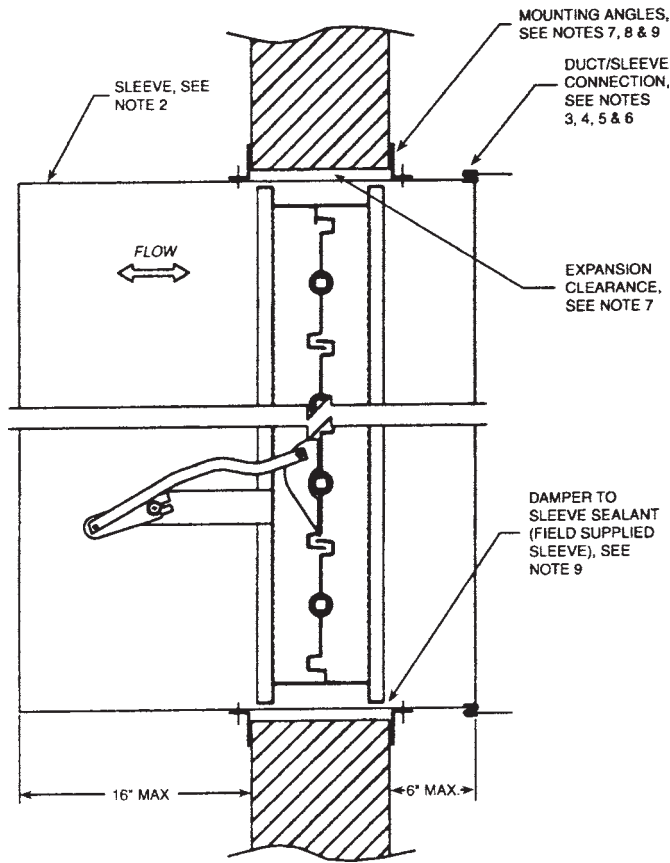


INSTALLATION INSTRUCTIONS

THREE HOUR FIRE/LEAKAGE RATED DAMPER

MODEL: AT, MD37

AII-AT-03.2



The Model AT-Series damper is dynamically rated and Underwriters Laboratories Classified for Three Hour Fire Resistance (per Standard 555) and Classified as a Leakage Rated Damper (per Standard 555S). (Model MD37 is not leakage rated.)

When motorized, this damper is sealed into a factory provided sleeve. When provided as a nonmotorized, spring closure assembly, the sleeve can be field supplied, mounted and sealed to the damper. The sleeved damper assembly must be mounted such that the closed plane of the damper blades are within the fire rated wall.

This damper may be mounted in the vertical or horizontal position, with the blades running horizontally. The vertical damper may be mounted right side up or upside down.

This damper will close automatically upon sensing elevated temperature or upon loss of electrical power or release of air pressure (Model AT). A duct access door is to be located on the jackshaft side of each damper to allow for inspection and maintenance.

MOUNTING

1. The installation of the damper and all duct connections to the damper sleeve shall conform to these instructions as well as to NFPA-90A and the SMACNA Fire, Smoke and Radiation Damper Installation Guide.
2. Sleeves shall be steel of the same gauge or heavier as the duct to which it is attached. Gauges shall conform to SMACNA or ASHRAE duct standards (See Table 1.)

Damper sleeves can be no thicker than 10 ga. steel. The sleeve is to be attached to the damper by means of $\frac{3}{16}$ " steel rivets, $\frac{1}{4}$ " steel bolts, #10 steel sheet metal screws or $\frac{1}{2}$ " long welds. Fasteners to be 10" maximum on centers, staggered on both faces, $3\frac{1}{2}$ " maximum from each end.

INTRODUCTION

DAMPER WIDTH (in.)	MINIMUM SLEEVE THICKNESS	
	(in.)	(Ga.)
12 or less	.018	26
13 - 30	.024	24
31 - 54	.030	22
55 - 84	.036	20
85 or more	.047	18

TABLE 1



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MOUNTING, Continued

3. Duct connections to the sleeve will be either of the breakaway or rigid types that are listed below. The following determines if the connections are to be rigid or breakaway. For rigid type duct connections, sleeve shall be a minimum of 16 ga. on dampers not exceeding 36" wide or 24" high or 24" diameter and 14 ga. on larger units. Dampers supplied with thinner sleeves will require a breakaway connection of the types listed in Note 5. The standard factory supplied sleeve is 20 ga. galvanized steel (18 ga. on dampers wider than 84") and assumes that a breakaway type duct connection will be employed.
4. Duct connections not listed as breakaways (**See Note 5**) shall be considered rigid. Breakaway joints shall have no more than two No. 10 sheet metal screws on each side and on the bottom. The screws shall penetrate both sides of the slip pocket. When a breakaway joint is used along the top and bottom duct connection, a flat drive slip no longer than 20 inches is permitted on the two sides.
5. The following breakaway duct-to-sleeve connections may be used: Plain "S" Slip, Double "S" Slip, Inside Slip, Hemmed "S" Slip, Standing "S" Slip, Standing "S" Slip (Bar Reinforced), Standing "S" Slip (Angle Reinforced) and Standing "S" Slip (Alternate Bar).
6. All connecting ducts shall not be continuous but shall terminate at the fire damper sleeve. Connecting ducts are attached to the damper sleeve as instructed by Notes 3, 4 and 5.
7. The opening in the wall or floor for fire rated dampers shall be $\frac{1}{8}$ " per foot ($\frac{1}{4}$ " minimum) to a maximum of 1" greater than the overall damper sleeve width and height to allow for expansion. This sizing dimension covers all dampers up to 96"W x 48"H. Damper widths above 96" shall require the opening width to be a minimum of $1\frac{1}{4}$ " and a maximum of 2" greater than the overall width. Perimeter mounting angles must be sized to allow a minimum of $\frac{1}{2}$ " overlap of the wall opening regardless of damper shift in the opening.
8. The perimeter mounting angles shall be fastened to the damper sleeve on all four (4) sides and both faces. Do not fasten mounting angles to the wall. Acceptable methods of attachment are $\frac{1}{4}$ " diameter steel or stainless steel nuts and bolts, tackweld beads $\frac{1}{2}$ " long $\pm \frac{1}{4}$ ", #10 steel or stainless steel sheet metal screws or $\frac{3}{16}$ " steel or stainless steel pop rivets. Connections shall be spaced a maximum of 6" on center and shall have a connection no greater than $1\frac{1}{2}$ " from each corner.

Perimeter mounting angles shall be a minimum $\frac{7}{8}$ " x $1\frac{1}{2}$ " x 16 ga. steel for dampers up to 96"W x 48"H. Dampers above this size shall have mounting

angles of $1\frac{1}{2}$ x $2\frac{1}{2}$ x $\frac{1}{8}$ steel. Note in each case the larger leg shall be against the wall opening. Corners may be welded, tabbed or loose for openings up to 96"W x 48"H. Corners above this size shall be loose. Some local codes may not allow welded or tabbed corners.

Perimeter mounting angles are an option that can be supplied by the factory. However, fasteners are always a field supplied item. Attachment of these angles must not restrict the operation of the dampers.

9. To maintain the leakage rating, field supplied sleeves must be caulked to the damper frame. Caulking is allowed between the mounting angles and the floor or wall construction. Caulk shall be one of the following: Dow Corning RTV732, General Electric IS808 or Novagard RTV300. Caulking is not allowed between the damper sleeve and the wall or floor inside the opening (annular space).
10. Damper shall be maintained in intervals as stated in NFPA 90A and 92A unless local codes require more frequent inspections.

ACTUATOR (MODEL AT)

1. If the actuator is electrically energized yet the damper remains in the closed position, check that the reset button on the heat response device is depressed.
2. See Page 4 for electric wiring instructions for electric actuators and position indication switches.
3. Check actuator label for proper supply voltage and current draw or minimum and maximum air supply pressure.
4. All wiring to be in accordance with N.E.C. (NFPA-70).
5. Operation of optional reopenable (Sens-O-Therm) feature:
 - A. Master Control Switch in closed position—
Damper will close regardless of whether the thermo switch device has activated or not and regardless of the command from the smoke system.
 - B. Master Control Switch in reopen position—
If the damper has not been exposed to an elevated temp. higher than its rating the damper will open. Also, the damper will open regardless of whether the low limit switch either (165°F or 212°F) has actuated or not. If the damper has been exposed to an elevated temperature higher than its temperature degradation rating or if the electrical or pneumatic supply has been disconnected, the damper will close and remain closed regardless of any (MCS) position.
6. Horizontally mounted, two panel wide assemblies greater than 26" high require a mullion stiffener. Reference page 8 of II-AS.

VERTICALLY MOUNTED

ACTUATOR TYPE	MAX. W x H SINGLE SECTION (in.)	MAX. W x H MULTIPLE PANEL ASSEMBLY (in.)	MAX. PANELS WIDE & QTY. OF ACTUATORS
MS4209, 4309 MS8209, 8309 FSNF120, 24 331-2961, 2995	36 x 36	108 x 36	3
MS4120, 8120 GGD121,221 321 331-2792	36 x 48	108 x 48	3

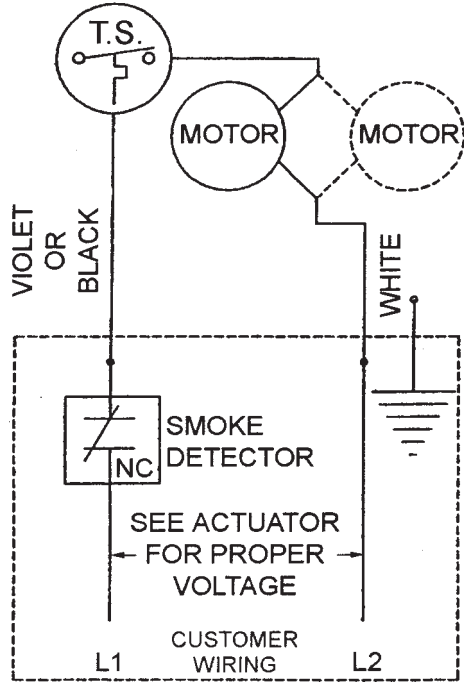
TABLE 2

HORIZONTALLY MOUNTED

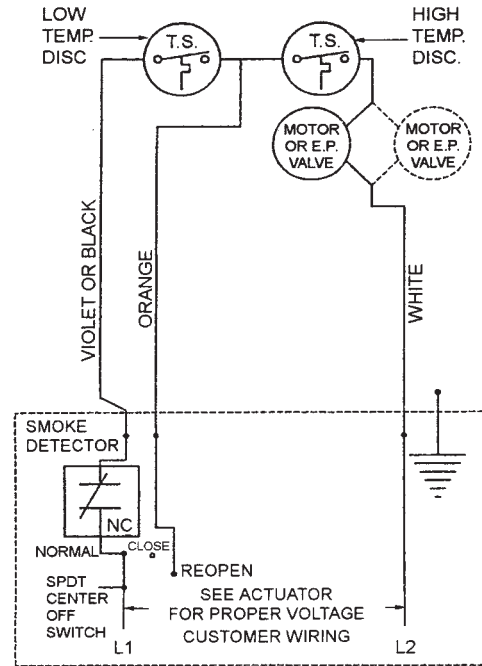
ACTUATOR TYPE	MAX. W x H SINGLE SECTION (in.)	MAX. W x H MULTIPLE PANEL ASSEMBLY (in.)	MAX. PANELS WIDE & QTY. OF ACTUATORS
MS4209, 4309 MS8209, 8309 FSNF120, 24 331-2961, 2995	30 x 36	60 x 36	2
MS4120, 8120 GGD121,221 321 331-2792	30 x 48	60 x 48	2

TABLE 3

ELECTRIC WIRING SCHEMATICS



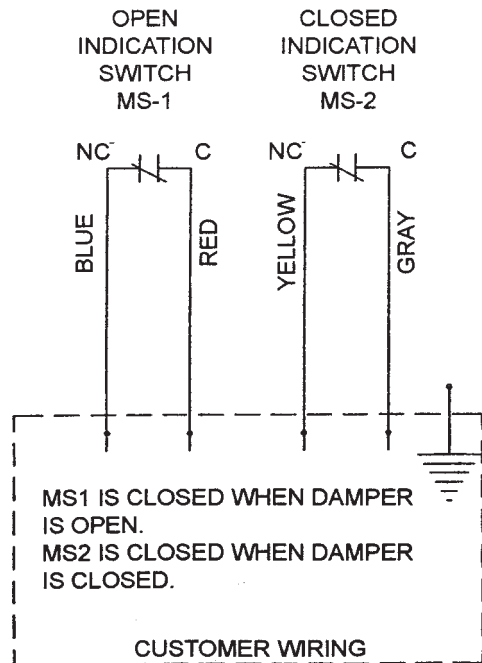
This schematic is used for dampers supplied with a single thermal switch.



This schematic is used for dampers supplied with the Sens-O-Therm, reopenable feature (two thermal switches).

NOTES:

1. All wiring to be in accordance with N.E.C. (NFPA-70).
2. Refer to actuator label for appropriate voltage.
3. Connect incoming ground to the actuator assembly.
4. If the actuator is electrically energized yet the damper remains in the closed position, check that the reset button on the heat response device is depressed.
5. Optional auxiliary blade position indication switches are rated at 1A, 1/3HP, 125VAC. These snap action switches are intended to make or break a circuit and will not provide variable or proportional resistance.



This schematic is used to wire auxiliary blade position indication switches.