



Air Distribution Products

Ravistar installation guide



Grilles
Diffusers
Dampers

Introduction

This section includes the types and procedures of installation for most commonly used products in the industry. The special fixing to be used for typical installation / site requirements can also be offered by us on reference.

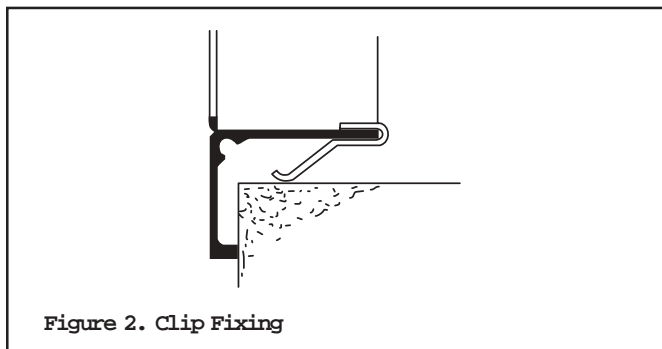
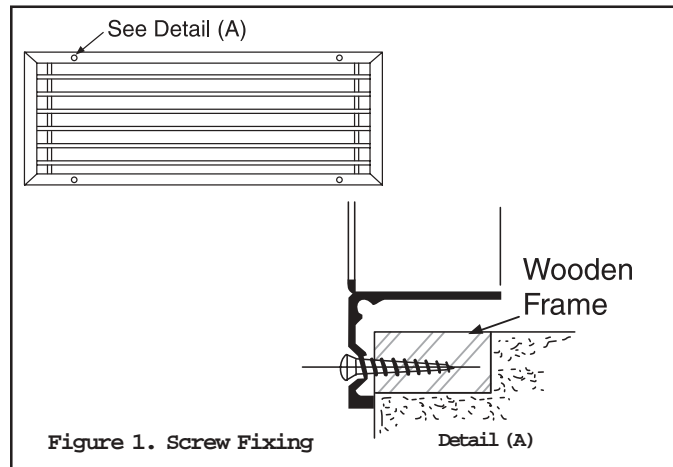
Grilles

For fixing options for grilles with subframes and border please refer to page-16 of the Grilles Guide.

Following are the details of fixing procedures for grilles.

A) Screw Fixing

- Screw fixing is generally available on border 25T only (plus Acoustic Transfer Grille Model DSRX).
- For best results screws should be fixed into a metal / wooden frame which sits in counter sunk holes through grille border (See Figure 1).
- If the aperture is in masonry, the hole locations should be marked, then drilled and plugged hence giving more positive fixing.

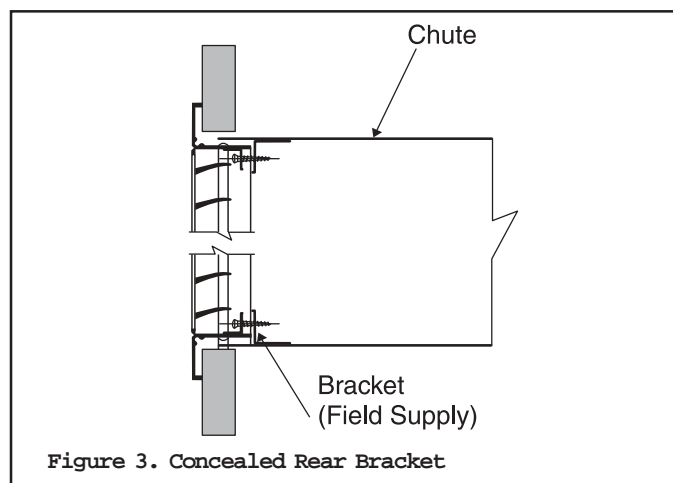


B) Clip Fixing

- Spring clip fixing is available both on 16T & 25T borders, but is only suitable for cill and low sidewall application.
- They provide a positive fixing with the benefit of quick removal. Grilles should be placed into the opening and pushed firmly into place (See Figure 2).

C) Concealed Rear Bracket

- Concealed Rear Bracket fixing is for use when a hidden fixing is required but the installation prohibits the use of clip fixing. This option is available for both 16T & 25T borders.
- For fixing of grilles without OBSS dampers, the grilles are positioned into opening with metal/wooden frame and screws are fixed through brackets fixed into stack of grilles to the frame holes drilled earlier after alignment (See Figure 3).
- For grilles with OBSS damper, the dampers can be fixed with grille border by clip or rivets and damper is fixed by screwing to the duct opening. Otherwise the damper alone can be directly screwed to the duct chute.



D) Removable Core Grilles

For installation of grilles with removable frame, remove the grille core (which is held by spring clips), then screw through the side of the frame to the opening as shown in figure and replace the core in position (See Figure 4).

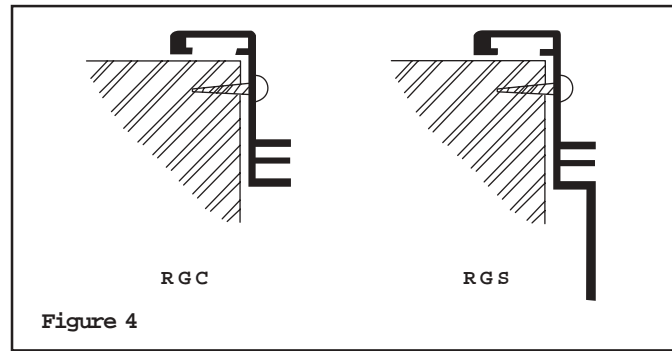


Figure 4

E) Linear Grille for continuous application

Applicable for grilles with border on top & bottom only. For alignment of successive grilles for continuous look following steps are followed (See Figure 5)

1. Place grille in position with frame in opening, align & fix by screw fixing / concealed bracket fixing. Do not screw up fully tightened.
2. Place alignment strip in the first fixed grille border pocket so that half of it is into the first grille. Place the next grille in frame and align border with the already fixed grille. Place the projecting portion of alignment strip into the grille pocket. Fix the grille tightly into frame after aligning the border frame correctly.
3. Check for alignment of blades at the junction of two grilles. Blade pitches are accurately maintained during manufacture, checked before despatch. There may be slight misalignment during transit which can be adjusted, if required during installation.
4. Screw up the next grille in position and repeat the operations.

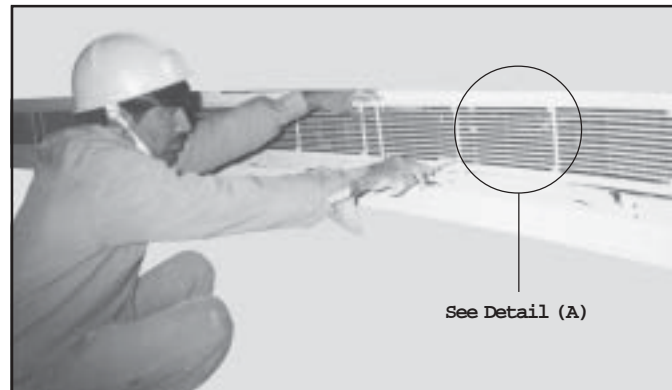
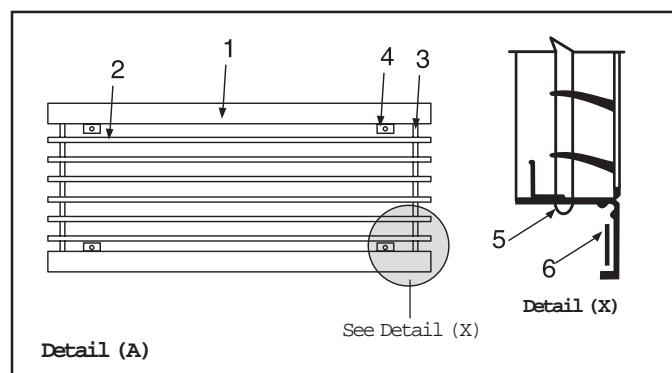


Figure 5

ITEM	DESCRIPTION
1	Border Frame
2	Blades
3	Tube
4	Concealed Rear Bracket
5	Screw
6	Alignment Strip



Detail (A)

Diffusers

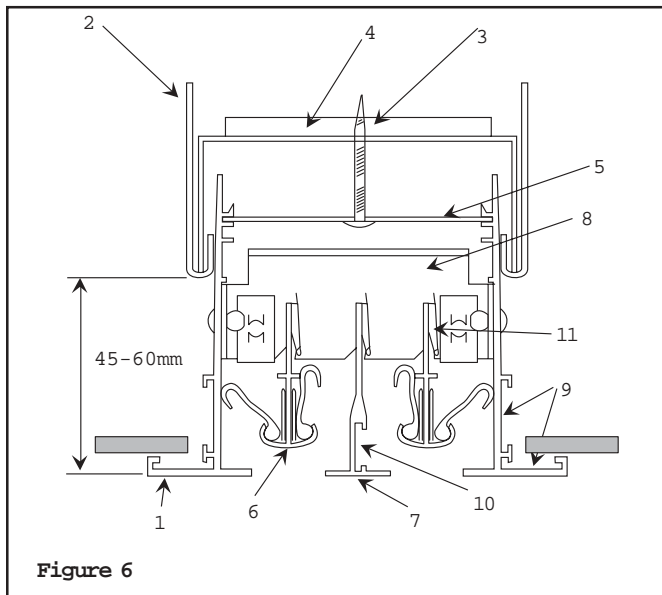
Continuous Slot / Linear Diffusers - Model CSF/DSL

Refer to arrangements shown in sketch on page no. 3 of the Diffusers Guide and ensure that all the items are available. For installation follow the sequence as under :

CSF Diffuser

- i) Remove internals (Vane & Blade assembly & Tee) from the brackets (See Figure 6).
- ii) Place sliding supports into pocket in the diffuser frame e.g. for 1200mm long frame place two sliding support in corners and one at the centre.
- iii) Position the Diffuser frame with plenum box / frame work. Check alignment of length with thread. Check uniform gaps on both sides. Drill holes into mounting bracket in plenum box through hole made in sliding support provided in diffuser frame. Place screws and let the diffuser hang. Place alignment strips in frame pockets, for horizontal and vertical alignment.

- iv) Place next diffuser frame in position with plenum box / frame work. Align and put the half portion of alignment strips in pockets. Align with thread and repeat the step iii. Screw up fully through sliding support to raise the frame to correct position.
- v) After placement of diffuser frames, place Tee in position checking position of slot for alignment strip. Place alignment strip in pocket on the side connecting the next frame. Place Tee in next diffuser frame, place the portion of alignment strip in position and fix with the diffuser bracket. Repeat till all the Tees are in position. Adjust for any slight misalignment.
- vi) Place vane and blade assembly in position & push to lock with the brackets. Repeat till all assemblies are in position.
- vii) Adjust the blade position as per the required flow of air.

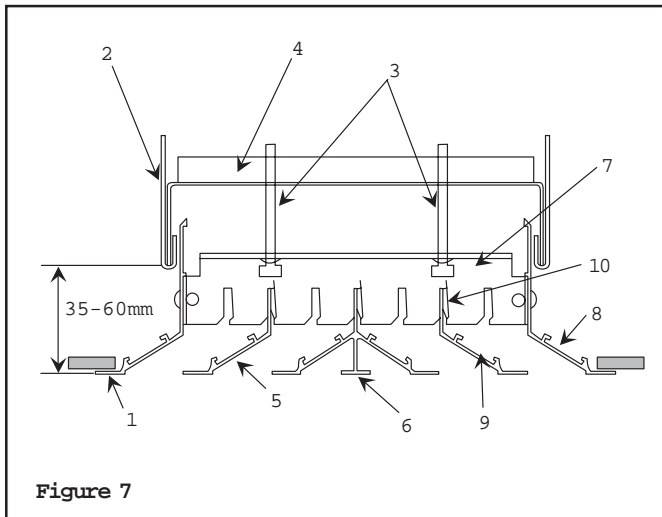


ITEM	DESCRIPTION
1	CSF Diffuser
2	Plenum Box
3	Retaining Screw
4	Mounting Bracket
5	Sliding Support
6	Flow Control Vane
7	Inner Vane (Tee)
8	CS Stay Bracket
9	Outer Alignment Slots
10	Inner Alignment Slots
11	Stay Bracket Spring

DSL Diffuser

- i) Remove blades from the diffuser brackets (See Figure 7 on page no. 4).
- ii) Position the diffuser frame with plenum box / frame work as per direction of air flow pattern. Check alignment of length with thread. Check for uniform gaps on each side. Drill hole into mounting bracket of plenum box / frame work through hole provided in bracket in diffuser frame. Place screws in position and let the frame hang in position. Place alignment strip with half portion inside the pocket.

- iii) Place next diffuser in position. Check for correctness of side of the frame. Align with thread and check for uniform gaps on side. Place portions of alignment strip in pockets and repeat step. ii) till all the frames are in position. Screw up through diffuser frame bracket into plenum box mounting bracket until the diffuser frames are raised to correct position.
- iv) Place blades correctly in position. Place alignment strip in pocket. Place blade in next diffuser frame. Place alignment strip portion. Push to lock with bracket. Repeat till all the blades are in position. Check & correct any misalignment.

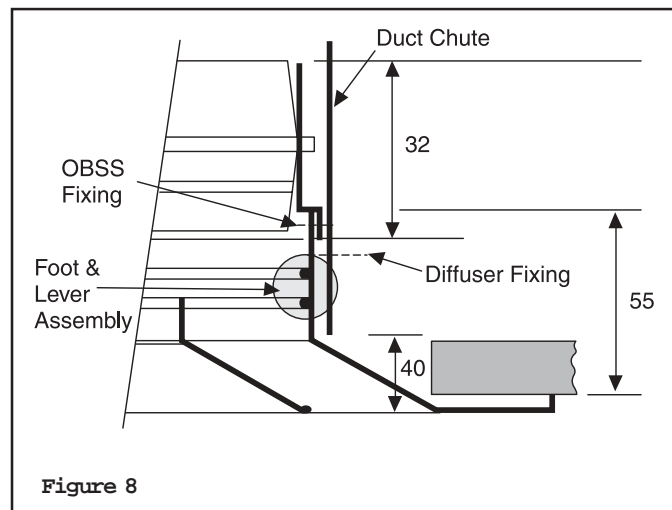


ITEM	DESCRIPTION
1	DSL Diffuser
2	Plenum Box
3	Retaining Screw
4	Mounting Bracket
5	Removable Inner Vane
6	Centre Vane (2 Way Only)
7	DSL Stay Bracket
8	Outer Alignment Slots
9	Inner Alignment Slots
10	Stay Bracket Spring

Square / Rectangular Multicone Diffusers / Perforated Diffusers

- 1) For installation of diffusers without OBSS damper follow the sequence as under.
 - i) Remove core of the diffuser by unlocking the foot & lever (See Figure 8).
 - ii) Place diffuser frame in position with air duct chute. Check for angular position and level with ceiling. Drill holes through diffuser frame from inside into duct and screw up.
 - iii) Place core in position and lock the foot & lever assembly.
 - iv) Place perforated mesh in position & lock (for perforated diffuser).
- 2) For installation of OBSS damper on the diffuser follow the sequence as under.

Place OBSS damper on diffuser neck. Drill holes through damper lip into diffuser frame and fix rivets. Install the assembly in duct chute as in item 1 above.



Laminar Flow Diffusers

For installation follow the sequence as under.

- i) Place the diffuser in opening, align with false ceiling for position & level.
- ii) Suspend the LFD with threaded rods fixed to the angle cleats (provided on the diffuser) and the suspension in the ceiling.
- iii) Connect the diffuser neck to the duct by screwing on flanges.
- iv) For the operation of the OBSS with the front operated key, open the front perforated face plate & hinge down. After the damper setting replace the face plate & screw in position.

Round Neck Diffusers

High Flow Jet Model RWH, Circular Diffuser Model WR/MC, Swirl Diffuser WIF, Spot Diffuser/Jet Nozzle RSD.

This family of diffusers can be fixed with duct by screwing the outer casing / flange with the flexible duct. For diffusers provided with back plate can be fixed to duct face by screwing up with back plate.

Exhaust Valve : The outer subframe is fixed / grouted in the masonry opening. Inner ring assembly to be placed correctly in position with spiral grooves. Screw in position. Front disc can be adjusted in / out to adjust the required airflow.

Dampers

Low Leakage Volume Control Dampers

- Aluminium Extruded Section with Aerofoil blade model WDD.
- Galvanised Iron Construction with Aerofoil Blade model WLDX.
- Galvanised Iron Construction with Flat V Type Blade model WDD-GI.

The construction of the above dampers are with frames having flanged face. The dampers can be connected to the duct work by providing holes to the flange of damper & screwing with ductwork flanges after placing gasket to prevent leakage.

Aluminium / M.S. Opposed Blade Dampers Model OBSS / OBSS (MS)

These dampers control the air quantity through grilles and diffusers. These dampers can be fixed in the duct collar / chutes to the grilles / diffusers or on the neck of the grilles / diffusers. In both the cases, the holes are drilled in the damper frame & the duct collars or grille / diffuser neck and fixed with rivets / screws.

Fire & Smoke Dampers - Model WGD

Fire & Smoke dampers are generally installed in the openings of the fire walls or in the ducting system. When installed in the wall the connection can be with ducting from one side or both the sides of the damper.

Fire Dampers installed in the fire walls

The fire damper to be installed in the wall opening shall be of the extended sleeve type. The length of the damper with the extended sleeve is generally between 400-600mm depending on the wall thickness and operating mechanism. The sleeve length of 600mm shall be required for the dampers with Actuator and control panel as shown in figure 10. Shorter sleeve lengths shall be adequate for the dampers with solenoid / fusible link operation.

Installation

Follow the following instructions for the installation of the dampers in the fire walls.

- Prepare the wall opening to accommodate the damper with opening size at least 20mm larger than the damper size on all sides. The opening shall be plaster finished / metal sleeve (field supply).
- Position the damper in the wall opening with the damper blades in the centre of the wall thickness.
- The annular space shall be filled up with mineral wool / fibre glass insulation to allow for the expansion of the damper in case of fire.
- Connect the damper sleeve ducting with the flanges.
- Fix up the retaining angle frame with the damper sleeve only (not to the wall).

Refer figures 9 and 10 as shown.

Note : Suitable access doors shall be provided in the duct for resetting / maintenance of the fusible link / solenoid.

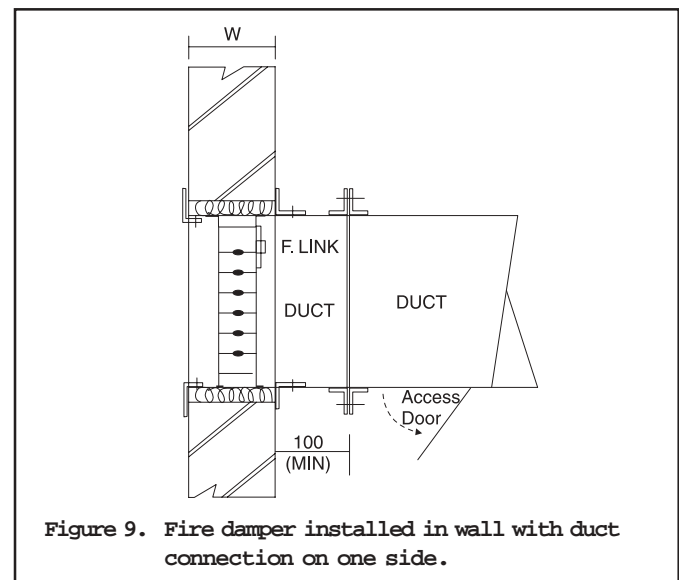


Figure 9. Fire damper installed in wall with duct connection on one side.

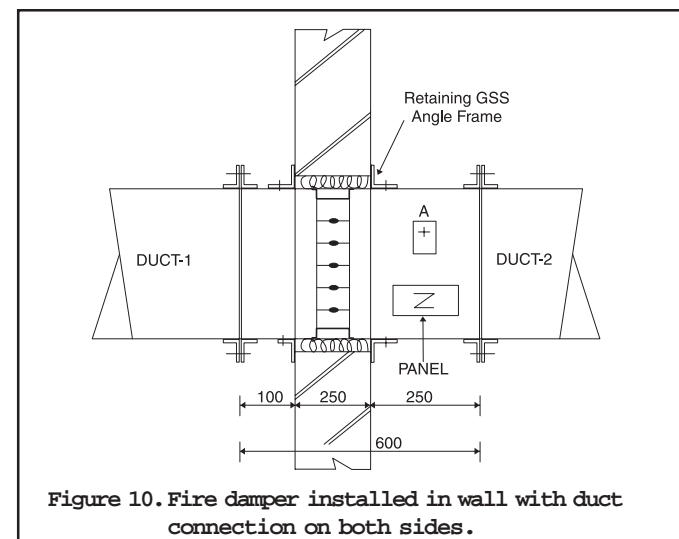


Figure 10. Fire damper installed in wall with duct connection on both sides.

Fire Dampers installed in the ducting system
 Fire dampers to be installed in ducting system shall be without extended sleeve but with integral flange of the damper casing. The standard width of the damper casing shall be 165mm and the integral flange is 40mm high.

Installation

Follow the following instruction for installation of dampers in the ducting system.

- i) Provide a gap of 165mm (with allowance for the gasket) between the ducts at the location of the damper.
- ii) Place the damper in the gap, level and bolt up with the duct flanges on each side with gasket at joints.

Refer figure 11 as shown.

Note : Suitable access doors shall be provided in the duct for the resetting / maintenance of the fusible link / solenoid.

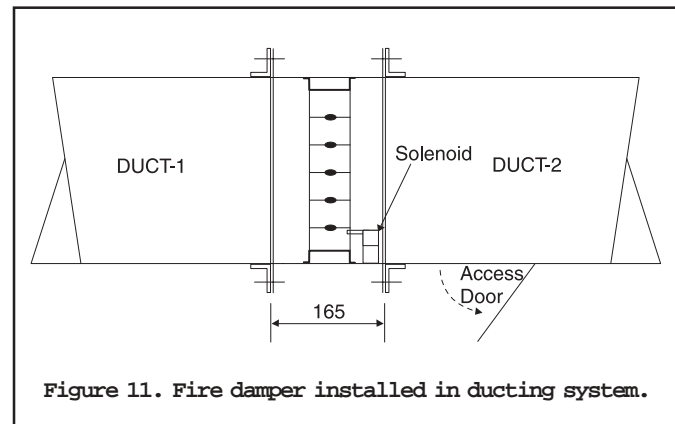
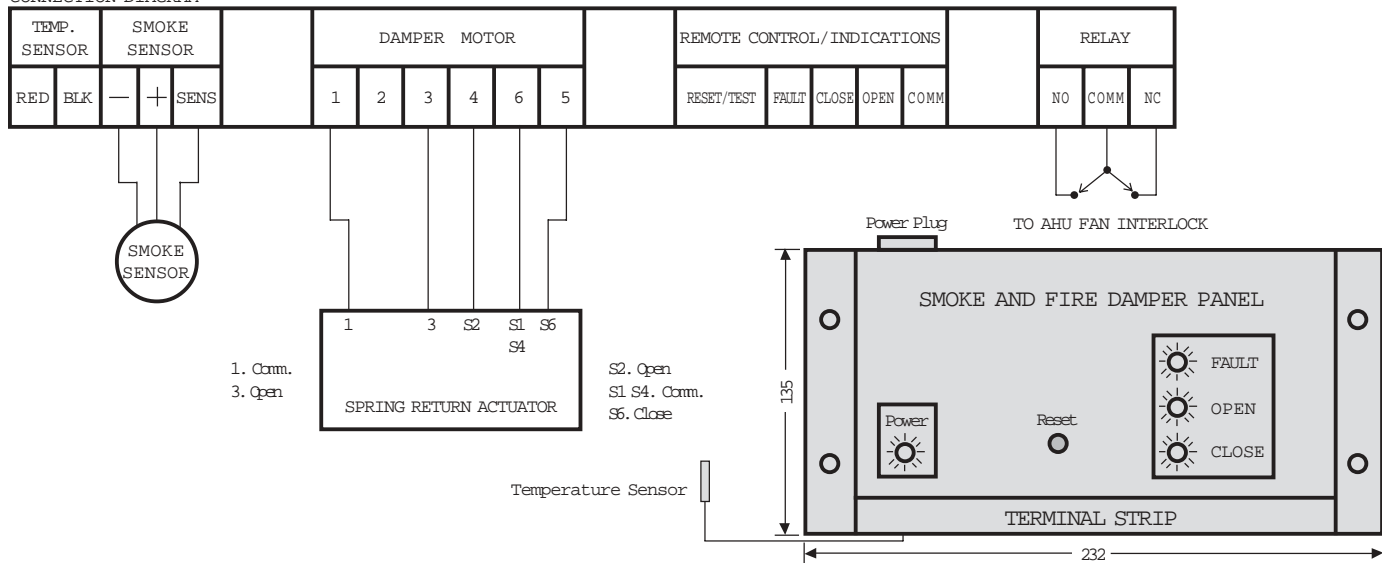


Figure 11. Fire damper installed in ducting system.

Typical Connection Details for Control Panel Connection Diagram for 24V AC Spring Return Actuator

CONNECTION DIAGRAM



Check list of installation

1. Ensure that assembly & parts are not damaged during transit.
2. Ensure that the Actuator & panel location is as per requirement.
3. Before installation, store the dampers in a covered area.
4. Ensure that cables are not twisted.
5. Check for damper operation by actuator before installation for correctness.
6. Prepare wall opening to admit the damper with sleeve correctly as per scheme described above.
7. Refer to electrical connection diagram for correctness in power connection.
8. If more than one duct penetrates the wall / floor in close vicinity, the ducting must be separated by minimum distance of 300mm between the two ducts.
9. It is advised to keep the blades of damper in closed condition after installation until commissioning stage to avoid damage.
10. Regular checks are required to keep the actuator & panel in working condition.
11. In case of any doubt please call us for clarification / advice.

- Specifications and data are subject to change without prior notice due to continuous product development.
- Normal tolerances shall be applicable.



Ravistar India Pvt. Ltd.

Office & Works : D-99, Sector-2, Noida-201301 (U.P.), India
Tel. : 95 (120) 2531869, 2531878, 2537624 Fax : 95 (120) 2543431
E-mail : ravistar@vsnl.net Visit us at : www.ravistar.com