

INSTALLATION INSTRUCTIONS FOR
CURTAIN TYPE STATIC FIRE DAMPERS
MODEL SERIES 5100S(-SS) • 1½ HR. LABEL
VERTICAL AND HORIZONTAL MOUNT



IMPORTANT GENERAL NOTES: When UL is referred to in this document, it represents UL/ULC. These installation instructions apply to static curtain type fire dampers mounted in the plane of an UL approved fire partition. These instructions meet the requirements of UL 555 and ULC S112. The dampers are designed for operation in the vertical or horizontal position with blades running horizontal. The dampers are to be installed square and free from twisting or racking. The dampers shall not be compressed or stretched into the opening. Transportation and installation of the dampers shall be handled with the sleeve or frame. Do not lift the damper with the blades. Special care shall be given to the damper before installation and after to insure it is protected against dirt, weather, mortar and drywall dust, wall texture and paint. Any of these conditions could cause the damper not to operate correctly and void the warranty. Suitable access to inside duct is to be provided for inspection and replacement of parts such as heat response devices per NFPA 90A and local authority having jurisdiction. Sleeve-to-duct connections may be sealed using approved sealant (see Note 5). These installation instructions apply to Alumavent Inc. Model Series' 51XXS (galvanized steel) and 51XXS-SS (stainless steel).

SAFETY WARNING:

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

1. CLEARANCES REQUIRED BETWEEN FIRE DAMPER SLEEVES AND WALL/FLOOR OPENINGS:

Due to the thermal expansion of fire dampers and sleeves during periods of extreme heat, it is essential that openings in walls or floors be larger than the damper to allow for this expansion. Minimum clearances required between the outside of fire damper sleeve assemblies and wall/floor openings are as follows:

- A. Damper assemblies using 2 sided angles method (See Note 4): Galvanized steel construction** shall be a minimum of 1/8" (3mm) per linear foot (305mm) of height and width of sleeved assembly with a minimum of 1/4" (6mm). **Stainless steel construction** shall be a minimum of 3/16" (5mm) per linear foot (305mm) of height and width of sleeved assembly with a minimum of 1/4" (6mm). The maximum opening size shall be 2" (51) larger in either dimension than the allowable minimum size.
- 2. DAMPER SLEEVE:** Sleeves shall be of the SAME GAUGE or heavier as the duct to which it is attached, if one of the breakaway connections is used as defined in the SMACNA Fire, Smoke and Radiation Damper Guide for HVAC Systems and in NFPA 90A. Gauges shall conform to SMACNA or ASHRAE duct standards. Sleeves shall not extend beyond the fire barrier more than 6"(152mm) unless a factory installed access door is supplied, then the sleeve may extend up to 16"(406mm). Sleeve shall terminate at both sides of wall/floor within dimensions shown. If a rigid connection is used, then the sleeve shall be a minimum of 16 gage for dampers up to 36" (914mm) wide by 24"(610mm) high and 14 gage for dampers exceeding 36" (914mm) wide by 24" (610mm) high.
- 3. ATTACHING FIRE DAMPERS TO SLEEVES and MULTIPLE SECTION FIRE DAMPERS:** Damper shall be secured on all four sides to the sleeve and to each other when multiple sections are shipped unassembled, with one row of fasteners on each side of the blade track, as follows: Use #10 sheet metal screws, ¼" (6mm) nut and bolts, ¼" (6mm) tack welds or 3/16" (5mm) steel (or stainless steel) rivets, spaced a maximum of 6" (152mm) on centers (sleeve-to-frame fasteners to be staggered on stainless steel dampers) and a maximum of 2" (51mm) from the corners. A minimum of 4 attachments (2 on each side of the blade track) per side (16 per damper) are required. Fasteners are not to be located inside the blade track.

Maximum sizes for "Type A" fire dampers are as follows:

Single Section

- 51AVS Vertical Mount: 60" x 60" (1524 x 1524mm).
- 51AHS Horizontal Mount: 40" x 40" (1016 x 1016mm).
- 51AVS-SS Vertical Mount: 32" x 36" (813 x 914mm).
- 51AHS-SS Horizontal Mount: 36" x 36" (914 x 914mm).

Multiple Section

- 51AVS Vertical Mount: 120" x 80" (3048 x 2032mm) with maximum section size not to exceed 40" x 40" (1016 x 1016mm), or 108" x 96" (2743 x 2438mm) with maximum section size not to exceed 36" x 48" (914 x 1219mm).
- 51AHS Horizontal Mount: 80" x 40" (2032 x 1016mm).
- 51AVS-SS Vertical Mount Only: 96" x 72" (2438 x 1829mm).

Note: Type B and C dampers have the same overall damper size but the connection ducts are smaller due to the B or C enclosures.

- 4. SECURING DAMPER IN OPENING (2 SIDED ANGLE METHOD):** In this method 2 sets of angles are used to secure the damper in the opening, one on each side of the partition (See Figures 1 through 7). Two Angle Method is approved for 1-1/2 Hr, vertical or horizontal orientation, and any maximum size multi-section UL approved damper. Angles shall be a minimum of 1-1/2" x 1-1/2" (38 x 38mm) x 16 gage. The angles are to overlap the partition a minimum of 1" (25mm). These angles may be of a unit type construction and may or may not be fastened to each other at the corners. Angles are to be fastened to the sleeve on 6" centers with #10 (M5mm) sheet metal screws, 3/16" (5mm) steel pop rivets, 1/2" (13mm) tack welds, or 1/4" (6mm) diameter nut and bolts with not more than 2" (51mm) from each end with a minimum of two connections per side/leg. When the duct work terminates at the damper or installation prohibits angles from turning out/away from the wall, the retaining angle shall be reversed (leg turned into the opening) providing the size of the opening is increased by an amount equal to twice the combined thickness of the angle and the height of the screw or bolt head to maintain expansion clearances. See note 1A for information on clearances. See Fig. 7 for detailed drawings of installations. Retaining angles should not be fastened to the wall / floor material. The angles should only sandwich the partition and allow for damper / sleeve expansion during periods of intense heat.

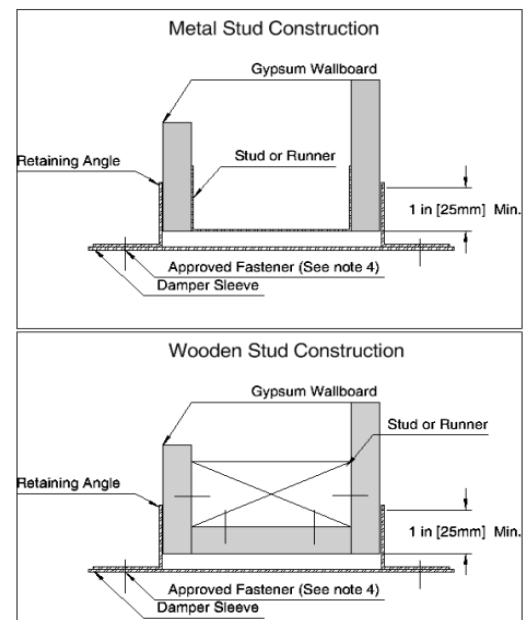


Figure 1

PREPARATION OF OPENINGS IN WOOD AND METAL STUD WALLS.

- Frame wall openings as shown in Figure 2.
- Double vertical studs are not required for openings 36" x 36" (914 x 914mm) or smaller.
- Double horizontal studs may be used to frame opening
- Gypsum panels screwed to all studs and runner flanges, 12" (305mm) o.c. maximum surrounding the openings. All fasteners are to be UL approved per UL design (See UL Fire Resistance Directory).
- In wood stud construction gypsum wall board must cover all wood stud surfaces.

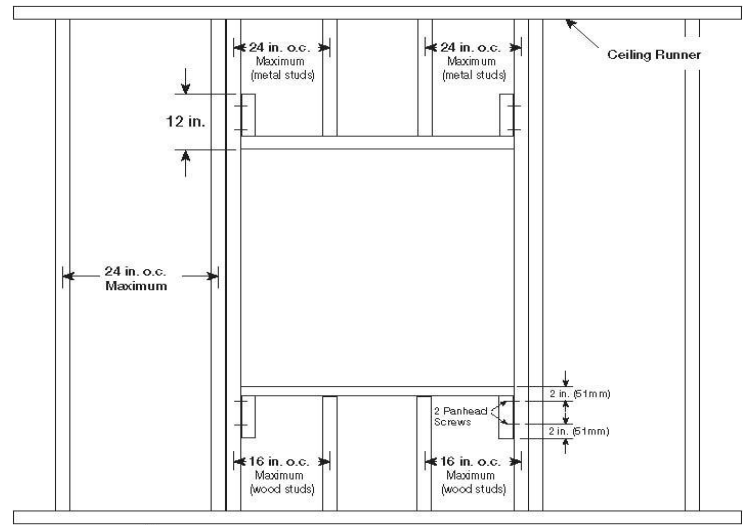


Figure 2

TYPE A

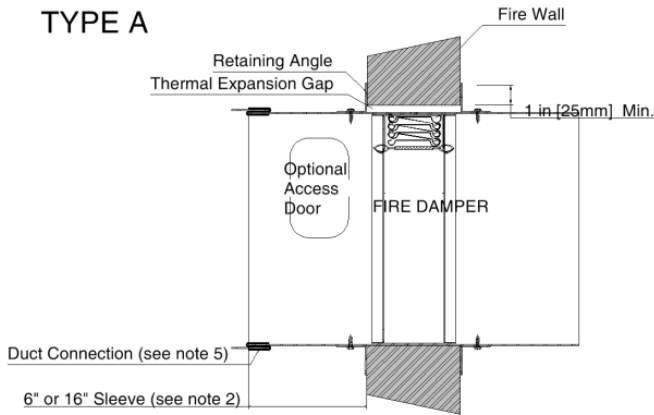


Figure 3

TYPE A REVERSED RETAINING ANGLE

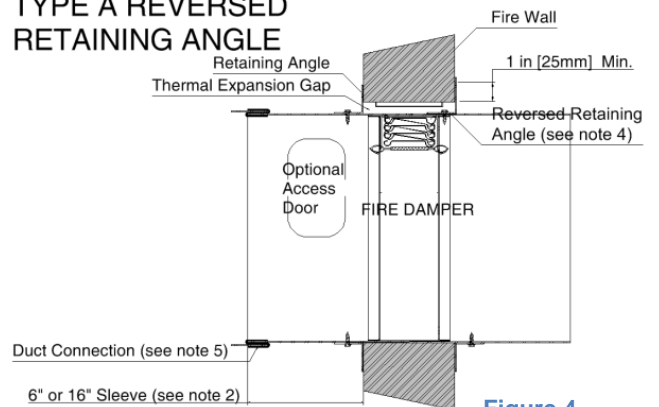


Figure 4

TYPE B

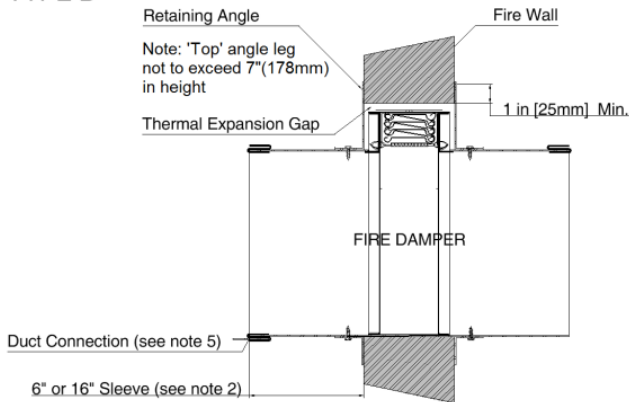


Figure 5

TYPE C

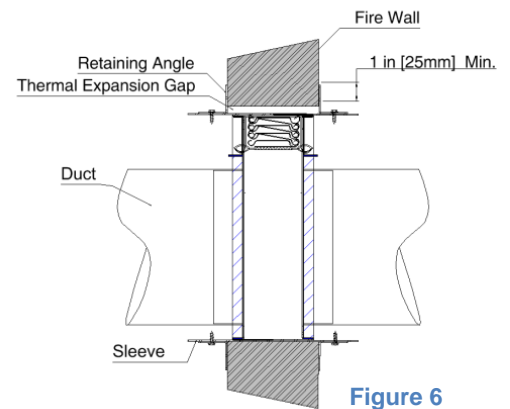


Figure 6

TYPICAL OF FACE VIEW BOTH SIDES

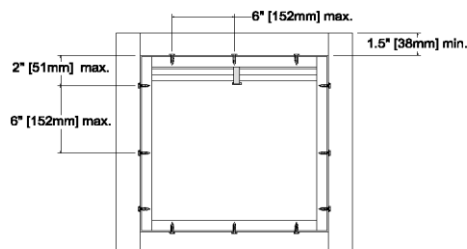


Figure 7

5. BREAKAWAY DUCT/SLEEVE CONNECTIONS:

Rectangular ducts must use one or more of the connections shown in Figure 8 if the gauge is less than the requirement in Note 2 for rigid connections.

A maximum of two #10 sheet metal screws on each side and on the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used.

One of the connections shown in Figure 8 on the top and bottom joints with flat drive slip connections (shown below, Figure 9) on the side joints may be used for dampers up to 20" (508mm) in height.



Figure 9

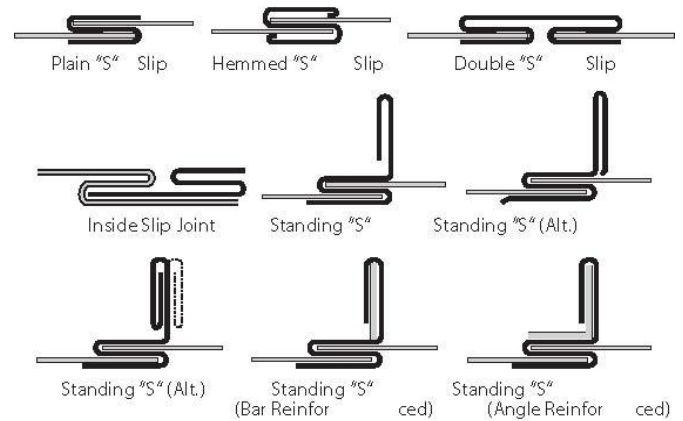


Figure 8

Round or flat oval ducts connected to Type C, CR or CO damper collars may use #10 sheet metal screws as follows:

- Duct diameters to 22" (558mm) and smaller may use 3 screws, equally spaced around the circumference.
- Duct diameters larger than 22" (558mm) and up to 36" (914mm) dia. may use 5 screws, equally spaced around the circumference.
- Duct diameters larger than 36" (914mm) may use eight screws, equally spaced around the circumference.

NOTE: All breakaway connections described may have duct sealant, PA2048T duct sealant adhesive manufactured by Precision, DP1010 water base duct sealant by Design Polymetrics, or Grey Pookie applied in accordance with SMACNA recommendations.

Proprietary Flange System Breakaway Connections (Ductmate, Ward, Nexus)

Flanged connection systems manufactured by Ductmate, Ward, and Nexus are approved as breakaway connections when installed as illustrated.

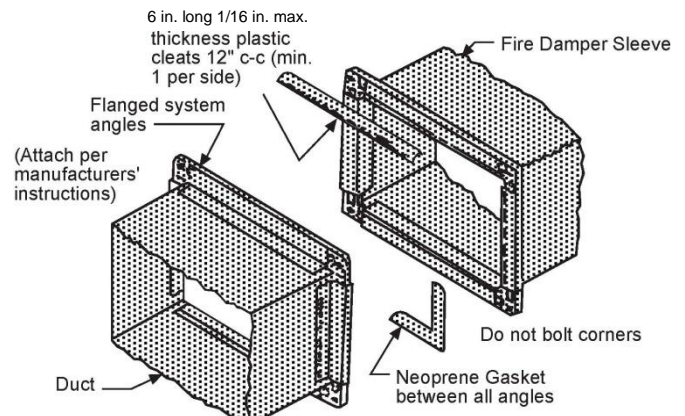


Figure 10

TDC by Lockformer, TDF by Engle:

TDC and TDF systems are approved as breakaway connections when installed as per manufacturer's instructions using 6" (152mm) metal clips spaced as shown, gaskets and four 3/8" (9.5mm) bolts and nuts (optional). Refer also to the SMACNA HVAC Duct Construction Standards and SMACNA Fire Damper Installation Guide.

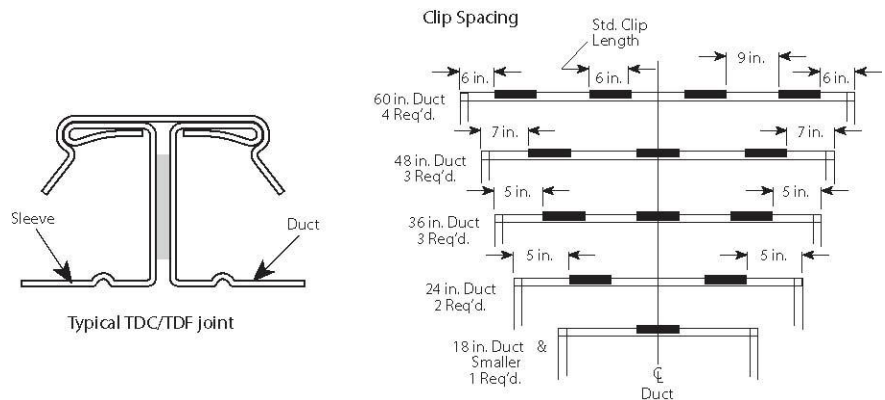


Figure 11

Damper Maintenance

Dampers shall be maintained, cycled and tested in intervals as stated in the latest editions of NFPA 80 and 90A unless local codes require more frequent inspections.

Dampers do not usually require maintenance as long as they are kept dry and clean. If cleaning is required use mild detergents or solvents. Do not use oil-based lubricants or any other lubricants that attract and retain contaminants such as dust.

Trouble Shooting Chart

Symptom	Possible Cause	Corrective Action
Damper does not fully open and or fully close	Frame is out of square causing blades to bind on track or jamb.	Adjust damper frame such that it is square and there is no twisting.
	Contaminants on damper	Clean blades with a non oil based solvent.
	Screws in damper blade track.	Find screws in the damper blade track and remove.
Blades will not stay open	Link melted by heat.	Replace Link.

- FOR SINGLE-SIDE RETAINING ANGLE INSTALLATION REFER TO ALUMAVENT SINGLE-SIDE RETAINING ANGLES SUPPLEMENTARY INSTALLATION INSTRUCTIONS [FD-SSRA](#).
- FOR OPTIONAL SEALING OF FIRE DAMPERS IN WALL OR FLOOR OPENINGS REFER TO ALUMAVENT SUPPLEMENTARY INSTALLATION INSTRUCTIONS [FD-OS](#).