



**Fire Dampers (UL555) &
Fire Smoke Dampers (UL555S)**

MOTORIZED FIRE SMOKE DAMPER





Our Product Ranges

Dampers

- 1 Fire Dampers
- 2 Fire / Smoke Dampers
- 3 Volume Control Dampers
- 4 Motorized Control Dampers
- 5 Pressure Relief Dampers /Non Return Dampers

Variable Air Volumes

- 6 Pressure Independent VAV
- 7 Constant Air Volume VAV
- 8 By Pass VAV

Louvers

- 9 Sand Trap Louvers
- 10 Acoustic Louvers
- 11 Stationery Louvers / Architectural Louvers
- 12 Storm Louvers
- 13 Weather Louvers

Sound Attenuators

- 14 Rectangular Sound Attenuators
- 15 Circular Sound Attenuators
- 16 Crosstalk Attenuators

Electric Duct Heaters

- 17 Flange & Slip 'n' Type
- 18 Modulating & On/Off Type

Air Outlets

- 19 Registers & Grilles
- 20 Diffusers (Linear Diffusers, Sq. & Rect. Ceiling Diffusers, Round Diffusers, Jetflow Diffusers)
- 21 Swirl Diffusers & Disc Valves
- 22 Drum Louvers



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Introduction

The use, proper installation, and maintenance of fire, smoke, and combination fire/smoke dampers in sprinkled or nonsprinkled buildings is a vital part of a properly designed life safety system. When fire emergencies happen, the fire, smoke and combination fire/smoke dampers will help contain the fire and resulting smoke to the compartment of origin and thus minimize life and property loss while helping the firefighters extinguish the blaze.

Fire Smoke Dampers closes not only upon high duct temperature, but also upon the detection of smoke. The combination fire/smoke damper can ship with override controls to pressurize individual spaces. It is UL leakage-rated to stop smoke in its tracks, which is a main difference from fire dampers. Only combination fire/smoke dampers or stand-alone smoke dampers are leakage-rated devices.



There are two types of Applications for Fire Smoke Dampers Static & Dynamic

The minimum rating for all dynamic fire dampers is 2,000 fpm and 4.0 in. wg. The minimum ratings are based upon closure at a minimum airflow of 2,400 fpm and 4.5 in. wg.

Static Fire Smoke dampers can only be applied in HVAC systems that are designed to shut down in the event of a fire.

Dynamic Fire Smoke dampers have been tested for closure under airflow and carry both an air-flow velocity (fpm) and pressure differential rating.

Combination Fire Smoke Damper Application

A combination fire smoke damper performs the function of both a fire damper and a smoke damper. Building layouts and designs often combine fire and smoke rated partitions and barriers requiring the installation of both a fire damper and smoke damper at the same location. Combination fire smoke dampers must be qualified under UL Standard 555 as a fire damper AND under UL Standard 555S as a smoke damper. The considerations listed above for both of these damper types apply to the selection and application of combination fire smoke dampers.

Model : AHS MSFD GC1 100

Airwellcare Low Leakage Combination of Motorized Fire Smoke Damper have excellent leakage rated performance.

Its robust Galvanized Steel & Stainless Steel construction features with remarkable design makes perfect performance in medium and high Velocity and pressure applications.

Construction Details

Casing

130 x 24.5 x 1.5mm thick (16 G.) galvanized steel / Stainless Steel hat channel.

Damper Blades

1.5mm thick (16 G) galvanized steel 3V groove type (standard) / Stainless Steel.

Damper Operation

Blades are operated PARALLEL directions.

Blade Axle

The Blade Axle is made of 12x12mm Square Galvanized Steel. Stainless Steel Blade Axle is optional.

Blade Stopper

16 Gauge Galvanized Steel Angle.

Electrical Actuator

Motorized Fire Smoke Dampers are supplied with suitable Electrical Actuators of 24 VAC to 230 VAC or 24 VDC. Types & Models of electrical actuators are damper size dependent. Refer to Page No. 11 for our OEM Partner of Actuators.



Bearings

Fire Resistant Brass Bearings are appropriately positioned on the damper frame through the damper axle / spindle.

Side Seals (Jamb Seals)

0.3mm Thick. stainless steel of Grade 304 is placed both the blade edges, to prevent the leakage of air between damper blades and side frame.

Linkages

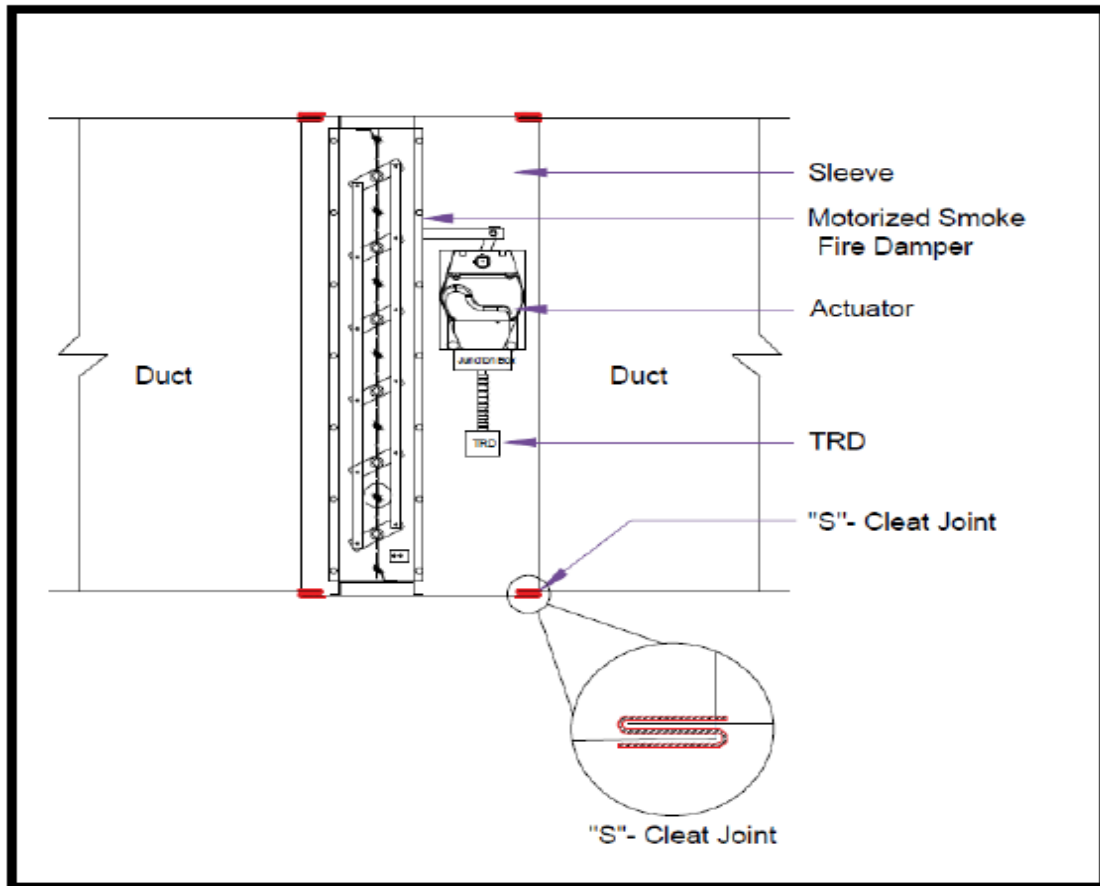
Mechanical Linkages are made of 2.8mm Thick. galvanized steel rigidly fastened with damper blades concealed in frame, out of air stream.

Stainless Steel (304 Gr.) is optional.

Frames

Standard frame width is 130mm.

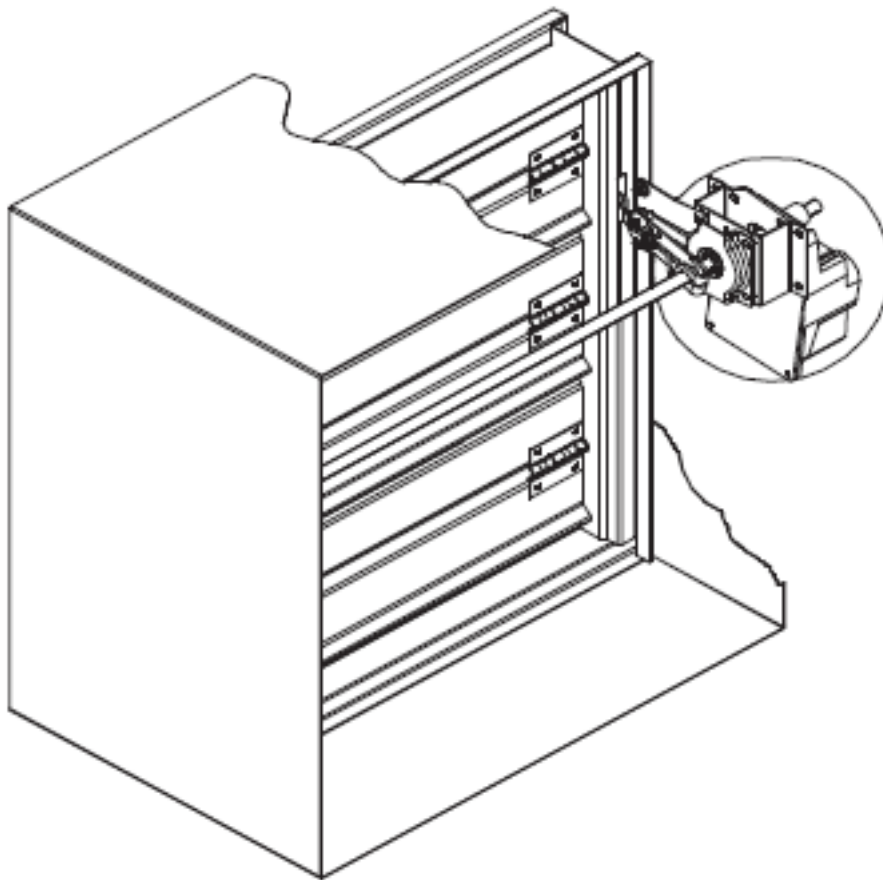
Construction & Dimensional Data



Minimum Single Module Size (Width x Height)	Maximum Single Module Size (Width x Height)	Maximum Multiple Module Size
200 x 150mm	914 x 914mm	Customers Option

Motorized Fire /Smoke Dampers larger than the maximum single module sizes are fabricated in multiple section assemblies. These assemblies consists of sections of equal size, which are coupled together with the help of full length Axle / Shaft.

Engineering Guidelines



Fire Resistant Rating

Fire and Combination Fire smoke Dampers installed in Walls, Floors or partitions are required by the applicable building code to have a fire resistance rating.

Type of Penetration	Minimum Damper Rating (hours)
Less than 3 hour fire resistance rated assemblies	1½
3 hour or greater fire resistance rated assemblies	3



General Compliance

Leakage Rating

UL Standard 555S identifies three leakage classes as follows:

Leakage Class	Maximum Leakage in cfm/ft ²		Maximum Leakage in cmh/m ²	
	@ 4 in. wg	@ 8 in. wg	@ 1 kPa	@ 2 kPa
Class I	8	11	146	201
Class II	20	28	366	512
Class III	80	112	1463	2048

Designers are generally advised to select the lowest leakage class.

Operational Rating

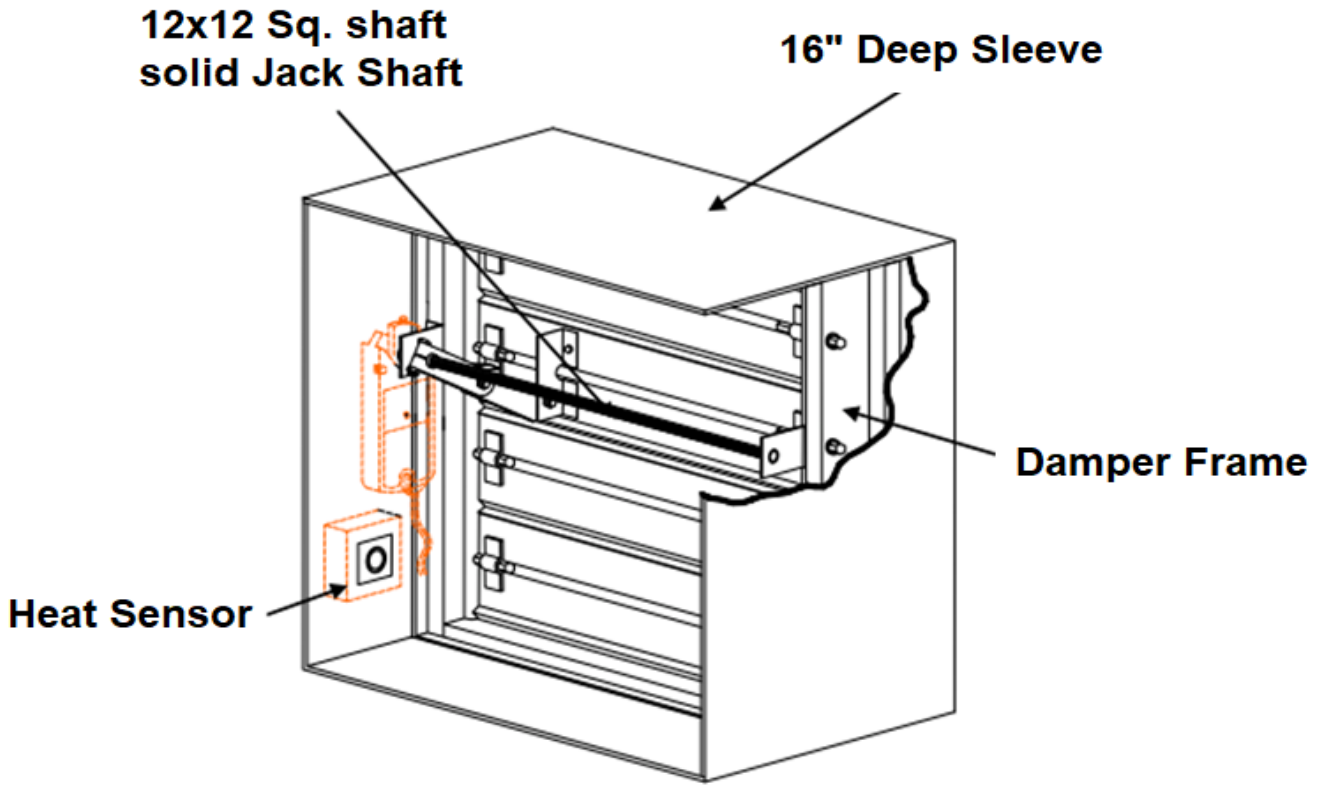
Operational Ratings are dependent on the dampers size and installed actuators. Both UL555 & UL 555S requires a combination Fire Smoke damper and its installed actuator be rated for a maximum airflow rate (Velocity in Ft/Min.) through the open damper and a maximum pressure (in W.G) across the closed damper. The installed actuator must operate the damper open and close against these rated velocities and pressure. Airwellcare Combination Fire smoke dampers with 3 V blade construction are rated upto 2000 Ft/Min (10.2 m/s.) and pressure upto 6 Inch WG. (1.5 Kpa)

Elevated Temperature Rating.

The pupose of a building Smoke Control System is to keep certain areas of a building free from smoke during the early phases of a fire so building occupants can safely evacuate and firefighters can more easily locate and settle the fire.

The UL 555S Elevated Temp. Rating is a 30 min. emergency rating to ensure th edamper (and its installed actuator) can resist a short exposure to elevated temp. and still operate as required.

Model Selection & Ordering System



Actuator Location (By default)		
Standard Construction	Other Option	Power Supply
LH (from jack shaft)	RH (from jack shaft)	230 VAC/24 VDC

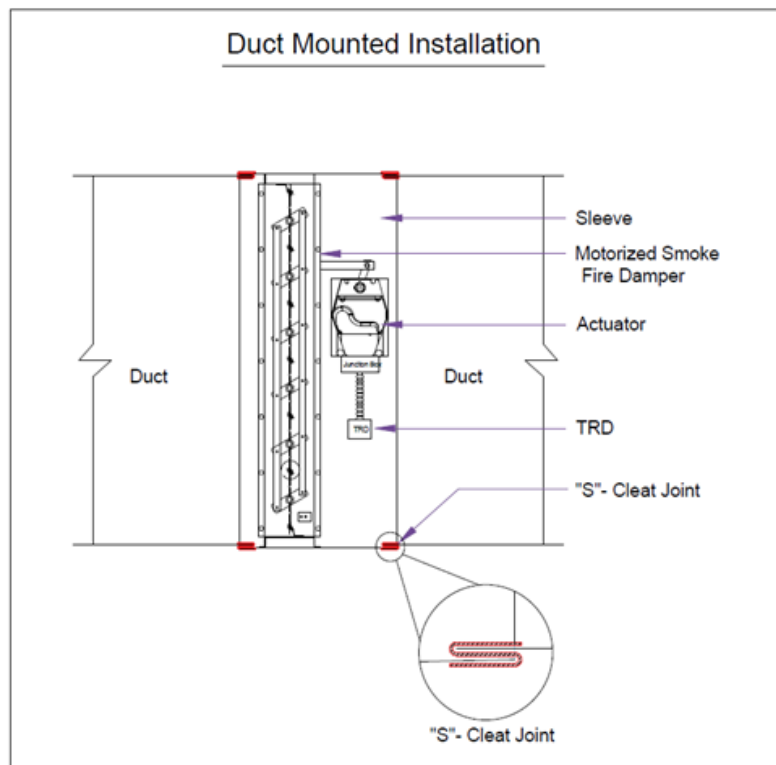
FIRE/SMOKE DAMPER INSTALLATION DETAILS AS PER UL/NFPA 90A / SMACNA STANDARDS

Opening Clearance

- a) The opening in the wall or floor shall be larger than the damper/ sleeve assembly to permit installation or expansion. For two angle installations the opening shall be a minimum of 1/8" per foot (3 per 305) larger than the overall size of the damper/sleeve assembly.
- b) The maximum opening size shall not exceed 1/8" per foot (3 per 305) plus 2" (51), nor shall the opening be less than 1/4" (6) larger than the damper/sleeve assembly.
- c) For one angle installations, the opening shall be a minimum of 1/4" (6) to a maximum of 1" (25) larger than the overall size of the damper/sleeve assembly.
- d) The opening may be as much as 2" (51) larger than the damper/ sleeve assembly if a 16 G. (1.6) mounting angles is utilized.

Fasteners with Sleeve Assembly

When fastening the damper to the sleeve, dampers shall be fastened with 1/4-20 (M6) bolts, number 10 (M5) screws, or 1/2" (13) long welds staggered intermittently on both sides. Space fasteners 6" (152) on center and a maximum 2" (51) from the ends of the joining sections or from each corner.



FIRE/SMOKE DAMPER INSTALLATION DETAILS AS PER UL/NFPA 90A / SMACNA STANDARDS

DAMPER SLEEVE

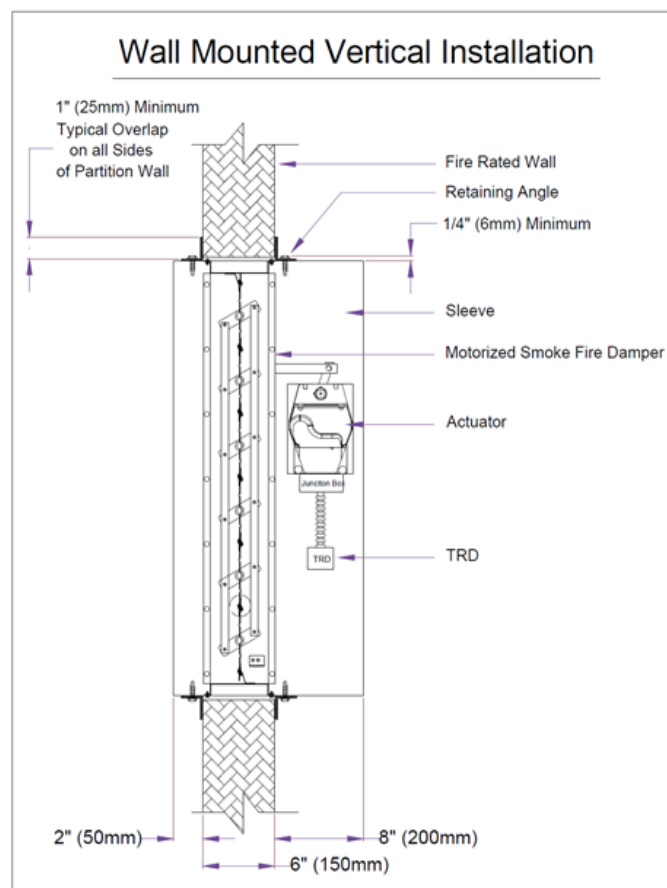
a) Sleeve thickness must be equal to or thicker than the duct connected to it. Sleeve gauge requirements are listed in the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems and in NFPA 90A.

b) If a breakaway style duct/sleeve connection is not used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide by 24" (610) high and 14 gage (1.9) for dampers exceeding 36" (914) wide by 24" (610) high.

c) Damper sleeve shall not extend more than 6" (152) beyond the fire wall or partition unless damper is equipped with an actuator and/or factory installed access door.

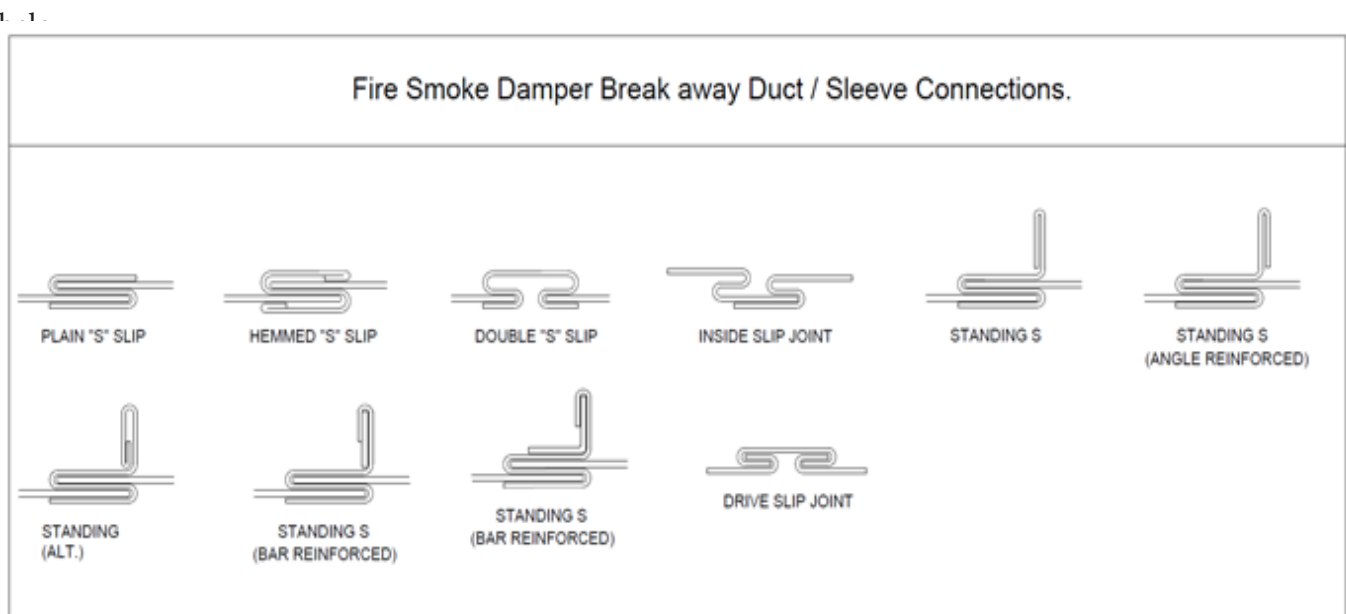
d) Sleeve may extend up to 16" (406) beyond the fire wall or partition on sides equipped with actuator and/or factory installed access door.

e) Sleeve shall terminate at both sides of wall within dimensions shown.



Break-away duct / sleeve connections

Rectangular ducts must use one or more of the UL recommended break away connections as shown



A maximum of two #10 (M5) sheet metal screws on each side and the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used. Connections using these slip joints on the top and bottom with flat drive slips up to 20" (508) long on the sides may also be used.

Flanged Break-away Style Duct / Sleeve Connections

a) Flanged Break-away Style Duct/Sleeve Connections.

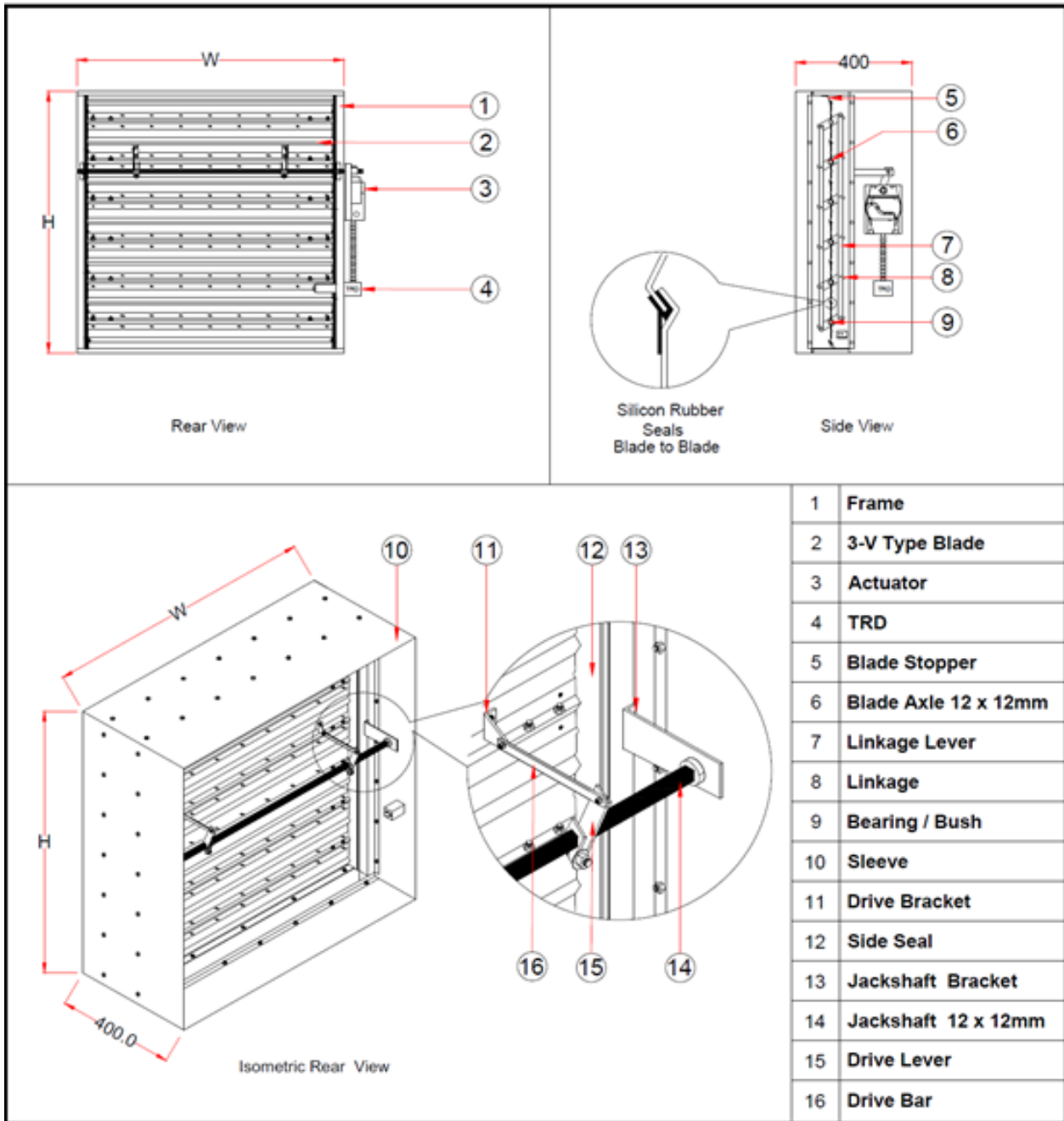
Flanged connection systems manufactured by Ductmate, Nexus or Ward are approved break-away when installed as shown on the Flanged System Breakaway Connections Supplement.

b) Non-Break-away Duct/Sleeve Connections

If other duct/sleeve connections are used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide x 24" (610) high and 14 gage (2.0) for dampers 36" (914) wide x 24" (610) high.

FIRE/SMOKE DAMPER INSTALLATION DETAILS AS PER UL/NFPA 90A / SMACNA STANDARDS

Dimensional Details



Material Storage, Operation and Maintenance

Material Storage

The Motorized Fire Smoke Damper required to be handled carefully during offloading as per the upright arrow marks given on the unit in the right position. Care should be taken in lifting the product in all 4 corners and placing them on a raised floor level. Store the product always in dry environment. After receiving the product, check for both obvious and hidden damages. If damage is found due to manufacturing defect / workmanship, record all necessary information with photographs and forward to Airwellcare.

Maintenance

Airwellcare Motorized Fire Smoke Dampers are designed for least maintenance. However, it is recommended to have periodical inspection of damper blades for damage, wear and tear etc.

Once installed it is important to ensure the dampers are not damaged as this may affect both their movement of Actuator and airflow performance.

The Motorized Fire Smoke Damper

may, over time begin to collect dust and grime due to their location and exposure to varying weather conditions. The Motorized Volume Damper should be cleaned to refresh their visual appearance at six monthly intervals.

Cleaning of the MSFDs should be completed using a soft, clean cloth and soft wash gel cleaner. Surfaces should be thoroughly rinsed with fresh water after cleaning.

The damper may, over time begin to collect dust and grime due to their location and exposure to varying weather conditions. The louvers should be cleaned to refresh their visual appearance at six monthly intervals.

DO NOT use harsh cleaning fluids, strong solvents or abrasive cleaning materials, as these will damage the surface finish on the Louver. Once the louver surface finish is damaged, it cannot be repaired and in many cases may lead to deterioration of the base metal.

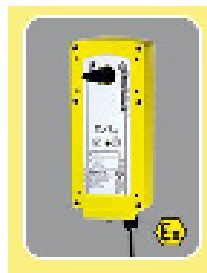
Our OEM Partners

BELIMO



Honeywell

SCHISCHEK
EXPLOSIONPROOF





**P.O Box 2620
New Industrial Area, Umm Al Quwain
United Arab Emirates**

**Email : info@airwellcare.com / sales@airwellcare.com
www.airwellcare.com**