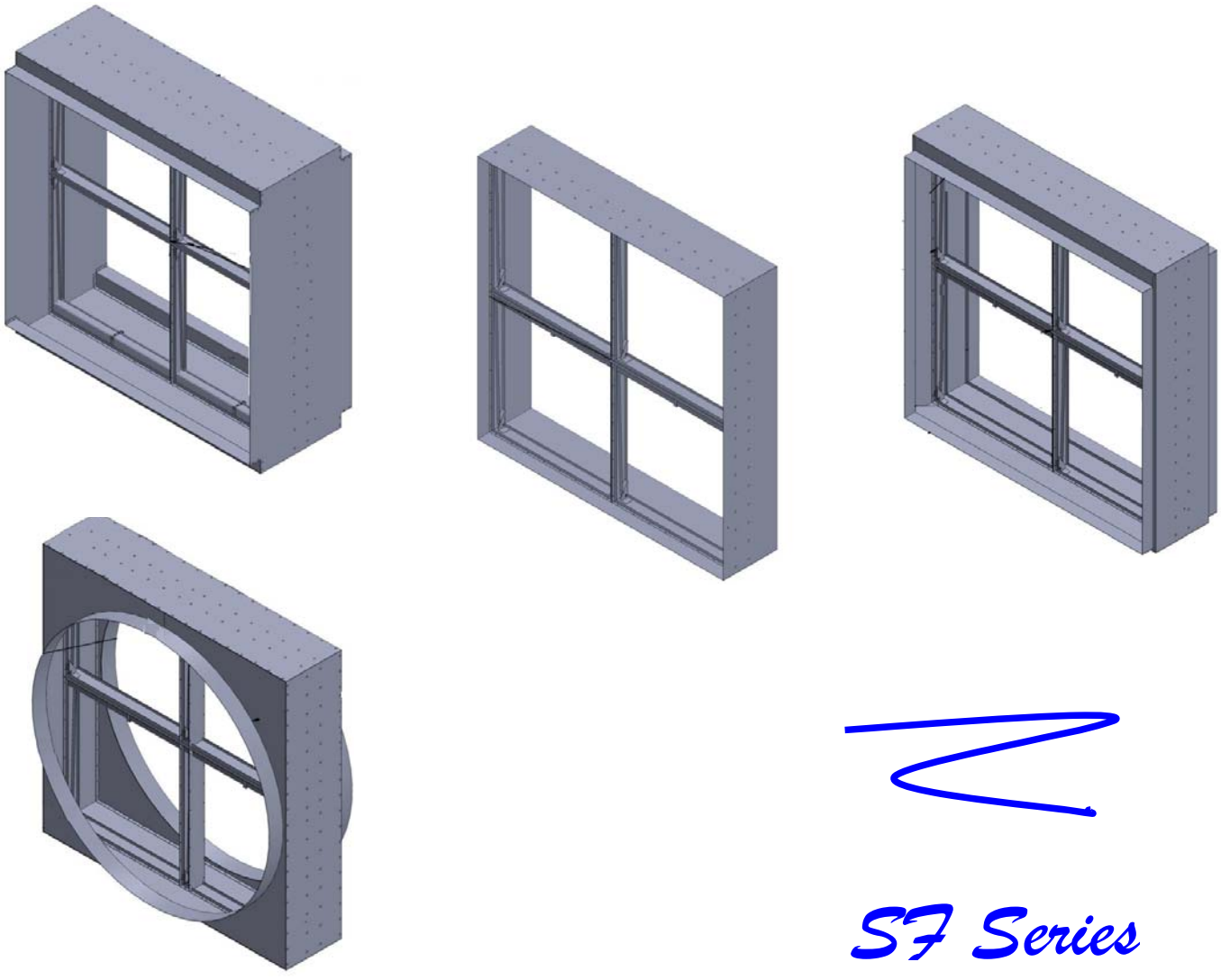
Installation Instructions

For Multi Section Static Fire Dampers – SF Series



SF Series

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Installation Instructions - SF Series Static Curtain Fire Dampers

SHARQAWI
Air Distribution Systems Factory Co.

This Installation Instruction applies to Fire Dampers (static curtain type) mounted in the plane of an UL approved fire partition.

Important General Notes:

1. The dampers are designed for operation in the vertical or horizontal position with blades running horizontal.
2. The dampers are to be installed square and free from twisting or racking. The dampers shall not be compressed or stretched into the opening.
3. Transportation and installation of the dampers shall be handled with the sleeve or frame.
4. 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.

- As with all joints, contractor must seal duct-collar connections in the field after installation.

Instructions:

1. Clearance Required Between Fire Damper Sleeves & Wall/Floor Openings

- Due to the thermal expansion of fire dampers & sleeves during periods of extreme heat, it is essential that openings in walls or floors be larger than the damper allow for this expansion. Minimum clearances between the outside of fire damper sleeve assemblies & wall/floor required are:
    a. Galvanized Steel: 1/8 inch per linear foot (11 mm per linear meter) of damper – both dimensions. (¼ ” (7 mm) minimum)

    b. Stainless Steel: 1/4 inch per linear foot (21 mm per linear meter) of damper – both dimensions. (⅓ ” (9 mm) minimum)

    c. The sleeve may rest on the bottom of the opening, and need not to be centered. (Fractional dimensions shall be taken as the next largest whole integer.)

    d. Clearance Should not exceed 1 ½ inch (38mm) for Any Damper Size

    e. These are total clearances (ignoring fastener heads)

For Example:

36 in. x 14 in. (914mm x 356mm) damper with 2mm Sleeve Thickness would require minimum clearance of ¾ in. (20 mm) on width & ⅓ in. (9mm) on Height,

i.e.: (914mm + 2x 2mm + 20mm) x (356mm + 2x 2mm + 9mm), Ignoring fasteners head

Therefore wall Opening is 938mm (Width) x 369mm (Height)

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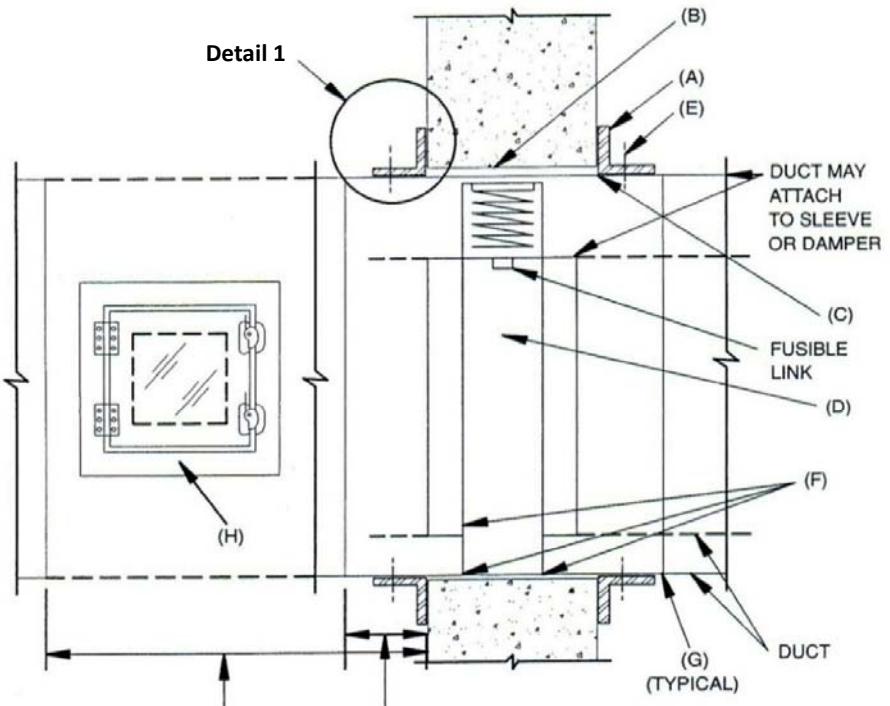

Figure - 1

A - RETAINING ANGLES
B - EXPANSION SPACE
C - DAMPER SLEEVE
D - FIRE DAMPER
E - RETAINING ANGLES FASTENED TO SLEEVE
F - DAMPER ATTACHMENT TO SLEEVE
G - CONNECTION TO DUCT
H - ACCESS DOOR OR PANEL

Note:

UL 555 Doesn't Cover Access Door Integrated to Damper Sleeve

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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 connection is used as defined in the SMACNA Fire Damper Guide for HVAC Systems and in NFPA 90A.
- Gauges shall conform to SMACNA or ASHRAE duct standards. (See Table 1)
- Sleeve shall terminate at both sides of wall within dimensions shown (Figure - 1).

Sleeve Gauge	Duct Dimension	Type of Duct to Sleeve Connection Permitted
14 GA. (0.075 in.) - 11 GA. (0.118 in.) [2mm - 3mm]	All Duct Sizes	Rigid or Breakaway
16 GA. (0.060 in.) [1.5mm]	36 in. (914mm) max. width 24 in. (610mm) max. Height 24 in. (610mm) diameter	Rigid or Breakaway
16 GA. (0.060 in.) [1.5mm]	All Duct Sizes	Breakaway only
18 GA. (0.048 in.) [1.2mm]	85 in. (2159mm) wide and over	
20 GA. (0.039 in.) [1.0mm]	55 in. - 84 in. wide (1397mm - 2134mm)	
22 GA. (.033 in.) [0.85mm]	31 in. - 54 in. wide (787mm - 1372mm)	
24 GA. (0.027) [0.7mm]	13 in. - 30 in. wide (330mm - 762mm)	
26 GA. (0.021 in.) [0.55mm]	12 in. wide and under (305mm)	
Sleeve thickness must not be less than the gauge of the connecting duct. UL Standard 555 requires all ducts to terminate at fire damper sleeves.		

Table - 1

3. Fastening Sleeve To Damper

- Securing Damper to Sleeve to be evenly spaced.
- Secure Damper to Sleeve on Max 1.18" at the Corners
- Secure Damper to Sleeve on Max 5" centers (127 mm) with:

  a. ½" (12 mm) long welds
  b. ¼" (6 mm) bolts and nuts
  c. Minimum 3/16" (5 mm) (Steel / Stainless Steel) rivets (Recommended).

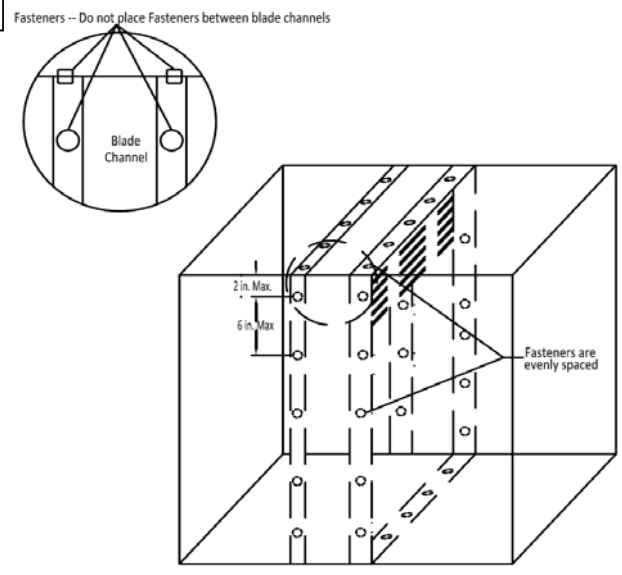
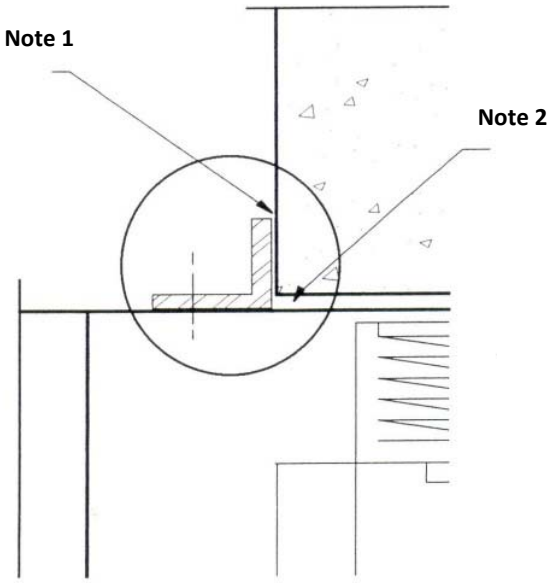


Figure - 2

4. Improper fire damper installation

- **Note 1:** Sealing of the fire damper retaining angles is not a requirement of an approved damper installation. This detail is seldom specified by system designers & is virtually never included in the contractor's pricing for the dampers on a project. If the local authority having jurisdiction mandates that the angles be sealed, contractors should issue a Request for Information (RFI) to design professionals such that the proper approved sealants be used. In no case should the retaining angles be sealed with any product not approved by SHARQAWI FACTORY including through Penetration Fire stop Products. Using unapproved products is a violation of SHARQAWI FACTORY's conditions of test & listing, void the UL listing of the damper & render the damper inoperable.



Detail 1

- **Note 2:** Introduction of any materials including mineral wool, ceramic fiber or sealants of any kind into the required expiation space between the damper sleeve & fire partition has not been tested, has not been approved, & is not permitted by SHARQAWI FACTORY. Doing so is a violation of SHARQAWI FACTORY's conditions of test & listing, void the UL listing of the damper & render the damper inoperable. Indiscriminate & unnecessary deviations from standard fire damper installations should be avoided. Unless deviation is specifically approved by SHARQAWI FACTORY, it compromises the function for which the damper was ultimately installed.

5. Retaining Angles

- Retaining Angle is supplied by SHARQAWI FACTORY as Default.

  SHARQAWI Retaining Angles **Saves Installation Time** & **Have More Rigidity** at the Same Time by Using
  - a- Pre-Drilled Angles
  - b- Tongue Method
  - c- Flush Corner

- In Case of field supply

  a) Retaining Angles must **overlap** structure opening **1 inch** (25.4 mm) minimum & cover Corners of opening.

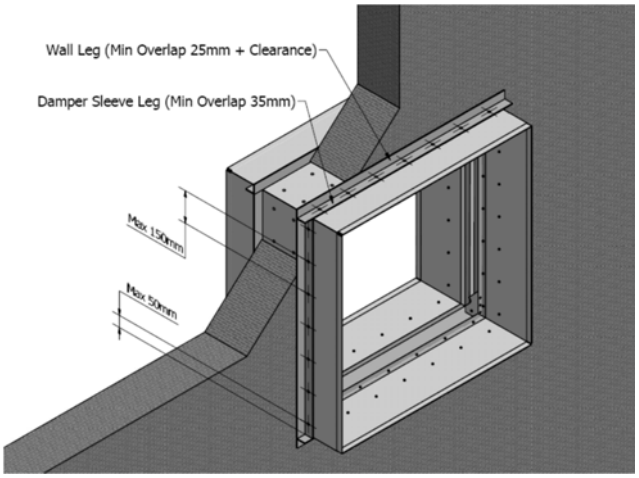


Figure - 3

b) Retaining angles for 1.5 hour rated dampers with a width and height 36 in. (914mm) or less must be a minimum of 16 GA. (1.5mm). Retaining angles for all 3 hour rated dampers and all dampers with a width or height greater than 36 in. (914mm) must be a minimum of 11 GA (2.7mm).

c) The leg of the retaining angle on the damper sleeve shall be a minimum of 32mm. The leg of the retaining angle on the wall/floor shall be long enough to cover the annular space and overlap the wall/floor by a minimum of 25mm.(See Figure -3)

6. Fastening Retaining Angles To Sleeve

- Retaining Angles should not be fastened to the wall / floor material.
- Retaining Angles should only sandwich the partition & allow for damper / sleeve expansion during periods of intense heat.
- Securing Retaining Angles to Sleeve to be Evenly Spaced
- Secure Retaining Angles to Sleeve on 1.18" at the Corners
- Secure Retaining Angles to Sleeve on 5" centers (127 mm) with: (See Figure-3)
  a. ½" (12 mm) long welds.
  b. ¼" (6 mm) bolts and nuts.
  c. Minimum 3/16" (5 mm) (Steel / Stainless Steel) rivets (Recommended).

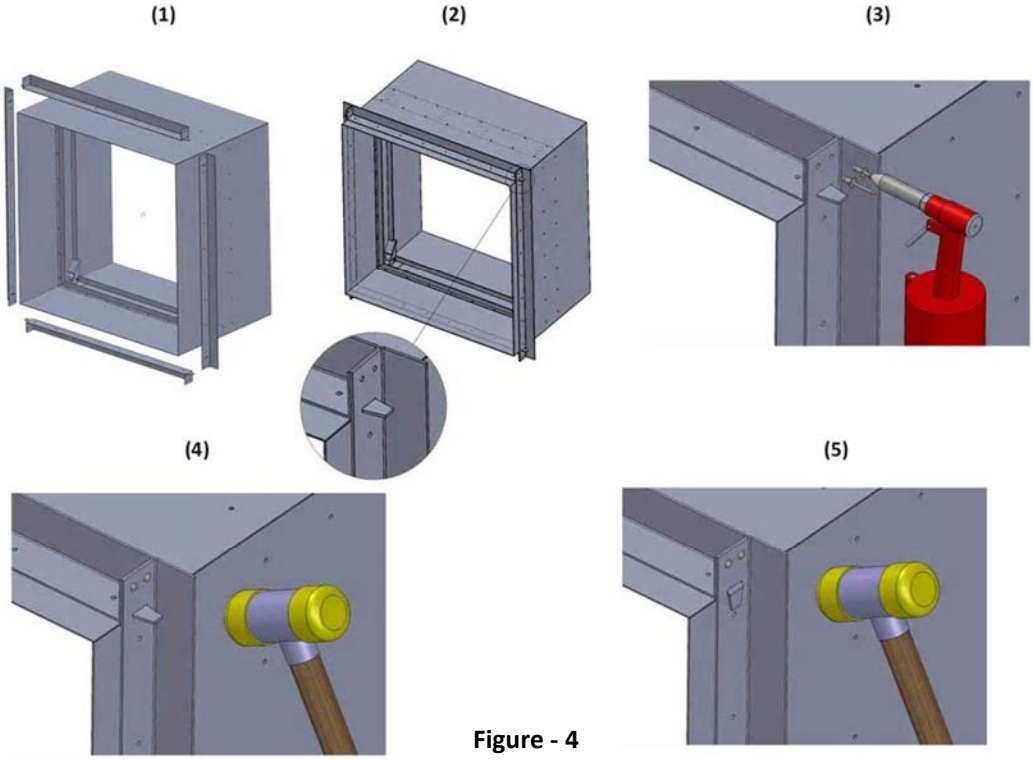


Figure - 4

SHARQAWI Retaining Angles Installation

7. Fire Damper Opening Protection

- Openings are shown for masonry wall type. (Figure 5).
- Thickness & type of resistive material may vary with jurisdiction.
- Specific framing requirements of openings should be provided in the architectural & structural drawings that are submitted for building permits.

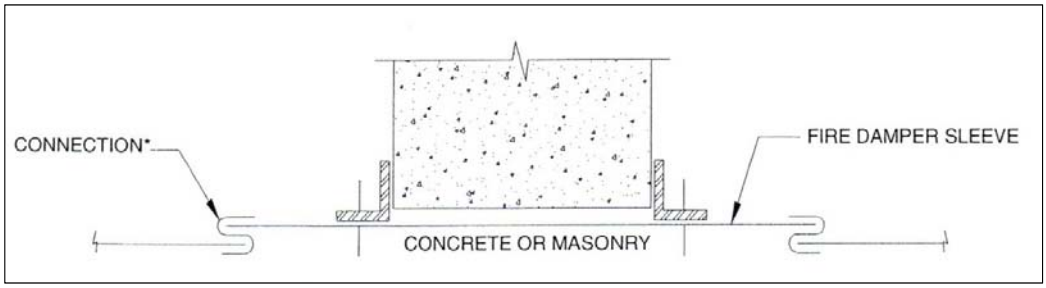


Figure - 5

- Our Multi Section Dampers are tested only on masonry wall, and are classified for installation in masonry walls only, please refer our installations instruction in case of single section damper, which are classified for installation in different wall types.

8. Mounting Position:

- The Multi Section SF-Series Dampers (more than 914mm x 914mm) are only qualified for Vertical installations, but our single section dampers are qualified for both vertical and horizontal installations, please refer our single section installation instructions for more detail.

Table -2

Mount Type	Vertical installation only(For Multi Section)
Mount Side	There is **NO** Specific Mounting Side.

9. Duct Breakaway Connections

Breakaway joints of the types shown in Figure - 6 shall have no more than two No. 10 (4.8 mm diameter) sheet metal screws on each side and on the bottom located in the center of the slip pocket and shall penetrate both sides of the slip pocket.

Figure - 6

- **Vertical Fire Dampers :** Breakaway joints of the types shown in Figure - 6 shall either be on the top and on the bottom of horizontal ducts and on the sides; or shall be provided on the top and bottom of the horizontal ducts with flat drive slips on the sides as illustrated in Figure - 8. Flat drive slips as illustrated in Figure - 6 shall not exceed 20 inch (508 mm) in length.

- **Round Or Flat Oval Spiral Ducts** attached to round or oval collars which are part of a fire damper sleeve used as breakaway joints shall be attached with No. 10 (4.8 mm diameter) sheet metal screws spaced equally around the circumference of the duct as follows in (a) and (b) of fatning methods. For flat oval ducts, the diameter is determined to be the largest (major) dimension of the duct.
    a. Duct diameters 22 in (559 mm) and smaller shall have three screws.
    b. Duct diameters greater than 22 in shall have minimum of five screws for each meter size.

- **Proprietary Flange System Breakaway Connections (Ductmate)**
  Flanged connection systems manufactured by Ductmate,
  as illustrated in Figure – 7 & Installed as Figure - 8

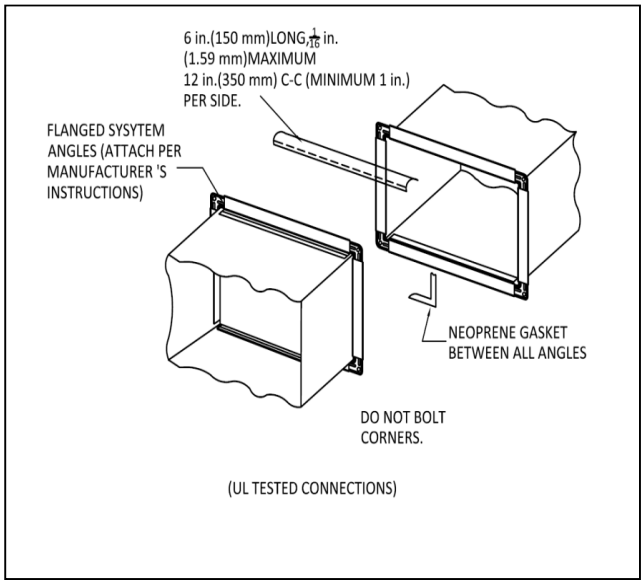


Figure - 7

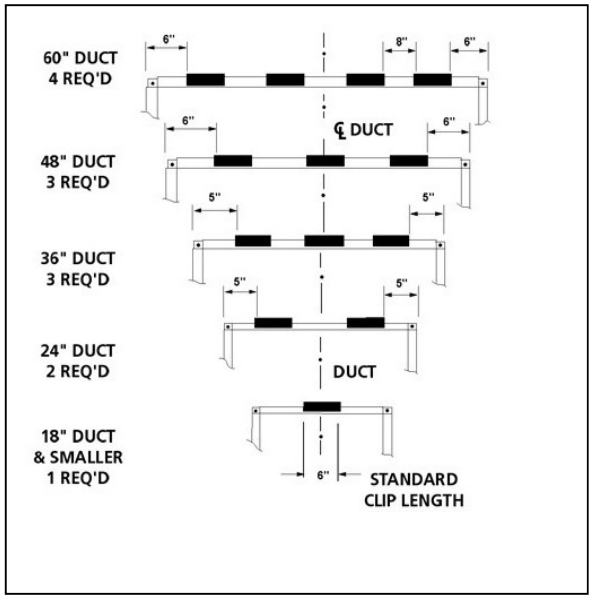


Figure - 8

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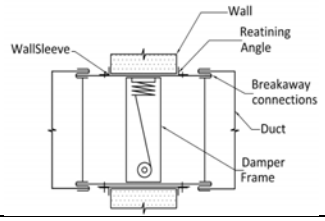
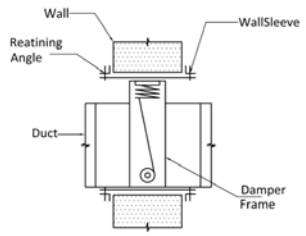
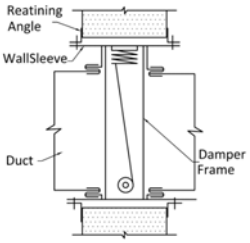
10. Fire Damper Installations

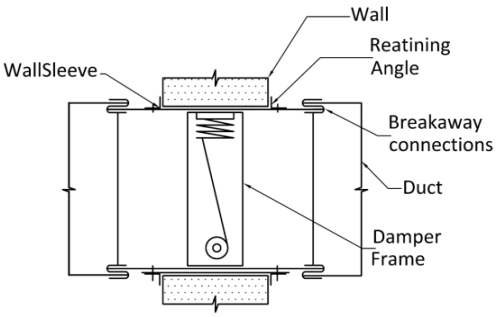
Table - 2

Model No.	Damper **with/without** Intergral Sleeve
	Vertical Mount
SFI	
SFF	
SFC / SFCR /SFCO **Note:** Breakaway Connection Only Is Allowed for this type	

11. Damper to Sleeve Fitting Dimensions

- The dampers are supplied 2mm less in height & 2mm less in width from the Order Duct dimension to maintain the Duct size integrity.

Figure- 9



Note: Damper to be installed in the Middle of the Wall

11. Fire Damper Size Limits

- Table – 4 illustrate The Size Limitations of SHARQAWI Single Section Static Fire Dampers.

Model No.	MAX DAMPER (W x H) Single Section (mm)	MIN DAMPER (W x H) Single Section (mm)	MAX DAMPER (W x H) Multi Section (mm)	MAX DAMPER (W x H) Single Section (in)	MIN DAMPER (W x H) Single Section (in)	MAX DAMPER (W x H) Multi Section (in)
SFI	914 x 914	150 x 150	1828x1828	36''x 36''	6" x 6"	72" x 72"
SFF	914 x 914	150 x 150	1828x1828	36''x 32''	6" x 6"	72" x 72"
SFC	914 x 914	150 x 150	1828x1828	34.4''x 31.4'	6" x 6"	72" x 72"
SFCR (Dia)	914 x 914	150 x 150	1828x1828	31.4"	6" x 6"	72" x 72"
SFCO	914 x 914	150 x 150	1828x1828	34.4''x 31.4'	6" x 6"	72" x 72"

The Above mentioned sizes are damper sizes, for models SFF, SFC, SFCR/SFCO, minimum sizes are available with collar.

Multi sections assembly arrangement:

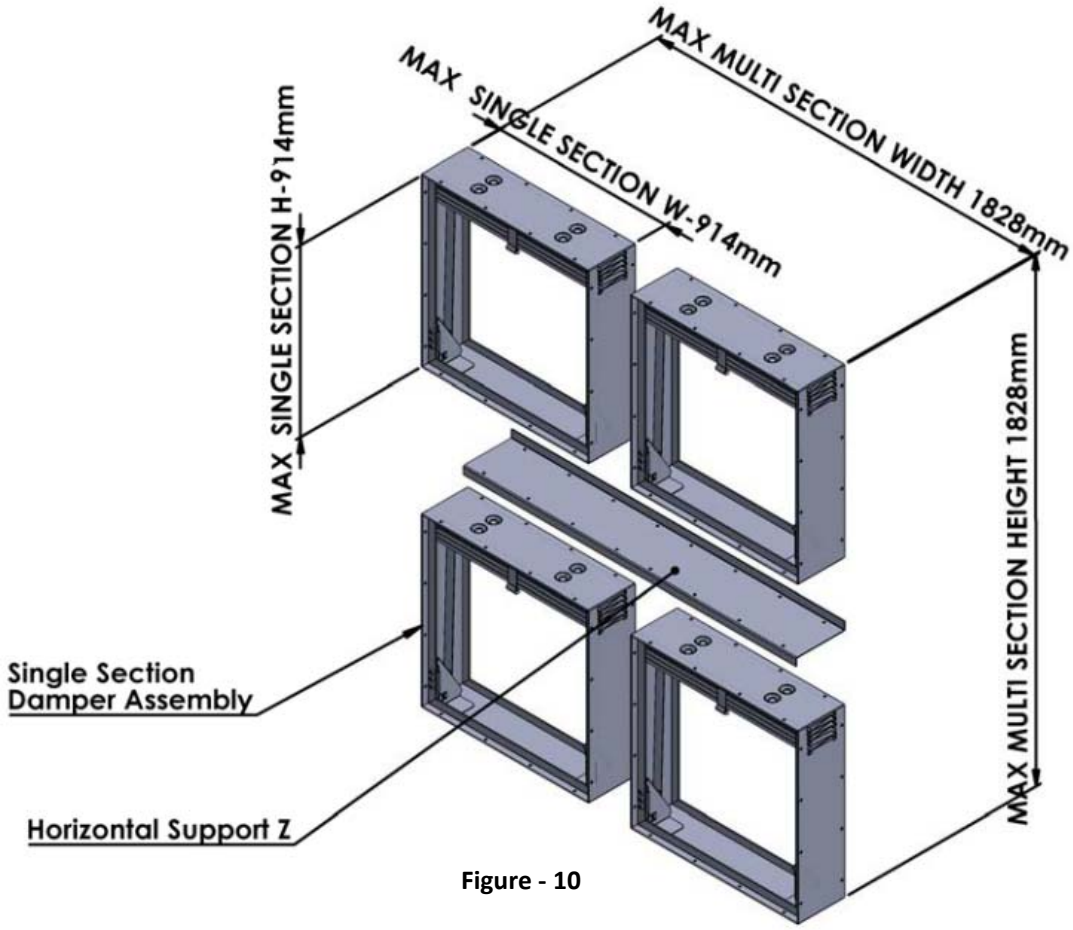


Figure - 10

Each section of dampers to be revited by steel revits horizontally and vertically on the preholes provided on all damper frames. And horizontally a Z Bar must be fixed between the dampers with steel revits or bolts of 5mm.

Refer fig (1) to fig(10) for details on installations, and tables for other details.

NOTE:

All models (SFI,SFF,SFC,SFO) of our multi section dampers are UL calssified for vertical installations only, and to be installated in masonry wall.

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