



# INSTALLATION INSTRUCTIONS MODEL KFSD-111

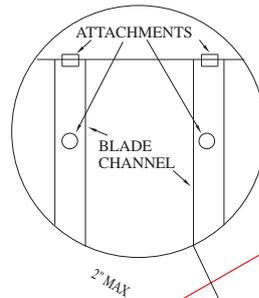
## VERTICAL & HORIZONTAL MOUNT FOR USE IN 2 HRS OR LESS RATED PARTITION

### ATTACHING FIRE DAMPERS TO SLEEVES

Fire dampers must be attached to sleeves as shown in fig. 1. All four sides of the damper frame must be attached to the sleeve with one row of attachments on each side of the blade channel. Attachments must be spaced a maximum of 6" on centers and a maximum of 2" from corners. A minimum of 4 attachments (2 on each side of the blade channel) per side (16 per damper) are required. One of the methods of attachment shown below must be used.

- Welds 1/2" min long
- No.12 sheet metal screws
- 1/4" bolts and nuts

Installation per NFPA. 90A, UL555, and SMACNA fire smoke and radiation installation guide.

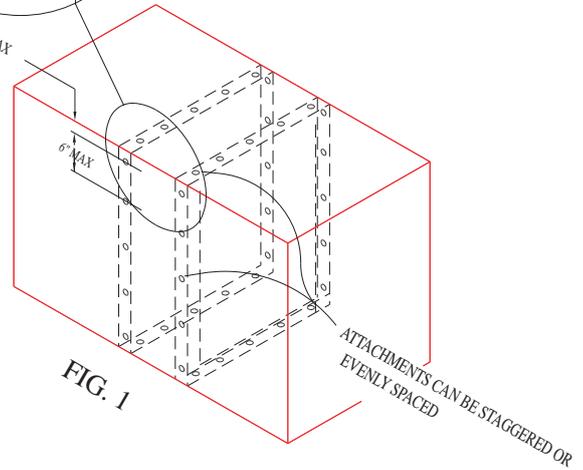


NOTE: ATTACHMENTS MUST NOT ENTER BLADE CHANNEL OR THEY MAY CAUSE INTERFERENCE WITH BLADE CLOSURE.

### SECURING FIRE DAMPER AND SLEEVES TO WALL OPENINGS

Fire damper and sleeve assemblies must be installed in wall openings using retaining angles on each side of the wall as described below:

- Retaining angles must be a minimum of 16 gauge steel and have a minimum of 1-1/2" x 1-1/2" legs.
- Retaining angles must be attached to the sleeve using the procedures and methods described hereunder.
- Welds 1/2" min long
- No.10 sheet metal screws
- 1/4" bolts and nuts

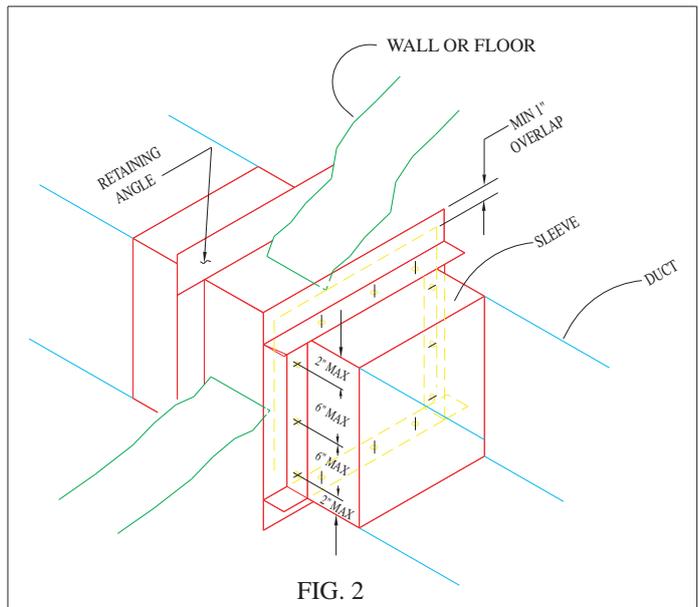


The angles must be attached to all 4 sides of the sleeve with butt joints at each corner. A minimum of two attachments are required on each side, top and bottom. The angles need not be attached to each other at the corners.

- Retaining angles must completely cover the clearance space between the sleeve and the wall opening, plus overlap the wall a minimum of 1".

This coverage includes all corners (fig. 2).

- Retaining angles should not be fastened to the wall material. The angles should only sandwich the wall and allow for damper / sleeve expansion during periods of intense heat.
- For grille installation, angle legs may be reversed and one leg inserted into the wall opening providing the required clearance is maintained between angle leg fasteners and the wall / opening.



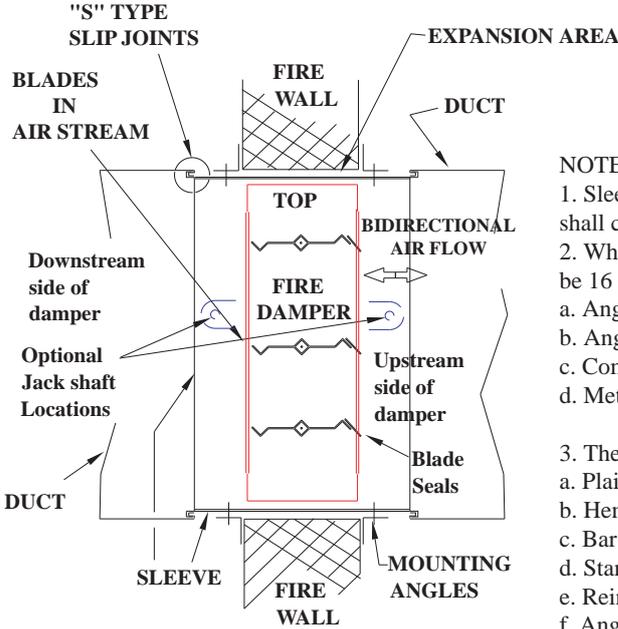
\*\*Refer to notes on page (2) for duct connection to fire damper and expansion clearance



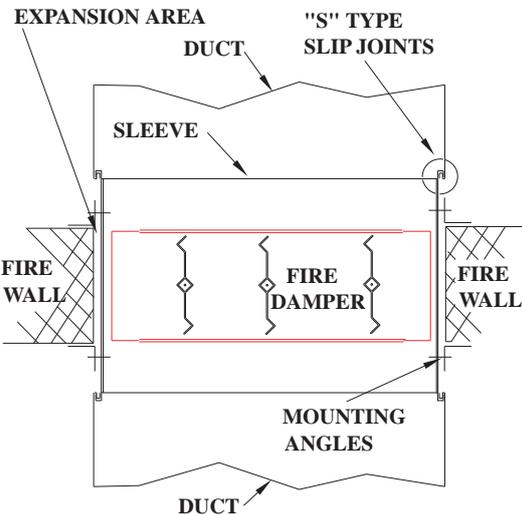


# INSTALLATION INSTRUCTIONS MODEL KFSD-111

## VERTICAL & HORIZONTAL MOUNT FOR USE IN 2 HRS OR LESS RATED PARTITION



**VERTICAL INSTALLATION**



**HORIZONTAL INSTALLATION**

**NOTES:**

1. Sleeves shall be of the same gauge or heavier than the duct to which it attached. Gauge shall conform to SMACNA or ASHRAE standards.
2. When the following sleeve connections are used, the minimum gauge of the sleeve shall be 16 gauge on dampers not exceeding 36" W x 24" H and 14 gauge on larger dampers.
  - a. Angle reinforced standing seam.
  - b. Angle reinforced pocket lock.
  - c. Companion angles.
  - d. Metal fasteners approximately 16" on centers.
3. The following breakaway sleeve connections may be used on all systems :
  - a. Plain "S" slip
  - b. Hemmed "S" slip
  - c. Bar slip
  - d. Standing "S" slip
  - e. Reinforced bar slip
  - f. Angle slip
  - g. Inside slip joint
  - h. Double "S" slip
4. Clearance for expansion of 1/8" per foot of sleeve dimension is required. Angles should lap masonry a minimum of 1" around the entire opening.
5. The connecting ducts shall not be continuous, but shall terminate at the sleeve or frame.
6. An ACCESS DOOR is a NFPA requirement for damper inspection and testing.
7. Maximum sleeve extension is 16" on access door or actuator side of wall or floor opening.
8. Maximum sleeve extension is 6" on side of wall or floor opening for dampers without access door or actuator.
9. Dampers may be installed in wall or partition (masonry or gypsum wallboard) or concrete floor.
10. The connecting ducts shall not be continuous, but shall terminate at the sleeve or frame.
11. Dampers are supplied with factory mounted RS-100 (std) or fusible 165°F located in pin groove to close automatically upon detecting heat or the loss of actuator power.
12. CAUTION : THE HEAVY DAMPER CLOSURE SPRING IS UNDER LOAD When damper is order with Fusible link.
13. A continuous bead of Dow Corning RTV-732, Dow Corning 999A, or GE-1200 silicone rubber sealant shall be applied between the damper and the sleeve for its entire profile on one side of the installation as a minimum.
14. Installed damper units require operational checks upon completion to insure proper functioning.
15. Damper is rated for Bidirectional airflow
16. Factory mounted electrical actuator are supplied with the following voltage: 24VAC, 120VAC and 220VAC. All wiring and connection shall conform to NEC or local electrical code.
17. Pneumatic actuator requires metallic airlines connections and a minimum of 20 psi supply air (Not to exceed 30 psi)



**MAXIMUM DAMPER SIZES**

TYPE INSTALLATION	SINGLE UNITS IN INCHES	
	Height	Width
VERTICAL	36	36
VERTICAL	48	30
HORIZONTAL	36	36

RS -100

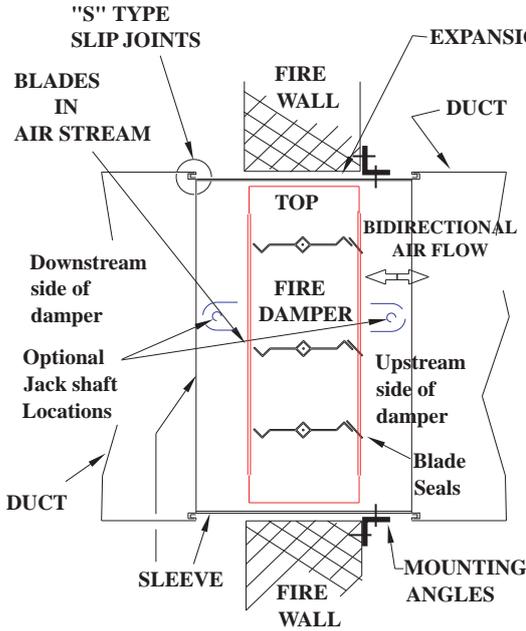
165° F is standard rating

\*When used, Fusible link located in pin grooves.



# INSTALLATION INSTRUCTIONS MODEL KFSD-111

## VERTICAL & HORIZONTAL MOUNT SINGLE SIDE RETAINING ANGLES FOR USE IN 2 HRS OR LESS RATED PARTITION

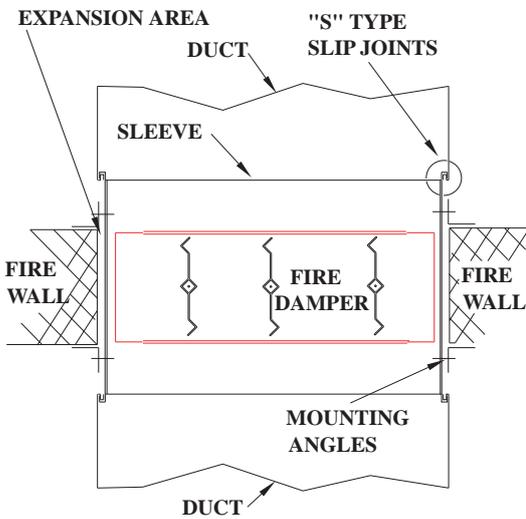


VERTICAL INSTALLATION

KBE rapid mounting angles (for use on one sided angle installations). These instructions apply to 1-1/2hrs rated dynamic multi-blades fire damper model: KFSD-111 mounted in masonry, block or metal stud, walls and floors. Angles shall be minimum of 1-1/2" x 1-1/2" x 16 gauge for opening in metal stud and concrete / masonry walls and floors of 36"x36" and less. Mounting angles are only required on one side of wall or top of the floor. They must be attached to both the sleeve and the wall. Mounting angles may be installed directly to the metal stud under wall board on metal installations only. Sizes larger will require the previous retaining angle design which consisted of 4 separate angle per side.

For one sided KBE rapid mounting angle installations, the sleeve fasteners shall be No#10 sheet metal screws spaced 3" from each end and no greater than 12" on center. With a minimum of two (2) fasteners on each side, top and bottom wall/floor fasteners shall be No#10 sheet metal screw 2" long. Two screws on each side angle spaced 3 inches from each end, Three screws on each head and sill angles with one screw in the center and one at each end spaced 3 inches from the ends. Screw fasteners used in metal stud must engage the metal stud a minimum of 1/2". Screw fastener used in masonry walls or floors must engage the wall or floor a minimum of 2".

Angles should overlap the partition a minimum of 1" around the entire opening. \*\*Refer to notes on page (2) for duct connection to fire damper and expansion clearance



HORIZONTAL INSTALLATION  
KBE Rapid mounting angle MUST be installed on top of floor



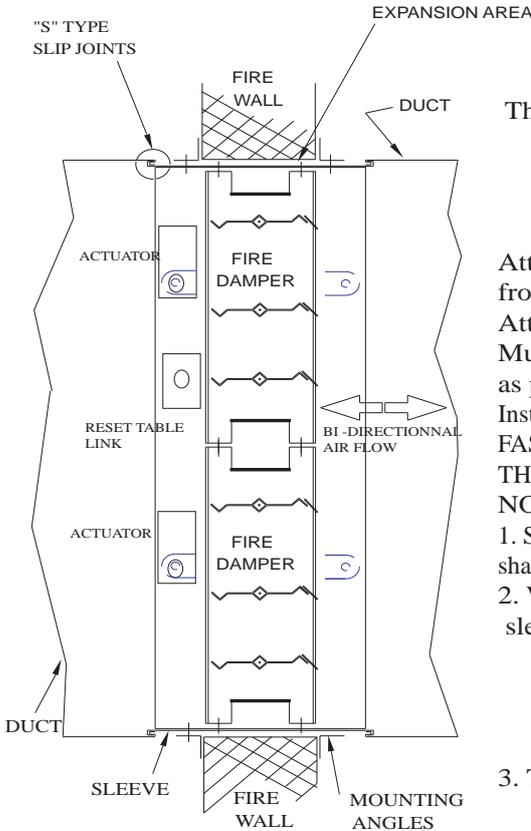
### MAXIMUM DAMPER SIZES

TYPE INSTALLATION	SINGLE UNITS IN INCHES	
	Height	Width
VERTICAL	36	36
HORIZONTAL	36	36



# INSTALLATION INSTRUCTIONS MODEL KFSD-111

## MULTIPLE SECTIONS - VERTICAL MOUNT FOR USE IN 2 HRS OR LESS RATED PARTITION



The damper sections must be attached together with following:

- 1- #10 (3/4" max) sheet metal screws,
- 2- 1/4 in. diameter nuts & bolts
- 3- 1/2" long fillet welds
- 4- 3/16" diameter steel self-piercing rivets.

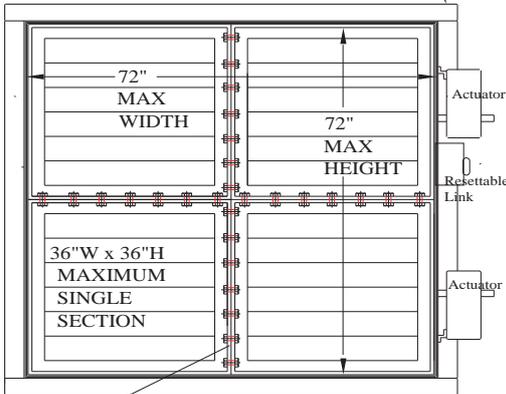
Attachments must be spaced a minimum of 6 in. on centers & a maximum of 2 in. from corners, except 1/4" nuts & bolt could be spaced of 8 in. on center. Attachments must be made on front face & back face of the damper sections. Multi-section damper could be provided with one RS-100 Resettable link as per space restrictions. Installation per NFPA. 90A, UL555, and SMACNA fire smoke and radiation installation guide. FASTENERS MUST BE PLACED WHERE THEY DO NOT INTERFERE WITH THE DAMPER OPERATION.

**NOTES:**

1. Sleeves shall be of the same gauge or heavier than the duct to which it attached. Gauge shall conform to SMACNA or ASHRAE standards.
2. When the following sleeve connections are used, the minimum gauge of the sleeve shall be 14 gauge.
  - a. Angle reinforced standing seam.
  - b. Angle reinforced pocket lock.
  - c. Companion angles.
  - d. Metal fasteners approximately 16" on centers.
3. The following breakaway sleeve connections may be used on all systems:
 

a. Plain "S" slip	e. Reinforced bar slip
b. Hemmed "S" slip	f. Angle slip
c. Bar slip	g. Inside slip joint
d. Standing "S" slip	h. Double "S" slip
4. Clearance for expansion of 1/8" per foot of sleeve dimension is required. Angles should lap masonry a minimum of 1" around the entire opening.
5. The connecting ducts shall not be continuous, but shall terminate at the sleeve or frame.
6. An ACCESS DOOR is a NFPA requirement for damper inspection and testing.
7. Maximum sleeve extension is 16" on access door or actuator side of wall or floor opening.
8. Maximum sleeve extension is 6" on side of wall or floor opening for dampers without access door or actuator.
9. Dampers are supplied with factory mounted actuators designed to close automatically upon detecting heat, or the loss of actuator power.
10. CAUTION : THE HEAVY DAMPER CLOSURE SPRING IS UNDER LOAD When damper is order with Fusible link.
11. A continuous bead of Dow Corning RTV-732, Dow Corning 999A, or GE-1200 silicone rubber sealant shall be applied between the damper and the sleeve for its entire profile on one side of the installation as a minimum.
12. Installed damper units require operational checks upon completion to insure proper functioning.
14. Damper is rated for Bidirectional airflow
15. Factory mounted electrical actuator are supplied with the following voltage: 24VAC, 120VAC and 220VAC. All wiring and connection shall conform to NEC or local electrical code.

**VERTICAL INSTALLATION**



DAMPER FRAME TO DAMPER FRAME ASSEMBLY 1/4" BOLTS AND NUTS ON 8" CENTERS MAXIMUM.

**MAXIMUM MULTIPLE SECTIONS**

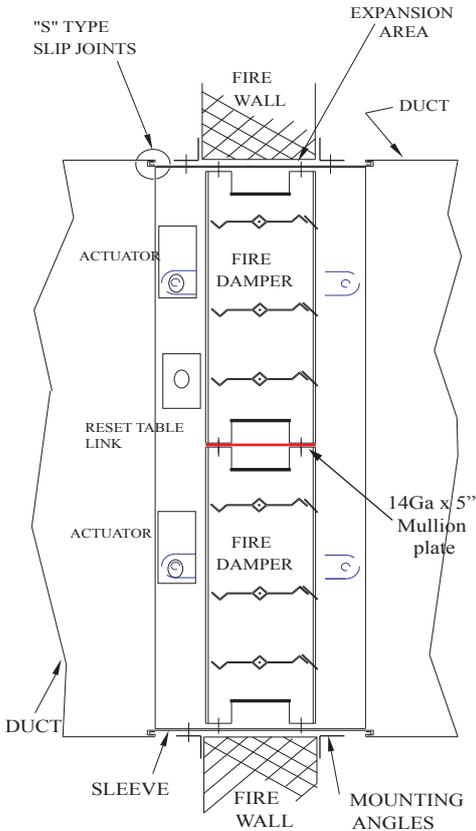
TYPE INSTALLATION	SINGLE UNITS IN INCHES		RS -100 165° F is standard rating
	Width	Height	
VERTICAL	72	72	





# INSTALLATION INSTRUCTIONS MODEL KFSD-111

**MULTIPLE SECTIONS SIZE above 72"x72"  
VERTICAL MOUNT- 1.5hr RATED FIRE RATED  
FOR USE IN 2 HRS GYPSUM 3.5" MIN STEEL STUD WALL WITH  
FRAME OPENING OR CONCRETE MASONRY WALL**



**VERTICAL INSTALLATION**

The damper sections must be attached together with 1/4" (6mm) Diam nuts & bolts or 1/2" (13mm) long fillet welds. Attachments must be spaced a minimum of 5" (127mm) on centres & a maximum of 1" (25mm) from corners. Attachments must be made on front face & back face of the damper sections. A 14Ga (2.5mm) Galvanized steel Mullion plate should be placed between mating dampers as shown in Annexure (A). Multi-section damper could be provided with one RS-100 Resettable link as per space restrictions, Installation per NFPA. 90A, UL555, and SMACNA fire smoke and radiation installation guide. FASTENERS MUST BE PLACED WHERE THEY DO NOT INTERFERE WITH THE DAMPER OPERATION.

**NOTES:**

- Sleeves shall be of 16Ga (1.5mm) or heavier than the duct to which it attached. Gauge shall conform to SMACNA or ASHRAE standards.
- Fire dampers assembly must be attached to sleeves on all four sides & must be attached to the sleeve with one row of attachments on each side of the blade channel. Attachments must be spaced a maximum of 5" (127mm) on centers and a maximum of 2" (50mm) from corners. The Sleeve will attached by 5mm Steel Pop Rivet or self-piercing rivet or Welds 1/2" (13mm) min Long.
- Fire damper and sleeve assemblies must be installed in wall using retaining angles on each side of the wall. Retaining angles must be attached to the sleeve using No.10 sheet metal screws or 1/4"(6mm) bolts and nuts.
- When the following sleeve connections are used, the minimum gauge of the sleeve shall be 14 gauge.
  - Angle reinforced standing seam.
  - Angle reinforced pocket lock.
  - Companion angles.
  - Metal fasteners approximately 16" on centers.

5. The following breakaway sleeve connections may be used on all systems:

- Plain "S" slip
- Hemmed "S" slip
- Bar slip
- Standing "S" slip
- Reinforced bar slip
- Angle slip
- Inside slip joint
- Double "S" slip

6. Clearance for expansion of 1/8" per foot (10mm per meter) of sleeve dimension is required. Angles should lap Wall a minimum of 1"(25mm) around the entire opening.

7. The connecting ducts shall not be continuous, but shall terminate at the sleeve or frame.

8. An ACCESS DOOR is a NFPA requirement for damper inspection and testing.

9. Maximum sleeve extension is 16" (401mm) on access door or actuator side of wall opening.

10. Maximum sleeve extension is 6" (152mm) on side of wall opening for dampers without access door or actuator.

11. Dampers are supplied with factory mounted actuators designed to close automatically upon detecting heat, or the loss of actuator power.

12. CAUTION : THE HEAVY DAMPER CLOSURE SPRING IS UNDER LOAD When damper is order with Fusible link.

13. A continuous bead of Nuflex 302, Dow Corning RTV-732, Dow Corning 999A, or GE-1200 silicone rubber sealant shall be applied between the damper and the sleeve for its entire profile on one side of the installation as a minimum.

14. Installed damper units require operational checks upon completion to insure proper functioning.

15. Factory mounted electrical actuator are supplied with the following voltage: 24VAC, 120VAC & 220VAC. All wiring and connection shall conform to NEC or local electrical code.

**MAXIMUM MULTIPLE SECTIONS**

TYPE INSTALLATION	Width	Height
VERTICAL	120	72

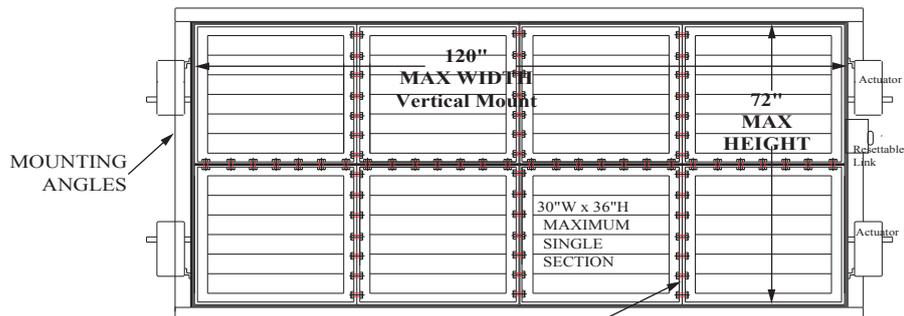
Single Section 30"x36" X 8 sections

RS -100

165° F is standard rating (Standard)



REFER TO ANNEXURE - A  
For actuator Details Wiring & Assembly

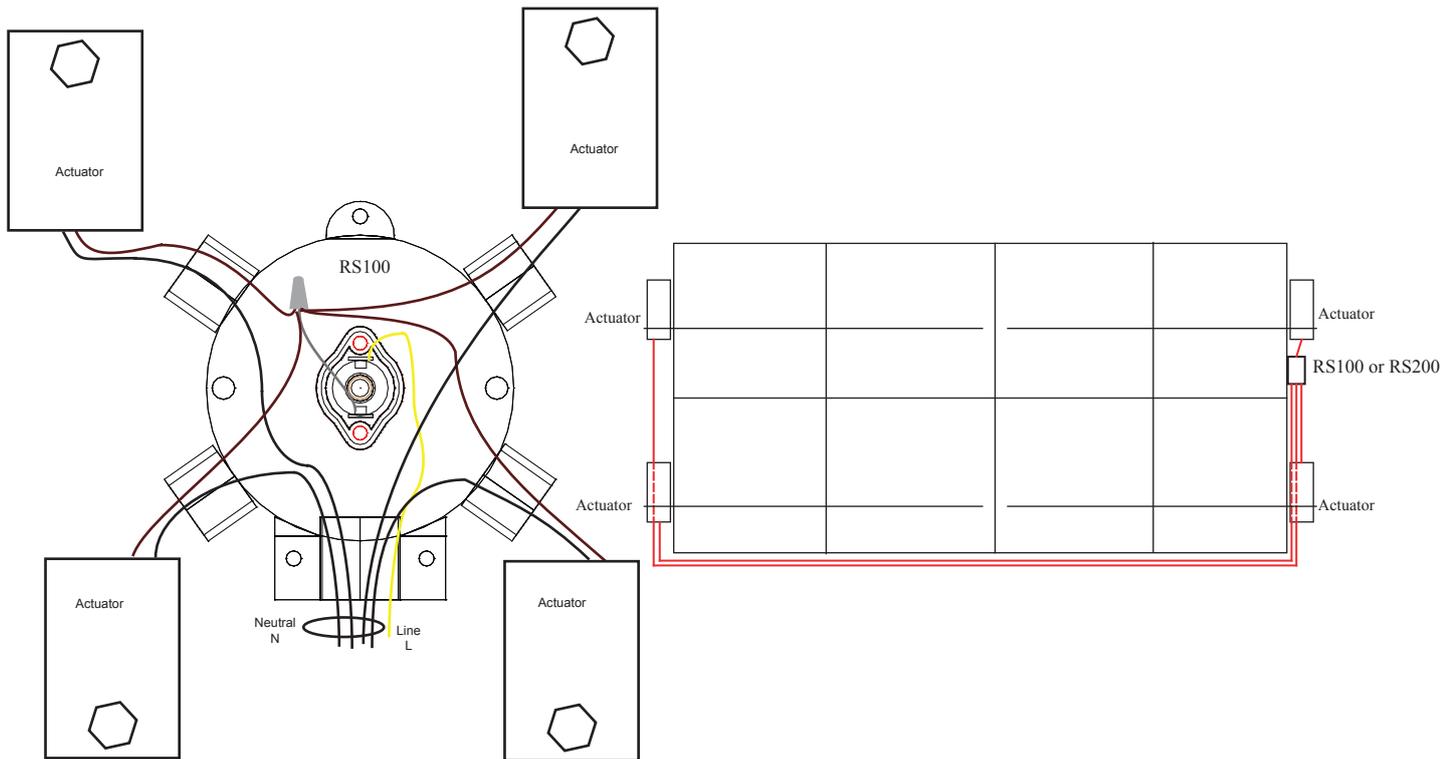


DAMPER FRAME TO DAMPER FRAME ASSEMBLY  
1/4" BOLTS AND NUTS ON 5.5 TO 6" CENTERS MAXIMUM.

# INSTALLATION INSTRUCTIONS MODEL KFSD-111

MULTIPLE SECTIONS - VERTICAL MOUNT  
FOR USE IN 2 HRS OR LESS RATED PARTITION

## ANNEXURE --A



### 6. INSTALLING MULTIPLE FIRE SMOKE DAMPER SECTION ASSEMBLIES FOR VERTICAL Mount

A damper assembly is restricted to 8 maximum number of sections, but must not exceed the section sizes and overall sizes 120x72in. (reference Support Mullions for assemblies larger than the Maximum Overall Sizes shown).

Two section high dampers require reinforcement using a 14 gauge, 5 in. wide mullion as shown in Figure 1 below. Dampers ordered for individual installation may not be installed together. The full assembly size must be specified at the time the dampers are ordered.

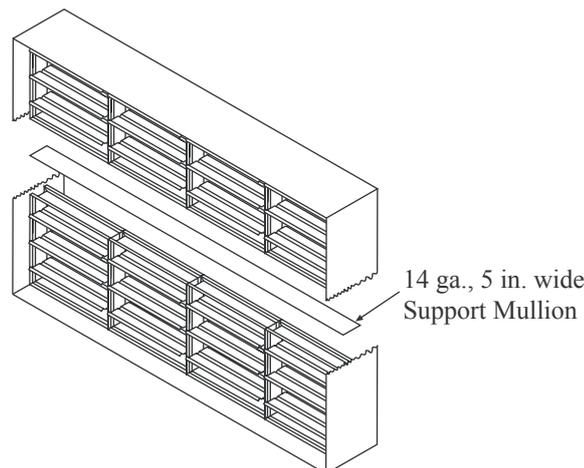


Fig. 1

Single Sleeve Around  
Outside with Support  
Mullion