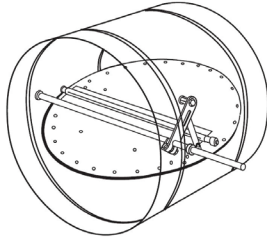
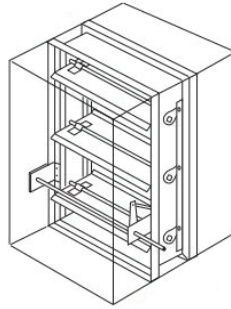


Airfoil (AF) Blades



**True Round (RD)
Blades**



3V Blades



UL/ULC File: R27700, R41135(KSA), R40068(Qatar), R41122(Egypt)

The following installation instructions are UL approved to be used with the following CVS Models: SSD-3V-201,-202, SSD-AF-201, -202, SSD-RD-201,-202 & S-AFM-PB/OB-I, -II.

Application & General Notes:

These installation instructions apply to Smoke Dampers of the 3V, Airfoil, True Round, Single and Multi-blade types to be installed at or adjacent to the point where the duct passes through a *UL rated smoke barrier. A duct outlet or inlet shall not be allowed between the smoke damper and the smoke barrier. The dampers are designed for operation in the vertical or horizontal orientation with blades running horizontal.

Safety Warning:

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

Receiving & Handling:

Check for damage when this product is received. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment are accounted for.

Installation Supplements:

- Optional Sealing of Dampers in Fire and Smoke Rated Walls or Floors
- Installing the Smoke Detector
- Field Modification of Factory Supplied Sleeves

Electrical Guidelines:

Electrical input may be needed for products discussed within this IOM. All wiring shall be done in accordance with the latest edition of the National Electrical Code ANSI/NFPA-70, any local codes that may apply and wiring diagrams developed in compliance with the job or project design and specifications.

Electrical input work should be performed by a qualified electrician. Verify power before wiring actuator. CVS is not responsible for damage to or failure of the unit caused by incorrect field wiring.

Follow all instructions carefully.

*When UL is referred to in this document, it represents UL/ULC (Underwriter's Laboratories of United States and Canada).

This IOM manual is the property of the owners, and is required for future maintenance. Please leave it with the owner when the job is complete.

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Pre-Installation Notes and Guidelines:

These notes and guidelines are formulated in order to aid in completing the damper installation in a timely and efficient manner.

- A. Inspect damper for damage before installing
- B. Dampers must be installed free from twisting or racking
- C. DO NOT compress or stretch the damper into the opening
- D. DO NOT lift the damper by the blades or actuator (handle damper using frame or sleeve)
- E. The damper must be protected from dirt, dust and foreign materials before and after installation
- F. When painting, wall-texturing, insulating or any other foreign material is being sprayed within 5 feet of the damper, the damper must be sufficiently covered and protected
- G. Suitable access inside the duct and to the damper must be created for inspection and service of the damper per NFPA 90A and local authority having jurisdiction

Maximum & Minimum Size Smoke Dampers:

MODEL	MINIMUM SIZE	MAXIMUM SIZE	
		SINGLE SECTION	MULTIPLE SECTIONS
SSD-3V-201	6x6 (152x152)	36x48 (914x1219)	144x96 (3657x2438)
SSD-3V-202			
SSD-AF-201	8x8 (203x203)		
SSD-AF-202			
SSD-RD-201*	8" Dia. (203)	24" Dia. (610)	N/A
SSD-RD-202*	8" Dia. (203)	24" Dia. (610)	N/A
S-AFM-PB/OB-I, -II	8x8 (203x203)	32x30 (813x762)	96x60 (2438x1524)

(All dimensions in parentheses () are in millimeters.) *True Round models.

SQUARE/RECTANGULAR SMOKE DAMPER INSTALLATION

Installation Guidelines:

Smoke dampers must be installed at or adjacent to the point where the duct passes through the smoke barrier in accordance with NFPA 90A. The maximum installation distance is 24" (609mm) from the smoke barrier. Duct air outlets, inlets or branches shall not be located between the smoke damper and the smoke barrier (see Figure 1).

A. The damper should be installed as to prevent any racking. Do not compress or stretch the damper frame.

B. The dampers should be attached to the duct, sleeve or wall opening using the following:

1. #10 sheet metal screws
2. 1/4" (6mm) Dia. bolts and nuts
3. 1/2" (13 mm) long welds
4. 3/16" (5mm) Dia. steel pop rivets

The above fasteners shall be 12" (305 mm) on center with a minimum of 3 fasteners per side. When dampers are installed as a multiple damper assembly, see "Multiple Section and Damper-to-Sleeve Connections" section on this page (instructions below).

C. All joints where the damper frame meets the duct or sleeve should be sealed using a 1/8" (3 mm) bead of sealant - General Electric 1200, RTV108, Dow Corning RTV732, or Nuco 302 (general purpose or high temperature red) (see Figure 1).

Multiple Section & Damper-to-Sleeve Connections:

The damper should be secured to each other (when joined to make multiple section damper assemblies) in the following manner:

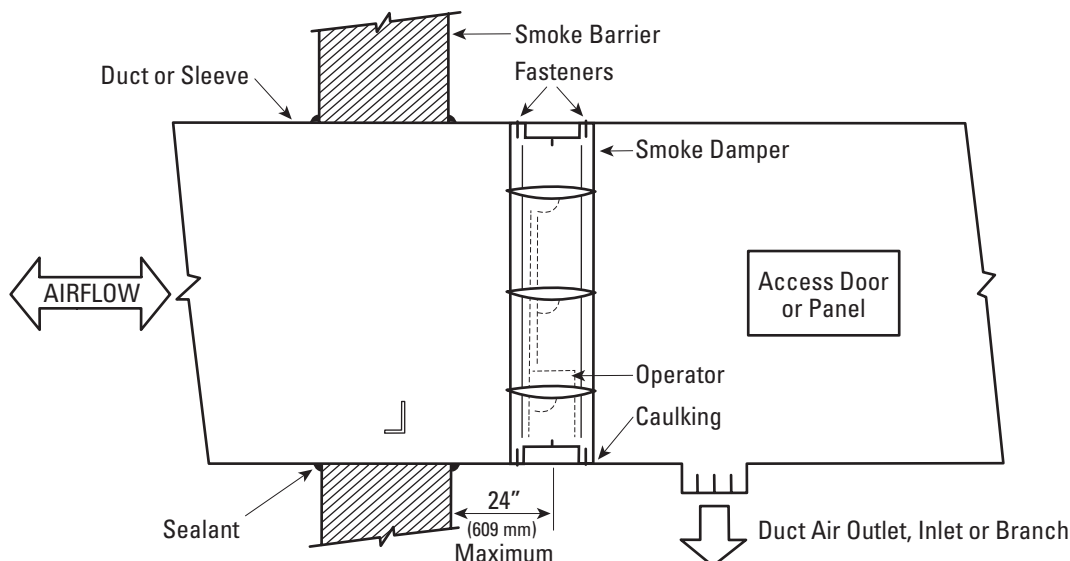
A. Using any of the following approved fasteners:

1. #10 sheet metal screws
2. 1/4" (6mm) nut and bolts
3. 1/4" (6mm) tack welds
4. 3/16" (5mm) steel rivets

B. All above approved fasteners should be spaced on 12" (152mm) centers starting 2" (51mm) from corners

C. The above approved fasteners should be on both sides (faces) of the damper (see Figure 1)

Figure 1:



TRUE ROUND SMOKE DAMPER INSTALLATION

Installation Guidelines:

Smoke dampers must be installed at or adjacent to the point where the duct passes through the smoke barrier in accordance with NFPA 90A. The maximum installation distance is 24" (609mm) from the smoke barrier. Duct air outlets, inlets or branches shall not be located between the smoke damper and the smoke barrier (see Figure 2).

A. The damper should be installed as to prevent any racking. Do not compress or stretch damper frame.

B. The dampers should be attached to the duct(s) or wall opening using the following:

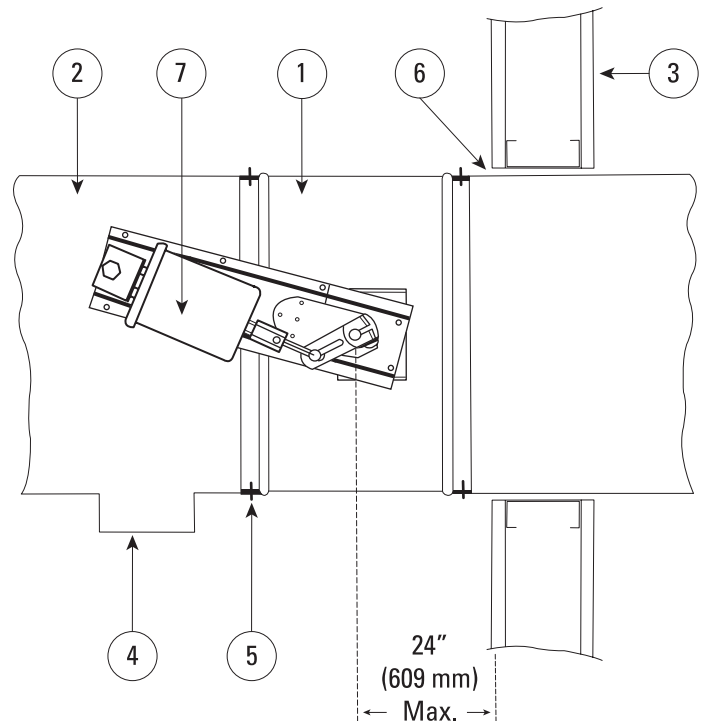
1. #10 sheet metal screws
2. 1/4" Dia. (6 mm) bolts and nuts
3. 1/2" (13 mm) long welds
4. 3/16" Dia. (5 mm) steel pop rivets

The above fasteners shall be 12" (305 mm) on center with a minimum of 3 fasteners.

C. All joints where the damper frame meets the duct should be sealed using a 1/8" (3 mm) bead of sealant - General Electric 1200, RTV108, Dow Corning RTV732, or Nuco 302 (general purpose or high temperature red) (see Figure 2).

Figure 2:

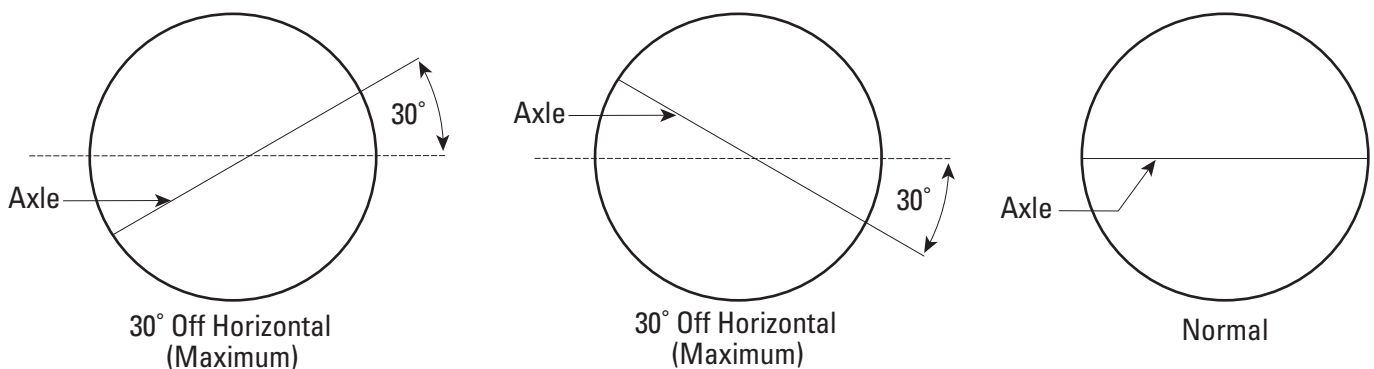
1. True Round Smoke Damper
2. Round Duct
3. Smoke rated barrier (wall or floor)
4. Duct outlet, inlet or branch
5. Fastener (see guidelines for suggestions)
6. Caulking material (Approved sealants)
7. Actuator (pneumatic shown)



Suggested Round Blade Orientation:

In order to ensure the functionality of CVS's True Round Smoke Dampers, it is suggested that the angle of the blade not exceed 30° above or below the horizontal plane of the damper (see Figure 3).

Figure 3:



Actuator Connections

Electrical or pneumatic connections to damper actuators should be made in accordance with wiring and piping diagrams developed in compliance with applicable codes, ordinances and regulations. Be sure to check actuator for proper voltage and current draw. Tampering with the actuator's installation or connecting the actuator to an improper voltage and current may void the warranty.

Note: *Actuators must be connected in series, to assure simultaneous closure.*

Damper Operation, Testing and Maintenance

The procedures discussed here are intended to insure that nothing interferes with a damper's proper operation and to identify and eliminate a number of potential situations that could occur and interfere with said operation.

Smoke Damper Operation:

All CVS smoke dampers are operated at the factory, however pre-installation testing of its operation should be conducted. Wire the actuator per correct wiring diagrams. Applying power to the actuator should drive the damper open and disconnecting power should activate the actuator's internal springs and drive closed.

WARNING: During any operating, inspection or testing of smoke dampers, CVS recommends the following:

1. Caution is advised when removing power from the damper's actuator. Actuators have very strong internal springs that may slam closed causing an abrupt interruption of airflow. As this could cause damage to ductwork, consideration should be given to conducting these tests without system airflow.
2. When removing power from the actuator to check damper operation, be sure to keep fingers, hands and any other body parts out of the blade travel path to prevent injury.
3. Check proper actuator operation. If defective, contact damper manufacturer for replacement procedures.

Smoke Damper Testing:

All smoke dampers and their actuators shall be visually inspected and cycled at specific time intervals in accordance with the local building codes or the latest editions of NFPA 80, 90A, 92A, 92B, 101, 105, AMCA 503-03, local codes and UL 864. Also refer to the actuator manufacturer's recommendations and instructions.

Smoke Damper Maintenance:

Smoke Life-Safety related dampers that are properly applied, equipped with the appropriate UL labels, appropriately installed, and demonstrated to function as intended through a building commissioning process should require no specific preventive maintenance. However, CVS recommends that obstructions, dirt build up, and any rust or corrosion be removed using mild solvents or detergents. No lubrication is required, however if it is desired, damper tracks and blade hinges may be lubricated using a dry lubricant.

Never use a petroleum based lubricant as it will attract dust and eventually impede a damper's operation.

Message from CVS:

This installation, operation and maintenance instruction document has been reviewed and approved by the Underwriter's Laboratories. As a part of CVS's continuous improvement program, CVS reserves the right to make further improvements or changes without notice.