

Installation, Operation, and Maintenance Instructions

FD-MXXX, DFD-MXXX models are intended for installation in accordance with fire damper requirements established by:

National Fire Protection Association
 NFPA Standard 80, 90A, & 101
IBC International Building Codes

"UL CLASSIFIED (see complete marking on product)"
"UL CLASSIFIED to Canadian safety standards (see complete marking on product)"
 UL Standard 555 (Listing #R13317)



RECEIVING AND HANDLING

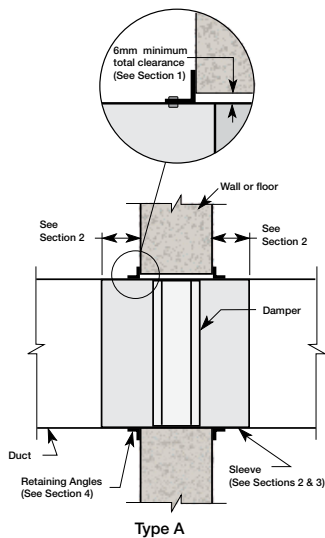
Upon receiving dampers, check for both obvious and hidden damage. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment, including accessories, are accounted for.

Dampers must be kept dry and clean. Indoor storage and protection from dirt, dust and the weather is highly recommended. Do not store at temperatures in excess of 38°C.

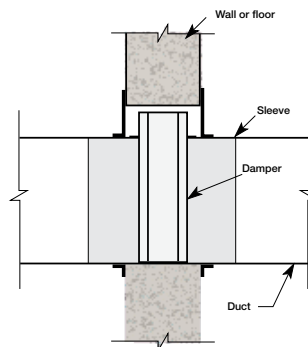
SAFETY WARNING:

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.

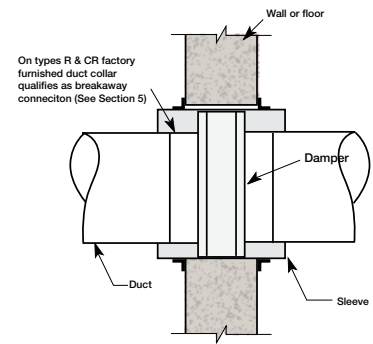
Vertical mount without factory mounted sleeve



Type A



Type B2



Type C, CO, CR & R

Horizontal mount without factory mounted sleeve

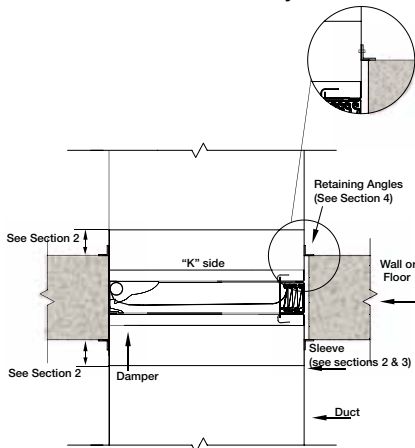


Fig. 1: Type A

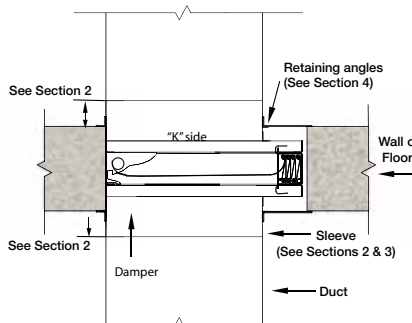
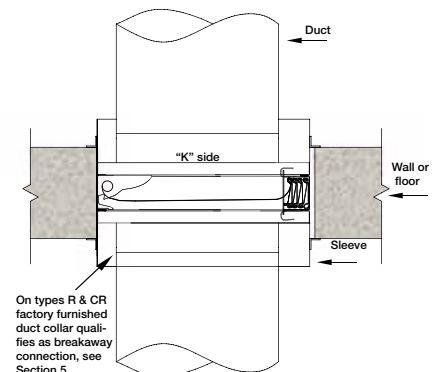


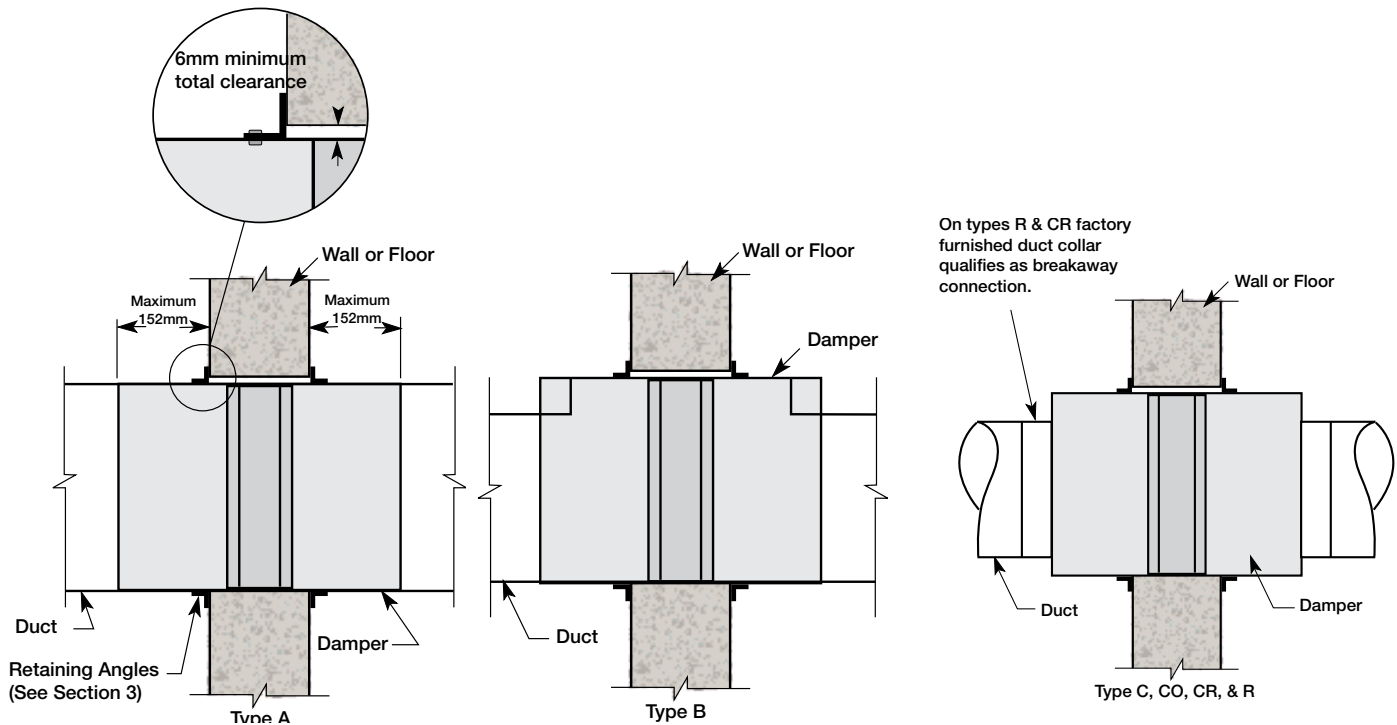
Fig. 1: Type B2



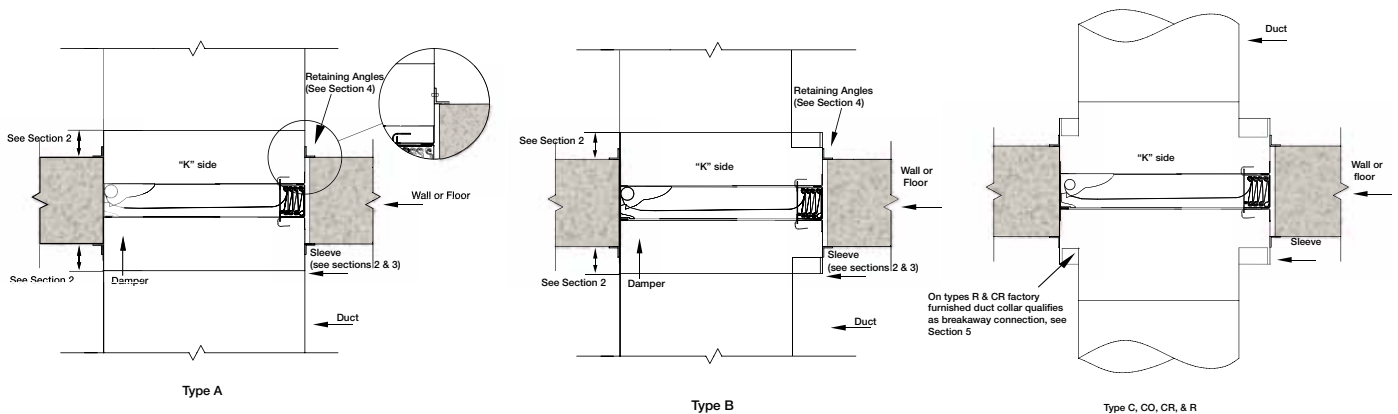
Type C, CO, CR, & R

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

Vertical mount with factory mounted sleeve



Horizontal mount with factory mounted sleeve



These instructions apply to 1½ and 3 hour rated fire dampers mounted (blades must be horizontal) in masonry, block or stud walls and concrete floors. Specific requirements in these instructions are mandatory. These instructions meet the requirements of UL 555. Installation shall comply with the requirements of NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems. U.L. listing R13317 apply to these dampers.

Note: Fire dampers are manufactured and labelled for either vertical or horizontal installation. The dampers must be installed in accordance with the labelling.

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

Fire damper and sleeve assemblies expand during periods of intense heat. Therefore it is essential that openings in walls or floors be larger than the fire damper and sleeve assembly to allow for this expansion. Minimum clearances required between the outside of fire damper sleeve assemblies and wall/floor openings are:

- Galvanized steel fire dampers and sleeves: 3mm per meter of damper width and height with a minimum

clearance of 6mm. *Recommended* clearances, for width and/or height dimensions of:

- 1) 1219mm or less: 13mm clearance
- 2) More than 1219mm and 2438mm or less: 25mm clearance
- 3) More than 2438mm: 38mm clearance

These are total clearances (ignoring fastener heads) and do not need to be equally spaced around the damper. Refer to Section 4 and Figure 6 for additional installation considerations.

Example: A 305mm x 305mm damper would require a minimum clearance of 6mm

A 1219mm x 305mm damper would require a minimum clearance of 13mm on width and 6mm on height.

2. GAUGES AND LENGTHS OF FIRE DAMPER SLEEVES

All fire dampers must be installed in a steel sleeve of the required gauge and length. See **Table 1** for required minimum sleeve gauges. Maximum sleeve thickness is 1.5 mm thick. Sleeve inside dimensions must equal damper outside dimensions.

Sleeves shall extend a maximum of 152mm beyond the wall or floor opening on each side (see **Figure 1**). When an access door is incorporated as a part of sleeve, the sleeve may extend a maximum of 406mm beyond the wall or floor opening on the access door side.

3. ATTACHING FIRE DAMPERS TO SLEEVES

Fire dampers must be attached to sleeves as shown in **Figure 5**. All four sides of the damper frame must be attached to the sleeve with one row of attachments on each side of the blade channel. Attachments must be spaced a maximum of 152mm on centers and a maximum of 51mm from corners. A minimum of 4 attachments (2 on each side of the blade channel) per side (16 per damper) are required. One of the methods of attachment shown below must be used.

- tack or spot welds
- M4.8 sheet metal screws
- M6 bolts and nuts
- 5mm steel pop rivets

4. SECURING FIRE DAMPER AND SLEEVES TO WALL AND FLOOR OPENINGS.

Fire damper and sleeve assemblies must be installed in wall and floor openings using retaining angles on each side of the wall or floor as described below:

- Retaining angles for 1½ hour rated dampers with a width and height 1219mm or less must be a minimum of 1mm. Retaining angles for all 3 hour rated dampers and all dampers with a width or height greater than

1219mm must be a minimum of 1.5mm. 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 6**)

- Retaining angles must be attached to the sleeve using the procedures and methods described in Section 3. The angles must be attached to all 4 sides of the sleeve with butt joints at each corner. A minimum of two attachments are required on each side, top and bottom. The angles need not be attached to each other at the corners.

- Retaining angles should not be fastened to the wall/floor material. The angles should only sandwich the wall/floor and allow for damper/sleeve expansion during periods of intense heat.

5. CONNECTING DUCTS TO FIRE DAMPER SLEEVE

Any duct connection other than breakaway is considered rigid. The connections shown on this page are considered breakaway. Factory furnished duct collars on type R and CR fire dampers are also considered breakaway.

6. MULTIPLE SECTION FIRE DAMPERS

When multiple sections are shipped unassembled, installer shall fasten dampers together as described in Section 3. **Table 2** shows maximum sizes for multiple section dampers. Dampers over 1219mm tall must be factory assembled.

Damper Model	Maximum Damper Single Section Sizes (mm)	Maximum Overall Size for Multi Section Dampers (mm)
FD-M150 (H or V)	1219 x 1219	2438 x 1219
DFD-M150 (V)	914 x 914	1219 x 914
DFD-M150 (H)	762 x 762	1219 x 914
DFD-M350 (V & H)	914 x 914	NA

Note: V=Vertical Mount and H=Horizontal Mount. All dimensions shown are in mm..

Table 2: Maximum section sizes and overall sizes for multiple section dampers.

MINIMUM SLEEVE THICKNESS FOR FIRE DAMPERS			
Type of Duct to Sleeve Connection	Duct	Duct Dimension	Sleeve Thickness
Rigid	Rectangular	914mm max. width or 610mm max. height	1.5mm
Rigid	Rectangular	over 914mm width or over 610mm height	2mm
Breakaway (or no duct)	Rectangular	305mm wide and under >305mm ≤ 762mm wide >762mm ≤ 1372mm wide >1372mm ≤ 2134mm wide >2134mm wide and over	.5mm .7mm .8mm 1.0mm 1.2mm
Important Note: Sleeve thickness must not be less than the gauge of the connecting duct. UL Standard 555 requires all ducts to terminate at the fire damper sleeves or the damper frames.			

Table 1: Minimum sleeve thickness for fire dampers.

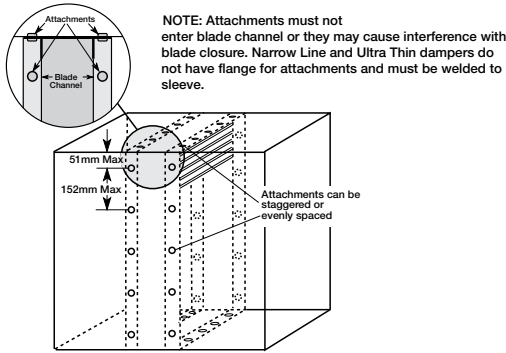


Figure 5: Field attachment of fire dampers to sleeves.

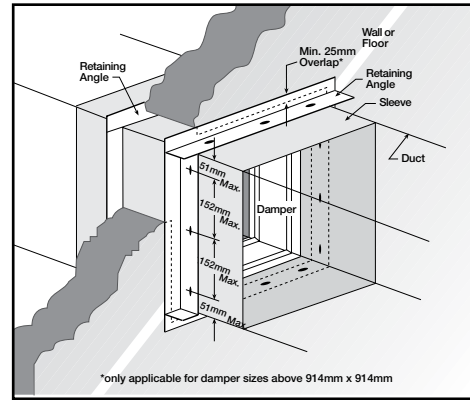


Figure 6: Retaining angle installation.

BREAKAWAY CONNECTIONS

Traditional Breakaway Style Transverse Joints

Transverse joints illustrated in **Figure 7** have always been approved as breakaway connections. SMACNA testing has also approved the following variations as breakaway connections.

- Standing "S" joints can be applied with M4.8 sheet metal screws (through joint and duct) subject to the following limitations: Maximum 2 screws in each side and in bottom joint.
- Transverse joints illustrated can be applied as top and bottom joints with Drive Slip - side joints in duct heights up to 508mm.

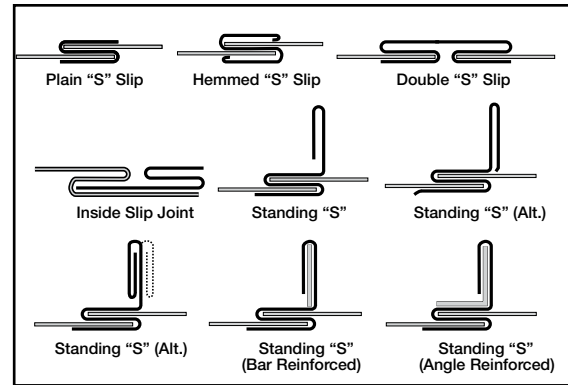


Figure 7: Traditional breakaway style transverse joints.

NOTE: All breakaway connections described may have duct sealant applied, PA2084T duct sealant adhesive manufactured by Precision or DP1010 water base duct sealant by Design Polymetrics, Grey Pookie or Ductmate PROseal® in accordance with SMACNA recommendations.

Round and Oval Duct Breakaway Connections

Round ducts connected to factory supplied Type R or CR damper collars may use M4.8 sheet metal screws as follows:

- Ducts 559mm wide (or dia.) and smaller may use 3 screws.
- Ducts larger than 559mm wide (or dia.) may use 5 screws.

Manufactured Flanged System Breakaway Connections

Flanged connection systems manufactured by Ductmate, Ward, and Nexus are approved as breakaway connections when installed as illustrated in **Figure 8**.

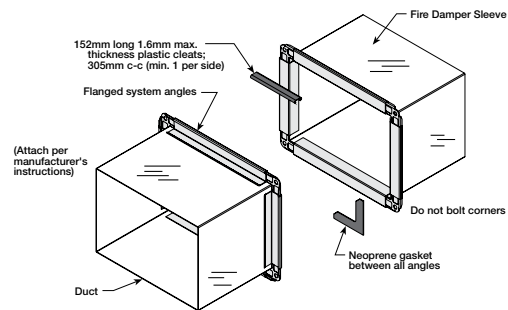


Figure 8: Detail of manufactured flanged system breakaway connections.

Proprietary Flange System Breakaway Connections

(TDC by Lockformer, TDF by Engle)

TDC and TDF systems are approved as breakaway connections when installed as described in the SMACNA Duct Construction Standards. Standard 152mm metal clip may be used with spacing as shown in **Figure 9**. 10mm metal bolts and nuts may be used to fasten together corner pieces.

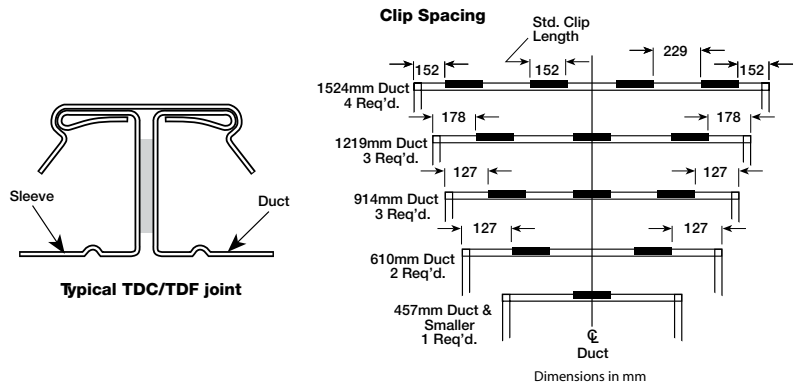


Figure 9: Detail of proprietary flanged system breakaway connections.

Recommended Preparation of Openings in Wood and Metal Stud Walls

- Frame wall openings as shown in **Figure 10**.
- Double vertical studs are not required for openings 914mm x 914mm or smaller.
- Double horizontal studs may be used to frame opening.
- Gypsum wall board must be fastened 305mm on center to all stud and runner flanges surrounding opening (see **Figure 11**).
- All construction and fasteners must meet the requirements of the appropriate wall design. (See UL Fire Resistance Directory)

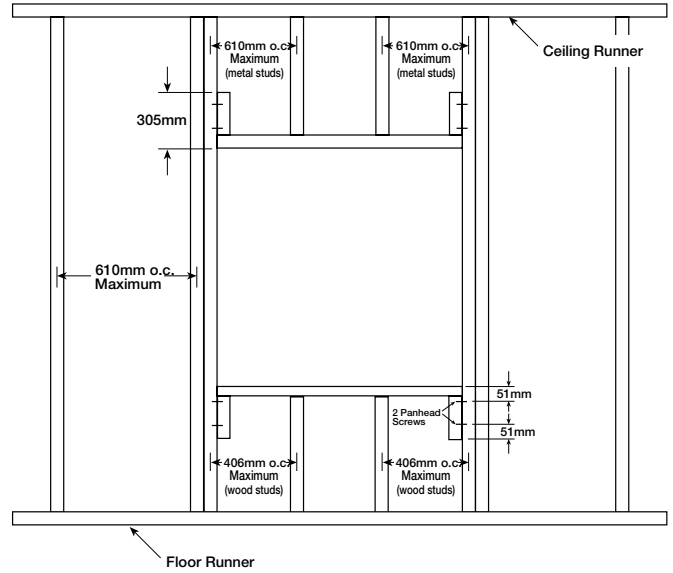


Figure 10: Preparation detail for opening in stud wall.

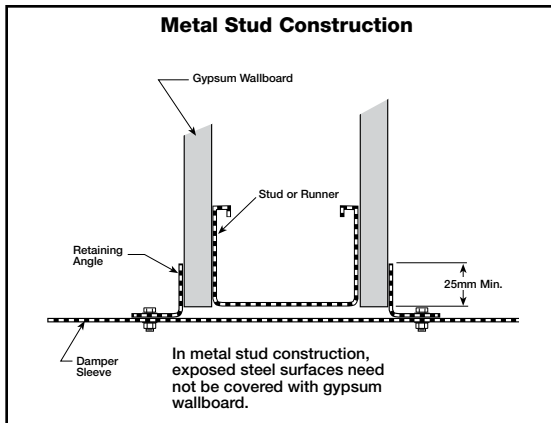


Figure 11: Detail of retaining angles and gypsum board application for metal and wooden stud construction.

WARRANTY

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the purchase date. Any units or parts which prove to be defective during the warranty period will be repaired or replaced at our option. Greenheck shall not be liable for damages resulting from misapplication or misuse of its products. Greenheck will not be responsible for any installation or removal costs. Greenheck will not be responsible for any service work or backcharges without prior written authorization.

