850	135	979
900	150	1044
950	155	1099
1000	165	1159

CURTAIN TYPE FIRE DAMPERS

CURTAIN TYPE FIRE DAMPER FRAME AND BLADES

DAMPER FRAME AND BLADES [100 & Free Area]

SSA - 1 Series Type C

Constructed and Tested in Accordance with British Standards (BS 476: Part 20: 1987)

Fire Damper for use in Static/Dynamic Systems
Fire Resistance: 1 1/2 HR and 3 HRS
Dynamic Closure Rating: 2000 FPM
Closed Damper Pressure Rating: 4 inch W.G.
UL File No.: R22165

Description

Shutter type fire dampers provide an automatic means of localizing areas of fire in ventilation systems.

The SSA range of curtain bladed fire dampers are suitable for installation in walls and ceilings made from concrete or brickwork, and will stop the spread of fire through duct, walls or floors.

There is a wide choice of sizes available for low, medium and high velocity applications and inlcude rectangular, square, circular and flat oval connections.

The dampers are fitted with standard release 74 °C fusible links (UL listed) unless otherwise specified.

SSA-1-C-100 Standard Construction

Frame:
Built of 18 gauge (1.2mm) galvanized steel.

Blades:
Built of 20 gauge (0.93mm) galvanized steel.

Finish:
Mill galvanized.

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

Springs:
Stainless steel closure springs.

Fire Rating:
Up to 4 hours fire rating.

Minimum Size:
100 × 100mm

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

For details of multiple sections consult SAFID.

SSA-1-C-110
General construction as type SSA-1-C-100 damper but blades in stainless steel (Grade 304).

SSA-1-C-120
General construction as type SSA-1-C-100 damper but frame, blades and catchplates all from stainless steel (Grade 304).

CURTAIN TYPE FIRE DAMPER FRAME AND BLADES

SSA - 1 SERIES [SSA-1-C-100, SSA-1-C-110, SSA-1-C-120]

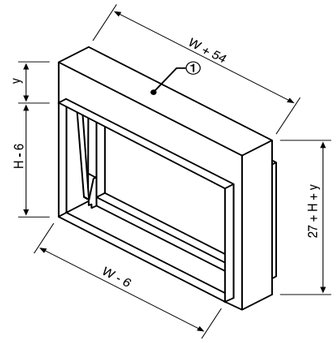
Dimensions

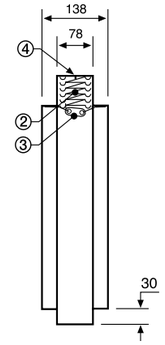
1 - Galvanized or S/S Casing
2 - Galvanized or S/S Blades
3 - Fusible Link 72 °C (UL Listed)
4 - Top Blade Riveted to Frame
5 - S/S Closure Spring
6 - Catch Plates

Damper Frame and Blades (100% Free Area)

Vertical Mounting

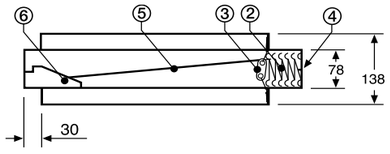
SSA-1-C-100, SSA-1-C-110, SSA-1-C-120





W x H = Duct Size

Horizontal Mounting



Duct Height 'H'	Y	Overall Damper Height (H + Y - 6)
100	35	129
150	40	184
200	50	244
250	55	299
300	60	354
350	65	409
400	75	469
450	85	529
500	95	589
550	100	644
600	105	699
650	110	754
700	120	814
750	125	869
800	130	954
850	135	979
900	150	1044
950	155	1099
1000	165	1159

CURTAIN TYPE FIRE DAMPERS

CURTAIN TYPE FIRE DAMPER WITH ROUND SPIGOT

DAMPER WITH ROUND SPIGOT

SSA - 1 Series
Type R

Constructed and Tested in Accordance with British Standards (BS 476: Part 20: 1987)

Fire Damper for use in Static/Dynamic Systems
Fire Resistance: 1 1/2 HR and 3 HRS
Dynamic Closure Rating: 2000 FPM
Closed Damper Pressure Rating: 4 inch W.G.
UL File No.: R22165

Description

Shutter type fire dampers provide an automatic means of localizing areas of fire in ventilation systems.

The SSA range of curtain bladed fire dampers are suitable for installation in walls and ceilings made from concrete or brickwork, and will stop the spread of fire through duct, walls or floors.

There is a wide choice of sizes available for low, medium and high velocity applications and inlcude rectangular, square, circular and flat oval connections.

The dampers are fitted with standard release 74 °C fusible links (UL listed) unless otherwise specified.

SSA-1-R-100 Standard Construction

Frame:
Built of 18 gauge (1.2mm) galvanized steel.

Blades:
Built of 20 gauge (0.93mm) galvanized steel.

Finish:
Mill galvanized.

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

Springs:
Stainless steel closure springs.

Fire Rating:
Up to 4 hours fire rating.

Minimum Size:
100 mm diameter

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

For details of multiple sections consult SAFID.

SSA-1-R-110
General construction as type SSA-1-R-100 damper but blades in stainless steel (Grade 304).

SSA-1-R-120
General construction as type SSA-1-R-100 damper but frame, blades and catchplates all from stainless steel (Grade 304).

CURTAIN TYPE FIRE DAMPER WITH ROUND SPIGOT

SSA - 1 SERIES [SSA-1-R-100, SSA-1-R-110, SSA-1-R-120]

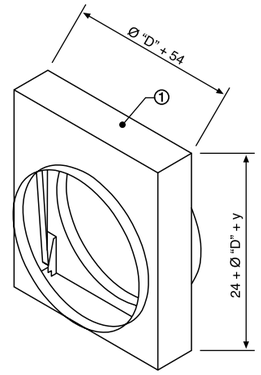
Dimensions

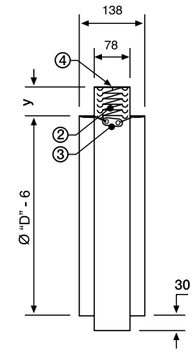
1 - Galvanized or S/S Casing
2 - Galvanized or S/S Blades
3 - Fusible Link 72 °C (UL Listed)
4 - Top Blade Riveted to Frame
5 - S/S Closure Spring
6 - Catch Plates

Round Type Damper with Spigot

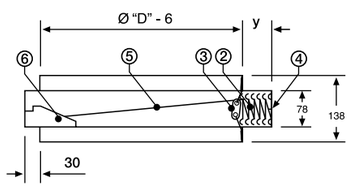
Vertical Mounting

SSA-1-R-100, SSA-1-R-110, SSA-1-R-120





Horizontal Mounting



Duct Height 'H'	Y	Overall Damper Height (H + Y - 6)
100	40	170
150	50	230
200	55	285
250	60	340
300	65	395
350	75	455
400	85	515
450	95	575
500	100	630
550	105	685
600	110	740
650	120	800
700	125	855
750	130	910
800	135	965
850	150	1030
900	155	1085
950	165	1145
1000	170	1200

CURTAIN TYPE FIRE DAMPERS

Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

CURTAIN TYPE FIRE DAMPER WITH OVAL SPIGOT

OVAL TYPE DAMPER WITH SPIGOT

SSA - 1 Series
Type O

Constructed and Tested in Accordance with British Standards (BS 476: Part 20: 1987)

Fire Damper for use in Static/Dynamic Systems
Fire Resistance: 1 1/2 HR and 3 HRS
Dynamic Closure Rating: 2000 FPM
Closed Damper Pressure Rating: 4 inch W.G.
UL File No.: R22165

Description

Shutter type fire dampers provide an automatic means of localizing areas of fire in ventilation systems.

The SSA range of curtain bladed fire dampers are suitable for installation in walls and ceilings made from concrete or brickwork, and will stop the spread of fire through duct, walls or floors.

There is a wide choice of sizes available for low, medium and high velocity applications and inlcude rectangular, square, circular and flat oval connections.

The dampers are fitted with standard release 74 °C fusible links (UL listed) unless otherwise specified.

SSA-1-R-100 Standard Construction

Frame:
Built of 18 gauge (1.2mm) galvanized steel.

Blades:
Built of 20 gauge (0.93mm) galvanized steel.

Finish:
Mill galvanized.

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

Springs:
Stainless steel closure springs.

Fire Rating:
Up to 4 hours fire rating.

Minimum Size:
200 x 100 mm (W x H)

Maximum Size:
1000 x 900 (W x H), as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

SSA-1-O-110
General construction as type SSA-1-O-100 damper but blades in stainless steel (Grade 304).

SSA-1-O-120
General construction as type SSA-1-O-100 damper but frame, blades and catchplates all from stainless steel (Grade 304).

CURTAIN TYPE FIRE DAMPER WITH OVAL SPIGOT

SSA - 1 SERIES [SSA-1-O-100, SSA-1-O-110, SSA-1-O-120]

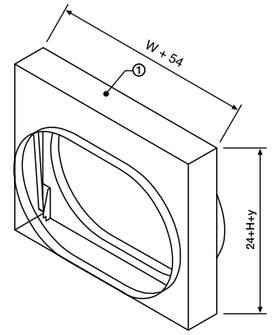
Dimensions

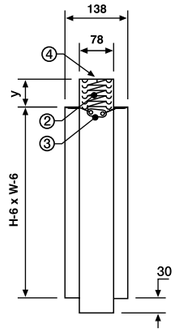
1 - Galvanized or S/S Casing
2 - Galvanized or S/S Blades
3 - Fusible Link 72 °C (UL Listed)
4 - Top Blade Riveted to Frame
5 - S/S Closure Spring
6 - Catch Plates

Oval Type Damper with Spigot

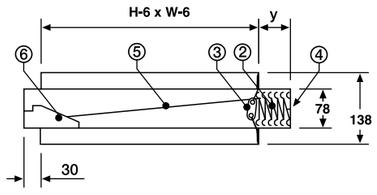
Vertical Mounting

SSA-1-O-100, SSA-1-O-110, SSA-1-O-120





Horizontal Mounting

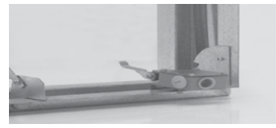
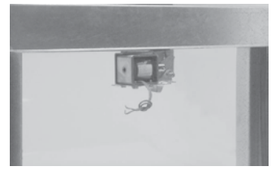


Duct Height 'H'	Y	Overall Damper Height H + Y - 6
100	40	170
150	50	230
200	55	285
250	60	340
300	65	395
350	75	455
400	85	515
450	95	575
500	100	630
550	105	685
600	110	740
650	120	800
700	125	855
750	130	910
800	135	965
850	150	1030
900	155	1085

CURTAIN TYPE FIRE DAMPERS

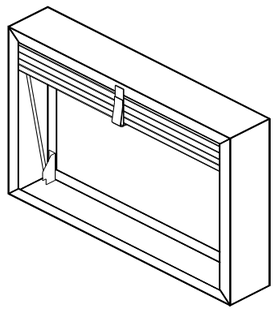
Construction Variants	Description	Mounting Mode	
A	Blades in airstream, square, round or rectangular spigot, fitted with closing springs and catchplates.	Vertical/Horizontal Mounting	**Velocity Range**
A1	As code A but includes side seals.	Vertical/Horizontal Mounting	Low Medium
A2	As code A but excludes closing springs and catchplates.	Vertical Mounting Only	Low Medium
B **C** **R** **O**	Variable height top case section to contain blades out of airstream. Fitted with closing springs and catchplates. Can be supplied with square or rectangular, circular or oval duct connections.	Vertical/Horizontal Mounting	Low Medium High
B1 **C1** **R1** **O1**	As code B, C series but includes side seals	Vertical / Horizontal Mounting	High

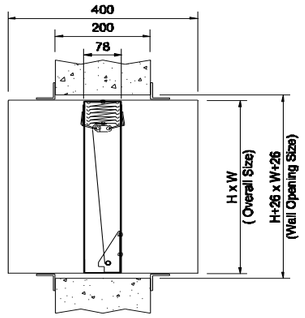
Accessories
Please see page 117 of this chapter.

Construction or Construction Variants	Combined With	Code
Base Holder with Fuse Link (Standard Construction)		-
Electrical Micro-Switch (Indicates Blades Closed) To provide “remote” indication of wether the blade is “open or closed”. The microswitch can also be connected to any warning device or into the control circuit of a ventilation system to isolate the plant in event of fire.	Microswitch indicates blades “Closed” 	**S01**
Visual Indicator (Indicates Blades Closed) Mechanical device to indicate blade closure visible externally from the damper.	 Mechanical device to indicate blade closure visable externally from the damper.	**S02**
Micro-switch with Visual Indicator		**S03**
Electro-Magnet-A.C and D.C Voltage Interruption of electical current to activate closure of the curtain blade pack. As an alternative to the solenoid for systems that require normally “ENERGISED” actuators that automatically operate in the event of an interruption of electrical supply. (Voltage 24V, 110V & 240V). Standard fuse temperature 74˚C.		**S04**
Solenoid - A.C. Voltage Electrically energised to activate closure of the curtain blade pack. Normally “DE-ENERGISED” activated by an eletrical impulse from either/via a detector or control panel. The solenoid can be fitted for standard “direct link” operation. For maintenance/servicing the solenoid can be manually overridden for testing purposes.		**S05**

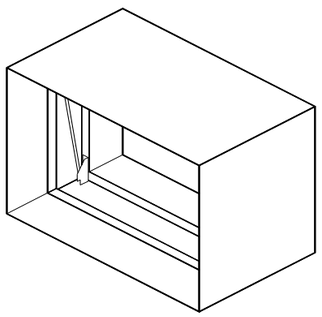
TYPE A: INSTALLATION DETAILS

SSA-1-A

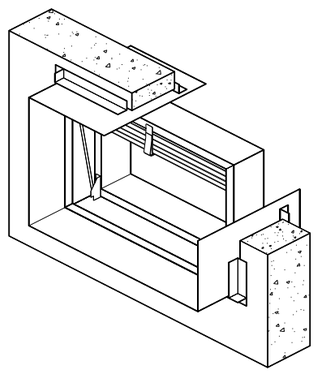




Damper Installed to Duct

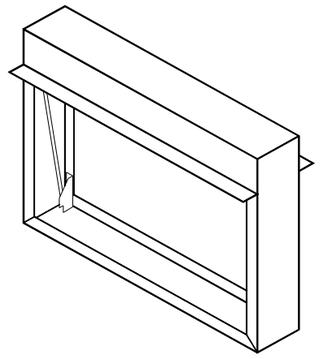


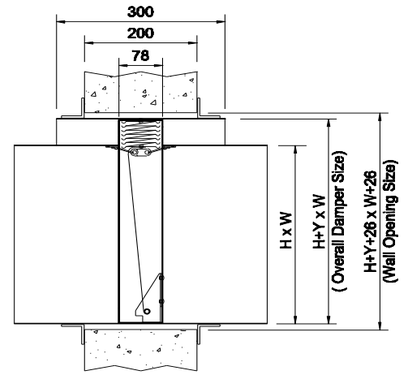
Damper Installed to Wall



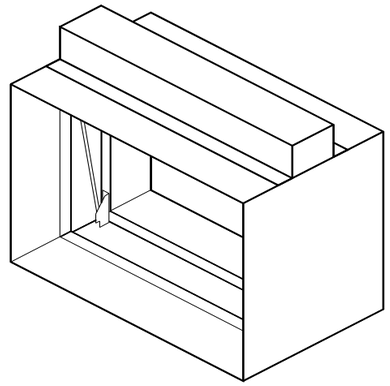
TYPE B: INSTALLATION DETAILS

SSA-1-B

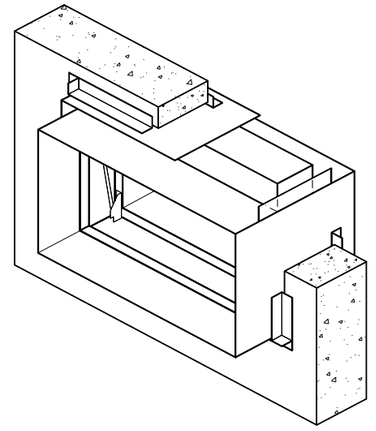




Damper Installed to Duct

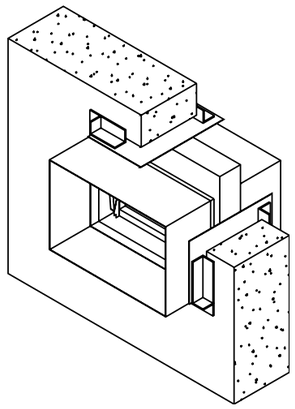


Damper Installed to Wall

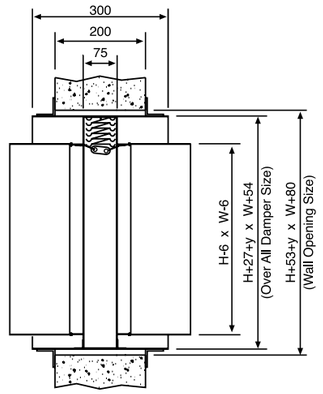


TYPE C: INSTALLATION DETAILS WITH SLEEVE AND PERIPHERAL ANGLE

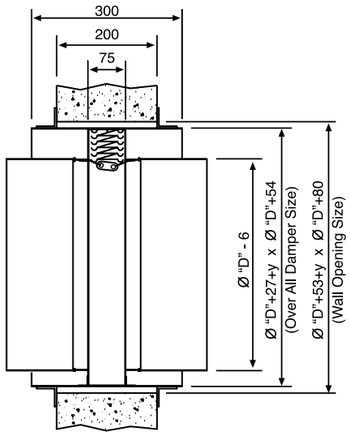
SSA-1-C



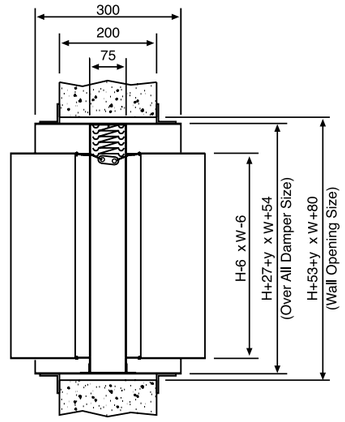
Damper with Rectangular Spigot



Damper with Round Spigot

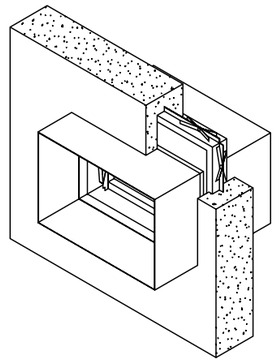


Damper with Oval Spigot

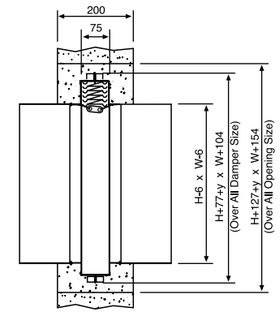


TYPE C: INSTALLATION DETAILS WITH HEVAC FRAME

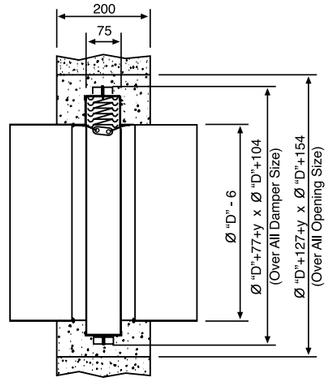
SSA-1-C



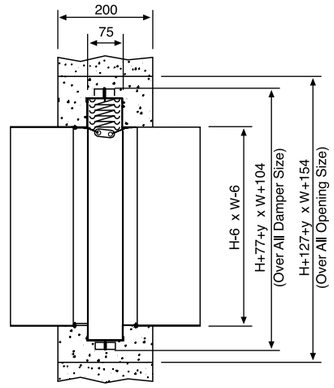
Damper with Rectangular Spigot



Damper with Round Spigot

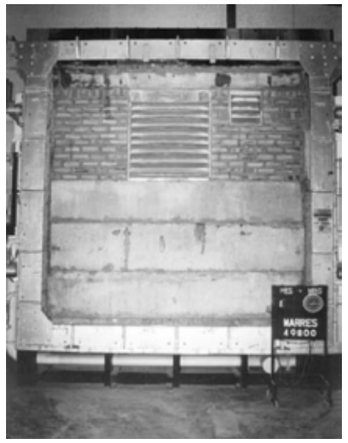


Damper with Oval Spigot

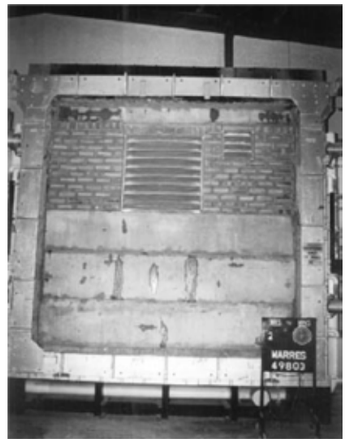


FIRE RESISTANCE TEST UTILIZING THE HEATING CONDITIONS OF (BRITISH STANDARDS 476 PART 20 1987)

Warres 49800, Fire Resistance up to 1 hr

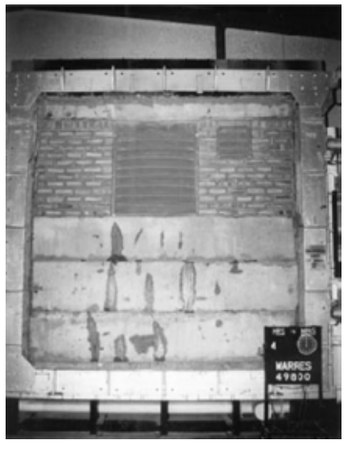


Warres 49800, Fire Resistance up to 2 hrs



Warres 49800, Fire Resistance up to 3 hrs

Warres 49800, Fire Resistance up to 4 hrs



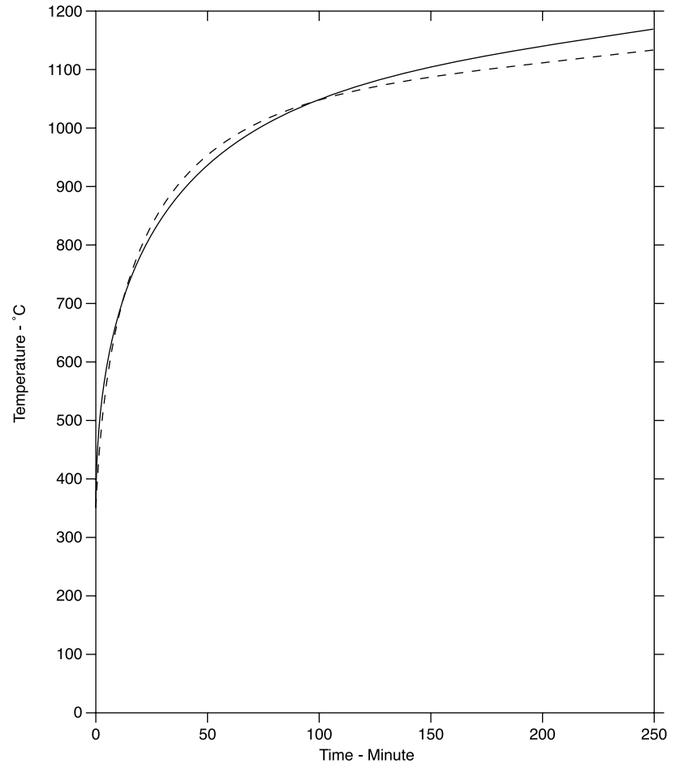
TECHNICAL DATA

Fire Test BS 476 Part 20 1987

The fire dampers shown have been tested by an independent authority (Warrington Research Centre) according to British Standards 476 Part 20; 1987 for a period of 4 hours.

The time / temperature curve required by this test procedure is shown below, after 4 hours test the SSA retained its integrity with no significant openings being formed.

Fire Test BS 476 Part 20: 1987



ORDER REFERENCE DETAILS

Order Code SSA - 1 - B - 100 - V / 500 x 500 / S01

Type
SSA-1

Construction Variants
A = Blades in Air Stream
B = Blades out of Air Stream
C = Blades out of Air Stream
R = Blades out of Air Stream
(Circular Type)
O = Blades out of Air Stream
(Oval Type)

Variants - Seals
A1
B1
C1
R1
O1

100
110
120

Mounting
V = Vertical Damper
H = Horizontal Damper

Accessories
(See Page 117)

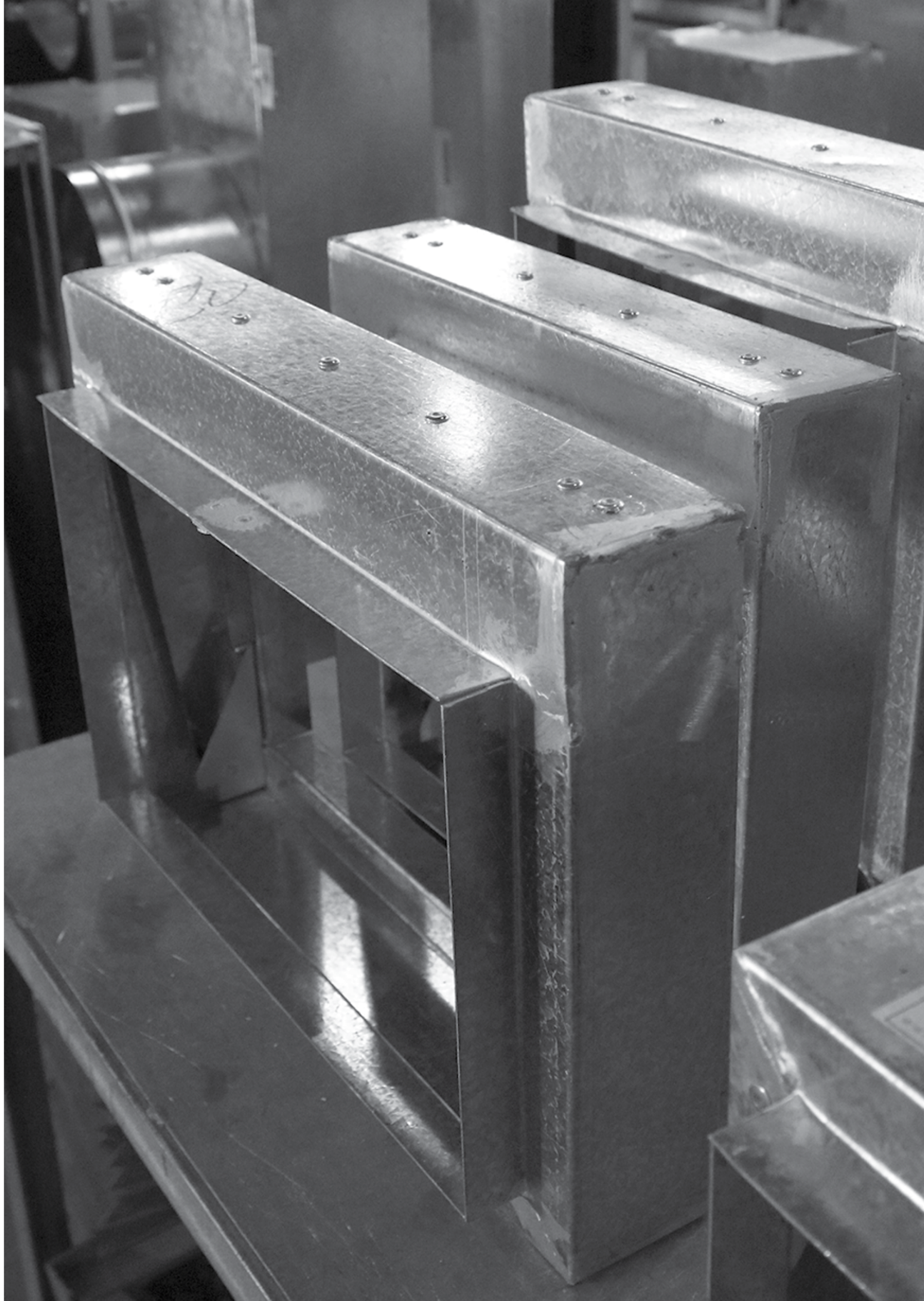
Duct Size
- Square or rectangular Dimensions ‘W’ x ‘H’ mm.
- Circular ‘D’ mm dia. Flat oval ‘W’ x ‘H’ mm.
- All damper spigots are manufactured down ond duct size to fit inside ductwork connections.

Specifications

Square or rectangular shutter type fire dampers for the isolation of fire zones in air conditioning systems. Designed and fabricated to maintain integrity and stability for 4 hours when tested to BS 476 Part 20; 1987. The SSA fire dampers consists of perimeter frame case and interlocking shutter type blades. As standard the case is complete with catchplates and constant tension closure springs. Suitable for either rectangular, circular or flat oval ducting and available in high or low pressure/velocity construction.Standard release 74˚C fusible link.

Order Example

Standard
Make : SAFID
Type : SSA-1-A-100-500 × 500
Qty : 1



BLADE TYPE FIRE DAMPERS

سـافيد
SAFID

BLADE TYPE FIRE DAMPER

MFD SERIES

MFD for Use in Dynamic Systems

Fire Resistance: 1 1/2 HR and 3 HRS
Dynamic Closure Ratings: 2000 FPM and 4000 FPM Air Velocity
UL File No.: R22165

Product Description

Blade type fire dampers provide an automatic means of localizing areas of 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 through ventilation ductworks or wall openings. These type of dampers offer an effective fire barrier maintaining the integrity in a fire situation. 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 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.

Types

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

Optional Construction:
Same as the standard construction but blades, stub shaft (latch) with 4 pieces Ø6mm bolts and 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: MFD - 40 - 110
2. Circular Type, Model: MFD - 50 - 110
3. Oval Type, Model: MFD - 60 - 110
4. With factory installed Sleeve, Model: MFD - 80 - vv110

Same as the standard construction but frame, blades, installation sleeve 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: MFD-40-120
2. Circular Type, Model: MFD-50-120
3. Oval Type, Model: MFD-60-120
4. With factory installed Sleeve, Model: MFD-80-120

Standard Construction

Finish:
Mill Galvanized

Sleeve:
1.5mm thick (Ga.16) galvanized steel sheet.

Frame:
130 × 24.5 × 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).

Linkage Bar:
Stainless steel type 304, 15mm x 3mm thick.

Linkage Bracket:
GI 50mm x 60mm x 3mm thick, fixed with 1 square axle 9.5 mm and Ø6.3mm Pin.

Crank:
3mm thick galvanized steel sheet 32mm x 107mm with 6.6mm wide slot.

Axle:
Zinc plated steel square bar 9.5 × 9.5 mm.

Stub Shaft (Latch):
Die pressed galvanized steel sheet, 58mm x 68mm x 1.5mm thick (Ga.16).

Bearings:
Sintered bronze oilite type.

Side Seal (Jamb Seal):
Compression type SS grade 304, 0.3mm thick.

Blade Tip Seal:
Blade tip seals are high temperature Durometer Dense Silicone.

Jack Shaft:
GI rod Ø12mm across the blade length with 10mm square end x 25mmL to suit actuator.

Jack Shaft Holder:
Die pressed GI steel 152.9mm x 82.2mm x 1.5mm thick with Ø12.7mm ball bearing.

Minimum Size:
200W x 150H mm with single blade construction up to 250mm height.

Maximum Size:
914W x 914H mm - Single section and 1828W x 1828H - Multiple Section.

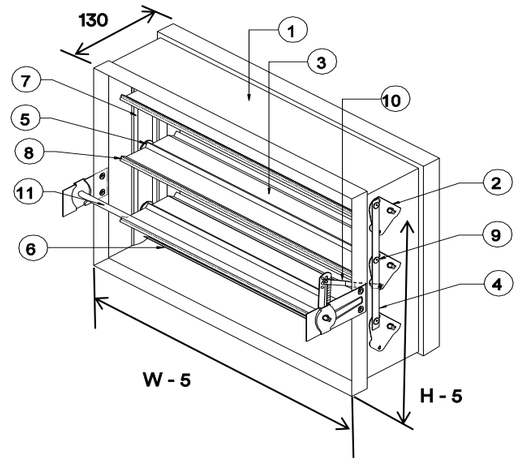
Mounting:
Vertical

UL Test Ratings

Fire Resistance: 1 1/2 Hour and 3 Hours

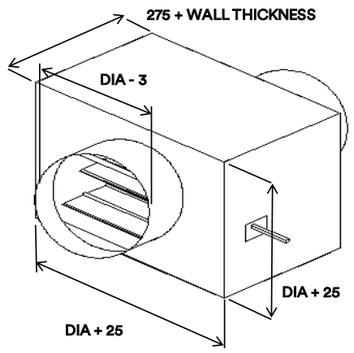
Types

Sleeve Type
Model: MFD - 40

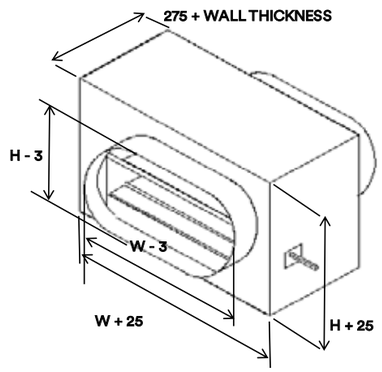


1. Casing (Frame)
2. Linkage bracket
3. Blade
4. Linkage bar
5. Bearings
6. Blade stop
7. Slide seal
8. Blade tip seal
9. Lock washer and GI round washer
10. Kneelock
11. Jackshaft

Circular Type
Model: MFD - 50

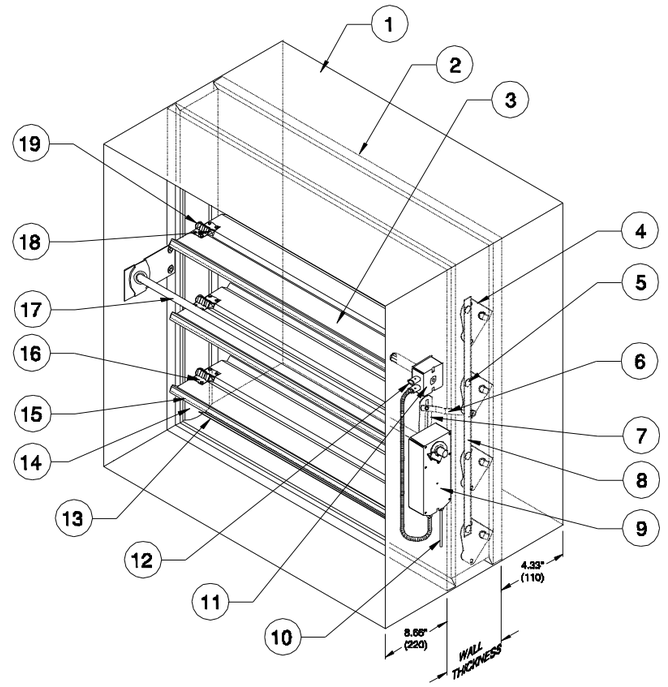


Flat Oval Type
Model: MFD - 60



Types

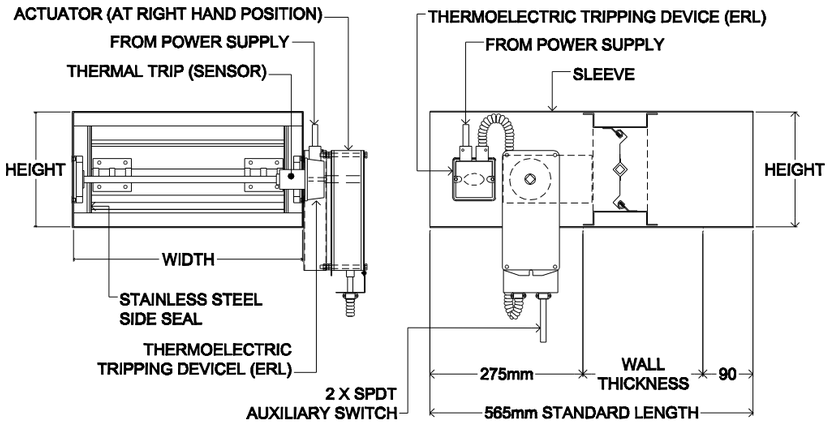
MFD With Factory Installed Sleeve, ERL and Actuator
Model: MFD - 80



1. Sleeve
2. Damper Frame
3. Blade
4. Linkage Bracket
5. Lock Washer and Galvanized Round Washer
6. Kneelock
7. Crank
8. Linkage Bar
9. Actuator
10. Auxillary Swicth Cable for Indicating Damper Blades Position
11. Thermoelectric Tripping Device (ERL)
12. Power Supply
13. Blade Stop
14. Stainless Steel Side Seal
15. Blade Tip Seal
16. Stub Shaft (Latch)
17. Jackshaft
18. Axle
19. Bearing

Dimensions - Single Section

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



Front View **Side View**

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

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

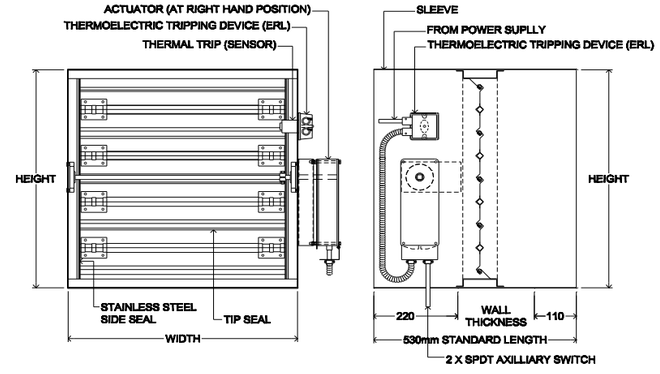
1. BELIMO Model: FSLF-S-US (24 / 230VAC) with built-in auxiliary switch.
2. FSNF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5Nm for W = 610 mm maximum.
3. Model: MS8104F1210 / MS4604F1210 (24 / 230VAC) with built-in auxiliary switch.
4. ML8115B / ML4115D (24 / 230VAC) Rotation CW, without built-in auxiliary switch.
Torque: 3.4Nm for W = 610 mm maximum.
5. Model: MS8109F1210 / MS4609F1210 (24 / 230VAC) with built-in auxiliary switch.
6. MS8209F / MS4709F (24 / 230VAC) Rotation CW, without built-in auxiliary switch.
Torque: 9Nm for W = 914 mm maximum.
7. BELIMO Model: BF-S-ME (24 / 230VAC) with built-in auxiliary swith.
Torque: 15 Nm for W = 914 mm maximum.

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

BLADE TYPE FIRE DAMPER

Dimensions - Single Section

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



Front View **Side View**

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

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

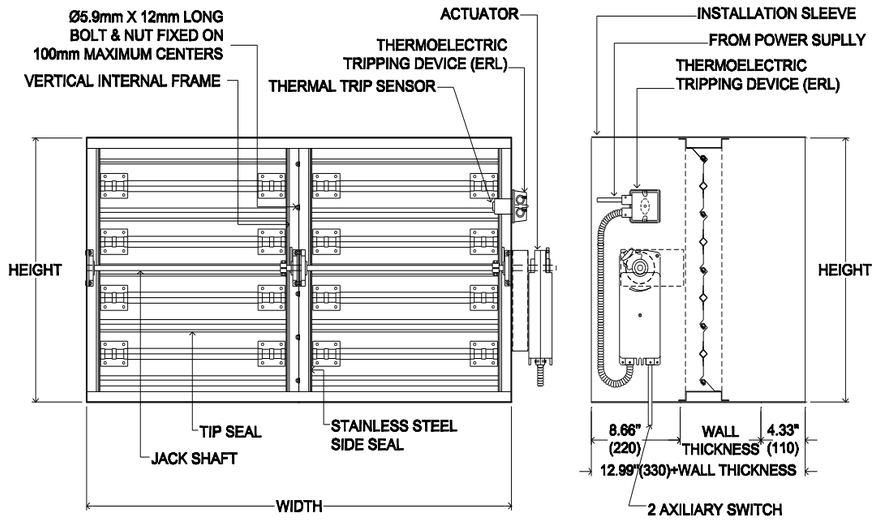
1. BELIMO Model: FSLF-S-US (24 / 230VAC) with built-in auxiliary switch.]
Torque: 3.5 Nm
2. Model: MS8104F1210/MS4604F1210 (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.4 Nm
Damper size: W=610mm maximum, H=406mm maximum
3. BELIMO Model: FSNF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 8 Nm
Damper size: W=610mm maximum, H=610mm maximum
4. Model: MS4609F1210/MS8109F1210 (24 / 230VAC) with built-in auxiliary switch.
5. MS8209F / MS4709F (24 / 230VAC) Rotation CW, without built-in auxiliary switch.
Torque: 9 Nm
Damper size: W=914mm maximum, H=610mm maximum
6. BELIMO Model: BF-S-ME (24 / 230VAC) with built-in auxiliary swith.
Torque: 15 Nm
Damper size: W= 914mm maximum, H= 914mm maximum
7. Model: MS8120F1200 / MS4620F1203 (24 / 230VAC) with built-in auxiliary switch.
8. MS8120F1002 / MS4620F1005 (24 / 230VAC) Rotation CW, without auxiliary switch.
Torque: 20 Nm
Damper size: W=914mm maximum, H=914mm maximum

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

BLADE TYPE FIRE DAMPERS

Dimensions - Multiple Section

MFD With Factory Installed Sleeve, ERL and Actuator
Model: MFD - 80
Width: Up to 1118 mm
Height: Up to 610 mm



Front View

Side View

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Actuator Types

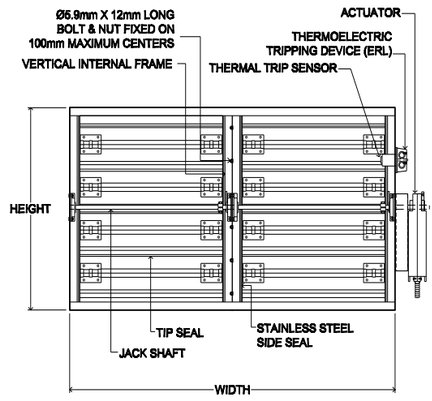
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS8109F1210 / MS4609F1210 (24/230VAC) with built-in auxiliary switch.
MS8209F / MS4709F (24/230VAC) Rotation CW, without built-in auxiliary switch.
Torque: 9 Nm

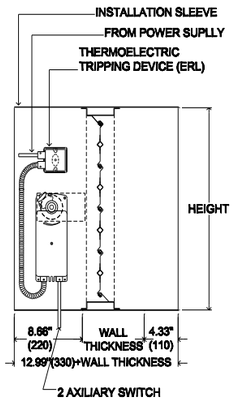
Note: Location of the actuator can be INSIDE or OUTSIDE the airstream.
Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.

Dimensions - Multiple Section

MFD With Factory Installed Sleeve, ERL and Actuator
Model: MFD - 80
Width: Up to 1828 mm
Height: Up to 914 mm



Front View



Side View

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

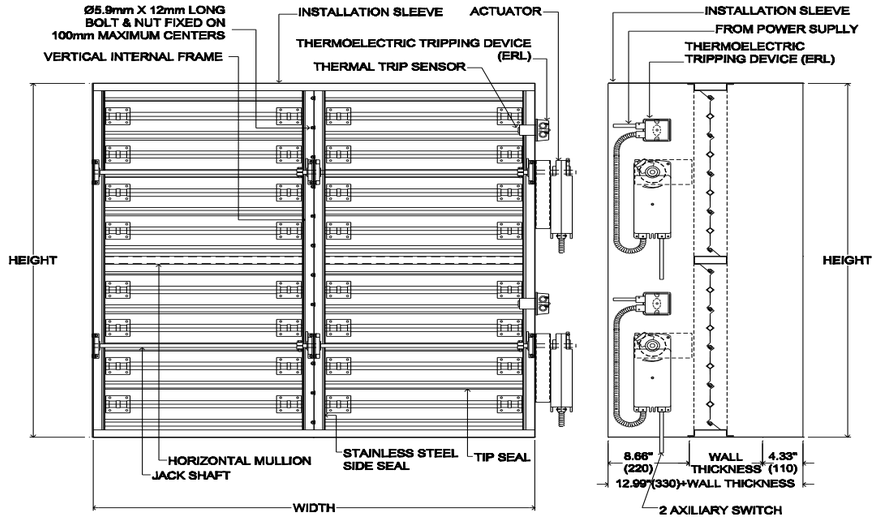
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS8120F1200 / 4620F1203 (24/230VAC) 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

MFD With Factory Installed Sleeve, ERL and Actuator
Model: MFD - 80
Width: Up to 1118 mm
Height: Up to 1220 mm



Front View **Side View**

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Actuator Types

A. Multiple section damper with two position (open/close) spring retrun type actuators:

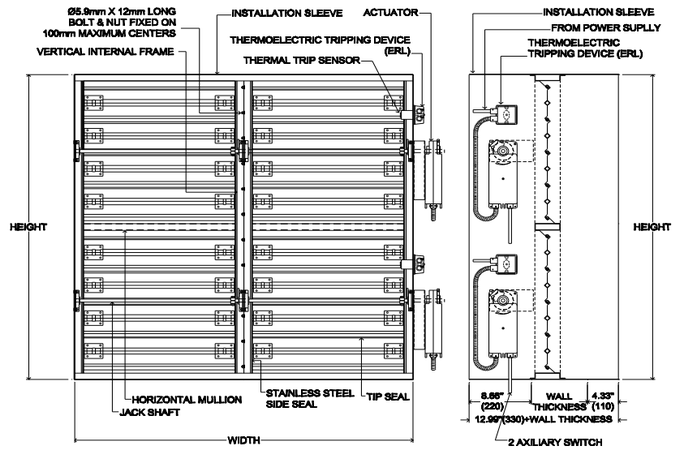
1. Model: MS8109F1210 / MS4609F1210 (24/230VAC) with built-in auxiliary switch.
MS8209F / MS4709F (24/230VAC) Rotation CW, without built-in auxiliary switch.
Torque: 9 Nm

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.

BLADE TYPE FIRE DAMPER

Dimensions - Multiple Section

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



Front View **Side View**

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS8120F1200 / MS4620F1203 (24/230VAC) with built-in auxiliary switch.
Torque: 20 Nm

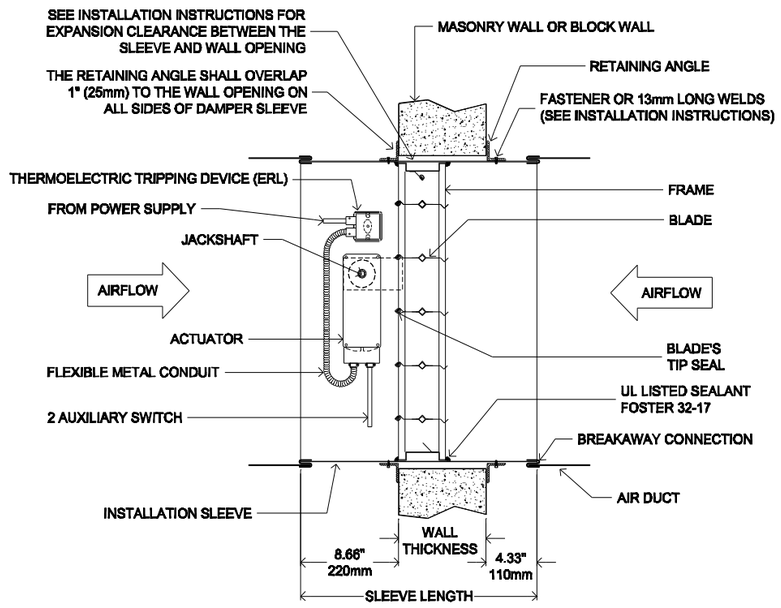
Note: Location of the actuator can be INSIDE or OUTSIDE the airstream.
Refer to technical data sheet of actuator or contact SAFID for the actuator specifications.

BLADE TYPE FIRE DAMPERS

Installation Details

MFD With Factory Installed Sleeve, ERL and Actuator
Model: MFD - 80

Typical Installation



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.

Actuators

BELIMO Actuator
Model: FSLF

BELIMO Actuator
Model: FSNF

BELIMO Actuator
Model: BF

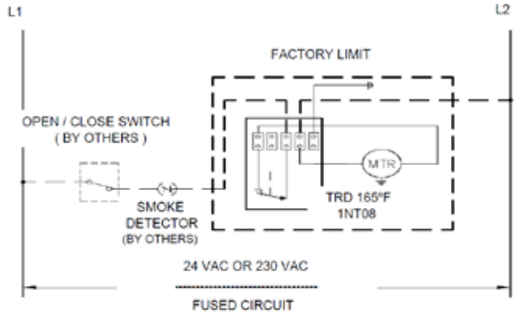
Honeywell Actuator
Model: MS4620F1203

Thermoelectric Tripping Device (ERL)
Model: BAE165 US or SF74 (165 °F) Klixon

Sequence of Operation

The ERL (Thermoelectric Tripping Device) resettable link has a thermal sensor switch that interrups the power supply to the fire damper 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 damper actuator moves the damper blades back to its safe position. The damper blades can be open again by pressing the reset button on ERL after the temperature cooled down below 165°F.

Typical Wiring Diagram

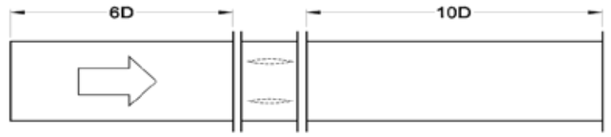


Air Performance

Pressure Drop

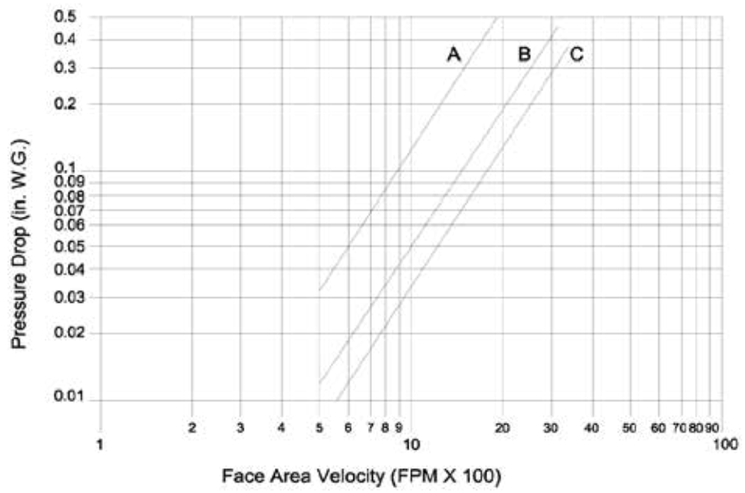
The test method for pressure drop of Combination Fire/Smoke Damper was conducted as per ANSI / AMCA Standard 500-D, Figure 5.3 which simulate the actual site condition when installed in ventilation, supply and return air conditioning ductworks.

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

A. Damper Size 12 in. x 12 in. - Fully Open Blades
B. Damper Size 24 in. x 24 in. - Fully Open Blades
A. Damper Size 36 in. x 36 in. - Fully Open Blades



Order Details

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

Variants
MFD-40 = Sleeve Type
MFD-50 = Circular Spigot
MFD-60 = Oval Spigot
MFD-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

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

Actuators
BELIMO, BF-S-ME
BELIMO, FSNF-S-US
BELIMO, FSLF-S-US
Honeywell, MS4620F1203

Duct Size
Width x Height or Diameter. All damper's spigot sizes (slip-in type) will be manufactured less than duct size to fit inside the ductwork connections.

Type of Sensor
ERL = Thermoelectric Tripping Device Model: BAE165 US, SF74 (165 °F Klixon)

Power Supply
V1 = 24 VAC
V2 = 230 VAC

ORDER REFERENCE DETAILS

Specifications

Blade type fire 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 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.

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

Blade type fire 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.

The fire 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. Blade's axel shall be 9.5 X 9.5 mm square forced-fit to one stub shaft, secured to blade with 4 pieces of bolt & nut, and with sintered bronze oilite axle bearing. Jamb seal/side seal shall be stainless steel to fill gap between blade's end and vertical frame. Jackshaft shall be Ø12 mm galvanized steel with a crank and kneelock secured to the linkage bracket. Damper frame shall be Ga.16 galvanized steel formed into hat channel shape.

Order Example

SAFID blade type fire damper, 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: MFD-80-100-3V-PB-R-A1S-V2-ERL
Size: 500 W x 500 H
Qty: 1

BLADE TYPE FIRE DAMPERS

FD 30 - 100

FD SERIES
FLANGE TYPE

Constructed and in accordance to the ULL555 standard.

Description

Blade type fire dampers type FD 30 provide means of localizing areas of fire in ventilation systems. It prevents the distribution of fire through ventilation ductworks. FD offers an effective barrier maintaining integrity in a fire situation. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. FD is available in rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame:
180mm x 30mm x 1.5mm (16 ga.) galvanized steel, formed channel for flange connections.

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

Finish:
Mill galvanized.

Linkage:
Parallel blade have standard face linkage operation. Linkage consist of 6mm dia. S/S pivot pins.

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

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

Spring:
Stainless steel closure spring mounted internally with catch device to prevent blades from opening until manually released.

Minimum Size:
100 × 200mm, dampers up to 250mm high are single blade construction.

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

For details of multiple sections consult SAFID.

FD 30 - 110

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

FD 30 - 120

General construction as type FD 30 - 100 damper but with case, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

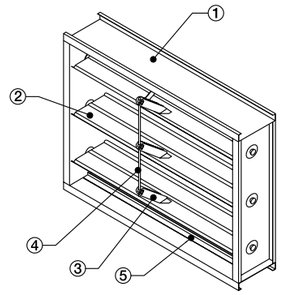
FD SERIES [FD 30 - 100, FD 30 - 110, FD 30 - 120]

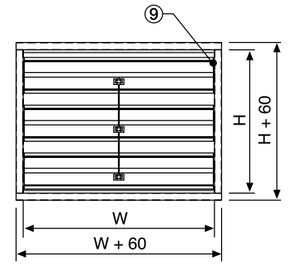
Dimensions

1 - Casing
2 - Blade
3 - Face Linkage
4 - Linkage Bar
5 - Landing Angles
6 - Fusible Link 74 ˚C (UL listed)
7 - Catch Device
8 - Closing Spring
9 - Side Seal

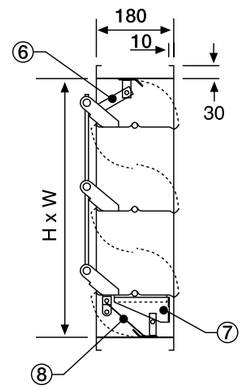
Flange Type, Parallel Blades

FD 30 - 100, 110, 120





Flange Type



Parallel Blade (PB)

Standard Sizes

Width (mm)	Height (mm)	No. of Blades
100	200	1
150	250	1
200	300	2
250	350	2
300	400	2
350	450	2
400	500	3
450	600	3
500	700	4
550	800	4
600	900	5
650	1000	6
700		
750		
800		
850		
900		
950		
1000		

FD 40 - 100

FD SERIES
SLEEVE TYPE

Constructed and in accordance to the ULL555 standard.

Description

Blade type fire dampers FD 40 provide an automatic means of localizing areas of fire in ventilation systems. It prevent the distribution of fire through ventilation ductworks. FD offer an effective barrier maintaining integrity in a fire situation up to 3 hrs. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. FD is available in rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame:
100mm x 40mm x 1.5mm (16 ga.) galvanized steel, structurally designed hat section.

Blades:
300mm max. width,1.5mm (16 ga.) galvanized steel.

Finish:
Mill galvanized.

Linkage:
Parallel blade have standard face linkage operation. Linkage consist of 6mm dia. S/S pivot pins.

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

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

Spring:
Stainless steel closure spring mounted internally with catch device to prevent blades from opening until manually released.

Minimum Size:
150 x 200mm, dampers up to 300mm high are 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.

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

FD 40 -1 20
General construction as type FD 40 - 100 damper but with case, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

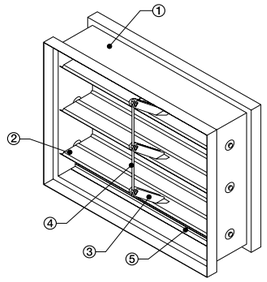
FD SERIES [FD 40 - 100, FD 40 - 110, FD 40 - 120]

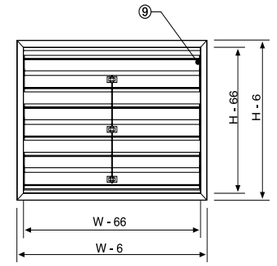
Dimensions

1 - Casing
2 - Blade
3 - Face Linkage
4 - Linkage Bar
5 - Landing Angles
6 - Fusible Link 74 ˚C (UL listed)
7 - Catch Device
8 - Closing Spring
9 - Side Seal

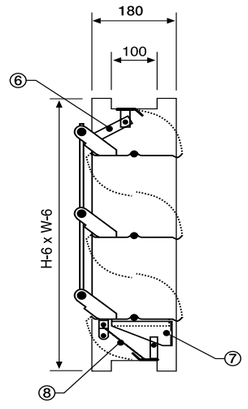
Sleeve Type, Parallel Blades

FD 40 - 100, 110, 120





Sleeve Type



Parallel Blade (PB)

Standard Sizes

Width (mm)	Height (mm)	No. of Blades
100	200	1
150	250	1
200	300	1
250	350	2
300	400	2
350	450	2
400	500	3
450	600	3
500	700	4
550	800	4
600	900	5
650	1000	6
700		
750		
800		
850		
900		
950		
1000		

FD 50 - 100

FD SERIES
CIRCULAR SPIGOT TYPE

Constructed and tested in accordance with ULL555 standard.

Description

Blade type fire dampers FD 50 provide an automatic means of localizing areas of fire in ventilation systems. It prevent the distribution of fire through ventilation ductworks. FD offer an effective barrier maintaining integrity in a fire situation up to 3 hrs. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. FD is available in rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame:
180mm x 1.5mm (16 ga.) galvanized steel, L = 405mm.

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

Finish:
Mill galvanized.

Linkage:
Parallel blade have standard face linkage operation. Linkage consist of 6mm dia. S/S pivot pins.

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

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

Spring:
Stainless steel closure spring mounted internally with catch device to prevent blades from opening until manually released.

Minimum Size:
200mm diameter, dampers up to 250mm high are 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.

FD 50 - 110

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

FD 50 - 120

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

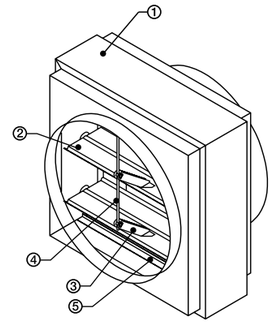
FD SERIES [FD 50 - 100, FD 50 - 110, FD 50 - 120]

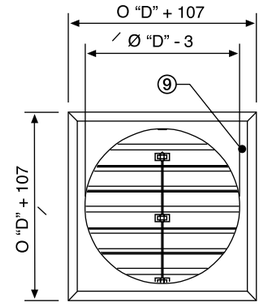
Dimensions

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

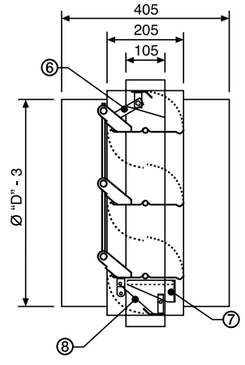
Circular Spigot Type, Parallel Blades

FD 50 - 100, 110, 120





Circular Spigot Type



Parallel Blade (PB)

Standard Sizes

Diameter (mm)	No. of Blades
200	1
250	1
300	2
350	2
400	2
450	2
500	3
600	3
700	4
800	4
900	5
1000	6

FD 60 - 100

FD SERIES
OVAL SPIGOT TYPE

Constructed and in accordance to the ULL555 standard.

Description

Blade type fire dampers FD 60 provide an automatic means of localizing areas of fire in ventilation systems. It prevent the distribution of fire through ventilation ductworks. FD offer an effective barrier maintaining integrity in a fire situation up to 3 hrs. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. FD is available in rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame (Spigot Type):
180mmx1.5mm (16 ga) galvanized steel, L=405mm.

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

Finish:
Mill galvanized.

Linkage:
Parallel blade have standard face linkage operation. Linkage consist of 6mm dia. S/S pivot pins.

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

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

Spring:
Stainless steel closure spring mounted internally with catch device to prevent blades from opening until manually released.

Minimum Size:
300 × 200mm, dampers up to 250mm high are single blade construction.

Maximum Size:
1000 × 900mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

FD 60 - 110

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

FD 60 - 120

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

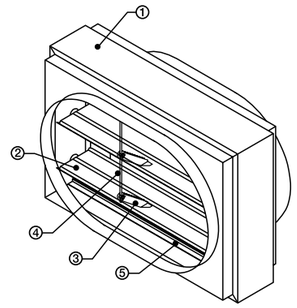
FD SERIES [FD 60 - 100, FD 60 - 110, FD 60 - 120]

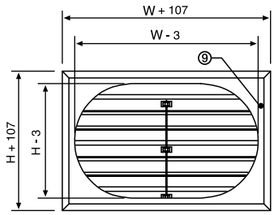
Dimensions

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

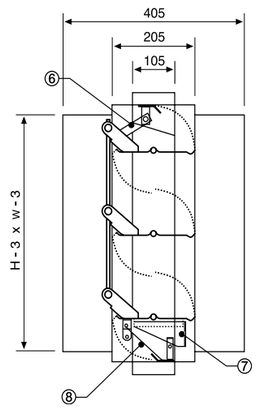
Oval Spigot Type, Parallel Blades

FD 60 - 100, 110, 120





Oval Spigot Type



Parallel Blade (PB)

Standard Sizes

Width (mm)	Height (mm)	No. of Blades
300	200	1
350	250	1
400	300	2
450	350	2
500	400	2
550	450	2
600	500	3
650	600	3
700	700	4
750	800	4
800	900	5
850		
900		
950		
1000		

RECTANGULAR SPIGOT TYPE BLADE TYPE FIRE DAMPER

FD 70 - 100

FD SERIES
RECTANGULAR SPIGOT TYPE

Constructed and in accordance to the ULL555 standard.

Description

Blade Type Fire Dampers FD 70 provide an automatic means of localizing areas of fire in ventilation systems. It prevent the distribution of fire through ventilation ductworks. FD offer an effective barrier maintaining integrity in a fire situation up to 3 hrs. It is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. FD is available in rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame (Spigot Type):
180mmx1.5mm (16 ga) galvanized steel, L=405mm.

Blades:
300mm max. width,1.5mm (16 ga.) galvanized steel.

Finish:
Mill galvanized.

Linkage:
Parallel blade have standard face linkage operation. Linkage consist of 6mm dia. S/S pivot pins.

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

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

Spring:
Stainless steel closure spring mounted internally with catch device to prevent blades from opening until manually released.

Minimum Size:
150 × 200mm, dampers up to 300mm high are single blade construction.

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

For details of multiple sections consult SAFID.

FD 70 - 110

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

FD 70 - 120

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

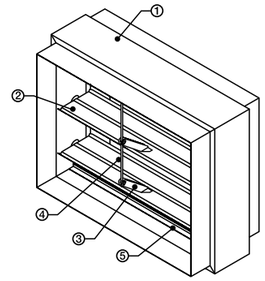
FD SERIES [FD 70 - 100, FD 70 - 110, FD 70 - 120]

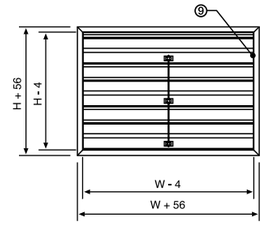
Dimensions

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

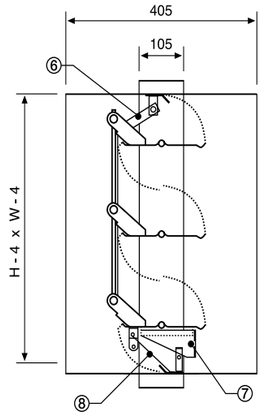
Rectangular Spigot Type, Parallel Blades

FD 70 - 100, 110, 120





Rectangular Spigot Type



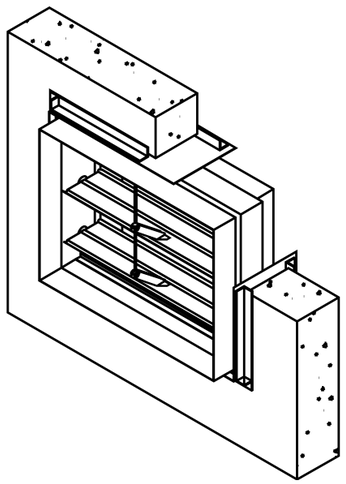
Parallel Blade (PB)

Standard Sizes

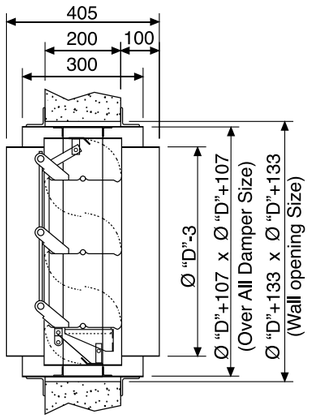
Width (mm)	Height (mm)	No. of Blades
100	200	1
150	250	1
200	300	1
250	350	2
300	400	2
350	450	2
400	500	3
450	600	3
500	700	4
550	800	4
600	900	5
650	1000	6
700		
750		
800		
850		
900		
950		
1000		

Installation Details with Sleeve and Peripheral Angle

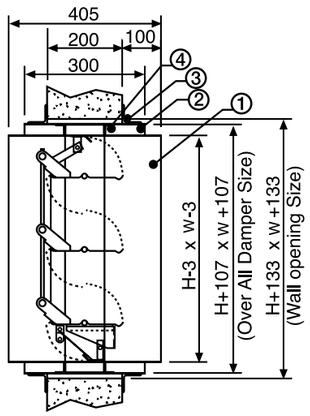
FD



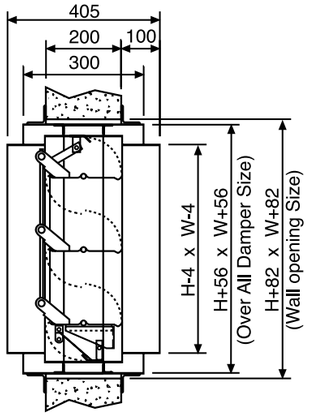
FD 50, Circular Spigot Type



FD 60, Oval Spigot Type

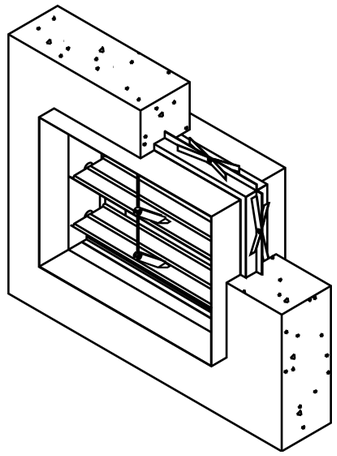


FD 70, Rectangular Spigot Type

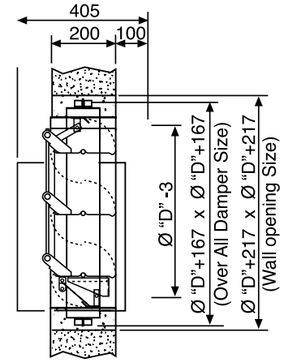


Installation Details with HEVAC Frame

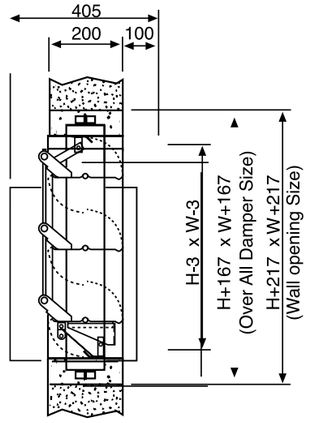
FD



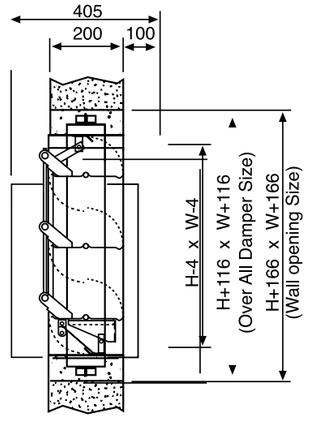
FD 50, Circular Spigot Type



FD 60, Oval Spigot Type



FD 70, Rectangular Spigot Type



Product Range

Construction Variants - FD - 100, 110, 120 - Casing

	Description
FD 30	Standard supply construction flange type frame 180mm x 30mm from 1.5mm (16 gauge) galvanized steel sheet.
FD 40	Sleeve case inverted channel frame 180mm width from 1.5mm (16 gauge) galvanized steel sheet.
FD 50	Spigot case detail from 1.5mm galvanized steel sheet. Total length 405mm including circular spigot.
FD 60	Spigot case detail from 1.5mm galvanized steel sheet. Total length 405mm including oval spigot.
FD 70	Spigot case detail from 1.5mm galvanized steel sheet. Total length 405mm including rectangular spigot.

Linkage

Construction Variants	Description
PB	Standard supply construction internal face linkage, parallel blade operation only.

Bearings

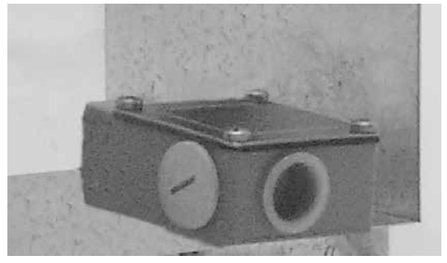
Construction Variants	Description
B1	Construction sintered bronze oilite.
B2	Stainless steel

Seals

Construction Variants	Description
S	No seals Not applicable
S1	Side seals. Fitted to close gap between case and blades.

Switches

Accessories & Types	
S01	Microswitch



Order Details

Order Code FD 30 - 100 - PB - S1 - B1 / 500 x 500

Variants
*FD 30 = Flange (Standard Supply)
FD 40 = Sleeve
FD 50 = Circular Spigot
FD 60 = Oval Spigot
FD 70 = Rectangular Spigot

Types
*100 (Standard Supply)
110
120

Linkage
*PB = Parallel Blades

Variants - Seals
S = No Seal, not applicable for FD Type
*S = Side Seal Only (Standard Supply)

Duct Size
- Square or rectangular dimensions 'W' x 'H' mm.
- Circular 'D' mm diameter.

- Flat Oval 'W' x 'H' mm.

- All damper spigots are manufactured down on duct size to fit inside ductwork connections.

Variants - Bearings
*B1 = Sintered Bronze (oilite0
B2 = Stainless Steel

***Stands for Standard Supply**

Specifications

Rectangular, square, circular and flat oval blade type fire damper designed for fire isolation of sections of ducting in ventilation systems. Basically consisting of a flanged casing, shut off blades with overlapping interlocking joints with side seals to close gap between case and blades, with internal fusible link control and stainless steel closing spring. Blades are connected by internal linkage for parallel blade operation.

Order Example

Standard
Make: SAFID
Type: FD 30 - 100 - S1 - B1 - 500 × 500
Qty: 1

COMBINATION FIRE & SMOKE DAMPERS

CFSD SERIES

CFSD for Use in Dynamic Systems

Fire Resistance: 1 1/2 HR and 3 HRS
Leakage Resistance: Class I - 350 °F and Class II - 250 °F
Dynamic Closure Ratings: 2000 FPM and 4000 FPM Air Velocity
Closed Damper Pressure Rating: 4 inch W.G.
UL File No.: R22165

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 type of dampers offer an 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.

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 Sleeve, 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 Sleeve, Model: CFSD - 80 - 110

Same as the standard construction but frame, blades, installation sleeve 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 Sleeve, Model: CFSD - 80 - 120

Standard Construction

Finish:
Mill Galvanized

Sleeve:
1.5mm thick (Ga.16) galvanized steel sheet.

Frame:
130 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).

Linkage Bar:
Stainless steel type 304, 15mm x 3mm thick.

Linkage Bracket:
GI 50mm x 60mm x 3mm thick, fixed with 1 square axle 9.5 mm and Ø6.3mm Pin.

Crank:
3mm thick galvanized steel sheet 32mm x 107mm with 6.6mm wide slot.

Axle:
Zinc plated steel square bar 9.5 x 9.5 mm.

Stub Shaft (Latch):
Die pressed galvanized steel sheet, 58mm x 68mm x 1.5mm thick (Ga.16).

Bearings:
Sintered bronze oilite type.

Side Seal (Jamb Seal):
Compression type SS grade 304, 0.3mm thick.

Blade Tip Seal:
Blade tip seals are high temperature Durometer Dense Silicone.

Jack Shaft:
GI rod Ø12mm across the blade length with 10mm square end x 25mmL to suit actuator.

Jack Shaft Holder:
Die pressed GI steel 152.9mm x 82.2mm x 1.5mm thick with Ø12.7mm ball bearing.

Minimum Size:
200W x 150H mm with single blade construction up to 250mm height.

Maximum Size:
914W x 914H mm - Single section and 1828W x 1828H - Multiple Section

Mounting:
Vertical

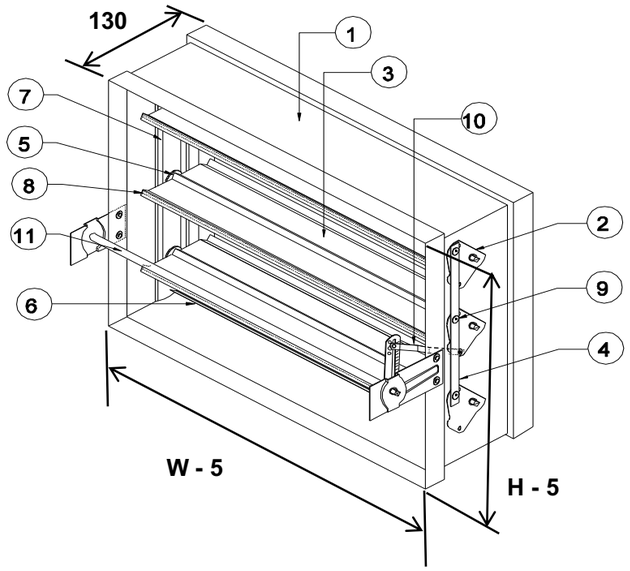
UL Test Ratings

Fire Resistance: 1 1/2 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.

COMBINATION FIRE & SMOKE DAMPERS

Types

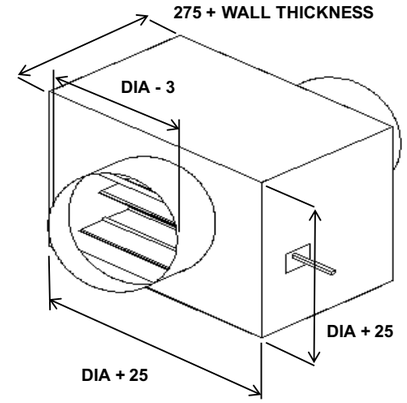
Sleeve Type
Model: CFSD-40



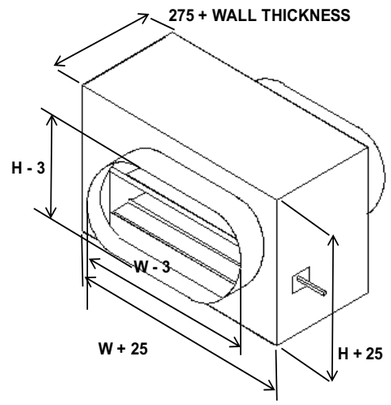
1. Casing (Frame)
2. Linkage Bracket
3. Blade
4. Linkage Bar
5. Bearings
6. Blade Stop
7. Side Seal
8. Blade Tip Seal
9. Lock Washer and GI Round Washer
10. Kneelock
11. Jackshaft

Types

Circular Type
Model: CFSD - 50

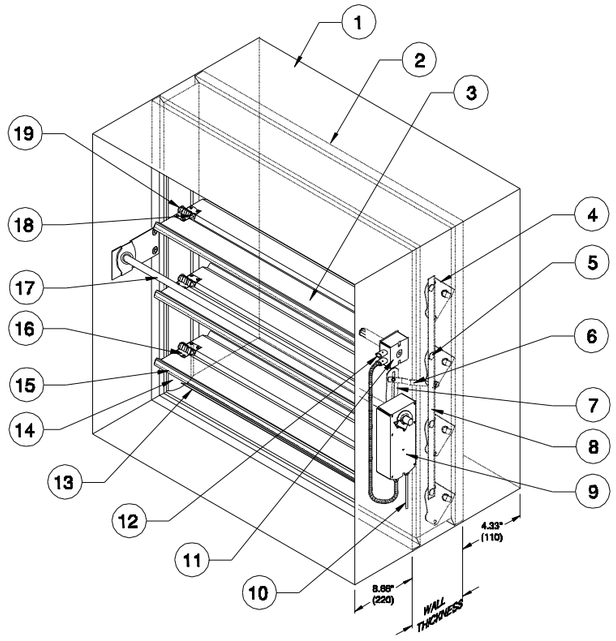


Flat Oval Tyoe
Model: CFSD - 60



Types

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

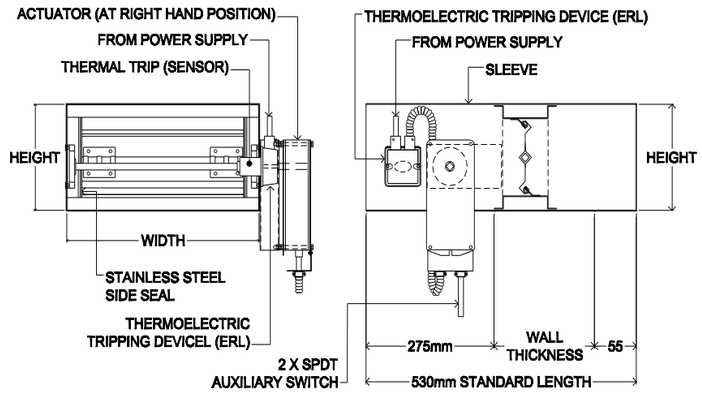


1. Sleeve
2. Damper Frame
3. Blade
4. Linkage Bracket
5. Lock Washer and Galvanized Round Washer
6. Kneelock
7. Crank
8. Linkage Bar
9. Actuator
10. Auxillary Swicth Cable for Indicating Damper Blades Position
11. Thermoelectric Tripping Device (ERL)
12. Power Supply
13. Blade Stop
14. Stainless Steel Side Seal
15. Blade Tip Seal
16. Stub Shaft (Latch)
17. Jackshaft
18. Axle
19. Bearing

COMBINATION FIRE SMOKE DAMPERS

Dimensions - Single Section

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



Front View **Side View**

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

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

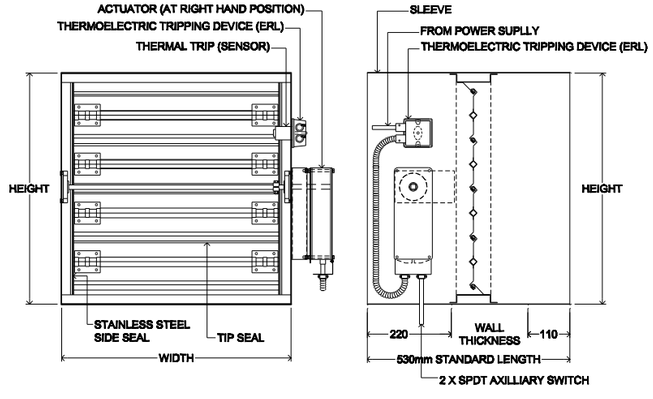
1. BELIMO Model: FSLF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5Nm for W = 610 mm maximum.
2. Model: MS8104F1210 / MS4604F1210 (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5Nm for W = 610 mm maximum.
3.BELIMO Model: BF-S-ME (24 / 230VAC) with built-in auxiliary swith.
Torque: 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



Front View **Side View**

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

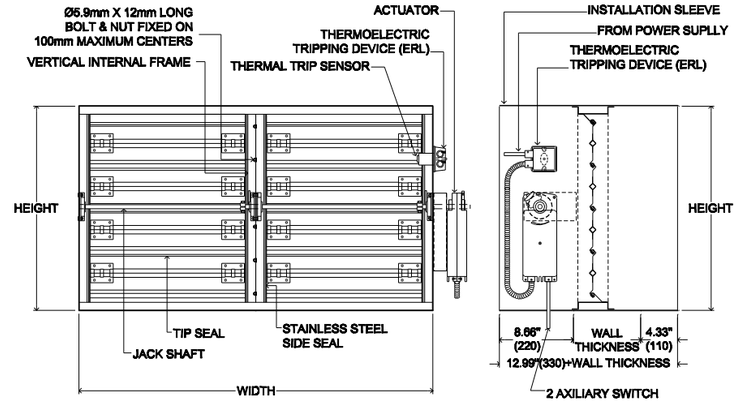
A. Single section damper with two position (open/close) spring retrun type actuators:

1. BELIMO Model: FSLF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5 Nm
Damper size: W=610mm maximum, H=406mm maximum
2. Model: MS8104F1210/MS4604F1210 (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5 Nm
Damper size: W=610mm maximum, H=406mm maximum
3. BELIMO Model: FSNF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 8 Nm
Damper size: W=610mm maximum, H=610mm maximum
4. BELIMO Model: BF-S-ME (24 / 230VAC) with built-in auxiliary swith.
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.

Dimensions - Multiple Section

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



Front View **Side View**

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

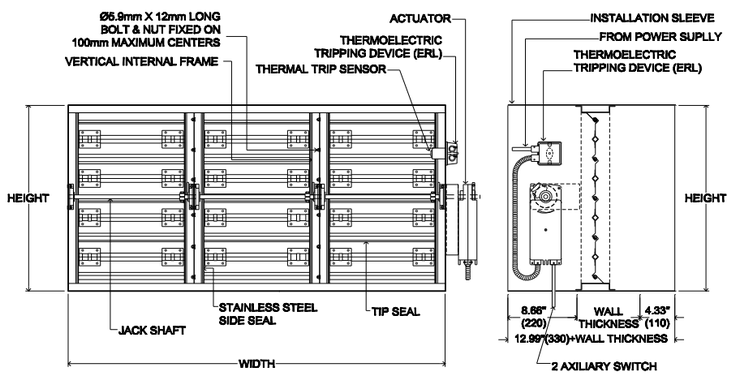
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (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



Front View Side View

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

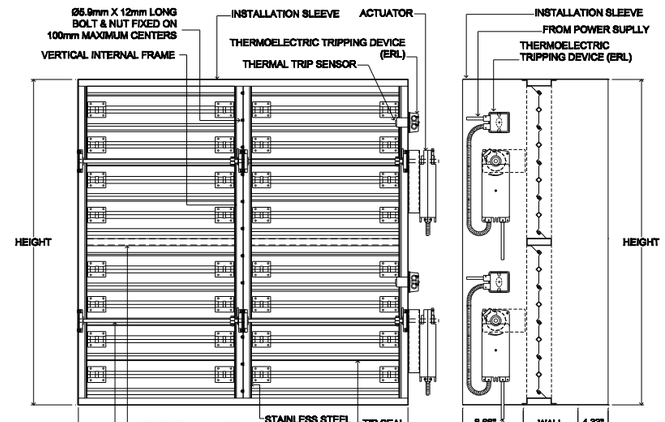
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (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 1200 mm
Height: Up to 1828 mm



Front View Side View

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

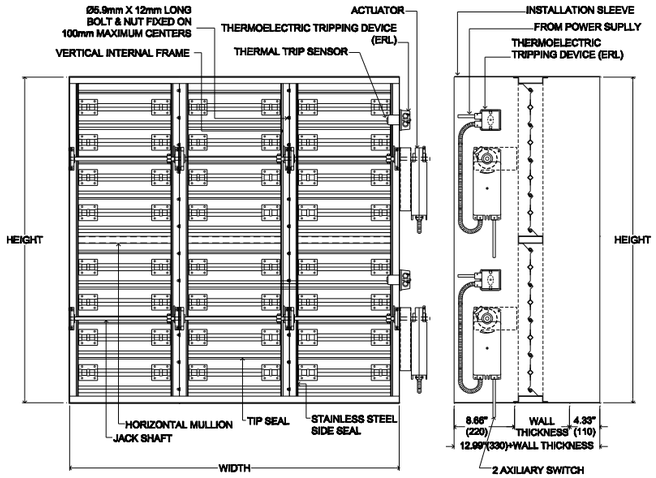
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (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 1828 mm



Front View

Side View

Thermoelectric Tripping Device (ERL)

Model:
BAE165 US or SF74 (165°F Klixon)
Bimetallic Manual Reset Type
165°F (74°C) rated
UL Classified components

Schedule of Damper Sizes and Actuator Types

A. Multiple section damper with two position (open/close) spring retrun type actuators:

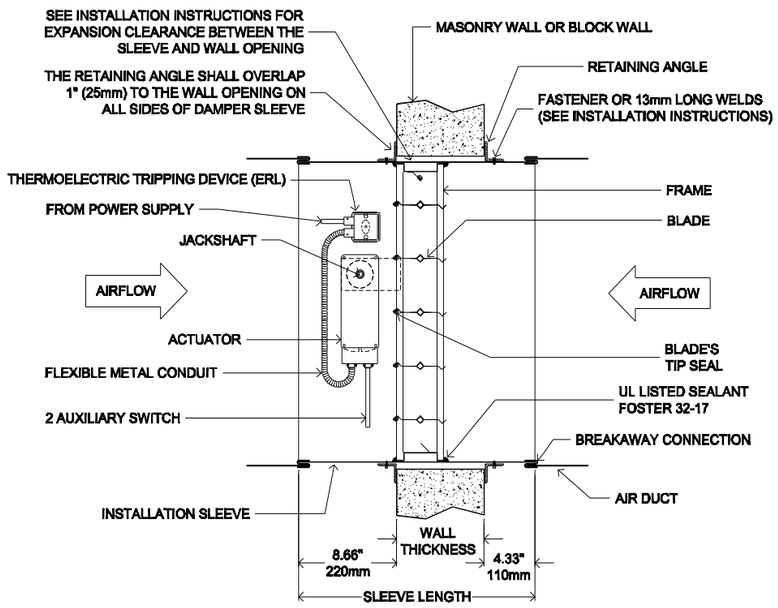
1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (24VAC) with built-in auxiliary switch.
Torque: 20 Nm

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

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

Typical Installation



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.

Actuators

Belimo Actuator
Model: FSLF

Belimo Actuator
Model: FSNF

Belimo Actuator
Model: BF

Honeywhell Actuator
Model: MS4620F1203

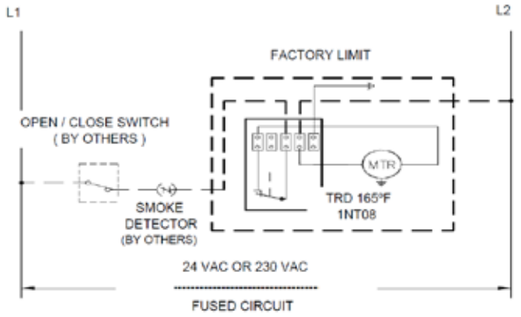
Thermoelectric Tripping Device (ERL)
Model: BAE165 US or SF74 (165 °F) Klixon

Sequence of Operation

Fire Mode: The ERL (Thermoelectric Tripping Device) resettable link has a thermal sensor switch that interrups 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 remain 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

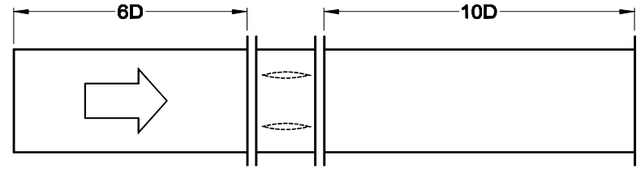


Air Performance

Pressure Drop

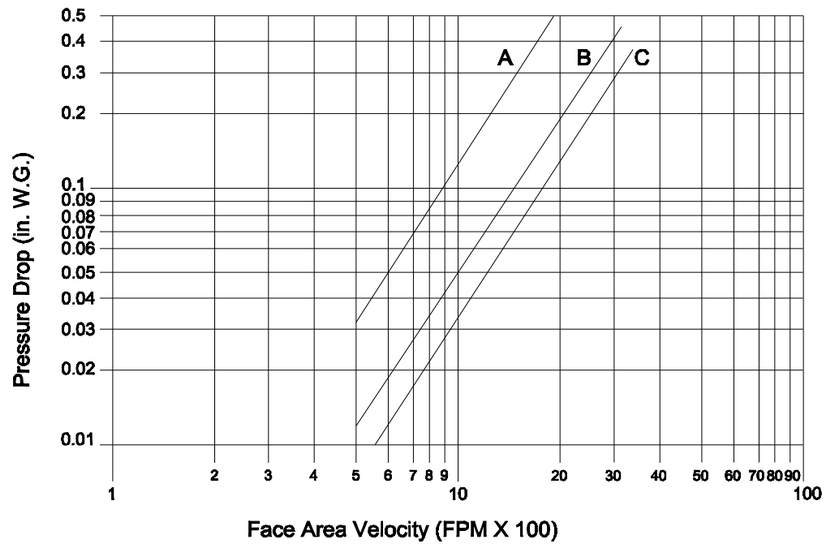
The test method for pressure drop of Combination Fire/Smoke Damper was conducted as per ANSI/AMCA Standard 500-D, Figure 5.3 which simulate the actual site condition when installed in ventilation, supply and return air conditioning ductworks.

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

A- Damper Size: 12in. x 12in. - Fully open blades
B- Damper Size: 24in. x 24in. - Fully open blades
C- Damper Size: 36in. x 36in. - Fully open blades



Order Details

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

Variants
CFSD-40 = Sleeve Type
CFSD-50 = 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

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

Actuators
BELIMO, BF-S-ME
BELIMO, FSNF-S-US
BELIMO, FSLF-S-US
Honeywell, MS4620F1203

Duct Size
Width x Height or Diameter. All damper's spigot sizes (slip-in type) will be manufactured less than duct size to fit inside the ductwork connections.

Type of Sensor
ERL = Thermoelectric Tripping Device Model: BAE165 US, SF74 (165 °F Klixon)

Power Supply
V1 = 24 VAC
V2 = 230 VAC

ORDER REFERENCE DETAILS

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. Blade's axel shall be 9.5 X 9.5 mm square forced-fit to one stub shaft, secured to blade with 4 pieces of bolt & nut, and with sintered bronze oilite axle bearing. Jamb seal/side seal shall be stainless steel to fill gap between blade's end and vertical frame. Jackshaft shall be Ø12 mm galvanized steel with a crank and kneelock secured to the linkage bracket. Damper frame shall be Ga.16 galvanized steel formed into hat channel shape.

Order Example

SAFIDS'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 & SMOKE DAMPERS

FSD 30 - 100

FSD SERIES
FLANGE TYPE

Constructed and in accordance to the ULL555 standard.

Description

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 30 mm 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 (oilite), operational temp. resistanace 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 compession type stainless steel grade 304 to close gap between case & blades.

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

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

For details of multiple sections consult SAFID.

FSD 30 - 110
General construction as type FSD 30 - 100 damper but blades, shafts 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 shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

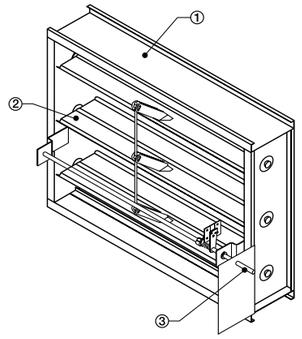
FSD SERIES [FSD 30 - 100, FSD 30 - 110, FSD 30 - 120]

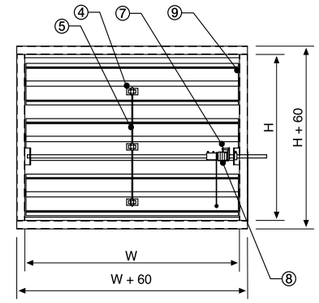
Dimensions

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
10 - Jack Shaft Device

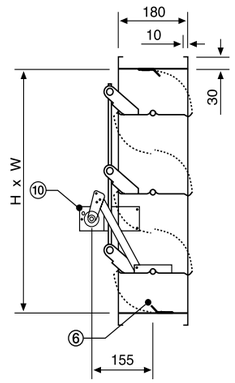
Flange Type, Parallel Blades

FSD 30 - 100, 110, 120





Flange Type



Standard Sizes

Width (mm)	Height (mm)	No. of Blades
200	200	1
250	250	1
300	300	2
350	350	2
400	400	2
450	450	3
500	500	3
550	600	4
600	700	4
650	800	5
700	900	6
750	1000	6
800		
850		
900		
950		
1000		

FSD 40 - 100

FSD SERIES
SLEEVE TYPE

Constructed and in accordance to the ULL555 standard.

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:
300mm 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. resistanace 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 compession type stainless steel grade 304 to close gap between case and blades.

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

Maximum Size:
1000 × 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).

COMBINATION FIRE & SMOKE DAMPERS

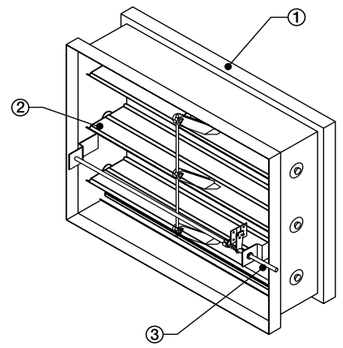
FSD SERIES [FSD 40 - 100, FSD 40 - 110, FSD 40 - 120]

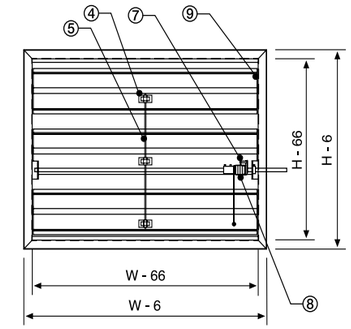
Dimensions

1 - Casing
2 - Blade
3 - Drive Shaft / Removable Spindle when Required
4 - Face Linkage
5 - Linkage Bar
6 - Landing Angles
7 - Fusible Link 74 °C (UL listed)
8 - Closing Spring
9 - Side Seal
10 - Jack Shaft Device

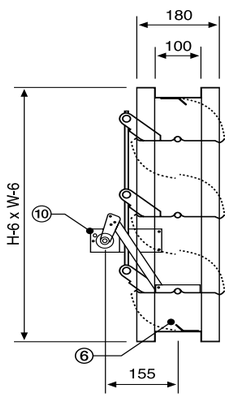
Sleeve Type, Parallel Blades

FSD 40 - 100, 110, 120





Sleeve Type



Standard Sizes

Width (mm)	Height (mm)	No. of Blades
200	200	1
250	250	1
300	300	1
350	350	2
400	400	3
450	450	3
500	500	4
550	600	4
600	700	5
650	800	6
700	900	6
750	1000	7
800		
850		
900		
950		
1000		

COMBINATION FIRE & SMOKE DAMPERS

CIRCULAR SPIGOT TYPE COMBINATION FIRE SMOKE DAMPER

FSD 50 - 100

FSD SERIES
CIRCULAR SPIGOT TYPE

Constructed and in accordance to the ULL555 standard.

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. resistanace 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 compession 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 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).

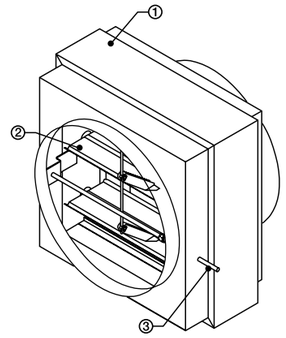
FSD SERIES [FSD 50 - 100, FSD 50 - 110, FSD 50 - 120]

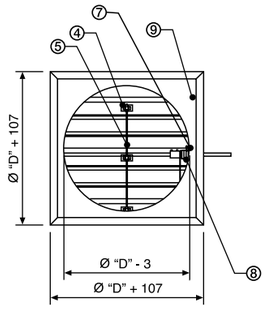
Dimensions

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
10 - Jack Shaft Device

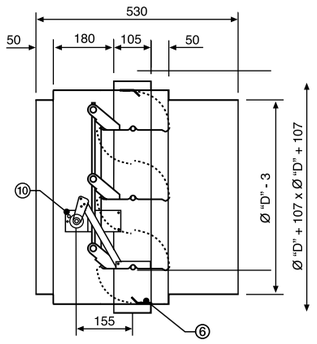
Circular Spigot Type

FSD 50 - 100, 110, 120





Circular Spigot Type



Standard Sizes

Diameter (mm)	No. of Blades
200	1
250	1
300	2
350	2
400	2
450	2
500	3
550	3
600	4
650	4
700	5
750	6
800	
850	
900	
950	
1000	

OVAL SPIGOT TYPE COMBINATION FIRE SMOKE DAMPER

FSD 60 - 100

FSD SERIES
OVAL SPIGOT TYPE

Constructed and in accordance to the ULL555 standard.

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. resistanace 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 compession 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).

OVAL SPIGOT TYPE COMBINATION FIRE SMOKE DAMPER

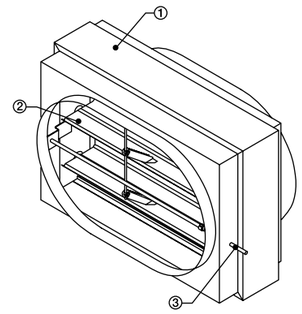
FSD SERIES [FSD 60 - 100, FSD 60 - 110, FSD 60 - 120]

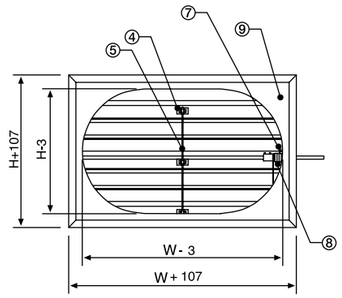
Dimensions

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
10 - Jack Shaft Device

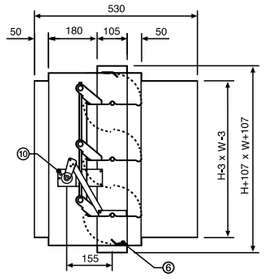
Oval Spigot Type

FSD 60 - 100, 110, 120





Oval Spigot Type



Standard Sizes

Width (mm)	Height (mm)	No. of Blades
250	200	1
300	250	1
350	300	2
400	350	2
450	400	2
500	450	2
550	500	3
600	550	3
650	600	4
700	650	4
750	700	4
800	750	5
850	800	5
900	850	5
950	900	6
1000	950	6
1100	1000	6

COMBINATION FIRE & SMOKE DAMPERS

RECTANGULAR SPIGOT TYPE COMBINATION FIRE SMOKE DAMPER

FSD 70 - 100

FSD SERIES
RECTANGULAR SPIGOT TYPE

Constructed and in accordance to the ULL555 standard.

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 (oilite), operational temp. resistanace 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 compession type stainless steel grade 304 to close gap between case and blades.

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

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

For details of multiple sections consult SAFID.

FSD 70 - 110

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).

RECTANGULAR SPIGOT TYPE COMBINATION FIRE SMOKE DAMPER

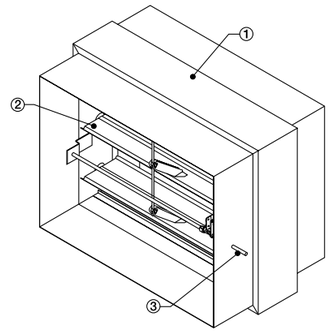
FSD SERIES [FSD 70 - 100, FSD 70 - 110, FSD 70 - 120]

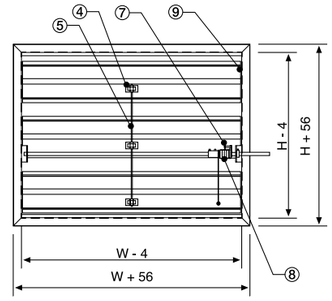
Dimensions

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
10 - Jack Shaft Device

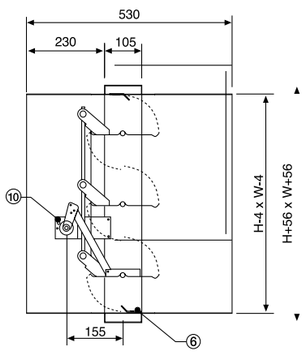
Rectangular Spigot Type

FSD 70 - 100, 110, 120





Rectangular Spigot Type



Standard Sizes

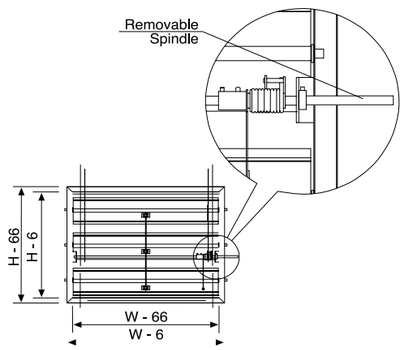
Width (mm)	Height (mm)	No. of Blades
200	200	1
250	250	1
300	300	2
350	350	2
400	400	2
450	450	3
500	500	3
550	600	4
600	700	4
650	800	5
700	900	6
750	1000	6
800		
850		
900		
950		
1000		

COMBINATION FIRE & SMOKE DAMPERS

Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

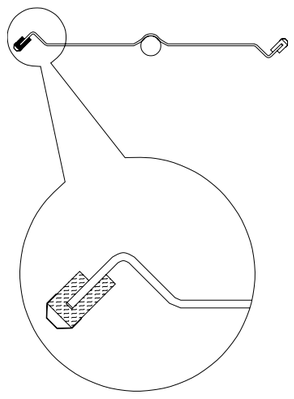
Removable Spindle

For Sleeve Type Only

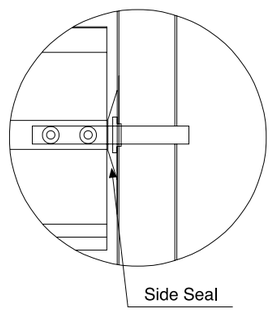


Blade Seal

Type S1 (Silicone Rubber)



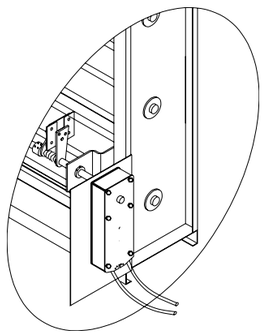
Type S2 (Stainless Steel Type 304)



Note: Type S3 (Combination of S1 & S2)

Mounting Bracket

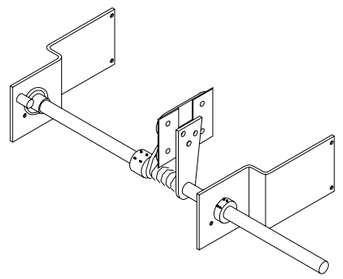
Damper with Mounting Bracket for Actuator

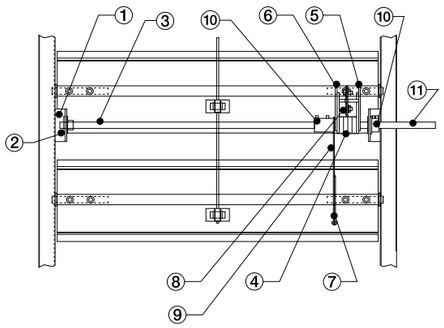


Side Seal (Jamb Seal)

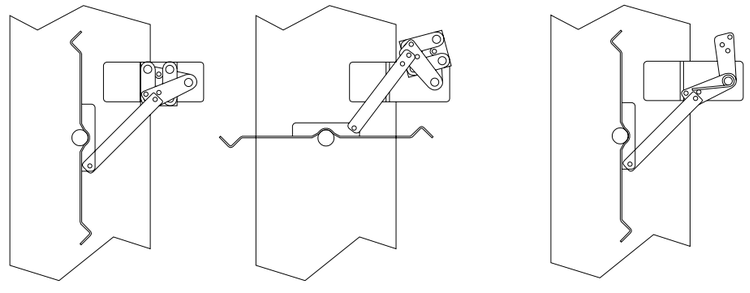
Jack Shaft Device

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





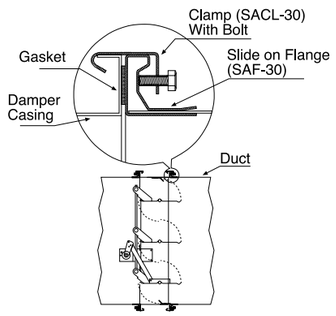
Section of Drive Device



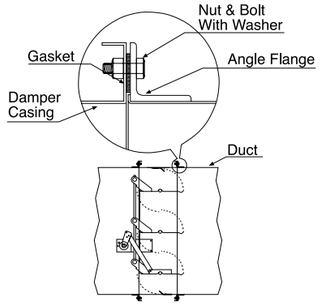
Flange Installation Details

Flange Type FSD 30

Damper to Slide On Flange Connection

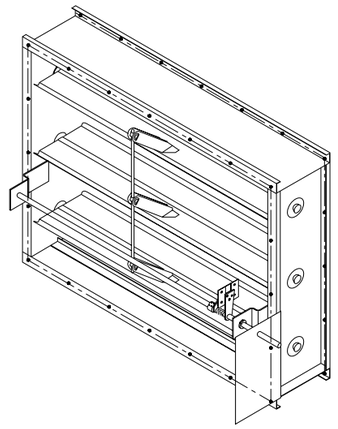


Damper to Flange Connection



Flange Installation Detail

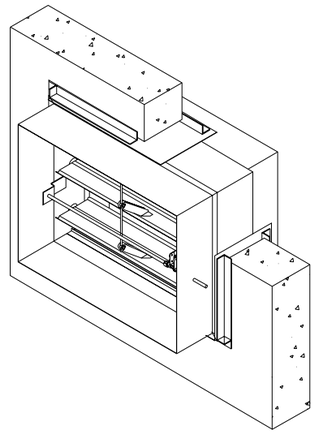
Flange Drilling Details, Type FSD 30



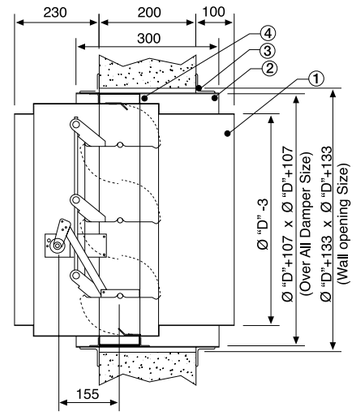
Flange Drilling Details

Width (mm)	Height (mm)	No. of Holes B Dim.	No. of Holes H Dim.
100	100	1	2
150	150	2	2
200	200	2	2
250	250	2	3
300	300	3	3
350	350	3	4
400	400	4	4
450	450	4	4
500	500	4	5
600	600	5	6
700	700	6	6
800	800	7	7
900	900	8	8
1000	1000	8	9
1100	1100	9	10
1200	1200	10	10
	1300		11
	1400		12
	1500		13
	1600		14
	1700		14
	1800		15

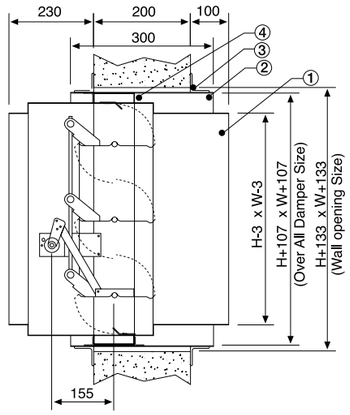
Installation Details



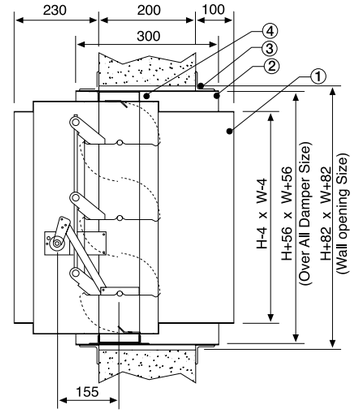
FSD 50



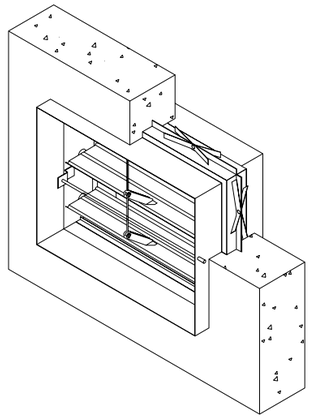
FSD 60



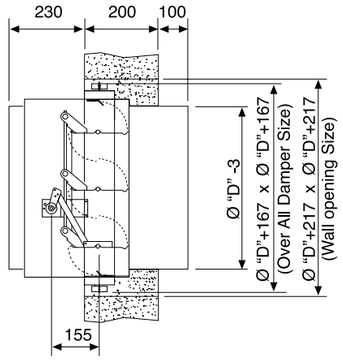
FSD 70



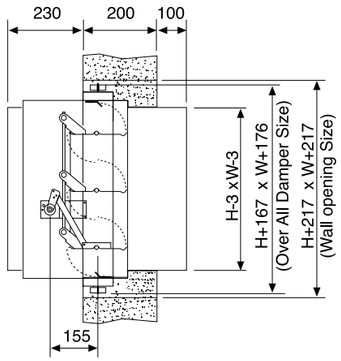
HEVAC Frame Installation Details



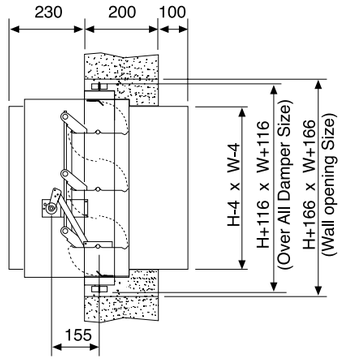
FSD 50



FSD 60



FSD 70



Product Range

Seals

Construction Variants	Description
S	No seals. Not applicable.
S1	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.
S2	Side seals. Fitted to close gap between frame and blades. Not applicable.
S3	Combination of S1 & 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.

Linkage

Construction Variants	Description
PB	Standard supply construction internal face linkage, parallel blade operation.

Bearings

Construction Variants	Description
B1	Construction sintered bronze oilite (standard).
B2	Sintered Bronze Oilite

Belimo Actuators

Code	Type/Model
A01	BF230 spring return
A02	BF24 spring return
A03	AF230 spring return
A04	AF230-S spring return with limit switch
A05	AF230 US spring return
A06	AF120 US spring return
A07	AF230-S US spring return with limit switch
A08	AF120-S US spring return with limit switch
A09	AF24 US spring return
A10	AF24-S US spring return with limit switch
A11	AF24-SR spring return
A12	NF24 US spring return
A13	NF120 US spring return
A14	NF24-S US spring return with limit switch
A15	NF120-S US spring return with limit switch
A16	NF24-SR US Modulating
A17	SM230A open/closed
A18	SM24A open/closed
A19	SM230A-SR Modulating
A20	NM230 open/closed
A21	NM24 open/closed
A22	NM24 SR Modulating
A23	GM240 open/closed
A24	GM24 open/closed
A25	GM24-SR Modulating

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

ORDER REFERENCE DETAILS

Order Details

Order Code FSD 30 - 100 - PB - S3 - B1 - R - 500 x 500 - A01

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

Type
*100 (Standard Supply)
110
120

Linkage
*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

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.

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

*** - 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 compession 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

SMOKE DAMPERS

SD SERIES

SD for Use in Dynamic Systems

Leakage Resistance: Class I - 350 °F and
Class II - 250 °F
Dynamic Closure Ratings: 2000 FPM and
4000 FPM Air Velocity
Cloase Damper Pressure Rating: 4 inch W.G.
UL File No.: R22165

Product Description

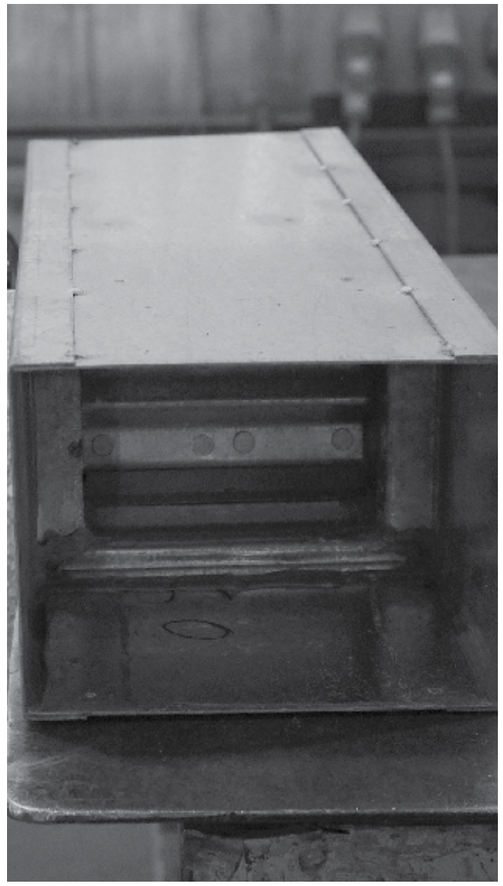
Smoke dampers provide an automatic means of isolating the smoke zones where the fire is located to prevent the spread of smoke in adjacent areas or in exit passageways which is greatly contribute to the safety of life and property in the early stage of fire. It is suitable for installation in sheet metal ductworks, openings in walls or floor slabs made from concrete, bricks and in lightweight partition walls.

These type of dampers offer an effective smoke barrier maintaining the integrity in a fire situation which has a very low leakage characteristic, tested / evaluated by Underwriters Laboratories Inc. (UL) as per UL 555S Standard for Safety Smoke Dampers, which complies with the requirements of NFPA 90A for use in engineered Smoke Control Systems.

SAFID smoke dampers are UL Classified and has a Leakage Ratings of Class I at 350°F and Class II at 250°F elevated temperature.

Smoke dampers willl be controlled by an automatic alarm initiating device which is interlocked with damper actuator. The Smoke dampers do not need to be equipped with a fusible link or tripping device.

In today's life safety products markets, many building code require smoke dampers to be inspected for proper operation. All damper moving parts must be inspected and cycled at every six months and in accordance to the latest NFPA90A/92A and local codes.



Types

Galvanized Steel Construction as Standard.
1. Sleeve Type, Model: SD - 40 - 100
2. Circular Type, Model: SD - 50 - 100
3. Oval Type, Model: SD - 60 - 100
4. With factory installed Sleeve, Model: SD - 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: SD - 40 - 110
2. Circular Type, Model: SD - 50 - 110
3. Oval Type, Model: SD - 60 - 110
4. With factory installed Sleeve, Model: SD - 80 - 110

Same as the standard construction but frame, blades, installation sleeve 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: SD - 40 - 120
2. Circular Type, Model: SD - 50 - 120
3. Oval Type, Model: SD - 60 - 120
4. With factory installed Sleeve, Model: SD - 80 - 120

Standard Construction

Finish:
Mill Galvanized

Sleeve:
1.5mm thick (Ga.16) galvanized steel sheet.

Frame:
130 × 24.5 × 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).

Linkage Bar:
Stainless steel type 304, 15mm x 3mm thick.

Linkage Bracket:
GI 50mm x 60mm x 3mm thick, fixed with 1 square axle 9.5 mm and Ø6.3mm Pin.

Crank:
3mm thick galvanized steel sheet 32mm x 107mm with 6.6mm wide slot.

Axle:
Zinc plated steel square bar 9.5 × 9.5 mm.

Stub Shaft (Latch):
Die pressed galvanized steel sheet, 58mm x 68mm x 1.5mm thick (Ga.16).

Bearings:
Sintered bronze oilite type.

Side Seal (Jamb Seal):
Compression type SS grade 304, 0.3mm thick.

Blade Tip Seal:
Blade tip seals are high temperature Durometer Dense Silicone.

Jack Shaft:
GI rod Ø12mm across the blade length with 10mm square end x 25mmL to suit actuator.

Jack Shaft Holder:
Die pressed GI steel 152.9mm x 82.2mm x 1.5mm thick with Ø12.7mm ball bearing.

Minimum Size:
200W x 150H mm with single blade construction up to 250mm height.

Maximum Size:
914W x 914H mm - Single section and 1828W x 1828H - Multiple Section

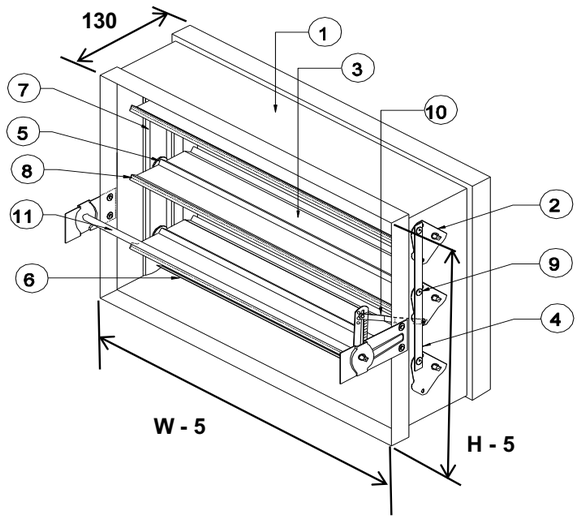
Mounting:
Vertical and Horizontal

UL Test Ratings

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: Tested to 4.5 inch W.G. and rated at 4 inch W.G.

Types

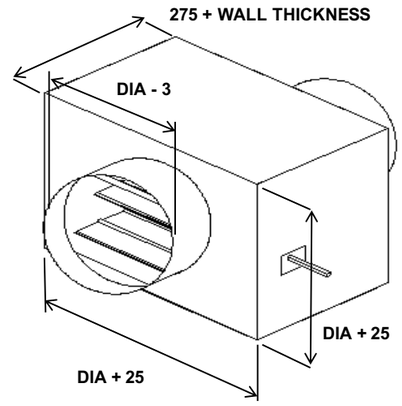
Sleeve Type
Model: SD - 40



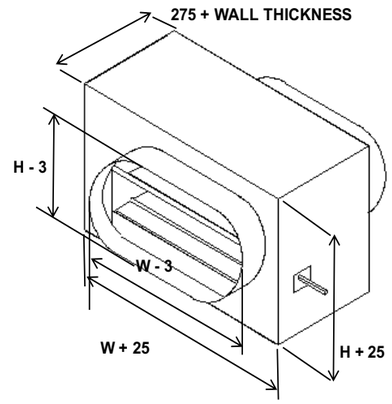
1. Casing (Frame)
2. Linkage Bracket
3. Blade
4. Linkage Bar
5. Bearings
6. Blade Stop
7. Side Seal
8. Blade Tip Seal
9. Lock Washer and GI Round Washer
10. Kneelock
11. Jackshaft

Types

Circular Type
Model: SD - 50

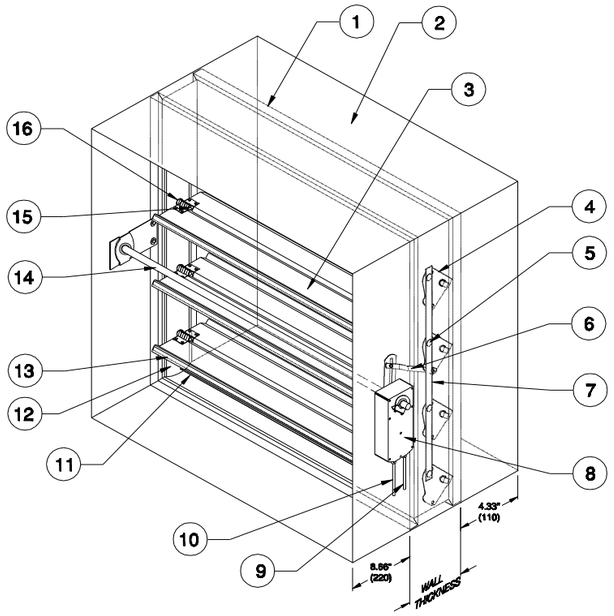


Flat Oval Tyoe
Model: SD - 60



Types

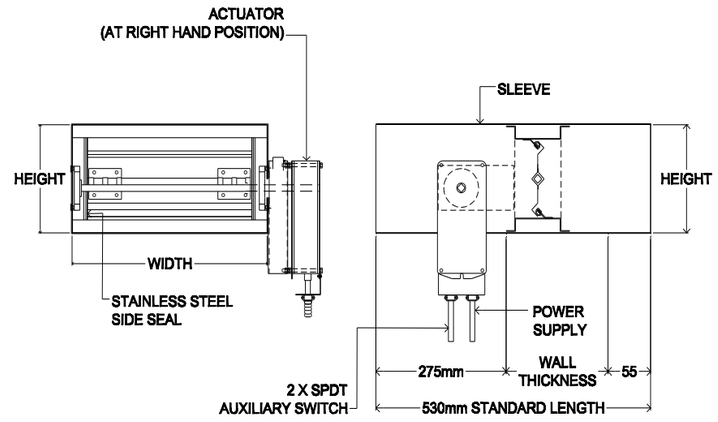
Smoke Damper with Factory Installed Sleeve and Actuator
Model: SD - 80



1. Damper Frame
2. Sleeve
3. Blade
4. Linkage Bracket
5. Lock Washer and Galvanized Round Washer
6. Kneelock
7. Linkage Bar
8. Actuator
9. Auxiliary Switch Cable for Indicating Damper Blades Position
10. Power Supply
11. Blade Stop
12. Stainless Steel Side Seal
13. Blade Tip Seal
14. Jackshaft
15. Axle
16. Bearing

Dimensions - Single Section

SD With Factory Installed Sleeve and Actuator
Model: SD - 80
Height: Up to 220 mm



Front View **Side View**

Schedule of Damper Sizes and Actuator Types

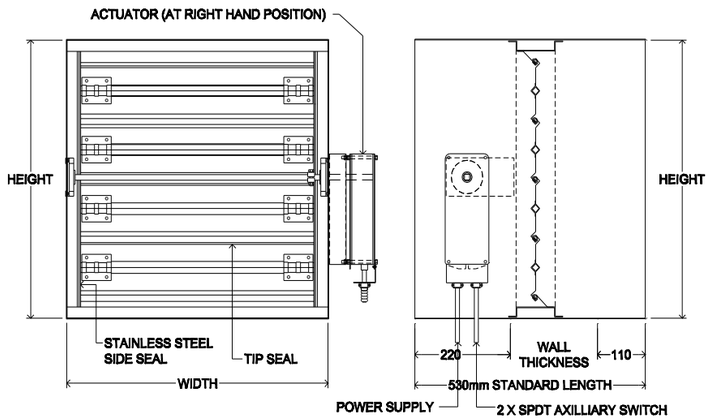
A. Single section damper with two position (open/close) spring retrun type actuators:

1. BELIMO Model: FSLF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5Nm for W = 610 mm maximum.
2. Model: MS8104F1210 / MS4604F1210 (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 swith.
Torque: 15 Nm for W = 914 mm maximum.

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

Dimensions - Single Section

SD With Factory Installed Sleeve and Actuator
Model: SD - 80
Height: Up to 914 mm



Front View **Side View**

Schedule of Damper Sizes and Actuator Types

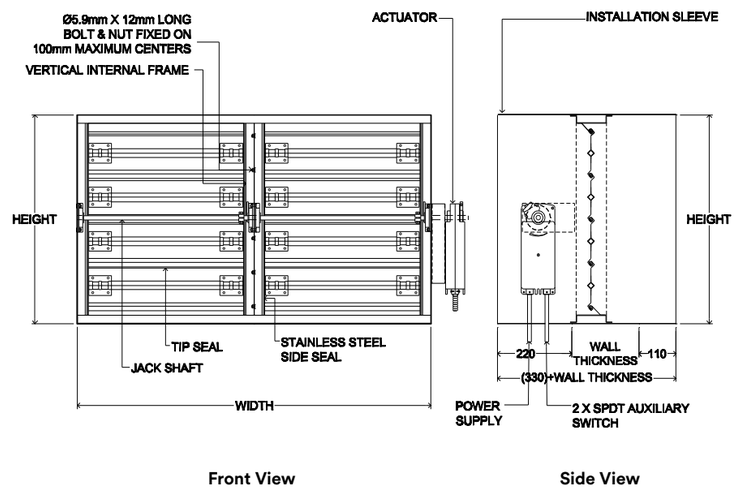
A. Single section damper with two position (open/close) spring retrun type actuators:

1. BELIMO Model: FSLF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5 Nm
Damper size: W=610mm maximum, H=406mm maximum
2. Model: MS8104F1210/MS4604F1210 (24 / 230VAC) with built-in auxiliary switch.
Torque: 3.5 Nm
Damper size: W=610mm maximum, H=406mm maximum
3. BELIMO Model: FSNF-S-US (24 / 230VAC) with built-in auxiliary switch.
Torque: 8 Nm
Damper size: W=610mm maximum, H=610mm maximum
4. BELIMO Model: BF-S-ME (24 / 230VAC) with built-in auxiliary swith.
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.

Dimensions - Multiple Section

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



Front View **Side View**

Schedule of Damper Sizes and Actuator Types

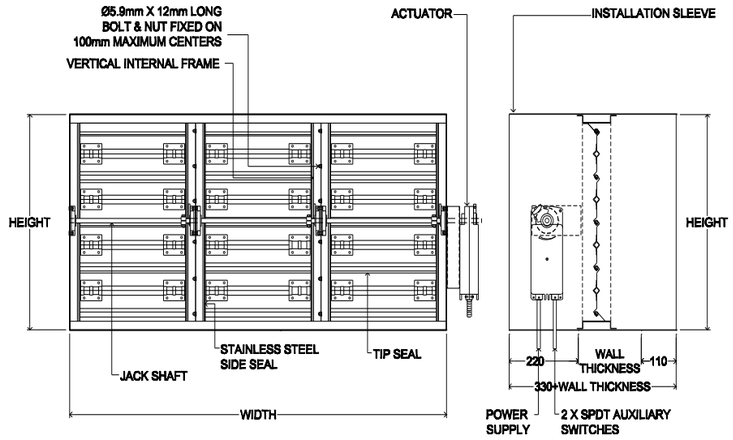
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (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

SD With Factory Installed Sleeve and Actuator
Model: SD - 80
Width: Up to 1828 mm
Height: Up to 914 mm



Front View **Side View**

Schedule of Damper Sizes and Actuator Types

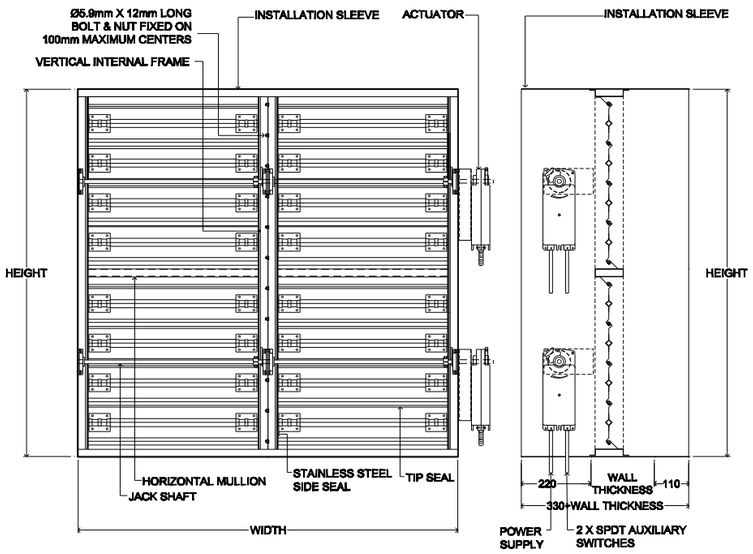
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (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

SD With Factory Installed Sleeve and Actuator
Model: SD - 80
Width: Up to 1200 mm
Height: Up to 1828 mm



Front View **Side View**

Schedule of Damper Sizes and Actuator Types

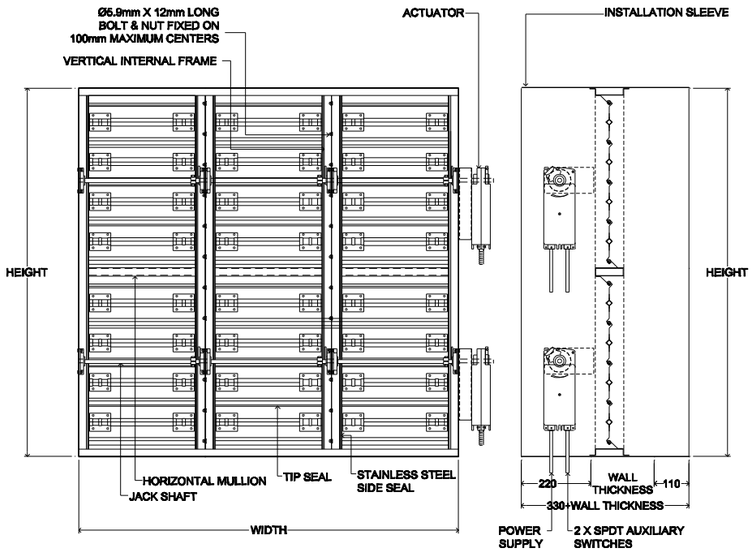
A. Multiple section damper with two position (open/close) spring retrun type actuators:

1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (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

SD With Factory Installed Sleeve and Actuator
Model: SD - 80
Width: Up to 1828 mm
Height: Up to 1828 mm



Front View **Side View**

Schedule of Damper Sizes and Actuator Types

A. Multiple section damper with two position (open/close) spring retrun type actuators:

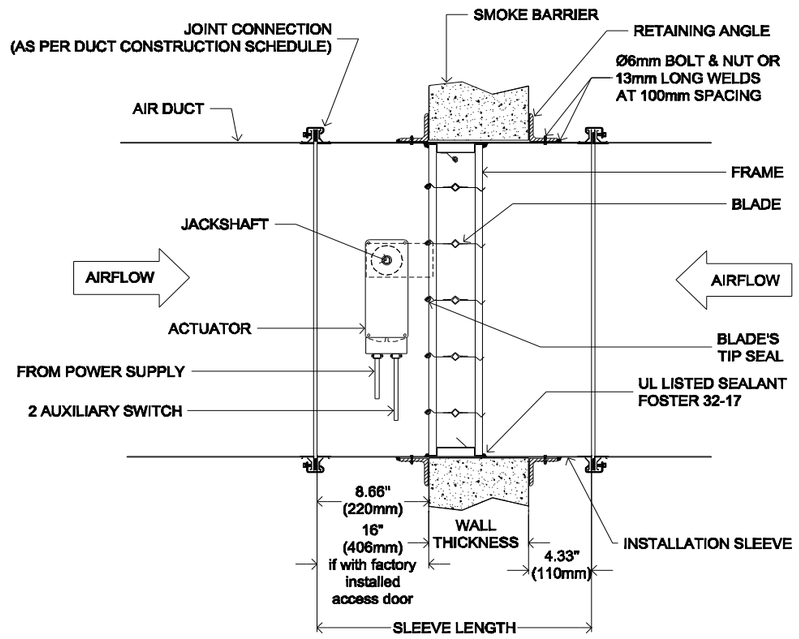
1. Model: MS4620F1203 (230VAC) with built-in auxiliary switch.
MS8120F1200 (24VAC) with built-in auxiliary switch.
Torque: 20 Nm

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.

Installation Details

SD with Factory Installed Sleeve and Actuator
Model: SD - 80

Typical Installation



Notes:

1. Airflow can be at opposite direction.
2. The actuator can be located in either side of the wall.
3. Refer to installation manual for further installation detail.

The Smoke Damper will be installed at the smoke barrier penetrations in accordance with NFPA 90A.

Actuators

Belimo Actuator
Model: FSLF

Belimo Actuator
Model: FSNF

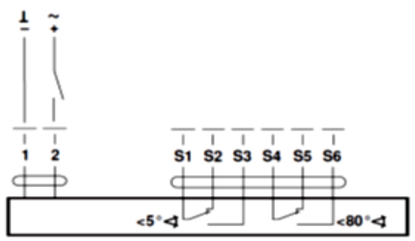
Belimo Actuator
Model: BF

Honeywell Actuator
Model: MS4620F1203

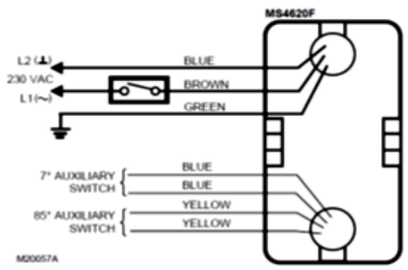
Sequence of Operation

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 remain 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



Belimo Actuator
Models: BF, FSNF and FSLF



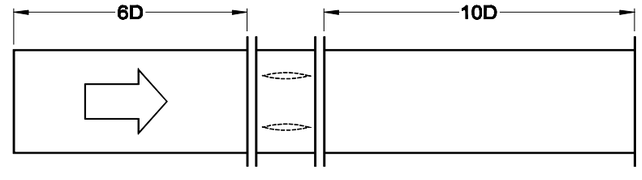
Honeywell Actuator
Model: MS4620F1203

Air Performance

Pressure Drop

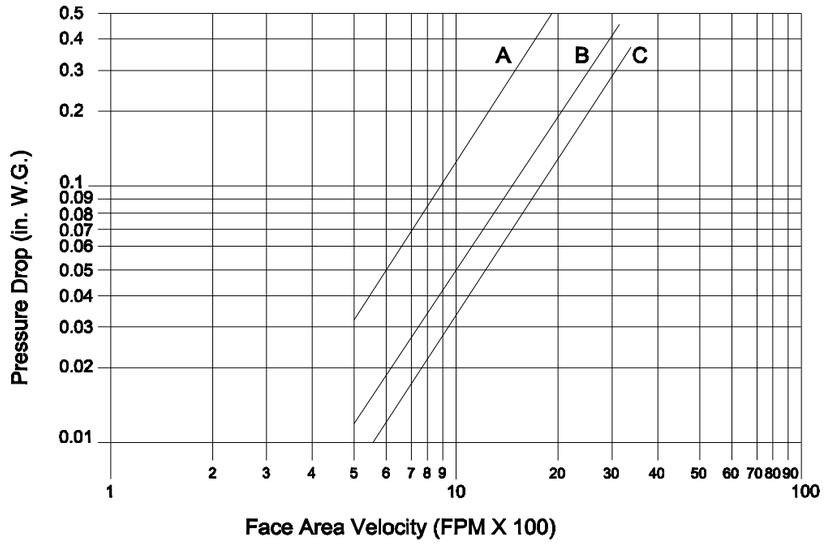
The test method for the pressure drop of the Smoke Damper was conducted as per ANSI/AMCA Standard 500-D, Figure 5.3 which simulate the actual site condition when installed in ventilation, supply and return air conditioning ductworks.

AMCA Test Figure 5.3



Pressure Drop at Face Area Velocity

A- Damper Size: 12in. x 12in. - Fully open blades
B- Damper Size: 24in. x 24in. - Fully open blades
C- Damper Size: 36in. x 36in. - Fully open blades



Order Details

Order Code SD-80 - 100 - 3V - PB - R - A1S - V1 / 500 x 500

Variants
SD-40 = Sleeve Type
SD-50 = Circular Spigot
SD-60 = Oval Spigot
SD-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

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

Actuators
Belimo, BF-S-ME
Belimo, FSNF-S-US
Belimo, FSLF-S-US
Honeywell, MS4620F1203

Duct Size
Width x Height or Diameter. All damper's spigot sizes (slip-in type) will be manufactured less than duct size to fit inside the ductwork connections.

Power Supply
V1 = 24 VAC
V2 = 230 VAC

ORDER REFERENCE DETAILS

Specifications

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 light partition walls designed as smoke barrier to restrict the spread of smoke. It shall be also used in Smoke Exhaust System and in Smoke Proof Stair Enclosure in accordance to NFPA 90A Standard for Installation of Air Conditioning and Ventilating Systems, and to NFPA 101 Life Safety Code.

Smoke dampers will be tested and classified by Underwriters Laboratories Inc. (UL) in accordance with the standards, UL 555S Standard for Safety, Smoke Dampers.

Smoke dampers will have a Leakage Resistance Rating of Class I at 350°F or Class II at 250°F elevated temperature. It shall be tested for heated air operation test with air velocity of 2400 FPM to be rated at 2000 FPM and the test pressure shall be 4.5 inch W.G. static pressure to be rated at 4 inch W. G. Pressure Class.

Smoke Damper shall be fitted with UL Listed BELIMO spring return actuator and shall be controlled by smoke detector. The power supply to the actuator shall be cut-off as soon as the smoke detector detect the smoke.

Damper blades will 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. Blade's axel shall be 9.5 × 9.5mm square forced-fit to one stub shaft, secured to blade with 4 pieces of bolt and nut, and with sintered bronze oilite axle bearing. Jamb seal/side seal shall be stainless steel to fill gap between blade's end and frame. Jackshaft shall be Ø12mm galvanized steel with a crank and kneelock secured to the linkage bracket. Damper frame shells will be Ga.16 galvanized steel formed into hat channel shape.

Order Example

SAFID Smoke Damper, 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.

Make: SAFID
Type: SD-80-100-3V-PB-R-A1S-V2
Size: 500 W x 500 H
Qty: 1

SMOKE DAMPERS

SMD 30 - 100

SMD SERIES
FLANGE TYPE

Description

Smoke dampers type SMD 30 provide an automatic means of localizing areas of smoke in ventilation systems. It prevent the distribution of smoke through ventilation ductworks. SMD combined with low leakage characteristic for smoke management, is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. SMD is available for rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame:
160mm x 30mmx1.5mm (16 ga.) galvanized steel, formed channel for flange connections.

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

Finish:
Mill galvanized.

Linkage:
Side linkage concealed in frame for parallel blade operation is standard.
Face linkage available (optional).
Linkage consist of 6mm dia. S/S pivot pins.

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

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

Minimum Size:
100 × 100mm, damper up to 250mm high is single blade construction.

Maximum Size:
1200 × 1800mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

SMD 30 - 110
General construction as type SMD 30 - 100 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

SMD 30 - 120
General construction as type SMD 30 - 100 damper but with frame, blades shafts and blade to shaft fixing and linkage all from stainless steel (Grade 304).

SMOKE DAMPERS

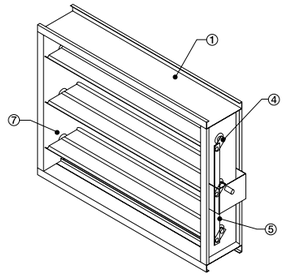
SMD SERIES [SMD 30 - 100, SMD 30 - 110, SMD 30 - 120]

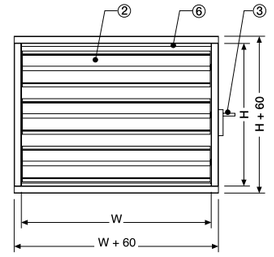
Dimensions

1 - Casing
2 - Blade
3 - Drive Shaft
4 - Side Linkage
5 - Linkage Bar
6 - Landing Angles
7 - Bearing

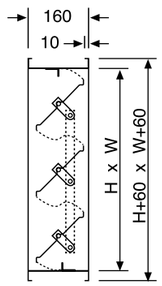
Flange Type

SMD 30 - 100, 110, 120





Flange Type, Parallel Blades



Parallel Blade (PB)

Standard Sizes

Width (mm)	Height (mm)	No. of Blades
100	100	1
150	150	1
200	200	1
250	250	1
300	300	2
350	350	2
400	400	2
450	450	2
500	500	3
550	600	3
600	700	4
650	800	5
700	900	5
750	1000	6
800	1100	7
850	1200	7
900	1300	8
950	1400	9
1000	1500	9
1050	1600	10
1100	1700	11
1200	1800	12

SMOKE DAMPERS

SMD 40 - 100

SMD SERIES
SLEEVE TYPE

Description

Smoke dampers type SMD 40 provide an automatic means of localizing areas of smoke in ventilation systems. It prevent the distribution of smoke through ventilation ductworks. SMD combined with low leakage characteristic for smoke management, is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. SMD is available for rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame:
100mm x 40mm x 1.5mm (16 ga.) galvanized steel, structurally designed hat section.

Blades:
300mm max. width, 1.5mm (16 ga.) galvanized steel.

Finish:
Mill galvanized.

Linkage:
Face linkage for parallel blade operation is standard.
Face linkage parallel blades available (optional).
Linkage consist of 6mm dia. S/S pivot pins.

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

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

Minimum Size:
100 x 100mm, damper up to 300mm high is single blade construction.

Maximum Size:
1200 x 1800mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

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

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

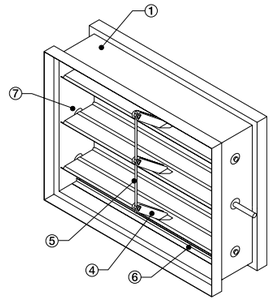
SMD SERIES [SMD 40 - 100, SMD 40 - 110, SMD 40 - 120]

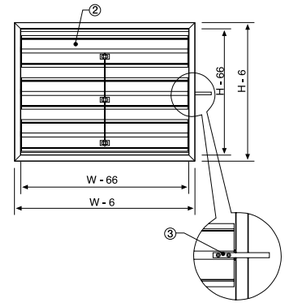
Dimensions

1 - Casing
2 - Blade
3 - Drive Shaft /Removable Spindle (when required)
4 - Side Linkage
5 - Linkage Bar
6 - Landing Angles

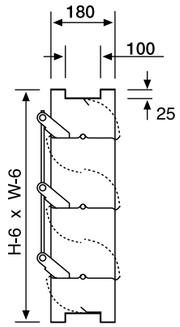
Circular Spigot Type

SMD 40 - 100, 110, 120





Sleeve Type, Parallel Blades



Parallel Blade (PB)

Standard Sizes

Width (mm)	Height (mm)	No. of Blades
100	100	1
150	150	1
200	200	1
250	250	1
300	300	1
350	350	2
400	400	2
450	450	2
500	500	2
550	600	3
600	700	4
650	800	4
700	900	4
750	1000	6
800	1100	6
850	1200	7
900	1300	8
950	1400	8
1000	1500	9
1050	1600	10
1100	1700	11
1200	1800	12
1200		

SMD 50 - 100

SMD SERIES
CIRCULAR SPIGOT TYPE

Description

Smoke dampers type SMD 50 provide an automatic means of localizing areas of smoke in ventilation systems. It prevent the distribution of smoke through ventilation ductworks. SMD combined with low leakage characteristic for smoke management, is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick and lightweight partition walls. SMD is available for rectangular, square, circular and flat oval duct fixings.

Standard Construction

Frame:
180mm x 1.5mm (16 ga.) galvanized steel, spigot type 380mm wide with circular spigot duct connection.

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

Finish:
Mill galvanized.

Linkage:
Side linkage for parallel blade operation is standard.
Face linkage parallel blades available (optional).
Linkage consist of 6mm dia. S/S pivot pins.

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

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

Minimum Size:
100 mm diameter, damper up to 250mm dia. 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.

SMD 50 - 110
General construction as type SMD 50 - 100 damper but blades, shafts and blade to shaft fixing in stainless steel (Grade 304).

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

SMOKE DAMPERS

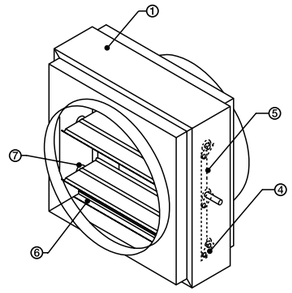
SMD SERIES [SMD 50 - 100, SMD 50 - 110, SMD 50 - 120]

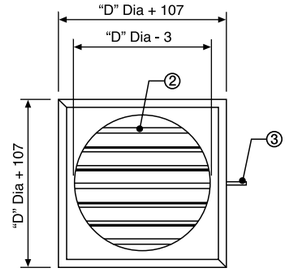
Dimensions

1 - Casing
2 - Blade
3 - Drive Shaft
4 - Side Linkage
5 - Linkage Bar
6 - Landing Angles
7 - Bearing
8 - Spigot Case

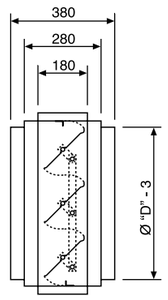
Circular Spigot Type

SMD 50 - 100, 110, 120





Circular Spigot Type, Parallel Blades



Parallel Blade (PB)

Standard Sizes

Diameter (mm)	No. of Blades
100	1
150	1
200	1
250	2
300	2
350	2
400	2
450	3
500	4
600	4
700	4
800	5
900	6
1000	7

SMOKE DAMPERS

SMD 60 - 100

SMD SERIES
OVAL SPIGOT TYPE

Description

Smoke dampers type SMD 60 provide an automatic means of localizing areas of smoke in ventilation systems. It prevent the distribution of smoke through ventilation ductworks. SMD combined with low leakage characteristic for smoke management, is suitable for installation in sheet metal ductworks or in walls or ceiling slabs made from concrete, brick & lightweight partition walls. SMD is available for rectangular, square, circular & flat oval duct fixings.

Standard Construction

Frame:
180mm x 1.5mm (16 ga.) galvanized steel, spigot type 380mm wide with oval spigot duct connection.

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

Finish:
Mill galvanized.

Linkage:
Side linkage for parallel blade operation is standard.
Face linkage parallel blades available (optional).
Linkage consist of 6mm dia. S/S pivot pins.

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

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

Minimum Size:
200 x 100mm, damper up to 250mm high is single blade construction.

Maximum Size:
1000 x 900mm, as single section.
Multiple section assembly with unlimited size, where each section operates independently.

For details of multiple sections consult SAFID.

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

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

OVAL SPIGOT TYPE SMOKE DAMPER

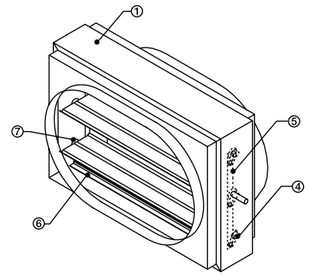
SMD SERIES [SMD 60 - 100, SMD 60 - 110, SMD 60 - 120]

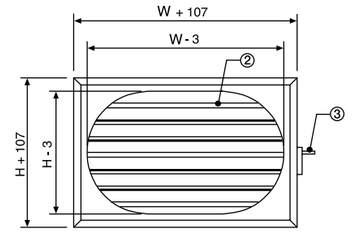
Dimensions

1 - Casing
2 - Blade
3 - Drive Shaft
4 - Side Linkage
5 - Linkage Bar
6 - Landing Angles
7 - Bearing
8 - Spigot Case

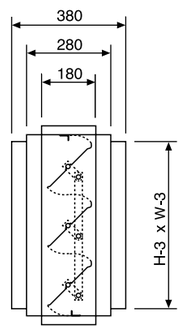
Oval Spigot Type

SMD 60 - 100, 110, 120





Oval Spigot Type, Parallel Blades



Parallel Blade (PB)

Standard Sizes

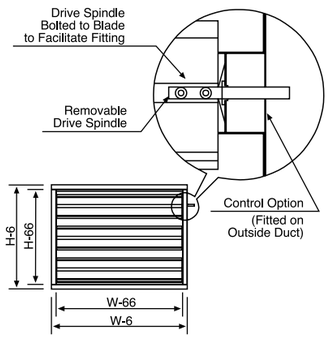
Width (mm)	Height (mm)	No. of Blades
200	100	1
250	150	1
300	200	1
350	250	1
400	300	2
450	350	2
500	400	2
550	450	2
600	500	3
650	600	3
700	700	4
750	800	5
800	900	6
850		
900		
950		
1000		

SMOKE DAMPERS

Materials Construction

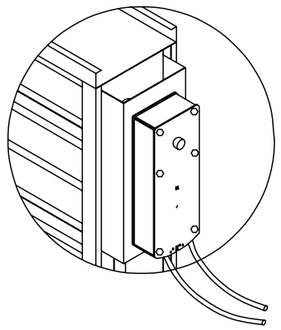
Removable Spindle

For Sleeve Type Only



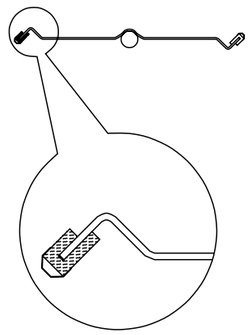
Mounting Bracket

Damper with Mounting Bracket for Actuator



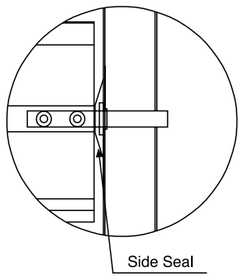
Blade Seal

Type S1 (Silicone Rubber)



Side Seal (Jamb Seal)

Type S2 (Stainless Steel Type 304)

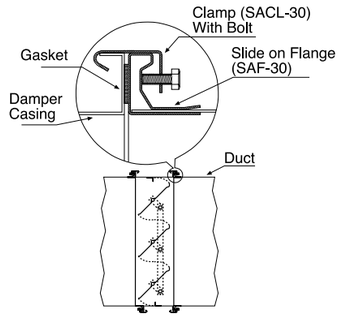


Note: Type S3 (Combination of S1 & S2)

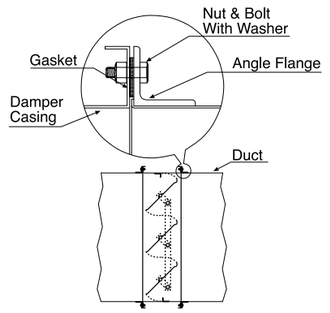
Installation Details

Flange Type SMD 30

Damper to Slide On Flange Connection

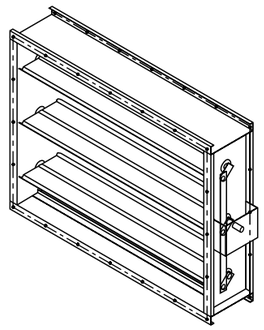


Damper to Flange Connection



Flange Installation Detail

Flange Drilling Details, Type SMD 30

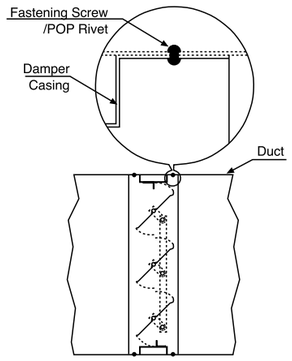


Flange Drilling Details

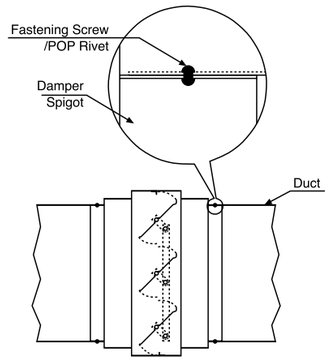
Width (mm)	Height (mm)	No. of Holes B Dim.	No. of Holes H Dim.
100	100	1	2
150	150	2	2
200	200	2	2
250	250	2	3
300	300	3	3
350	350	3	4
400	400	4	4
450	450	4	4
500	500	4	5
600	600	5	6
700	700	6	6
800	800	7	7
900	900	8	8
1000	1000	8	9
1100	1100	9	10
1200	1200	10	10
	1300		11
	1400		12
	1500		13
	1600		14
	1700		14
	1800		15

Installation Details

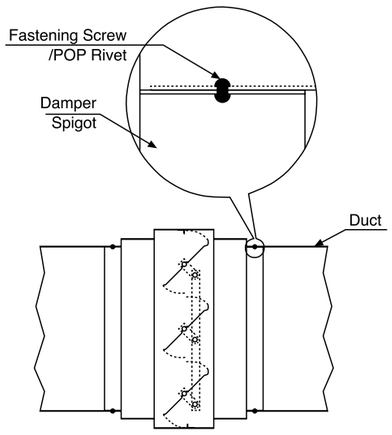
For Sleeve type, SMD 40



Circular Type, SMD 50



Oval type SMD 60



Product Range

Seals

Construction Variants	Description
S	No seals. Not applicable.
S1	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.
S2	Side seals. Fitted to close gap between frame and blades. Not applicable.
S3	Combination of S1 & 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.

Linkage

Construction Variants	Description
PB	Side linkage concealed in frame forparallel blade operation. Face linkage available (optional).

Bearings

Construction Variants	Description
B1	Construction sintered bronze oilite.
B2	Stainless steel

Belimo Actuators

Code	Type/Model
A01	BF230 spring return
A02	BF24 spring return
A03	AF230 spring return
A04	AF230-S spring return with limit switch
A05	AF230 US spring return
A06	AF120 US spring return
A07	AF230-S US spring return with limit switch
A08	AF120-S US spring return with limit switch
A09	AF24 US spring return
A10	AF24-S US spring return with limit switch
A11	AF24-SR spring return
A12	NF24 US spring return
A13	NF120 US spring return
A14	NF24-S US spring return with limit switch
A15	NF120-S US spring return with limit switch
A16	NF24-SR US Modulating
A17	SM230A open/closed
A18	SM24A open/closed
A19	SM230A-SR Modulating
A20	NM230 open/closed
A21	NM24 open/closed
A22	NM24 SR Modulating
A23	GM240 open/closed
A24	GM24 open/closed
A25	GM24-SR Modulating

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

ORDER REFERENCE DETAILS

Order Details

Order Code SMD 30 - 100 - PB - S1 - B1 - R / 500 x 500 - A01

Variants
*SMD 30 = Flange (Standard Supply)
SMD 40 = Sleeve
SMD 50 = Circular Spigot
SMD 60 = Oval Spigot

Types
*100 (Standard Supply)
110
120

Variants - Blade Operation
*PB = Side Linkage Parallel (Standard Supply)
Face Linkage (optional)

Variants - Seals
S = None (not applicable)
S1 = Blade Seals Only (not applicable)
S2 = Side Seal (not applicable)
*S3 = Side Seal & Blade Seals (Standard Supply)

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

External Controls
* “R” = Right Hand (Standard Supply)
“L” = Left Hand

Duct Size
- Square or rectangular Dimensions ‘W’ x ‘H’ mm.
- Circular ‘D’ mm dia.
- Flat oval ‘W’ x ‘H’ mm.
- All damper spigots are manufactured down on duct size to fit inside ductwork connections.

Actuators
(See page 225)

***-Stands for Standard Supply**

Specifications

Rectangular, square, circular and flat oval Smoke Dampers designed for the smoke isolation of sections of ducting in ventilation systems. Flanged casing, shut off blades with overlapping interlocking joints and with side seals and blade seals for low leakage options (when required). Blades are connected by side linkage for parallel action and face linkage parallel action also available.

Order Example

Standard
Make: SAFID
Type: SMD 30 - 100 PB - S3 - B1 - R - 500x500 / A01
Qty: 1

BELIMO DAMPER ACTUATORS

SPRING-RETURN OPEN CLOSE ACTUATOR

OPEN/CLOSE ACTUATOR [230V AC, 24V AC/DC]

BF 230-ME, BF 24-ME (SPRING-RETURN)

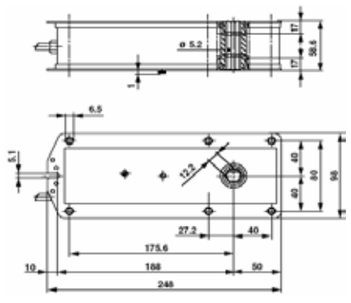
CODE: A1

Mode of Operation:
The actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

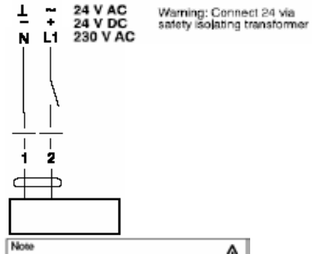
Manual Operations:
Without power supply, the damper can be operated manually and fixed in any required position. Release of the locking mechanism can be achieved manually or automatically by applying the supply voltage.

Technical Data	BF 230-ME	BF 24-ME
Nominal Voltage	AC 230 V, 50/60 Hz	AC 24 V, 50/60 Hz/ DC 24 V
Nominal Voltage Range	AC 198 - 264 V	AC 19.2 - 28.8 V DC 21.6 - 28.8 V
Power Consumption		
• Monitoring	11 W @ nominal torque	8 W @ nominal torque
• Holding	3.5 W	2 W
• For wire Sizing	12 VA / Imax. 500 mA @ 5 ms	11 VA / Imax. 8.3 A @ 5 ms
Connecting	Cable 1 m, 2 × 0.75 m² (halogen-free)	
Torque		
• Motor	Min. 15 Nm	
• Spring-Return	Min. 15 Nm	
Running Time		
• Motor	< 75 s	
• Spring-Return	< 20 s (tamb = 20° C)	
Sound Power Level		
• Motor	Max. 45 dB (A)	
• Spring-Return	~62 dB (A)	
Position Indication	Mechanical with Pointer	
Certification	cULus According to UL873 and CAN/ CSA C22.2 No. 24 Designed to meet UL555S Certified to IEC/EN 60730-1 and IEC/ EN 60730-2-14	
Maintenance	Maintenance-free	
Weight	Approx 3.0 kg	2.7 kg

Dimensions



Wiring Diagram



OPEN/CLOSE ACTUATOR [230V AC, 24V AC/DC]

BF 230-S-ME, BF 24-S-ME (SPRING-RETURN)

CODE: A1S

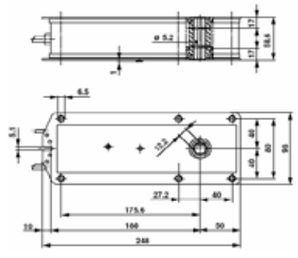
Mode of Operation:
The actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

Signalling:
Two microswitches with fixed settings are installed in the actuator for indicating the damper end positions. The position of the damper blade can be read off on a mechanical position indicator.

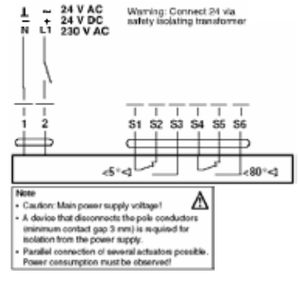
Manual Operation:
Without power supply, the damper can be operated manually and fixed in any required position. Release of the locking mechanism can be achieved manually or automatically by applying the supply voltage.

Technical Data	BF 230-S-ME	BF 24-S-ME
Nominal Voltage	AC 230 V, 50/60 Hz	AC 24 V, 50 60 Hz/ DC 24 V
Nominal Voltage Range	AC 198 - 264 V	AC 19.2 - 28.8 V DC 21.6 - 28.8 V
Power Consumption		
• Monitoring	11 W @ nominal torque	8 W @ nominal torque
• Holding	3.5 W	2 W
• For wire Sizing	12 VA / Imax. 500 mA @ 5 ms	11 VA / Imax. 8.3 A @ 5 ms
Auxillary Switch	2 x SPDT	
• Contact Rating	1 mA... 6 A (3 A), DC 5 V - AC 250 ▭	
• Switching Points	5° ⊀ / 80° ⊀	
Connecting		
• Motor	Cable 1 m, 2 × 0.75 mm² (halogen-free)	
• Auxiliary Switch	Cable 1 m, 6 × 0.75 mm² (halogen-free)	
Torque		
• Motor	Min. 15 Nm	
• Spring-Return	Min. 15 Nm	
Running Time		
• Motor	< 75 s	
• Spring-Return	< 20 s (tamb = 20° C)	
Sound Power Level		
• Motor	Max. 45 dB (A)	
• Spring-Return	~62 dB (A)	
Position Indication	Mechanical with Pointer	
Certification	cULus According to UL873 and CAN/ CSA C22.2 No. 24 Designed to meet UL555S Certified to IEC/EN 60730-1 and IEC/ EN 60730-2-14	
Maintenance	Maintenance-free	
Weight	Approx 3.1 kg	2.8 kg

Dimensions



Wiring Diagram



SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 3M²

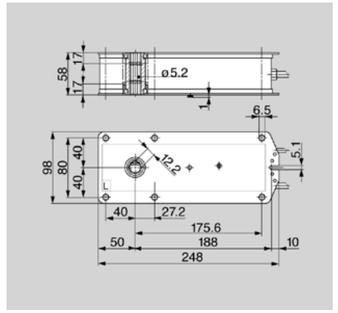
OPEN/CLOSE ACTUATOR [230V AC, 24V AC/DC]
BF 230, BF 24 (SPRING-RETURN)

CODE: A01 & A02

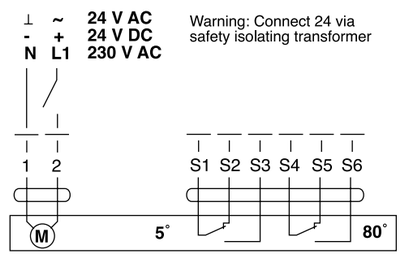
Application:
The type BF 230/BF 24 spring return actuator is intended for the operation of fire and smoke dampers in ventilation and A/C systems.

Mode of Operation:
The BF 230/BF 24 actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

Dimensions



Wiring Diagram



Technical Data	BF 230	BF 24
Power Supply	220-240 V AC 50/60 Hz	24V AC (+ -) 20% 24V AC (+ -) 10%
Power Consumption		
• Monitoring	8 W	7W
• Holding	3 W	2W
For Wire Sizing	12.5 VA	10 VA
Protection Class	II	III
Degree of Protection	IP 54	
Auxiliary Switch	2x SPDT 6(3)A, 250V AC ▭	
Switching Points	5°, 80°	
Connecting Cable	-Motor -Auxillary Swatches	1m, 2 × 0.75 mm² 1m, 6 × 0.75 mm²
Angle of Rotation	95° (including 5 spring pretensioning)	
Damper Rotation	12mm form-fit (10mm with adapter supplied)	
Torque	-Motor -Spring Return	min. 18 Nm min. 12 Nm
Running Time	-Motor -Spring Return	140s ~16s (@ tamb = 20° C)
Direction of Rotation	Selected by Mounting L/R	
Position Indication	Mechanical with Pointer	
Ambient Temp. Range	-30 to +50 °C	
Safe Temperature	-30 to +75 °C (24h guaranteed safety)	
Non-Operating Temp.	-40 to +80 °C	
Ambient Humidity	Class D to DIN 40040	
EMC	CE According to 89/336/EEC and 92/31/EEC	
Sound Power Level	Motor Max. 45 dB (A); spring ~ 62 dB(A)	
Service Life	Min. 60000 Safe Positions	
Maintenance	Maintenance-free	
Weight	3100 g	2800 g

BELIMO DAMPER ACTUATORS

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 3M²

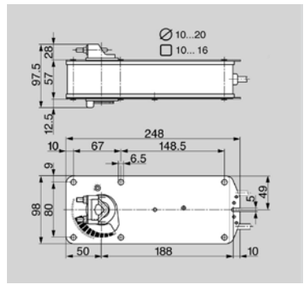
CODE: A03 & A04

OPEN/CLOSE ACTUATOR [230V AC]
AF 230, AF 230-S (SPRING-RETURN)

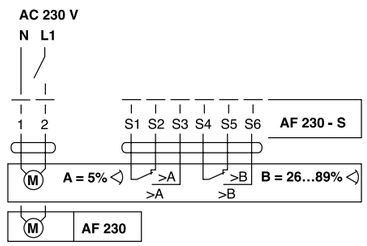
Application:
The type AF 230/AF 230-S spring return actuator are intended for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.).

Mode of Operation:
The AF 230/AF 230-S actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the ower supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

Variable End Switch
The AF 230-S actuator has one fixed auxiliary switch and one adjustable auxiliary switch which allows angle of rotation of 5% and between 26 - 89% to be signalled



Wiring Diagram



Technical Data	AF 230	AF 230-S
Power Supply	230 V AC, 50/60 Hz	
Nominal Voltage Range	AC 198 - 264 V	
Power Consumption		
• Monitoring	6.5 W	
• Holding	2.5 W	
For Wire Sizing	11 VA	
Protection Class	II (all insulated)	
Degree of Protection	IP 54	
***Auxiliary Switch AF-S**	2x SPDT 6(3)A, 250V AC ▭	
Switching Points	fixed 5% ⚹, adjustable 26...89% ⚹	
Connecting Cable ***AF... - S**	-Motor -Auxillary Swatches	1m, 2 × 0.75 mm² 1m, 6 × 0.75 mm²
Angle of Rotation	Max. 95° (adj. 26...95% ⚹ with supplied limit stop).	
Torque	-Motor -Spring Return	min. 15 Nm (at rated voltage) min. 15 Nm
Running Time	-Motor -Spring Return	150s ≈ 16s
Direction of Rotation	Selected by Mounting L/R	
Position Indication	Mechanical	
Ambient Temp. Range	-30 to +50 °C	
Non-Operating Temp.	-40 to +80 °C	
Ambient Humidity	to EN 60335-1	
EMC	CE According to 89/336/EEC & 92/31/EEC	
Sound Power Level	Motor Max. 45 dB (A); spring ≈ 62 dB(A)	
Service Life	Min. 60000 Safe Positions	
Maintenance	Maintenance-free	
Weight	3300 g	

* Switch applies for model AF 230-S

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 3M²

OPEN/CLOSE ACTUATOR [230V AC, 120V AC]

AF 230, AF 120 US (SPRING-RETURN)

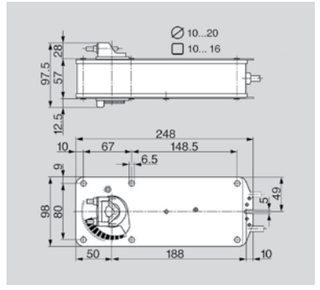
CODE: A05 & A06

Application:
For on-off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specs. Control is on-off from an auxillary contact, or a manual switch.

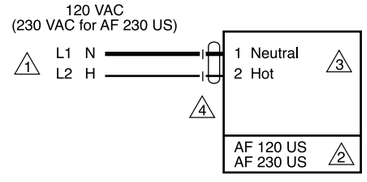
Mode of Operation:
The AF series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provide consistent torque to the damper with and without power applied to the actuator.

Technical Data	AF 230	AF 120 US
Power Supply	230 VAC (+-) 14% 50/60Hz	120 VAC (+-) 10%
Power Consumption		
• **Monitoring**	running: 6.5 W	6 W
• **Holding**	holding: 2.5 W	2.3 W
Transormer Sizing	11 VA	10 VA
Electrical Connection	3 ft, 18 GA appliance cable 1/2" conduit connection.	
Overload Protection	electronic throughout 0 to 95° rotation.	
Angle Rotation	95°, adjustable 30 to 95° w/ accessories	
Torque	133 in-lb [15Nm] constant	
Direction of Rotation	Spring Return can be Selected by L/R Mounting.	
Position Indication	Visual Indicator, -5° to 90° (-5° is spring return position).	
Manual Override	3mm hex crank (shipped w/ actuator)	
Running Time	150 sec. constant, independent of load, spring return < 20 sec	
Humidity	5 to 95% RH noncondensing	
Ambient Temperature	-22 °F to 122 °F [-30 °C to +50 °C]	
Storage Temperature	-40 °F to 175 °F [-40 °C to 80 °C]	
Housing	NEMA type 2 / IP54	
Housing Material	Zinc coated steel	
Agency Listings	UL 873 listed, CSA 4813 02 certified	
Noise Level	Max. 45 dB (A)	
Servicing	Maintenance-free	
Quality Standard	ISO 9001	
Weight	6.9 lbs (3.1 kg.)	

Dimensions



Wiring Diagram



1. Provide overload protection & disconnect as required.
2. Actuator may be connected in parallel. Power Consuption must be observed.
3. No ground connection is required.
4. Meets UL & CSA requirements without the need of an electrical ground connection.

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 3M²

CODE: A07 & A08

OPEN/CLOSE ACTUATOR [230V AC, 120V AC]

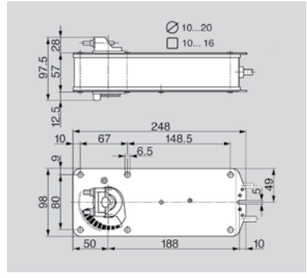
AF 230-S, AF 120-S US (SPRING-RETURN)

Application:
For on-off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specs. Control is on-off from an auxillary contact, or a manual switch.

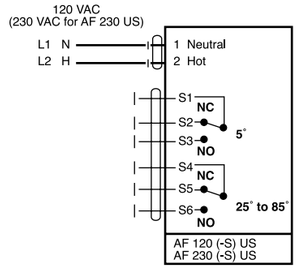
Mode of Operation:
The AF series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provide consistent torque to the damper with and without power applied to the actuator.
The actuators is provided with 2 built in auxiliary switches. The SPDT switches are provided for safety interfacing or signalling, for example for fan start up.

Technical Data	AF 230-S	AF 120-S US
Power Supply	230 VAC (+-) 14% 50/60Hz	120 VAC (+-) 10%
Power Consumption		
• **Monitoring**	running: 6.5 W	6 W
• **Holding**	holding: 2.5 W	2.3 W
Transormer Sizing	11 VA	10 VA
Electrical Connection	3 ft, 18 GA appliance cable 1/2" conduit connection.	
Overload Protection	Electronic throughout 0 to 95° rotation.	
Angle Rotation	95°, adjustable 30 to 95° w/ accessories	
Torque	133 in-lb [15Nm] constant	
Direction of Rotation	Spring Return can be Selected by L/R Mounting	
Position Indication	Visual Indicator, -5° to 90° (-5° is spring return position).	
Manual Override	3mm hex crank (shipped w/ actuator)	
Auxiliary Switches	2xSPDT 7A (2.5A) @ 250 VAC, UL listed	
AF...-S	One set at +5°, one adjustable 25° to 85°.	
Running Time	150 sec. constant, independent of load, spring return < 20 sec	
Humidity	5 to 95% RH noncondensing	
Ambient Temperature	-22 °F to 122 °F [-30 °C to +50 °C]	
Storage Temperature	-40 °F to 175 °F [-40 °C to 80 °C]	
Housing	NEMA type 2 / IP54	
Housing Material	Zinc coated steel	
Agency Listings	UL 873 listed, CSA 4813 02 certified	
Noise Level	Max. 45 dB (A)	
Servicing	Maintenance-free	
Quality Standard	ISO 9001	
Weight	6.9 lbs (3.1 kg.)	

Dimensions



Wiring Diagram



BELIMO DAMPER ACTUATORS

Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 3M²

OPEN/CLOSE ACTUATOR [24V]

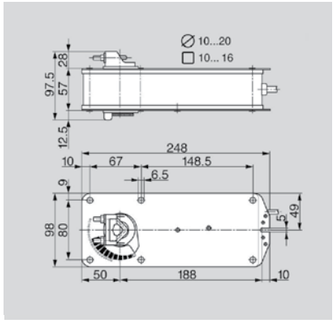
AF 24 US (SPRING-RETURN)

CODE: A09

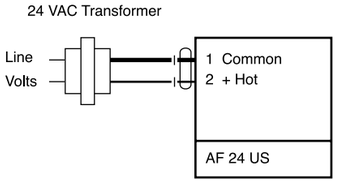
Application:
For on-off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specs. Control is on-off from an auxillary contact, or a manual switch.

Mode of Operation:
This actuator provides true spring return operation for reliable fail-safe application & positive close off on air tight dampers. The spring return system provide consistent torque to the damper with and without power applied to the actuator.

Dimensions



Wiring Diagram



Technical Data	AF 24 US
Power Supply	24 VAC (+-) 20%, 50/60Hz 24 VDC (+-) 10%
Power Consumption	running : 5W holding : 1.5W
Transormer Sizing	10 VA (class 2 power source)
Electrical Connection	3 ft, 18 GA appliance cable 1/2" conduit connection.
Overload Protection	Electronic throughout 0 to 95° rotation.
Angle Rotation	95°, adjustable 30 to 95° w/ accessories
Torque	133 in-lb [15Nm] constant
Direction of Rotation	Spring Return can be Selected by L/R Mounting.
Position Indication	Visual Indicator, -5° to 90° (-5° is spring return position).
Manual Override	3mm hex crank (shipped w/ actuator)
Running Time	150 sec. constant, independent of load, spring return < 20 sec
Humidity	5 to 95% RH noncondensing
Ambient Temperature	-22 °F to 122 °F [-30 °C to +50 °C]
Storage Temperature	-40 °F to 176 °F [-40 °C to 80 °C]
Housing	NEMA type 2 / IP54
Housing Material	Zinc coated steel
Agency Listings	UL 873 listed, CSA 4813 02 certified
Noise Level	Max. 45 dB (A)
Servicing	Maintenance-free
Quality Standard	ISO 9001
Weight	6.0 lbs (2.7 kg.)

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 3M²

OPEN/CLOSE ACTUATOR [230V AC, 120V AC]

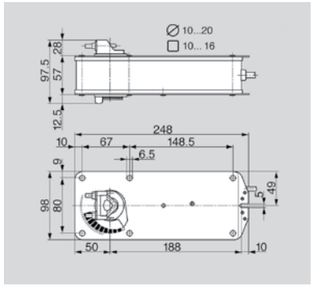
AF 24-S US (SPRING-RETURN)

CODE: A10

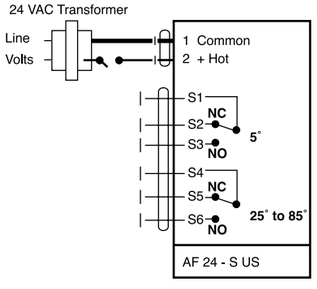
Application:
For on-off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specs. Control is on-off from an auxillary contact, or a manual switch.

Mode of Operation:
This actuator provides true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provide consistent torque to the damper with and without power applied to the actuator. The AF 24-S US us is provided with 2 built in auxiliary switches. The SPDT switches are provided for safety interfacing or signalling, for example for fan start up.

Dimensions



Wiring Diagram



Technical Data	AF 24-S US
Power Supply	24 VAC (+-) 20%, 50/60Hz 24 VDC (+-) 10%
Power Consumption	running : 5W holding : 1.5W
Transormer Sizing	10 VA (class 2 power source)
Electrical Connection	3 ft, 18 GA appliance cable 1/2" conduit connection.
Overload Protection	Electronic throughout 0 to 95° rotation.
Angle Rotation	95°, adjustable 30 to 95° w/ accessories
Torque	133 in-lb [15Nm] constant
Direction of Rotation	Spring Return can be Selected by L/R Mounting.
Position Indication	Visual Indicator, -5° to 90° (-5° is spring return position).
Manual Override	3mm hex crank (shipped w/ actuator)
Auxiliary Switches	2xSPDT 7A (2.5A) @ 250 VAC, UL listed
AF24S	One set at +5°, one adjustable 25° to 85°.
Running Time	150 sec. constant, independent of load, spring return < 20 sec
Humidity	5 to 95% RH noncondensing
Ambient Temperature	-22 °F to 122 °F [-30 °C to +50 °C]
Storage Temperature	-40 °F to 176 °F [-40 °C to 80 °C]
Housing	NEMA type 2 / IP54
Housing Material	Zinc coated steel
Agency Listings	UL 873 listed, CSA 4813 02 certified
Noise Level	Max. 45 dB (A)
Servicing	Maintenance-free
Quality Standard	ISO 9001
Weight	6.0 lbs (2.7 kg.)

BELIMO DAMPER ACTUATORS

Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

SPRING-RETURN MODULATING ACTUATOR FOR DAMPERS UP TO 3M²

MODULATING ACTUATOR [24V]

AF 24-SR (SPRING-RETURN)

CODE: A11

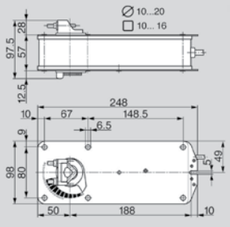
Control: DC0 - 10V or 0 - 20V phase cut
Position Feedback: DC2 - 10V
Manual operation with integral position stop

Application:
For the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene)

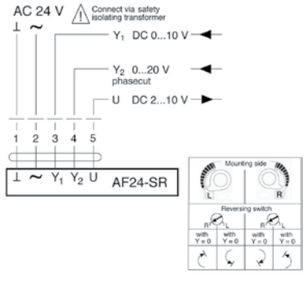
Mode of Operation:
The AF24-SR actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

Variable End Switch:
The actuator has one fixed auxiliary switch and one adjustable auxiliary switch whic allows angle of rotation of 5% and between 26 - 89% to be signalled.

Dimensions



Wiring Diagram



Technical Data	AF 24-SR	
Power Supply	AC 24 V, 50/60 Hz	
Nominal Voltage Range	AC 19.2 - 28.8 V	
Power Consumption	monitoring 6W holding 2.5W	
For Wire Sizing	10 VA	
Protection Class	III (safety extra- low voltage)	
Degree of Protection	IP 54	
Connecting Cable	-Motor 1m, 5 × 0.75 mm²	
Control Signal Y_1	DC 0 - 10V @ input resistance 100kΩ (0.1mA)	
Control Signal Y_2	0 - 20V phasecut @ input resistance 8kΩ (50mW)	
Operating Range	DC 2 - 10V (at control signal Y_1) 2 - 10V phasecut (at control signal Y_2)	
Measuring Voltage U	DC 2 - 10V @ max.0.5mA (for 0..100% angle of rotation).	
Synchronisation Tolerance	(+-) 5%	
Direction of Rotation	Motor selected with switch L/R spring selected by L/R Mounting	
Torque	-Motor	min. 15Nm (at rated voltage)
	-Spring Return	min. 15 Nm
Angle of Rotation	Max. 95° (adj. 26...95% < with supplied limit stop).	
Running Time	-Motor 150s, spring return ~15s	
Sound Power Level	Motor Max. 45 dB (A); spring ~ 62 dB(A)	
Service Life	Min. 60000 operations	
Position Indication	Mechanical	
Ambient temp. Range	-30 to +50 °C	
Non-Operating Temp.	-40 to +80 °C	
Ambient Humidity	To EN 60335-1	
EMC	CE According to 89/336/EEC & 92/31/EEC	
Maintenance	Maintenance-free	
Weight	3180 g : AF230S = 3370 g	

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 1.5M²

OPEN/CLOSE ACTUATOR [24V, 120C AC]

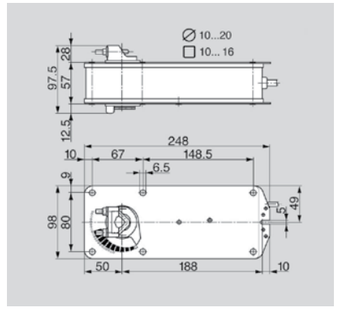
NF 24 US, NF 120 US (SPRING-RETURN)

CODE: A12 & 13

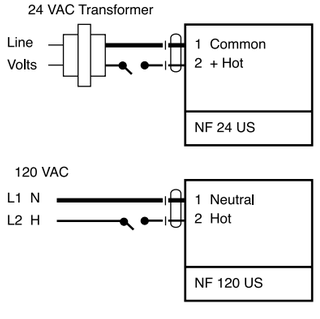
Application:
For on-off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specs. Control is on-off from an auxillary contact, or a manual switch.

Mode of Operation:
The NF series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provide consistent torque to the damper with and without power applied to the actuator.

Dimensions



Wiring Diagram



Technical Data	NF 24 US	NF 120 US
Power Supply	24 VAC (+-) 20% 24 VDC (+-) 10%	120V AC (+-) 10% 50/60Hz
Power Consumption	running : 5W holding : 2.6W	6W 3.5W
Transormer Sizing	2 VA	7VA
Electrical Connection	3 ft, 18 GA appliance cable 1/2" conduit connection.	
Overload Protection	Electronic throughout 0 to 95° rotation.	
Angle Rotation	95°, adjustable 30 to 95° w/ accessories	
Torque	60 in-lb [7Nm] constant torque	
Direction of Rotation	Spring Return can be selected by L/R Mounting.	
Position Indication	Visual Indicator, -5° to 90° (0° is spring return position).	
Running Time	Motor: < 75 sec Spring Return < 60 sec	
Humidity	5 to 95% RH noncondensing	
Ambient Temperature	-22 °F to 122 °F [-30 °C to +50 °C]	
Storage Temperature	-40 °F to 175 °F [-40 °C to 80 °C]	
Housing	NEMA type 2 / IP54	
Housing Material	Zinc coated steel	
Agency Listings	UL 873 listed, CSA 4813 02 certified	
Noise Level	Max. 45 dB (A)	
Servicing	Maintenance-free	
Quality Standard	ISO 9001	
Weight	6.6 lbs (3.0 kg.)	7.3 lbs (3.3 kg)

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 1.5M²

OPEN/CLOSE ACTUATOR [24V, 120C AC]

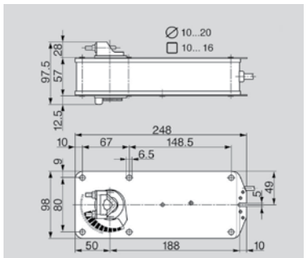
NF 24-S, NF 120-S US (SPRING-RETURN)

CODE: A14 & 15

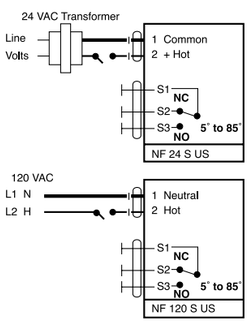
Application:
For on-off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer'sspecs. Control is on-off from an auxillary contact, or a manual switch.

Mode of Operation:
The NF series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provide consistent torque to the damper with and without power applied to the actuator. The actuators is provided with one built-in auxiliary switch. The SPDT switches are provided forsafety interfacing or signaling, for example for fan start up.

Dimensions



Wiring Diagram



Technical Data	NF 24-S US	NF 120-S US
Power Supply	24 VAC (+-) 20% 24 VDC (+-) 10%	120VAC (+-) 10% 50/60Hz
Power Consumption	running: 5 W holding: 2.6 W	6 W 3.5 W
Transormer Sizing	2 VA	7 VA
Electrical Connection	3 ft, 18 GA appliance cable 1/2" conduit connection.	
Overload Protection	electronic throughout 0 to 95° rotation.	
Angle Rotation	95°, adjustable 30 to 95° w/ accessories	
Torque	60 in-lb [7Nm] constant torque	
Direction of Rotation	Spring Return can be selected by L/R Mounting.	
Position Indication	Visual Indicator, -5° to 90° (0° is spring return position).	
Auxiliary Switch	1xSPDT 7A (2.5A) @ 250 VAC, UL listed	
NF...-S	Adjustable 5° to 85°.	
Running Time	Motor: < 75 sec Spring Return < 60 sec	
Humidity	5 to 95% RH noncondensing	
Ambient Temperature	-22 °F to 122 °F [-30 °C to +50 °C]	
Storage Temperature	-40 °F to 176 °F [-40 °C to 80 °C]	
Housing	NEMA type 2 / IP54	
Housing Material	Zinc coated steel	
Agency Listings	UL 873 listed, CSA 4813 02 certified	
Noise Level	Max. 45 dB (A)	
Servicing	Maintenance-free	
Quality Standard	ISO 9001	
Weight	6.6 lbs (3.0 kg.)	7.3 lbs (3.3 kg)

SPRING-RETURN OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 1.5M²

CODE: A16

OPEN/CLOSE ACTUATOR [24V]

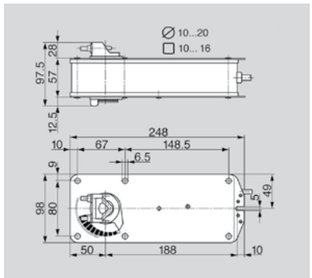
NF 24-SR US (SPRING-RETURN)

Proportional Damper Actuator: 24 V for 0 - 10 VDC or to 10 mA control signal. Output signal of 2 to 10 VDC for position indicator.

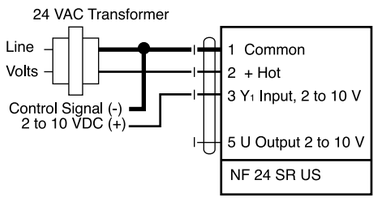
Application:
For on-off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specs.

Mode of Operation:
The NF series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provide consistent torque to the damper with and without power applied to the actuator.

Dimensions



Wiring Diagram



Technical Data	
Power Supply	24 VAC (+-) 20%, 50/60Hz 24 VDC (+-) 10%
Power Consumption	running : 3W holding : 1.W
Transormer Sizing	10 VA (class 2 power source)
Electrical Connection	3 ft, 18 GA appliance cable 1/2" conduit connection.
Overload Protection	Electronic throughout 0 to 95° rotation.
Control Signal	Y_1 0 to 10 VDC, 0 to 20 mA
Imput Impedance	100 kW (0.1 mA), 500W
Operating Range	2 to 10 VDC, 4 to 20 mA
Feedback output "U"	2 to 10 VDC (max. 0.5 mA) for 95°
Angle Rotation	95°, adjustable 30 to 95° with accessories
Torque	60 in-lb [7Nm] constant torque
Direction of Rotation	Spring Return Selected by L/R Mounting Control Direction Selected by L/R Switch
Position Indication	Visual Indicator, -5° to 95° (0° is spring return position).
Running Time	Motor: 150 sec constant independent of load Spring Return < 60 sec
Humidity	5 to 95% RH noncondensing
Ambient Temperature	-22 °F to 122 °F [-30 °C to +50 °C]
Storage Temperature	-40 °F to 175 °F [-40 °C to 80 °C]
Housing	NEMA type 2 / IP54
Housing Material	Zinc coated steel
Agency Listings	UL 873 listed, CSA 4813 02 certified
Noise Level	Max. 45 dB (A)
Servicing	Maintenance-free
Quality Standard	ISO 9001
Weight	6.0 lbs (2.7 kg.)

BELIMO DAMPER ACTUATORS

Right to alterations reserved. SAFID is a registered trademark. © Copyright 2018. All rights reserved

OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 4M²

OPEN/CLOSE ACTUATOR [230V AC, 24V AC/DC]
SM 230A, SM 24A (OPEN/CLOSE)

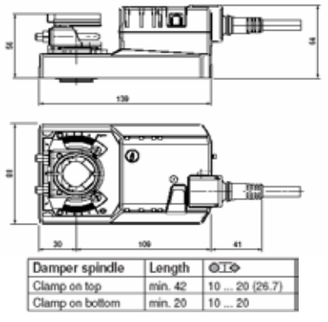
CODE: A17 & 18

Control:
Open-Close or 3-point

Application:
The actuator is overload-proof, requires no limith switches and automatically stops when the end stop is reached.

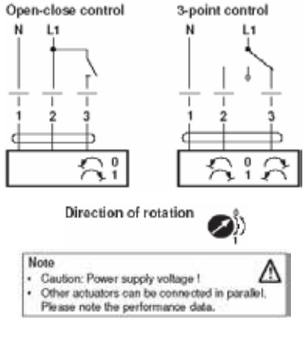
Mode of Operation:
Manual operation is possible with the selfresetting pushbutton (the gearing latch remains disengaged as long as the pushbutton is pressed).

Dimensions



Damper spindle	Length	
Clamp on top	min. 42	10 ... 20 (26.7)
Clamp on bottom	min. 20	10 ... 20

Wiring Diagram



Technical Data	SM 230A	SM 24A
Power Supply	230 V AC 50/60 Hz	24 V AC/DC
Nominal Voltage Range	AC 85 - 265 V	AC/DC 19.2 - 28.8 V
Power Consumption		
• In Operation	2.5 @ nominal torque	2 W @ nominal torque
• At Rest	0.6 W	
• For wire Sizing	6 VA	
Connecting	Cable 1 m, 3 × 0.75 mm²	
Direction of Rotation	Reversible with switch 0 ↶ or 1 ↷	
Torque	Min. 20Nm @ nominal voltage	
Angle of Rotationt	Max. 95° ⊀, limited on both sides by means of adjustable, mechanical end stops	
Running Time	150 s	
Sound Power Level	Max. 45 dB (A)	
Position Indication	Mechanical, pluggable	
Protection Class	II totally insulated ▭	
Protection Class (SM24A)	III safety extra-low voltage	
Degree of Protection	IP54 in any mounting position	
Ambient temp. Range	-30 to +50 °C	
Non-Operating temp.	-40 to +80 °C	
Ambient Humidity	95% r.H., Non-condensating (EN 60730-1)	
EMC	CE According to 89/336/EEC	
Maintenance	Maintenance-free	
Weight	Approx. 1050 g	1000 g

OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 4M²

CODE: A17.1 & 18.1

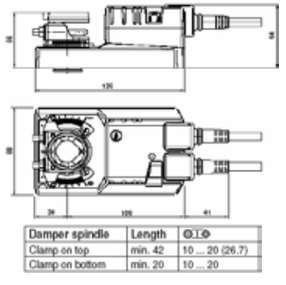
OPEN/CLOSE ACTUATOR [230V AC, 24V AC/DC]
SM 230A-S, SM 24A-S (OPEN/CLOSE)

Control:
Open-close or 3-point
Integrated auxilliary switch

Application:
The actuator is overload-proof, requires no limith switches and automatically stops when the end stop is reached.

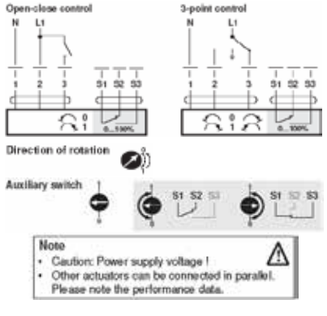
Mode of Operation:
Manual operation is possible with the self resetting push button (the gearing latch remains disengaged as long as the pushbutton is pressed). Flexible signalization with adjustable auxilliary switch (0 - 100%).

Dimensions



Damper spindle	Length	
Clamp on top	min. 42	10 ... 20 (26.7)
Clamp on bottom	min. 20	10 ... 20

Wiring Diagram



Technical Data	SM230A -S	SM24A-S
Power Supply	230 V AC 50/60 Hz	24 V AC/DC
Nominal Voltage Range	AC 85 - 265 V	AC/DC 19.2 - 28.8V
Power Consumption		
• In Operation	2.5 @ nominal torque	2 W @ nominal torque
• At Rest	0.6 W	
• For wire Sizing	6 VA	
Auxiliary Switch	1 x SPDT, 1 mA ... 3 (0.5) A, AC 250 V ▭ (0 - 100% adjustable)	
Connection		
• Motor	Cable 1 m, 3 × 0.75 mm²	
• Auxiliary Switch	Cable 1 m, 3 × 0.75 mm²	
Direction of Rotation	Reversible with switch 0 ↶ or 1 ↷	
Torque	Min. 20Nm @ nominal voltage	
Angle of Rotationt	Max. 95° ⊀, limited on both sides by means of adjustable, mechanical end stops	
Running Time	150 s	
Sound Power Level	Max. 45 dB (A)	
Position Indication	Mechanical, pluggable	
Protection Class	II totally insulated ▭	
Protection Class (SM24A)	III safety extra-low voltage	
Degree of Protection	IP54 in any mounting position	
Ambient temp. Range	-30 to +50 °C	
Non-Operating temp.	-40 to +80 °C	
Ambient Humidity	95% r.H., non-condensating (EN 60730-1)	
EMC	CE According to 89/336/EEC	
Maintenance	Maintenance-free	
Weight	Approx. 1100 g	1050 g

BELIMO DAMPER ACTUATORS

MODULAITING ACTUATOR FOR DAMPERS UP TO 4M²

MODULATING ACTUATOR [230V AC]
SM 230-ASR (MODULATING)

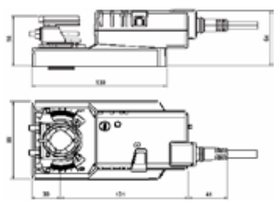
CODE: A19

Control:
DC 0 - 10 V
Position Feedback: DC 2 - 10 V6.

Application:
The actuator is overload-proof, requires no limith switches and automatically stops when the end stop is reached.

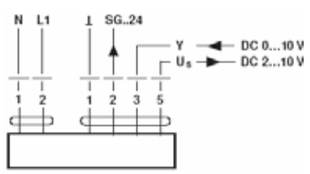
Mode of Operation:
The actuator is controlled by means of a standard control signal DC 0 - 10 V. It opens to the position dictated by this signal. The measuring voltage U allows the damper position (0 - 100%) to be electrically indicated and serves as a follow-up control signal forother actuators. Manual operation is possible with the self-resetting push button (the gearing latch remains disengaged as long as the pushbutton is pressed).

Dimensions



Damper spindle	Length	⌀
Clamp on top	min. 42	10 ... 20 (26.7)
Clamp on bottom	min. 20	10 ... 20

Wiring Diagram



Note
- Caution: Power supply voltage !
- Other actuators can be connected in parallel. Please note the performance data.

Technical Data	SM 230-ASR
Power Supply	AC 100 - 230 V, 50/60 Hz
Nominal Voltage Range	AC 85 - 265 V
Power Consumption	
• **In Operation**	3.5 @ nominal torque
• **At Rest**	1 W
• **For wire Sizing**	6.5 VA
Connection	Cable 1 m, 2 × 0.75 mm²
• **Motor**	Cable 1 m, 4 × 0.75 mm²
• **Auxiliary Switch**	
Control Signal Y	DC 0 - 10 V, typical input impedance 100 kΩ
Working Rang	DC 2 - 10 V
Positioning Accuracy	DC 2 - 10 V
Direction of Rotation (at Y=0 V)	Reversible with switch 0 ↶ or 1 ↷
Torque	Min. 20Nm @ nominal voltage
Angle of Rotationt	Max. 95° ⊀ , limited on both sides by means of adjustable, mechanical end stops
Running Time	150 s
Sound Power Level	Max. 45 dB (A)
Position Indication	Mechanical, pluggable
Protection Class	II totally insulated ▭
Degree of Protection	IP54 in any Mounting Position
Ambient temp. Range	-30 to +50 °C
Non-Operating temp.	-40 to +80 °C
Ambient Humidity	95% r.H., Non-condensating (EN 60730-1)
EMC	CE According to 89/336/EEC
Maintenance	Maintenance-free
Weight	Approx. 1050 g 1000 g

OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 1.5M²

OPEN/CLOSE ACTUATOR [230V AC, 24V AC/DC]
NM 230, NM 24 (OPEN/CLOSE)

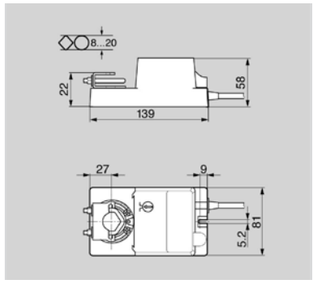
CODE: A20 & 21

NM 230: Control by single-pole contact (single wire control). NM24: Reversible.

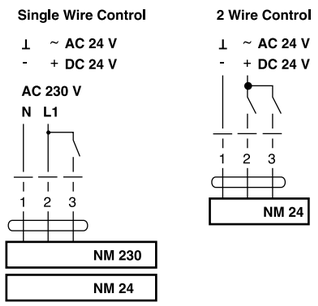
Application:
The damper actuator has no limit switches and is overload-proof. It stops automatically when it reaches the damper or actuator end stop.

Mode of Operation:
A functional check of damper operation is simplicity itself: the gearing can be disengaged by simply pressing a push button on top of th case. While the pushbutton remains depressed, the damper can be operated by hand.

Dimensions



Wiring Diagram



Technical Data	NM 230	NM 24
Power Supply	230 V AC 50/60 Hz	24 V AC/DC
Nominal Voltage Range	AC 198 - 264 V	AC/DC 19.2 - 28.8 V
For Wire Sizing	18 VA	3.5 VA
Power Consumption	2W	2W
Torque	1m long, 3 × 0.75mm²	
Direction of Rotation	selected with L/R switch	
Torque	Min. 8Nm (at rated voltage)	
Angle of Rotationt	Max 95° (adjustable by mechanical stops)	
Running Time	75 - 150s (0 - 8Nm)	
Sound Power Level	Max. 35 dB (A)	
Position Indication	Mechanical	
Protection Class	II (all insulated)	III (safety low voltage)
Degree of Protection	IP 54 (cable entry down)	
Ambient temp. Range	-20 to +50 °C	
Non-Operating temp.	-40 to +80 °C	
Ambient Humidity	To EN 60335-1	
EMC	CE According to 89/336/EEC & 92/31/EEC	
Maintenance	Maintenance-free	
Weight	800 g	

MODULAITING ACTUATOR FOR DAMPERS UP TO 1.5M²

MODULATING ACTUATOR [AC 24V]
NM 24-SR (MODULATING)

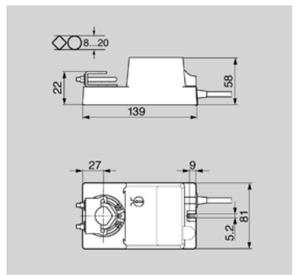
CODE: A22

Control: DC0 - 10 V
Position Feedback: DC2 - 10V
Self-adapting, automatic angle of rotation and running time adjustment.

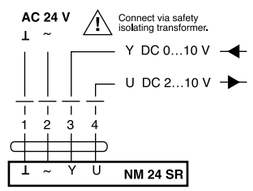
Application:
The damper actuator has no limit switches and is overload-proof. It stops automatically when it reaches the damper or actuator end stop.

Mode of Operation:
When the power supply is first switched on, or when the override push button is pressed the actuator actuator performs an automatic function test. A functional check of damper operation is simplicity itself: the gearing can be disengaged by simply pressing a pushbutton on top of th case. While the pushbutton remains depressed, the damper can be operated by hand.

Dimensions



Wiring Diagram



Technical Data	NM 24-SR
Power Supply	AC 24 V AC 50/60 Hz
Nominal Voltage Range	AC/DC 19.2...28.8 V
For Wire Sizing	3 VA
Power Consumption	1.3 W running, 0.5 W at rest
Connecting Cable	1m long, 4×0.75 mm²
Control Signal Y	DC 0 - 10 V input resistance 100kΩt
Operating Range	DC 2 - 10V (for 0 - 100% angle of rotation)
Measuring Voltage U	DC 2 - 10V @ <0.7 mA (for 0...100% angle of rotation)
Synchronisation Tolerance	(+-) 5%
Override Control	Y open or 0 V = 0% angle of rotation Y at AC 24 V = 100% angle of rotation
Direction of Rotation (at Y = 0 V)	Selected with L/R Switch at Switch position L resp. R
Torque	Min. 8Nm (at rated voltage)
Angle of Rotation	Max. 95° (adjustable by mechanical stops)
Running Time	150s, regardless of the mechanically limited angle of rotation from 0 - 35° < to 0 - 95° <
Sound Power Level	Max. 35 dB (A)
Position Indication	Mechanical
Protection Class	III (safety low voltage)
Degree of Protection	IP 54 (cable entry down)
Ambient temp. Range	-20 to +50 °C
Non-Operating Temp.	-40 to +80 °C
Ambient Humidity	To EN 60335-1
EMC	CE According to 89/336/EEC & 92/31/EEC
Maintenance	Maintenance-free
Weight	900 g

OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 6M²

CODE: A23

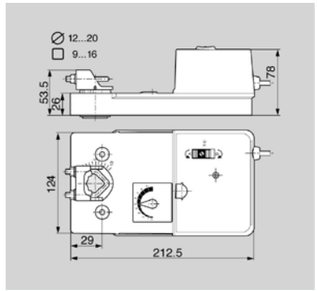
OPEN/CLOSE ACTUATOR [230 V AC]
GM 240 (OPEN/CLOSE)

2-Wire Control

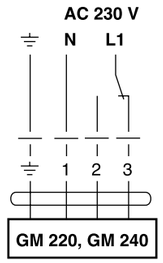
Application:
The damper actuator has no limit switches and is overload-proof. It stops automatically when it reaches the damper or actuator end stop.

Mode of Operation:
A functional check of damper operation is simplicity itself: the gearing can be disengaged by simply pressing a push button on top of the case. While the pushbutton remains depressed, the damper can be operated by hand.

Dimensions



Wiring Diagram



Technical Data	
Power Supply	230 V AC, 50/60 Hz
Nominal Voltage Range	AC 198 - 264 V
For Wire Sizing	10 VA @ 50Hz, 13VA @ 60Hz
Power Consumption	10 W @ 50Hz, 13W @ 60Hz
Connecting Cable	0.9m long, 4×0.75 mm²
Direction of Rotation	Reversible with switch A/B
Torque	Min. 30Nm (at rated voltage)
Angle of Rotationt	Mechanically limited to 95°
Running Time	~ 180 s
Sound Power Level	Max. 45 dB (A)
Position Indication	0 - 10 (0=stop)and Reversible Indicator
Protection Class	I (with PE conductor)
Degree of Protection	IP 54 (cable entry down)
Ambient temp. Range	-30 to +50 °C
Non-Operating temp.	-40 to +80 °C
Ambient Humidity	To EN 60335-1
EMC	CE According to 89/336/EEC & 92/31/EEC
Maintenance	Maintenance-free
Weight	2000 g

OPEN CLOSE ACTUATOR FOR DAMPERS UP TO 6M²

OPEN/CLOSE ACTUATOR [AC/DC 24V]

GM 24 (OPEN/CLOSE)

CODE: A24

Reversible

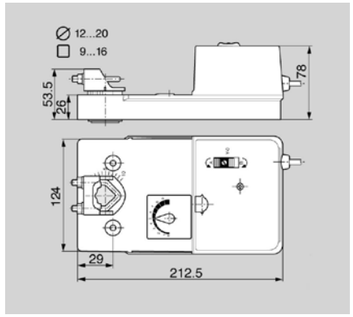
Application:
The damper actuator has no limit switches and is overload-proof. It stops automatically when it reaches the damper or actuator end stop.

Mode of Operation:
A functional check of damper operation is simplicity itself: the gearing can be disengaged by simply pressing a push button on top of the case. While the pushbutton remains depressed, the damper can be operated by hand.

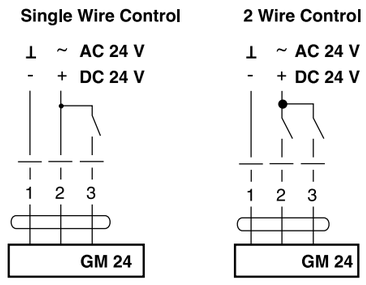
Technical Data

Power Supply	AC 24 V, 50/60 Hz, DC 24 V
Nominal Voltage Range	AC 19.2 - 28.8 V, DC 21.6 - 26.4 V
For Wire Sizing	6 VA
Power Consumption	3 W running, 1 W at the end position
Connecting Cable	0.9m long, 3×0.75 mm²
Direction of Rotation	Reversible with switch A/B
Torque	Min. 30Nm (at rated voltage)
Angle of Rotationt	Mechanically limited to 95°
Running Time	~ 135 s (+-) 15 s
Sound Power Level	Max. 45 dB (A)
Position Indication	0 - 10 (0=stop ↶) and reversible indicator
Protection Class	III (safety low voltage)
Degree of Protection	IP 54 (cable entry down)
Ambient temp. Range	-30 to +50 °C
Non-Operating temp.	-40 to +80 °C
Ambient Humidity	To EN 60335-1
EMC	CE According to 89/336/EEC & 92/31/EEC
Maintenance	Maintenance-free
Weight	2000 g

Dimensions



Wiring Diagram



MODULAITING ACTUATOR FOR DAMPERS UP TO 6M²

MODULATING ACTUATOR [AC 24V]

GM 24-SR (MODULATING)

CODE: A25

Control DC 0...10 V or 0...20 V phasecut Position feedback DC 2...10 V

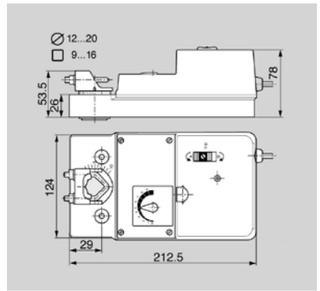
Application:
The damper actuator has no limit switches and is overload-proof. It stops automatically when it reaches the damper or actuator end stop.

Mode of Operation:
A functional check of damper operation is simplicity itself: the gearing can be disengaged by simply pressing a pushbutton on top of the case. While the pushbutton remains depressed, the damper can be operated by hand.

Technical Data

Power Supply	AC 24 V AC 50/60 Hz
Nominal Voltage Range	AC/DC 19.2 - 28.8 V
For Wire Sizing	7 VA
Power Consumption	3 W running, 2 W at rest
Connecting Cable	0.9m long, 5 × 0.75 mm²
Control Signal Y_1	DC 0 - 10 V input resistance 100kΩ (0.1mA)
Control Signal Y_2	0 - 20 V phasecut @ input resistance 8 k (50 mW)
Operating Range	DC 2 - 10V (at control signal Y_1) 2 - 10V phasecut (at control signal Y_2)
Measuring Voltage U	DC 2 - 10V @ max.0.5mA(for 0...100% angle of rotation)
Synchronisation Tolerance	(+-) 5%
Override Control	Y open or 0 V = 0% angle of rotation Y at AC24 V = 100% angle of rotation
Direction of Rotation (at Y = 0 V)	reversible with switch A/B (at Y=0 V) at switch position A ↶ resp. B ↷
Torque	Min. 30Nm (at rated voltage)
Angle of Rotation	Mechanically limited to 95°
Running Time	~ 135 s (+-) 15 s
Sound Power Level	Max. 45 dB (A)
Position Indication	0...10 (0=stop ↶) and reversible indicator
Protection Class	III (safety low voltage)
Degree of Protection	IP 54 (cable entry down)
Ambient temp. Range	-30 to +50 °C
Non-Operating Temp.	-40 to +80 °C
Ambient Humidity	To EN 60335-1
EMC	CE According to 89/336/EEC & 92/31/EEC
Maintenance	Maintenance-free
Weight	2000 g

Dimensions



Wiring Diagram