



INSTALLATION INSTRUCTIONS MODEL KFSD-L-111 VERTICAL MOUNT FOR USE IN 4 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

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.

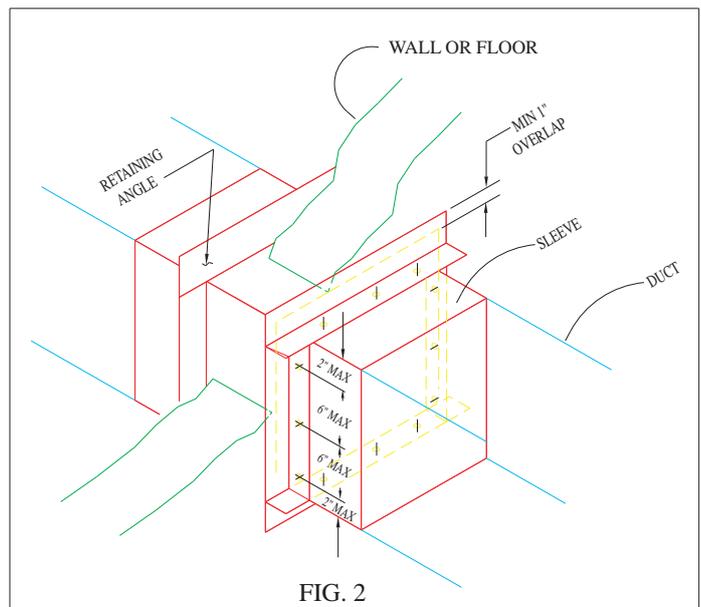
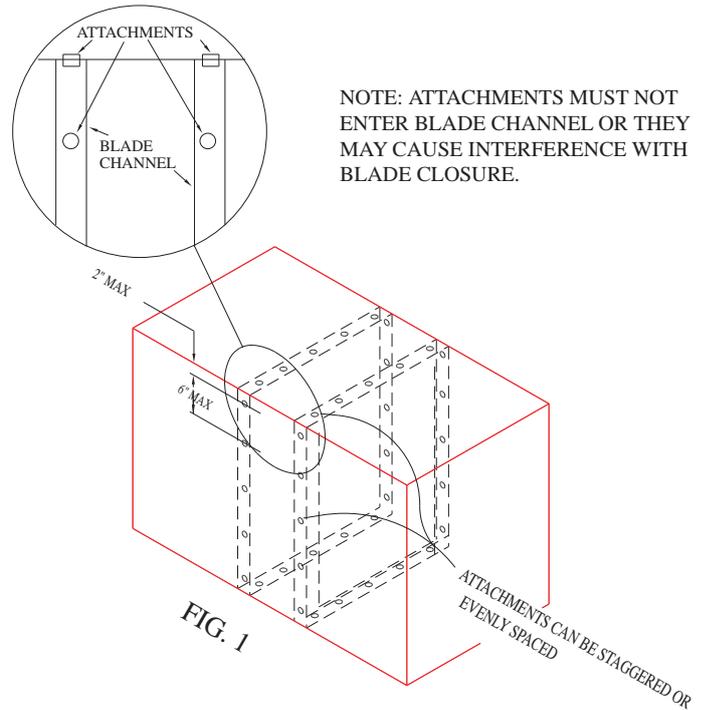
- Retaining angles must completely cover the clearance space between the sleeve and the wall opening, plus overlap the wall a minimum of 1".

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

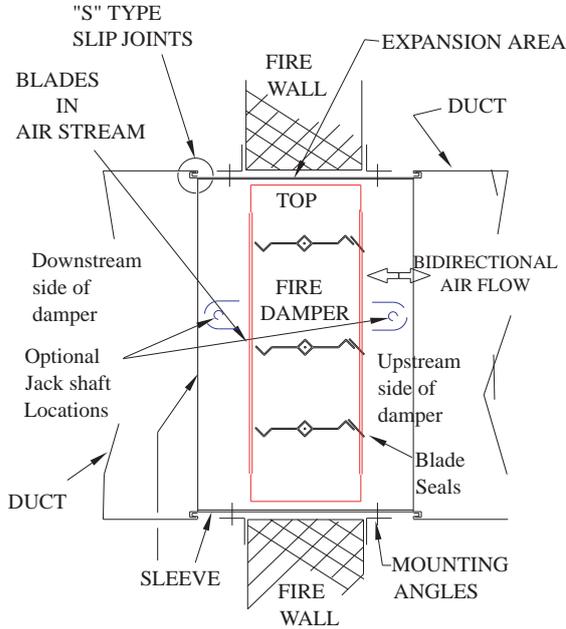
Installation per NFPA. 90A, UL555, and SMACNA fire smoke and radiation installation guide.





INSTALLATION INSTRUCTIONS MODEL KFSD-L-111

SINGLE SECTION - VERTICAL MOUNT FOR USE IN 4 HRS OR LESS RATED PARTITION



VERTICAL 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 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 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.
16. 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	
	Width	Height
VERTICAL	36	36
VERTICAL	30	48

CLOSURE DEVICE

RS-100 with Temperature rating of 165°F as standard

(other Rating are available)

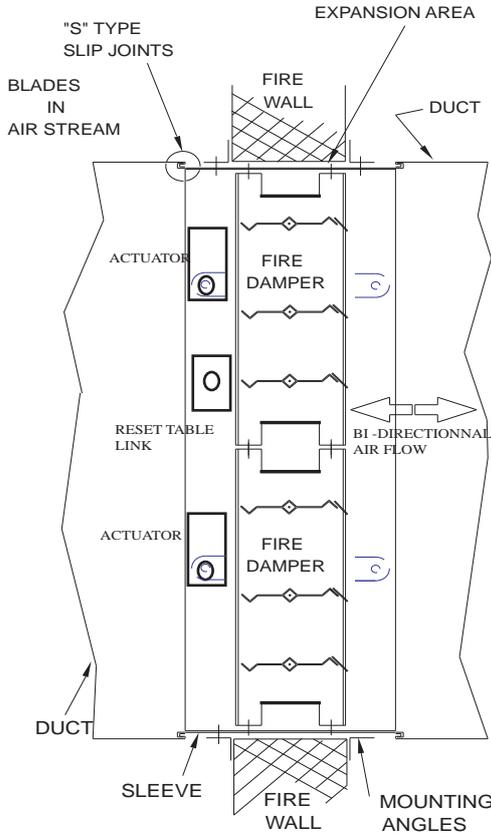
FUSIBLE LINKS when ordered

have a Temperature rating of 165°F as standard and are located in pin grooves near the Spring.



INSTALLATION INSTRUCTIONS MODEL KFSD-L-111

MULTIPLE SECTIONS - VERTICAL MOUNT FOR USE IN 4 HRS OR LESS RATED PARTITION



The damper sections must be attached together with following:

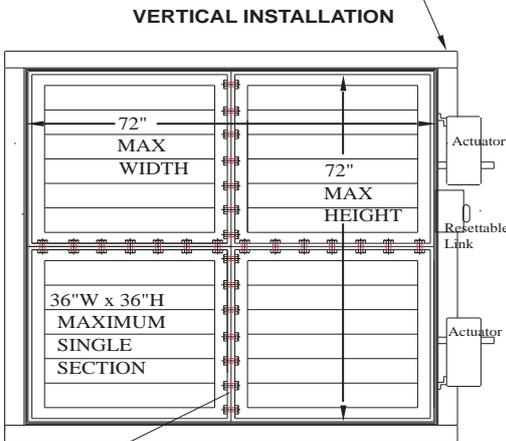
- 1- #10 (3/4" max) sheet metal screws,
- 2- 1/4 in. diameter nuts & bolts
- 3- 1/2" long fillet welds
- 4- 3/16" diameter steel self-piercing rivets.

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 Lloydstat 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.
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.



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	

