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UKAS MANAGEMENT SYSTEMS
8327

BETA
industrial

PRODUCTS CATALOGUE

PRODUCT BULLETIN 9

Ver I May 2025

BETA industrial

index

FIRE DAMPER FOR STATIC SYSTEM - FDF MODEL - SINGLE SECTION

FEATURES :

- U.L. Classified for static systems in accordance with UL 555 & NFPA 90A.
- Civil Defense approved
- Fire rated for 1 ½ hour.
- 100% Free area (Blades out of air stream)

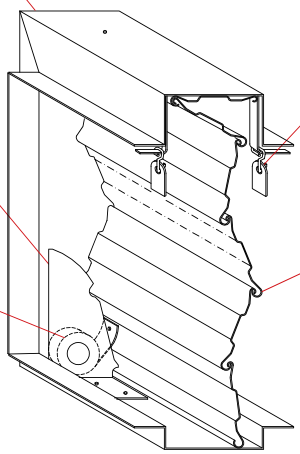
CONSTRUCTION

- Casings: 1.2 mm thick manufactured from corrosion resistant galvanized mild steel.
- Blades: Roll formed single skin interlocking galvanized curtain shutter of 0.8 mm thk
- Blade guide / Locking ramps: Galvanized steel locking ramps ensures positive blade closure within integral blade guide.
- Fusible Link: Typical "two-pieces" fusible links rated at 165° F.
- Springs: Stainless steel coil tension spring.
- Mounting: Horizontal / Vertical
- (Installation as per instruction on page no 4)
- Sizes: Maximum Width 31" & Maximum Height 33" (Out to Out)
- Sleeves: are optional. details are as per pages 3 & 4

Casings
Manufactured from corrosion Resistant galvanized steel as standard

Blade guide / Locking ramps
Galvanized steel locking ramps ensures positive blade closure within integral blade guides.

Springs
Stainless steel coil tension spring ensuring powerful blade closure when appropriate



Fusible links /
release mechanism
Typical "two-pieces" fusible links rated at 165° F
Alternative temperature rated fusible links mechanisms available

Blades
(Rollformed single skin interlocking galvanized high integrity curtain shutter of 0.8 mm thickness)

Figure - 1

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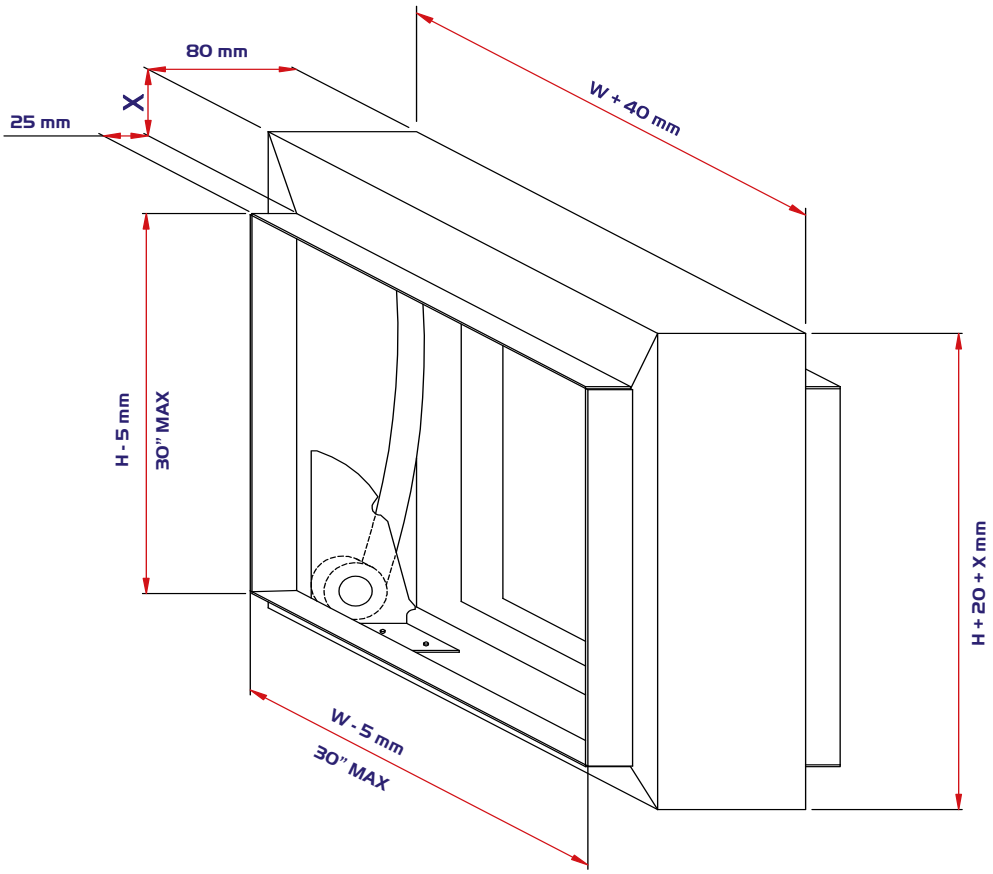

Figure - 2

X-DIMENSIONAL

FDF	
Height (mm)	X (mm)
100-400	40
401-750	60

CROSS SECTION DETAIL

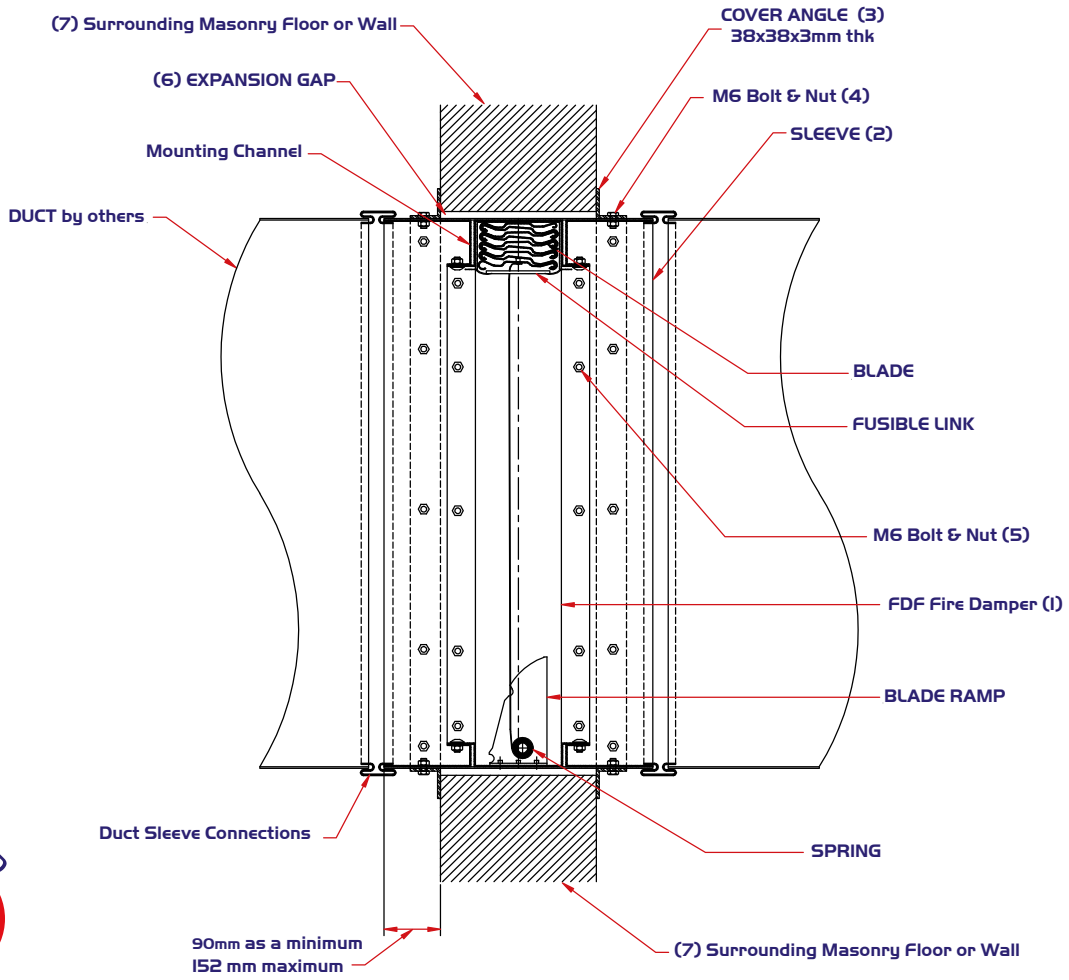

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Figure - 3

Ordering Key:

SMACNA

F	D	F	W	X	H	S	L	V	F	1	2
100% FREE AREA FIRE DAMPER FOR VERTICAL & HORIZONTAL MOUNTING FOR STATIC APPLICATIONS											
SIZE: WIDTH X HEIGHT UP TO 31"X33" OUT-TO-OUT DIMENSIONS.											
- : WITHOUT SLEEVE (STANDARD) SLVF12 : WITH 1.2MM THICK G.I. SLEEVE											

INSTALLATION & OPERATING INSTRUCTIONS

1 >> The damper ① should be installed centrally within the surrounding masonry floor or wall ⑦

2 >> The damper ① should be installed in a rectangular galvanized steel sleeve ② with a min. thickness of 1.2 mm This sleeve should be attached to the damper not to the builder's work using the mounting channels by 6mm dia ⑤ bolts spaced at not more than 225mm centres. Bolts for mounting channels located maximum 45 and 145mm from corners of sleeve and frame, respectively.

3 >> The damper is suitable only for rectangular space and can not be used for annular space.

4 >> Allowance for expansion between sleeve and builder's work in both horizontal and vertical planes to be 3mm per 305mm of length.

5 >> The sleeve ② should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm and maximum of 152mm beyond the floor or wall.

6 >> The cover angles should be attached to the sleeve by 6mm dia ④ bolts at a minimum of 225mm centres, and should form a complete frame around the sleeve and cover over the expansion gap ⑥ required between sleeve and wall opening. The four corner of the cover angles are not to be welded.

The bolts connecting the cover angles to the sleeve to be 102mm maximum from the corners.

7 >> The expansion gap ⑥ should be filled with compressible, non-combustible material (mineral wool).

8 >> The cover angle ③ should be of such a size as always to form a cover over the wall opening by 25mm minimum and should be manufactured from a minimum size of 38*38*3mm steel angle.

9 >> A fusible link UL tested Elsie brand which is rated at 165 degree F is used.

10 >> The duct-sleeve connection to be of double "S" slip type.

Breakaway Joints shown shall have no more than two No. 10 (4.8 mm dia) 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.

Breakaway Joints for horizontal ducts (vertical fire damper) shall be provided on the top, bottom and on the sides with double "S" slip type as illustrated.

Breakaway Joints for vertical ducts (horizontal fire damper) shall be provided on both other opposite sides with double "S" slip type.

Connecting ducts shall not be continued and shall terminate at the sleeve. Installation shall comply with NFPA 90A.

11 >> All fixing of frames must be positioned clear of the damper blade path so as not to impede proper closure.

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FIRE DAMPER FOR STATIC SYSTEMS - FDC/FDCA MODELS

SINGLE SECTION

FDC 100% FREE AREA

FDCA NOT 100% FREE AREA

MULTIPLE SECTION

FDCA NOT 100% FREE AREA

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FIRE DAMPER FOR STATIC SYSTEMS - FDC/FDCA MODELS

MAXIMUM UL CLASSIFIED SIZES (OUT TO OUT)		
section	MAXIMUM WIDTH (")	MAXIMUM HEIGHT (")
SINGLE	36	36
MULTIPLE	72	72

FEATURES:

- UL classified for static systems in accordance with UL 555 & NFPA 90A
- Civil Defence Approved
- Fusible link set at 165° F
- Fire rated for 1 ½ hour & 3 hour
- Mounting type: vertical

CONSTRUCTION

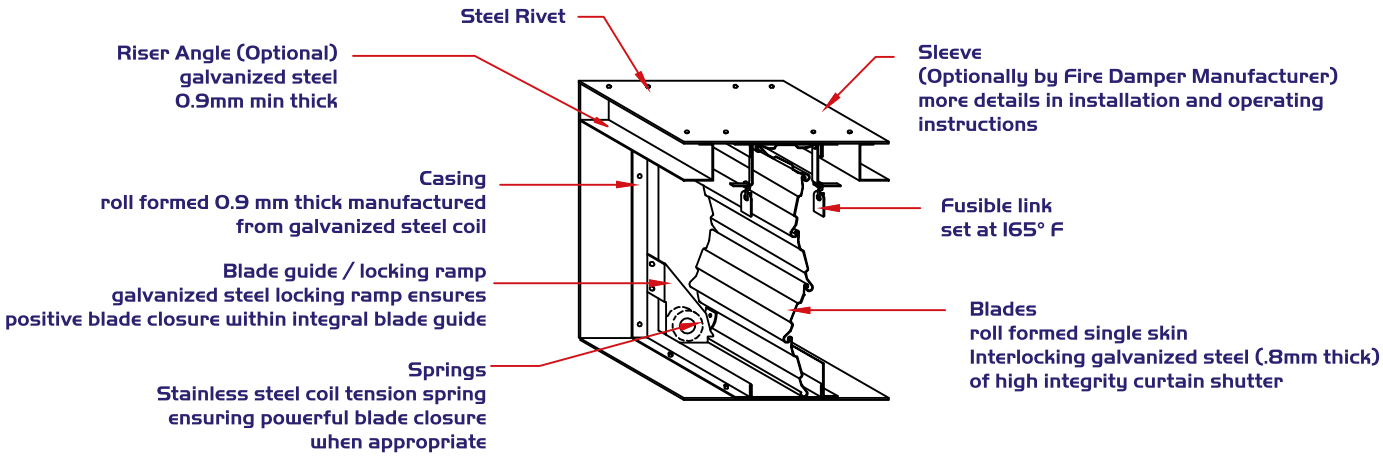


Figure - 1

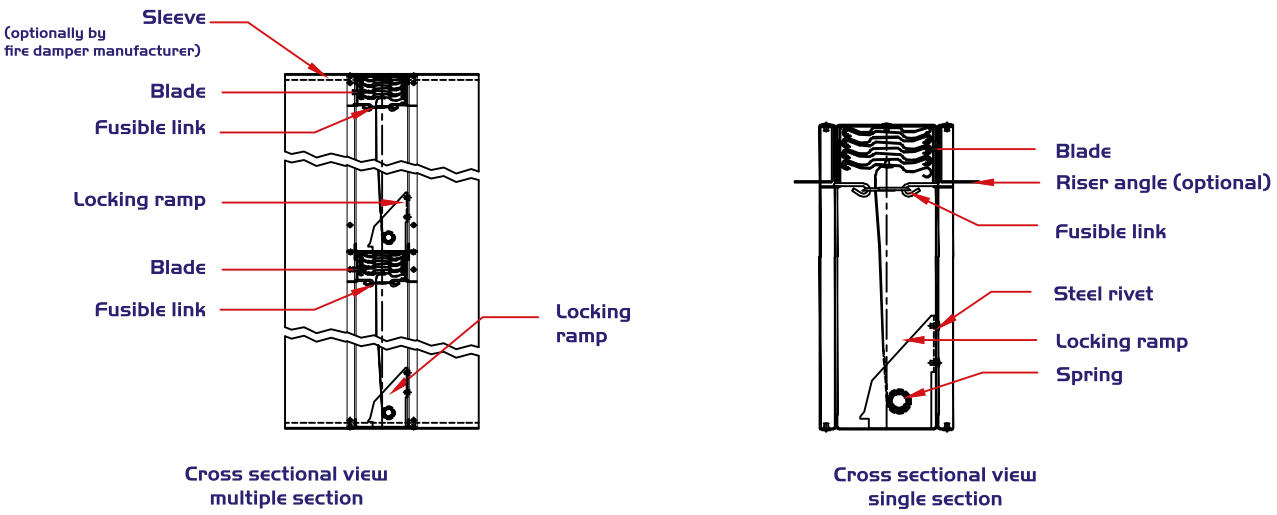


Figure - 2

INSTALLATION AND OPERATING INSTRUCTIONS

1. The damper ① should be installed centrally within the surrounding masonry / gypsum floor or wall ⑦
2. The damper ① should be installed in a rectangular galvanized steel sleeve ② (optionally by Fire Damper Manufacturer) with a minimum thickness of 0.9mm. This sleeve should be attached to the damper not to the builder's work using steel rivets ⑤ 4.8mm dia and spaced at not more than 225mm centers and 13 mm from corners (½")
3. The damper is suitable only for rectangular space and can not be use for annular space.
4. Allowance for expansion between sleeve and builder's work in both horizontal and vertical planes to be 3mm per 305 mm of length and width.
5. The sleeve ② (optionally Fire Damper Manufacturer) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork.
   Minimum of 90 mm and maximum 152 mm beyond the floor or wall / include thicknesses of sleeve in table I.
6. The mounting angles ③ should be attached to the sleeve (optionally bye Fire Damper Manufacturer) by 8mm dia ④ bolts at a maximum of 225 mm centers, and should form a complete frame around the sleeve and cover over the expansion gap ⑥ required between sleeve and wall / floor opening. The four corner of the mounting angles are not to be welded. The bolts connecting the mounting angles to the sleeve to be 102 mm maximum from the corners. Mounting angles will be send in loose parts.
7. The mounting angles ③ should be of such a size as always to form an overlap with the wall / floor by 25 mm minimum and should be manufactured from a minimum size of 25 x 25 x 1.2 mm GI angle.
8. A fusible link is UL tested, Elsie brand, set at 165° F
9. The duct - sleeve connection to be of as per what shown in (figure 5) page ⑧ connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A
10. All fixing of frames must be positioned clear of the damper blade path so as not to impede proper closure.

Sleeve Thickness (mm)
0.9
1.2
1.5
2

TABLE I

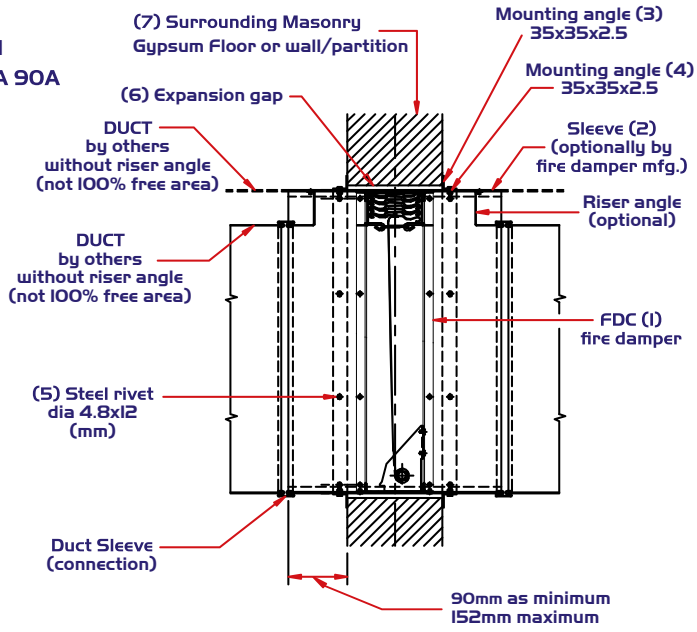


Figure 3 (CROSS SECTION DETAILS)
SINGLE SECTION FDC FIX TO WALL

11. In Multiple Section FD center cross section point which obtain from attaching four individual section are welded from two sides.
12. In multiple section FD, Individual section FD attached with each other by steel rivet 4.8mm dia., space between rivet more than 225 mm centers, and (½") 13 mm from the corners.
13. Multiple section FD is enclosed with a single rectangular galvanized steel sleeve (optionally by Fire Damper Manufacturer).
    The fixing of the sleeve to the FD frame using steel rivet 4.8mm dia. Space not more than 225mm center to center and (½") 13 mm from corners. Sleeve (optionally by Fire Damper Manufacturer) thickness as per what mentioned on Table no. I
14. The maximum size of the multiple fire damper assembly that is assembled is 72" x 72".
15. In multiple section FD, The maximum size of the individual section that are attached together is 36" x 36".

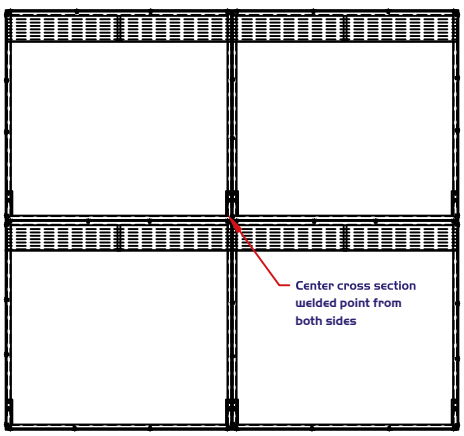


Figure 4 (FRONT VIEW)
MULTIPLE SECTION FDCA WITH SLEEVE

DUCT - SLEEVE CONNECTIONS

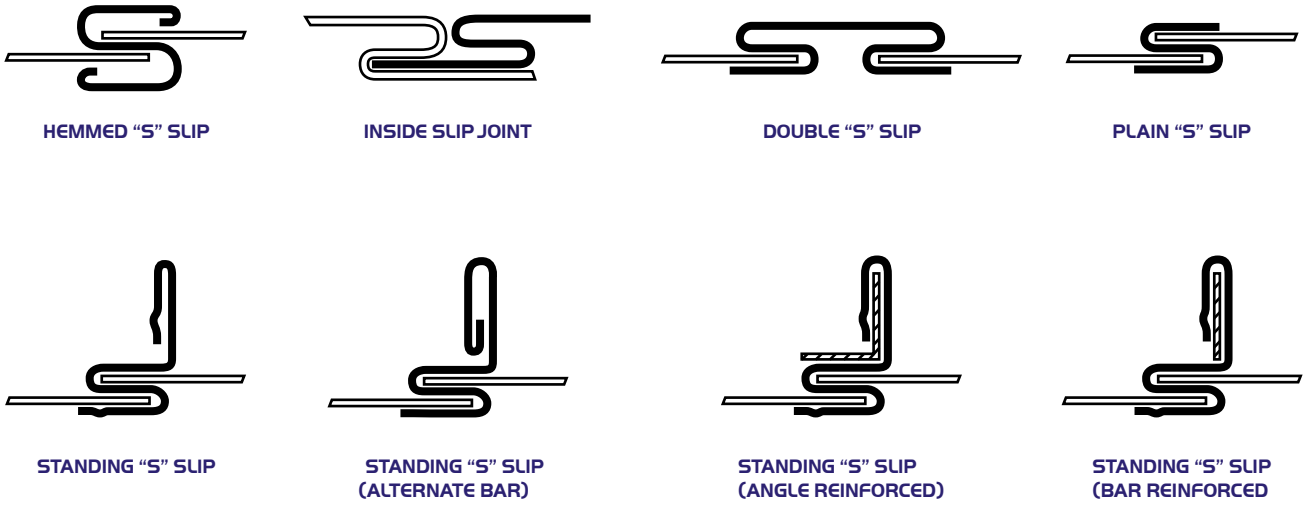


Figure - 5

EXPLODED ASSEMBLY FOR FDC TYPE WITH SLEEVE

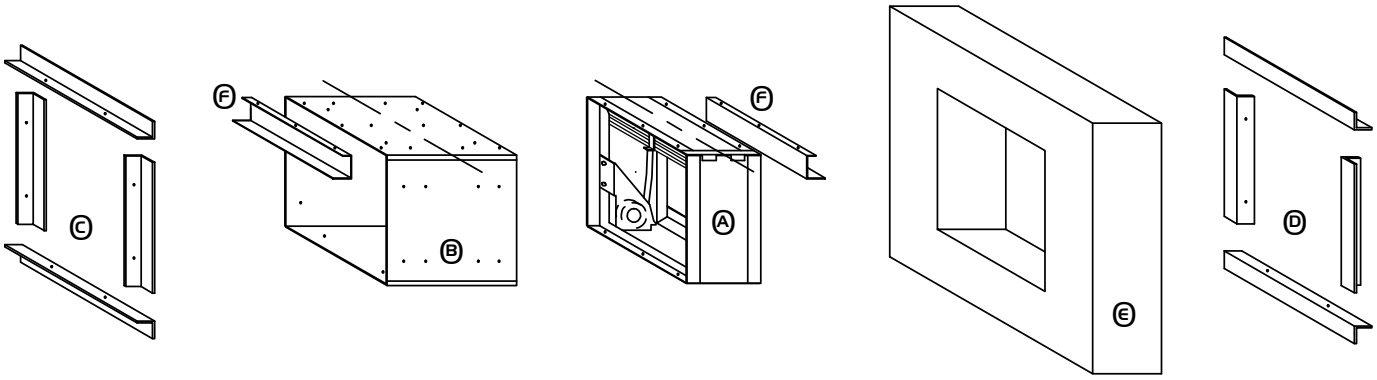


Figure - 6

ASSEMBLY PROCEDURES:

1. Fix the damper Ⓐ into the sleeve Ⓑ matching their center axis and hole provision using steel rivet.
2. If the riser angle (optional) is use then, fix the riser angle Ⓕ (optional) into the fire damper sleeve matching their hole provision using steel rivet. If not go to step no.3.
3. Fix the fire damper with sleeve into the concrete / gypsum wall Ⓔ opening by a front mounting angle Ⓒ 35x35 matching their hole provision using M8 Hex bolt and nut. Opening size should have clearance of 3 mm per 305 mm of length and width.
4. Finally when the Fire Damper with sleeve is already fitted to the wall, fix the back mounting angle Ⓓ 35 x 35 matching their hole provision using M8 Hex bolt and nut.

ORDERING SYSTEM

SINGLE SECTION

FDC 100% FREE AREA

SIZES RANGE

	(mm)	(inches)
H	80 - 825	3.2" - 32.5"
W	100 - 915	4" - 36"

X (mm)	H (mm)
25	80 - 150
50	151 - 450
75	451 - 650
90	651 - 825

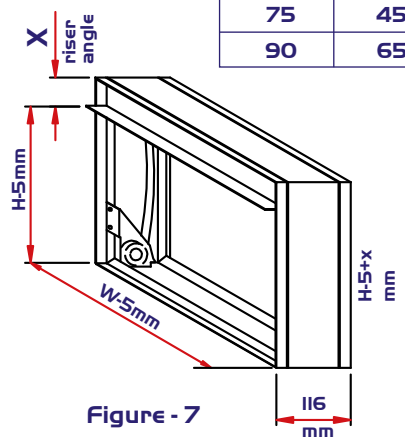


Figure - 7

FDCA NOT 100% FREE AREA

SIZES RANGE

	(mm)	(inches)
H	100 - 915	4" - 36"
W	100 - 915	4" - 36"

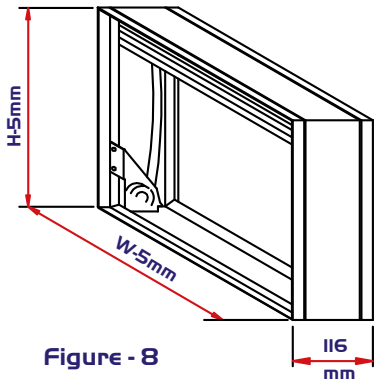


Figure - 8

MULTIPLE SECTION

FDCA NOT 100% FREE AREA

SIZES RANGE

	Multiple Section	
	(mm)	(inches)
H	above 915 - 1830	above 36" - 72"
W	above 915 - 1830	above 36" - 72"

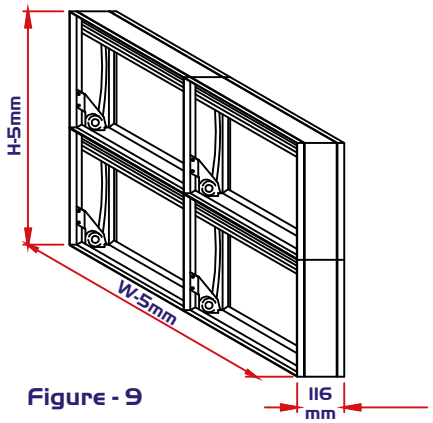


Figure - 9

Ordering Key:

STATIC	F	D	C	A	W	X	H	S	L	V	C	O	9

FIRE DAMPER FOR VERTICAL MOUNTING FOR STATIC APPLICATIONS

- : 100% FREE AREA (STANDARD)
A : NOT 100% FREE AREA

SIZE: WIDTH X HEIGHT
UP TO 36"X36" OUT-TO-OUT DIMENSIONS FOR SINGLE SECTION, AND 72"X72" OUT-TO-OUT DIMENSIONS FOR MULTIPLE SECTION.

- : WITHOUT SLEEVE (STANDARD)
SLVC09 : WITH 0.9 MM THICK G.I. SLEEVE
SLVC12 : WITH 1.2MM THICK G.I. SLEEVE
SLVC15 : WITH 1.5MM THICK G.I. SLEEVE
SLVC20 : WITH 2.0MM THICK G.I. SLEEVE

FIRE DAMPER FOR DYNAMIC SYSTEMS - FDC/FDCA MODELS - SINGLE SECTIONS

FDC 100% FREE AREA

FDCA NOT 100% FREE AREA

CLASSIFIED UL®
R21930

FIRE DAMPER FOR DYNAMIC SYSTEMS - FDC/FDCA MODELS - SINGLE SECTIONS

FEATURES:

- UL classified for dynamic systems in accordance with UL 555 & NFPA 90A
- Civil Defence Approved
- Fusible link set at 165° F
- Fire rated for 1 ½ hour
- Mounting type: vertical
- Flow rating is 2000 cfm / ft^2
- Static pressure is 4 in.wc

MAXIMUM UL CLASSIFIED SIZES (OUT TO OUT)		
section	MAXIMUM WIDTH (")	MAXIMUM HEIGHT (")
SINGLE	36	36

CONSTRUCTION

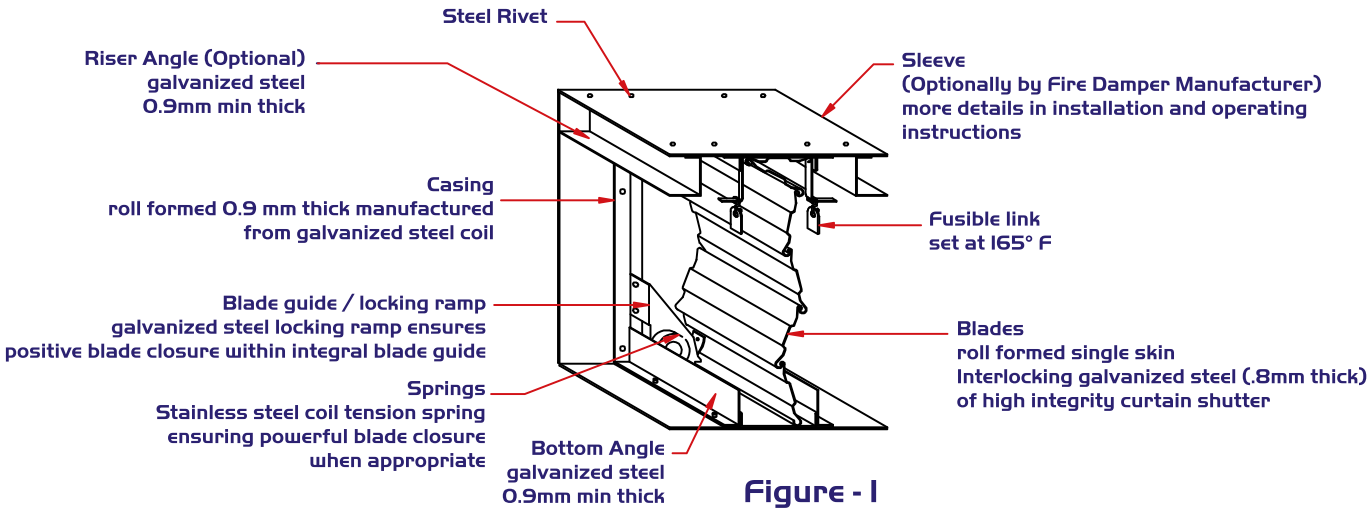
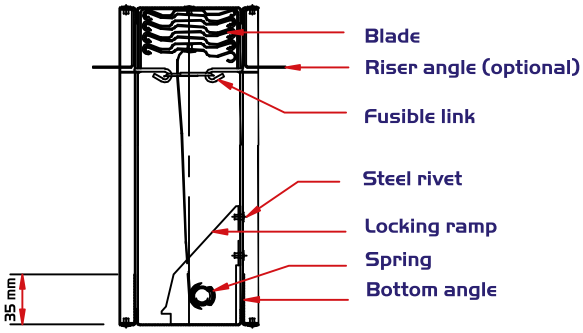


Figure - 1



Cross sectional view
single section

Figure - 2

INSTALLATION AND OPERATING INSTRUCTIONS

1. The damper ① should be installed centrally within the surrounding masonry / gypsum floor or wall ⑦
2. The damper ① should be installed in a rectangular galvanized steel ② (optionally by Fire Damper Manufacturer) with a minimum thickness of 0.9mm. this sleeve should be attached to the damper not to the builder's work using steel rivets ⑤ 4.8mm dia. and spaced at not more than 225mm centers and 13 mm from corners (½")
3. The damper is suitable only for rectangular space and can not be use for annular space.
4. Allowance for expansion between sleeve and builders work in both horizontal and vertical planes to be 3mm per 305 mm of length and width.
5. The sleeve ② (optionally by Fire Damper Manufacturer) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork.
   Minimum of 90 mm and maximum 152 mm beyond the floor or wall / include thicknesses of sleeve in table I.

Sleeve Thickness (mm)
0.9
1.2
1.5
2

TABLE I

6. The mounting angles ③ should be attached to the sleeve (optionally bye Fire Damper Manufacturer) by 8mm dia ④ bolts at a maximum of 225mm centers, and should form a complete frame around the sleeve and cover over the expansion gap ⑥ required between sleeve and wall / floor opening. The four corners of the mounting angles are not to be welded. The bolts connecting the mounting angles to the sleeve to be 102 mm maximum from the corners Mounting angles will be send in loose parts.
7. The mounting angles ③ should be of such a size as always to form an overlap with the wall / floor by 25 mm minimum and should be manufactured from a minimum size of 35 x 35 x 2.5 mm GI angle.
8. A fusible link is UL tested, Elsie brand, set at 165° F
9. The duct-sleeve connection to be of as per what shown in (figure4) page 13.
   Connecting ducts shall not be continuous and shall terminate at the sleeve.
   Installation shall comply with NFPA 90A
10. All fixing of frames must be positioned clear of the damper blade path so as not to impede proper closure.

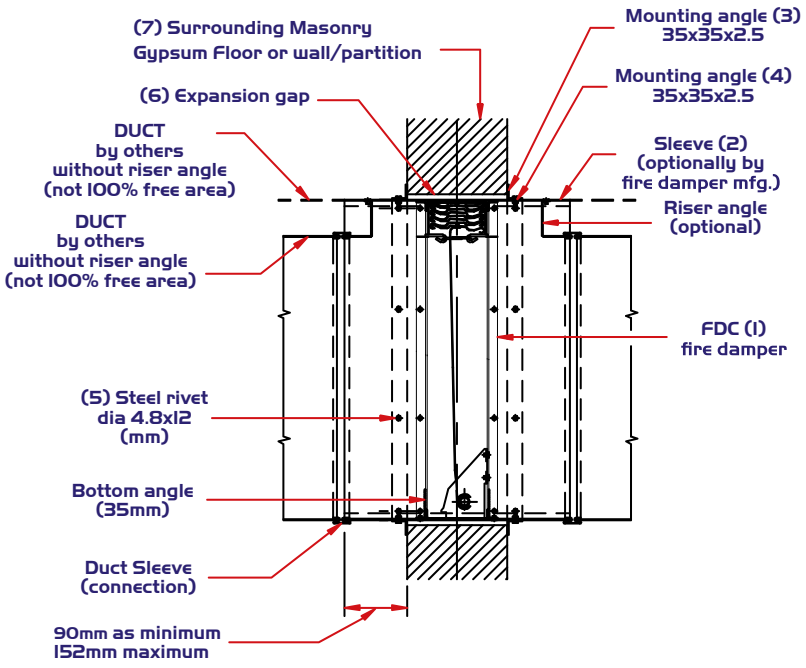


Figure 3 (CROSS SECTION DETAILS)
SINGLE SECTION FDC FIX TO WALL

DUCT - SLEEVE CONNECTIONS

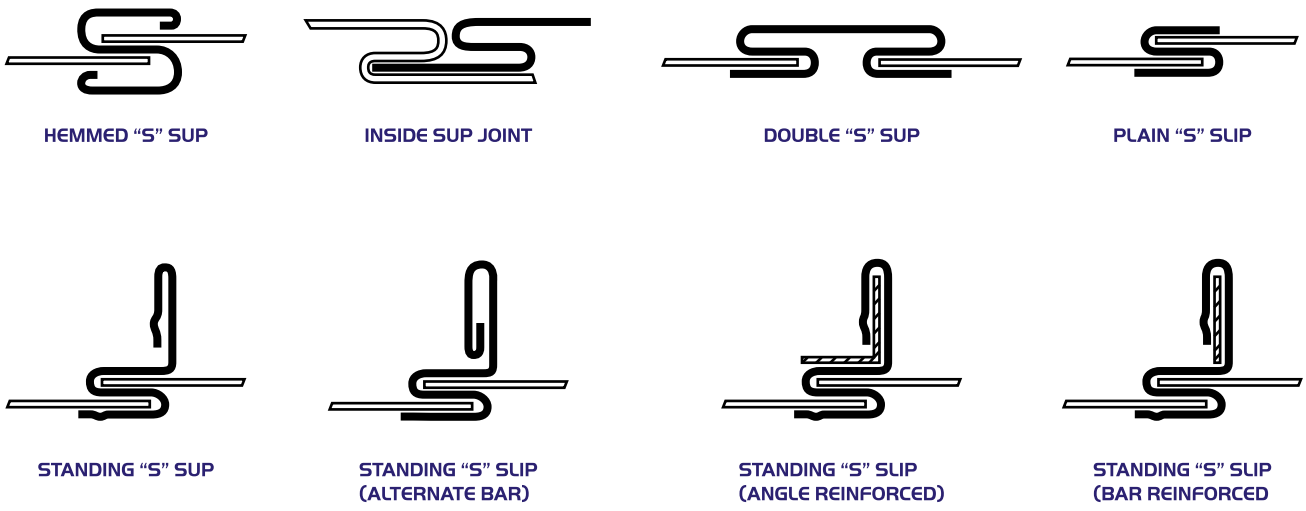


Figure - 4

EXPLODED ASSEMBLY FOR FDC TYPE WITH SLEEVE

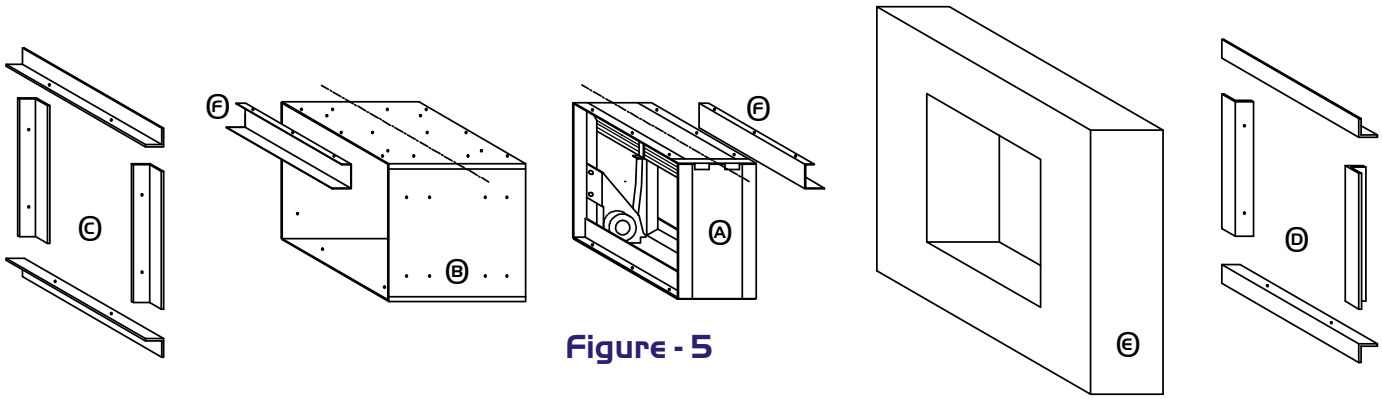


Figure - 5

ASSEMBLY PROCEDURES:

1. Fix the damper Ⓐ into the sleeve Ⓑ matching their center axis and hole provision using steel rivet.
2. If the riser angle (optional) is use then, fix the riser angle Ⓕ (optional) into the fire damper sleeve matching their hole provision using steel rivet. If not go to step no.3.
3. Fix the fire damper with sleeve into the concrete / gypsum wall Ⓔ opening by a front mounting angle Ⓒ 35x35 matching their hole provision using M8 Hex bolt and nut. Opening size should have clearance of 3 mm per 305 mm of length and width.
4. Finally when the Fire Damper with sleeve is already fitted to the wall, fix the back mounting angle Ⓓ 35 x 35 matching their hole provision using M8 Hex bolt and nut.

ORDERING SYSTEM

FDC 100% FREE AREA

SIZES RANGE		
	(mm)	(inches)
H	80 - 825	3.2" - 32.5"
W	100 - 915	4" - 36"

X (mm)	H (mm)
25	80 - 150
50	151 - 450
75	451 - 650
90	651 - 825

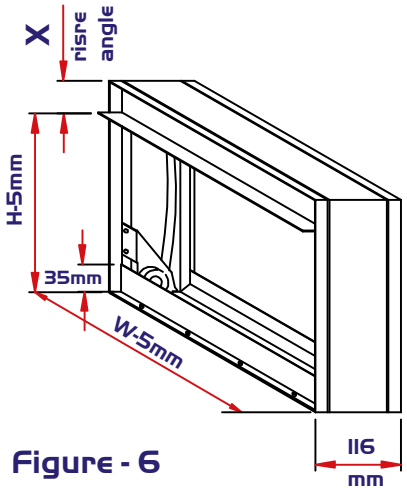


Figure - 6

FDCA NOT 100% FREE AREA

SIZES RANGE		
	(mm)	(inches)
H	100 - 915	4" - 36"
W	100 - 915	4" - 36"

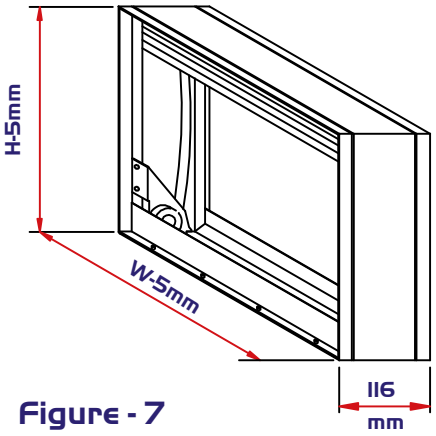


Figure - 7

Ordering Key:

DYNAMIC	F	D	C	A	W	X	H	S	L	V	C	O	9

FIRE DAMPER FOR VERTICAL MOUNTING FOR DYNAMIC APPLICATIONS

- : 100% FREE AREA (STANDARD)
A : NOT 100% FREE AREA

SIZE: WIDTH X HEIGHT
UP TO 36"X36" OUT-TO-OUT DIMENSIONS FOR SINGLE SECTION,

- : WITHOUT SLEEVE (STANDARD)
SLVC09 : WITH 0.9 MM THICK G.I. SLEEVE
SLVC12 : WITH 1.2 MM THICK G.I. SLEEVE
SLVC15 : WITH 1.5 MM THICK G.I. SLEEVE
SLVC20 : WITH 2.0 MM THICK G.I. SLEEVE

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

STANDARD CONSTRUCTION

Standards: Designed and tested in accordance with UL555 for STATIC applications. Meets NFPA 90A and SMACNA requirements for fire dampers.

Application: For fire barriers in STATIC applications.

Frame: 133mm Roll formed hat-shaped made of 1.4mm thick galvanized steel with reinforced corners, having integral bracing and 90° perpendicular overlap at a corner.

Blades: Roll formed 3 V-shaped made of 1.4mm thick galvanized steel.

Bushes: Bronze bushes.

Axles: ⅜" Square axles made of galvanized steel.

Linkage: Mechanical and concealed in frame.

Jamb Seals: Stainless steel jamb seals.

Drive Mechanism: ½" Round Jack Shaft made of galvanized steel.

Fusible link: UL Listed 165° F.

Sleeve: Sleeve made of 400mm depth and 1.1mm thickness galvanized steel.

Mounting: Vertical mounting.

Fire Rating: 3 hr (Model BFD)

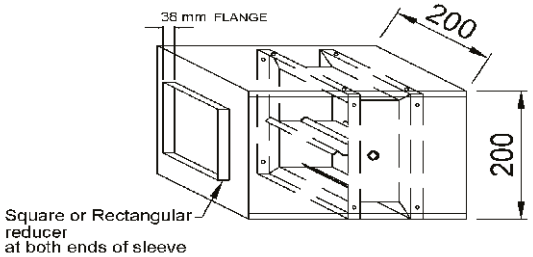
Quadrant: Manual locking quadrant made of galvanized steel (becomes option for motorized models).

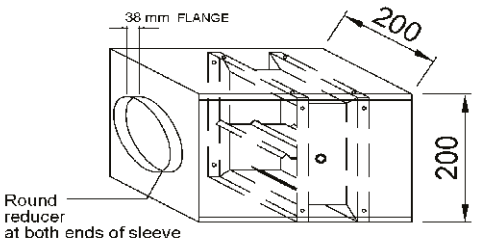
Sizes: Single Section: Max. 36" X 36"
Multiple Section: Max. 72" X 72"

Models BMFD-TF, BMFDLT-TF, BEMFD-TF & BEMFDLT-TF

Models BMFD/R, BMFDLT/R BEMFD/R & BEMFDLT/R

Reducer on sleeve used when damper sizes are requested below 200x200mm





CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

OPTIONS

- ☐ Fire Rating: 1½ hr (Model BEFD)
- ☐ Without Sleeve with one side plate only (Models ended with "-XS").
- ☐ Round spigots for models BFD/R and BEFD/R.
- ☐ UL Listed 212° F fusible link.
- ☐ Motorized by BELIMO & HONEYWELL actuators
- ☐ Manual locking quadrant made of galvanized steel (option for motorized models and standard for non motorized models).

Models BFD-XS & BEFD-XS
(without sleeve)

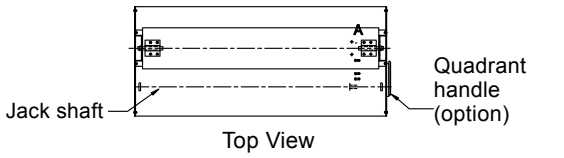
- ☐ With UL Listed 165° F Thermal Responsive Device TRD instead of fusible link (BMFD-T & BEMFD-T).
- ☐ With BOTH UL Listed 165°F Thermal Responsive Device TRD and 212°F fusible link(BMFD-TF & BEMFD-TF).

FEATURE \ MODEL	BFD-F165	BFD-F212	BFD/R-F165	BFD/R-F212	BEFD-F165	BEFD-F212	BEFD/R-F165	BEFD/R-F212	BMFD-F165	BMFDLT-F165	BMFD-F212	BMFDLT-F212	BMFD/R-F165	BMFDLT/R-F165	BMFD/R-F212	BMFDLT/R-F212	BMFD-T	BMFDLT-T	BMFD/R-T	BMFDLT/R-T	BMFD-TF	BMFDLT-TF	BMFD/R-TF	BMFDLT/R-TF	BEMFD-F165	BEMFDLT-F165	BEMFD-F212	BEMFDLT-F212	BEMFD/R-F165	BEMFDLT/R-F165	BEMFD/R-F212	BEMFDLT/R-F212	BEMFD-T	BEMFDLT-T	BEMFD/R-T	BEMFDLT/R-T	BEMFD/TF	BEMFDLT-TF	BEMFD/R-TF	BEMFDLT/R-TF
USE — FIRE BARRIER	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
USE — SMOKE BARRIER																																								
SYSTEM — STATIC	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
SYSTEM — DYNAMIC																																								
AIR FLOW RATING — 2000 FPM																																								
PRESSURE RATING — 4 IWG																																								
LEAKAGE CLASS — CLASS 2 - 250°F																																								
FIRE RATING — 3 HR	√	√	√	√					√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√																
FIRE RATING — 1½ HR					√	√	√	√																	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
MOTORIZED — NO	√	√	√	√	√	√	√	√																																
MOTORIZED — YES									√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
ROUND SPIGOTS — WITH			√	√			√	√					√	√	√	√			√	√			√	√					√	√	√	√			√	√			√	√
ROUND SPIGOTS — WITHOUT	√	√			√	√			√	√							√	√			√	√			√	√	√	√					√	√			√	√		
TEMPERATURE RESPONSIVE DEVICE — 165°F FUSIBLE LINK	√		√		√		√		√	√			√	√											√	√			√	√										
TEMPERATURE RESPONSIVE DEVICE — 212°F FUSIBLE LINK		√		√		√		√			√	√			√	√											√	√			√	√								
TEMPERATURE RESPONSIVE DEVICE — "165°F RESETTABLE THERMOELECTRIC TRD"																	√	√	√	√	√	√											√	√	√	√				
TEMPERATURE RESPONSIVE DEVICE — 165°F TRD & 212°F FUSIBLE LINK																					√	√	√	√													√	√	√	√
SLEEVE — WITH	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
SLEEVE — WITHOUT	ABOVE MODELS WITHOUT ROUND SPIGOT CAN BE WITHOUT SLEEVE & WITH ONE SIDE PLATE WHEN THE MODEL ENDS BY "-XS"																																							

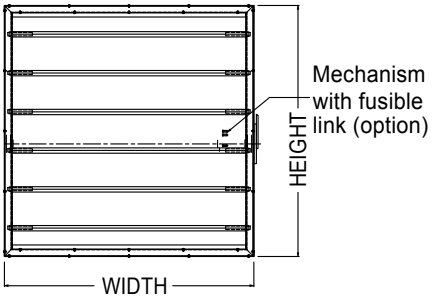
MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

ASSEMBLY

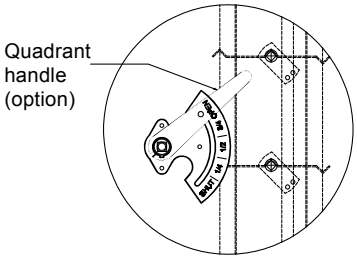
Single section assembly
up to 36" X36" (915X915mm)

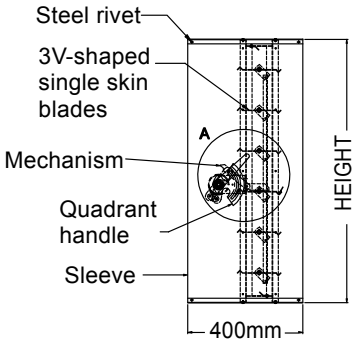


Top View



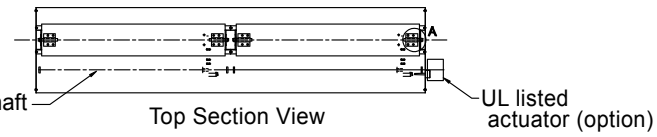
Front View



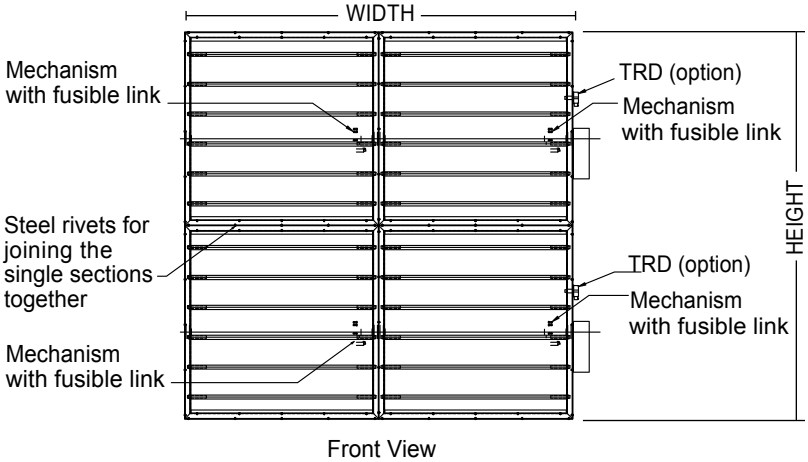


Side View

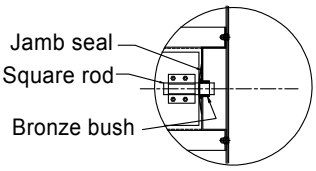
Multiple section assembly
up to 72"X72" (1830X1830mm)

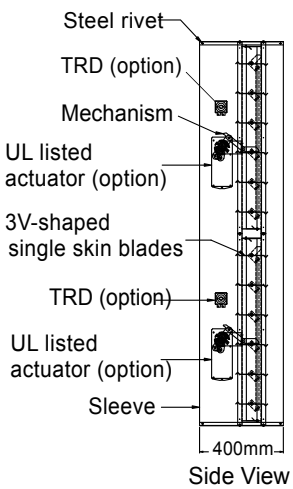


Top Section View



Front View



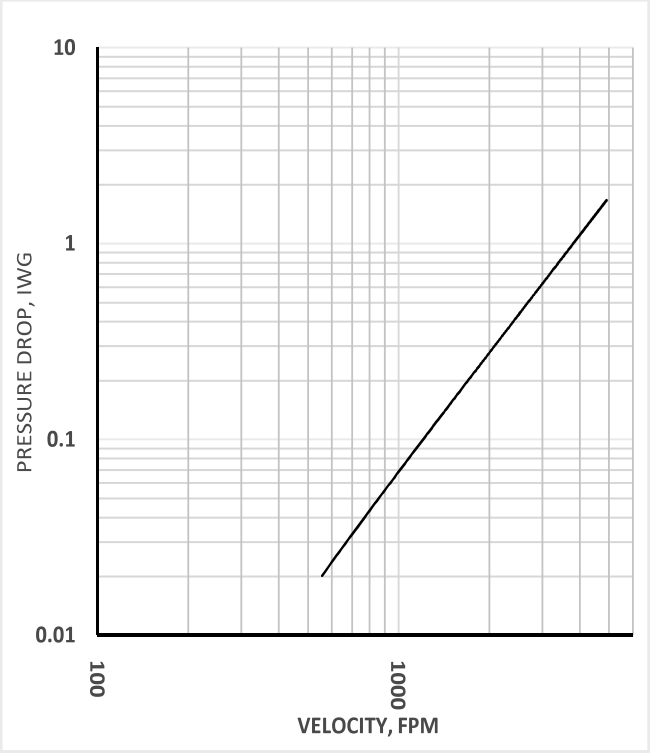


Side View

CLASSIFIED UL ®
R21930

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

PERFORMANCE DATA



Note:
Pressure drop test was done at an independent laboratory in accordance with the AMCA 500-D standard on 36"X36" sample.

MEMBER

R21930

ORDERING KEY

STATIC	B	FD	/R8	-F165	SIZE	XS
-FOR STATIC SYSTEMS						
B: 3 HRS RATED BE: 1½ HRS RATED						
FD: MULTI-BLADES FIRE DAMPER - NOT MOTORIZED MFD: MOTORIZED MULTI-BLADES FIRE DAMPER						
--: WITHOUT ROUND SPIGOT /Rd: WITH ROUND SPIGOTS OF "d" DIA. ("d" IS DIAMETER IN INCH UP TO 32")						
-F165: WITH 165°F FUSIBLE LINK -F212: WITH 212°F FUSIBLE LINK -T: WITH 165°F RESETTABLE THERMOELECTRIC TRD -TF: WITH 165°F RESETTABLE THERMOELECTRIC TRD AND 212°F FUSIBLE LINK						
SIZE: WIDTH X HEIGHT						
-: WITH SLEEVE (STANDARD) XS: WITHOUT SLEEVE						

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(A)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMFD-F, BMFDLT-F, BMFD/R-F, BMFDLT/R-F, BEMFD-F, BEMFDLT-F, BEMFD/R-F & BEMFDLT/R-F

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 1).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) A fusible link –Elsie model-E rated at 165°F or 212°F used.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.

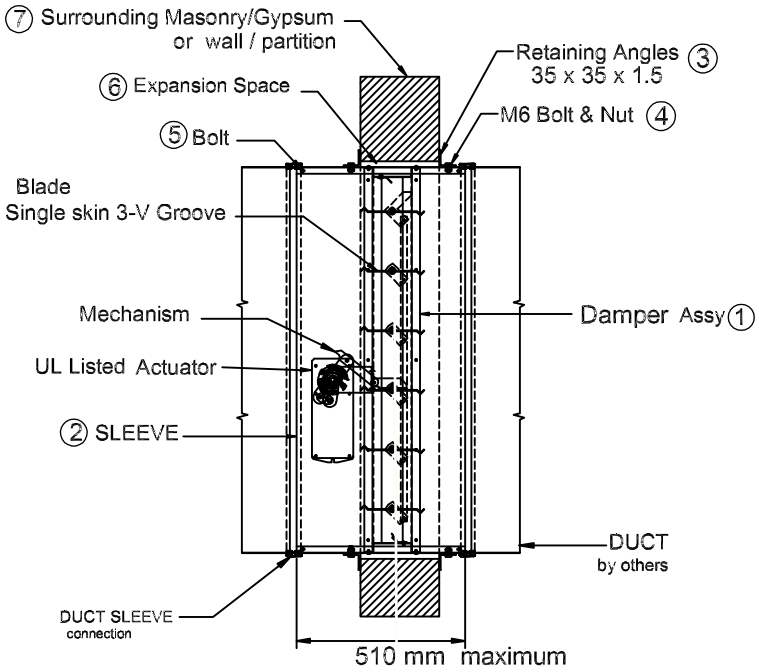


FIGURE 1

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(B)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMFD-T, BMFDLT-T, BMFD/R-T, BMFDLT/R-T BEMFD-T, BEMFDLT-T, BEMFD/R-T& BEMFDLT/R-T

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 2).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) Push the re-set button to reset the TRD 165°F.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.

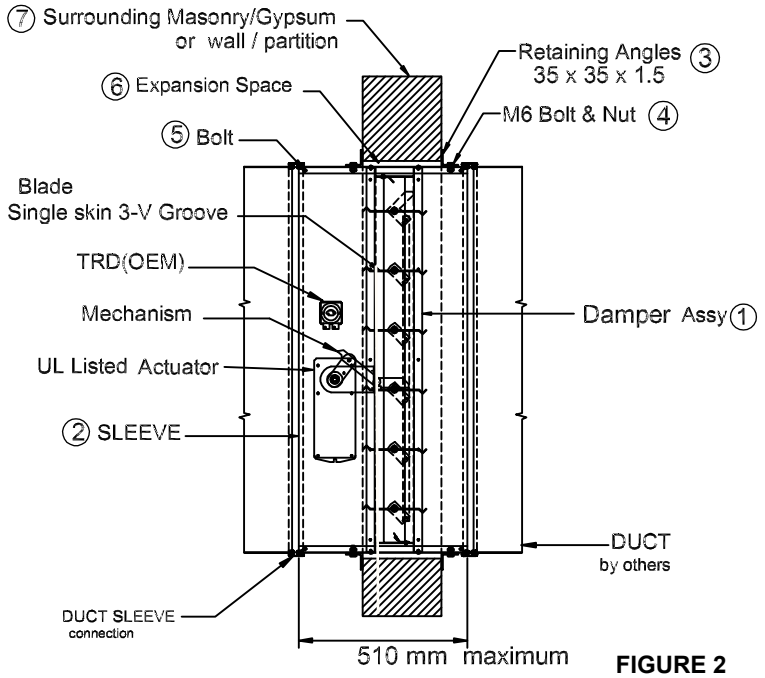


FIGURE 2

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(C)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMFD-TF, BMFDLT-TF, BMFD/R-TF, BMFDLT/R-TF BEMFD-TF, BEMFDLT-TF, BEMFD/R-TF & BEMFDLT/R-TF

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 3).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) A fusible link –Elsle model-E rated 212°F used.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.
10) Push the re-set button to reset the TRD (optional).

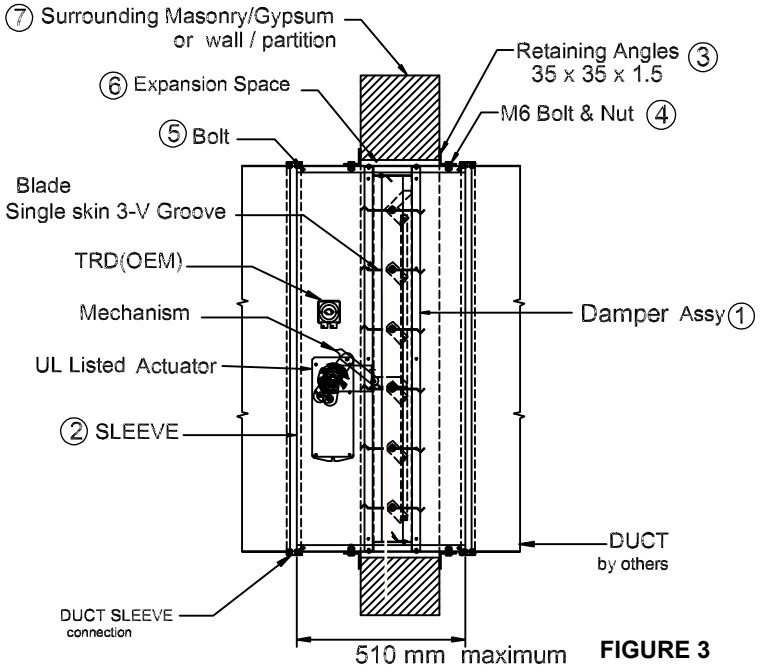


FIGURE 3

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(D)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BFD-F, BEFD-F, BFD/R-F & BEFD/R-F

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 4).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) A fusible link –Elsle model-E rated at 165°F or 212°F used.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.
10) Lock the quadrant after adjusting the blade position / damper opening.

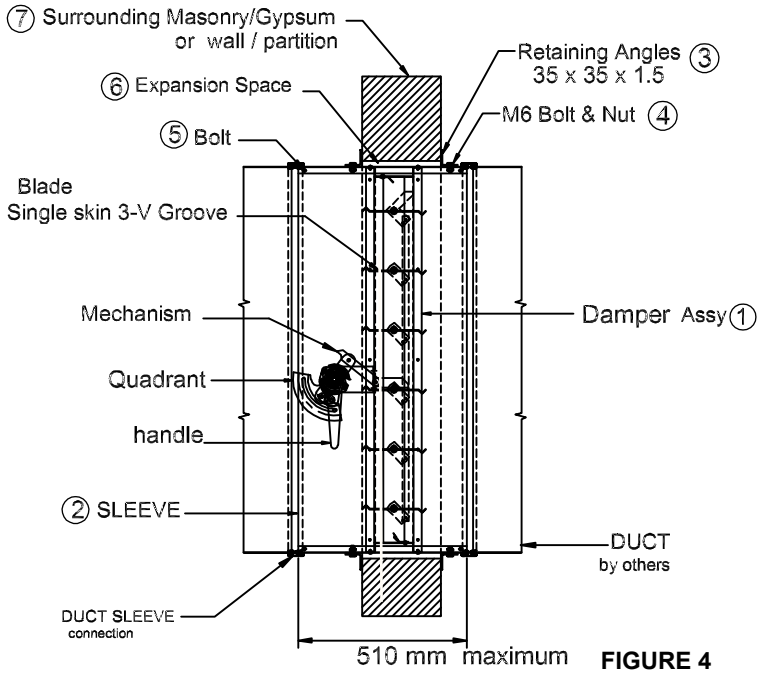


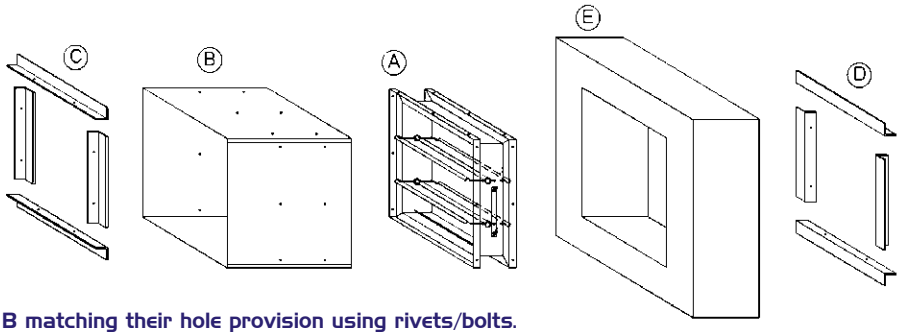
FIGURE 4

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

EXPLODED ASSEMBLY WITH SLEEVE:



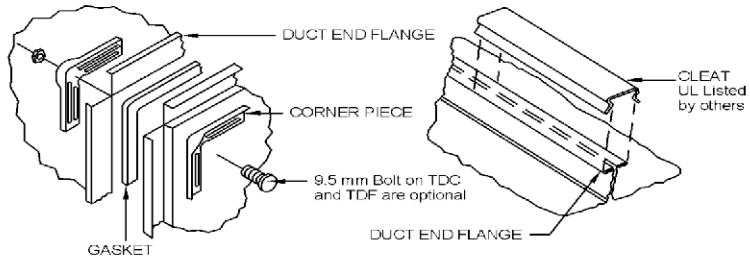
ASSEMBLY PROCEDURES:

1- Fix the damper A into the sleeve B matching their hole provision using rivets/bolts.
2- Fix the damper with sleev into the concrete/gypsum wall opening E using the front retaining angle C 35X35 and matching their hole provision using M6 Hex bolt & nut. The sleeve B must overhang by a minimum of 90mm and maximum of 152mm. Opening size should have clearance of 3mm per 305mm of width and height.
3- Finally, when the subassembly is already fitted to the wall, fix the back retaining angle D 35X35 using M6 Hex bolt & nut.

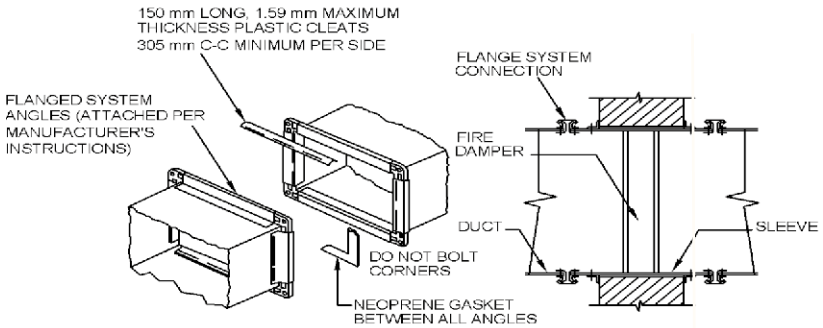
DUCT-SLEEVE CONNECTIONS

FLANGED BREAKWAY CONNECTIONS:

TDC AND TDF ROLL-FORMED 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS, METAL CLEATS AND FOUR 9.5 mm METAL NUTS AND BOLTS.

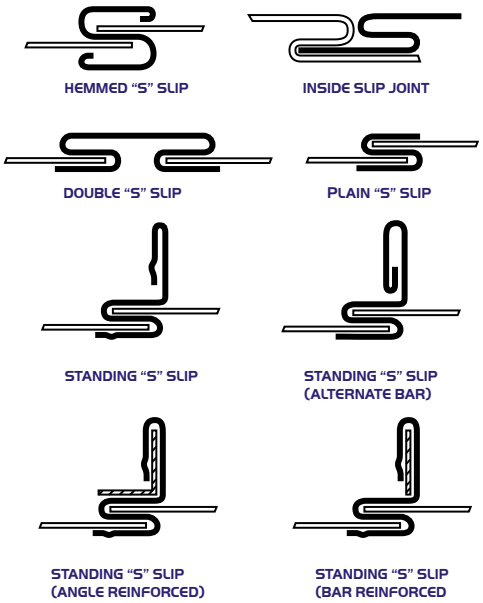


MANUFACTURED SLIP ON 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS AND PLASTIC CLEATS AS SHOWN BELOW.



(UL TESTED CONNECTIONS BY OTHERS)

TRANSVERSE JOINTS BREAKWAY CONNECTIONS (WITHOUT FLANGES):



SMACNA

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED STATIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION / STEEL MULLIONS

MANUFACTURING AND FIELD INSTALLATION INSTRUCTIONS FOR STEEL MULLIONS (as per SMACNA):

The mullions are used / necessary whenever the fire damper is installed into and opening that is larger than the largest UL rated size for the damper. The damper fire rated 1-1/2 hours.

Vertical, horizontal or vertical and horizontal mullions can be used depending on the area at the opening. The opening must not exceed 120" (inch) height, but it can be any width provided a vertical support mullion is used a maximum of every 120" (inch).

The mullions must be kept out of the air stream. For ducted system each subdivided opening (e.g. A x B) must be ducted individually.

The mullions are for using concrete block or poured walls only. The thickness of the wall is min, 177mm and max, 300mm.

INSTALLATION

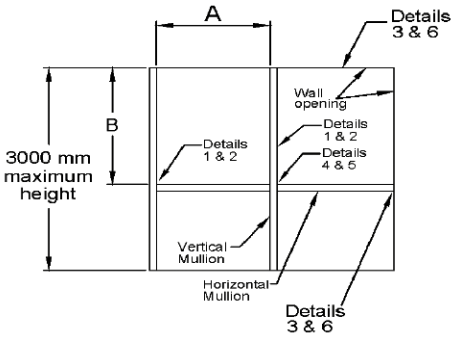
The END CAPS are attached to wall opening by means of 25mm long and 9mm Dia steel expansion anchor embedded with M6 list headed screws.

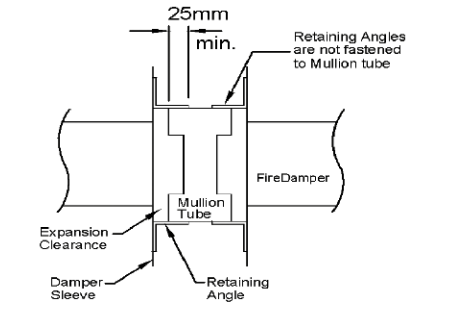
If a steel inlet are used then make welding 2 x 25mm long weld per length / each side of the mullions (eg. Before installing the End Caps make sure that they are inserted in the ends of the mullions.

NOTES:

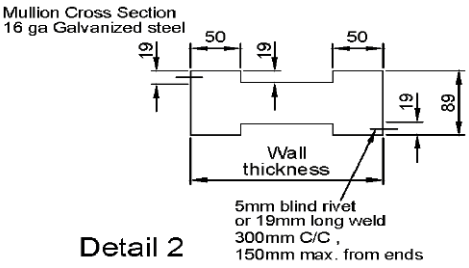
(a) After installations of steel mullions refer installation page of the fire damper which is provided by the manufacturer.

(b) Do not fastened retaining angle to the wall or steel mullions. The steel mullions must be free to float.

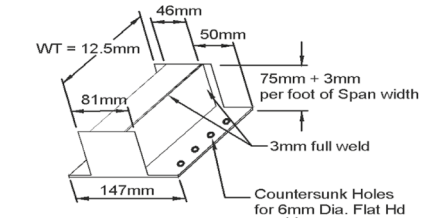




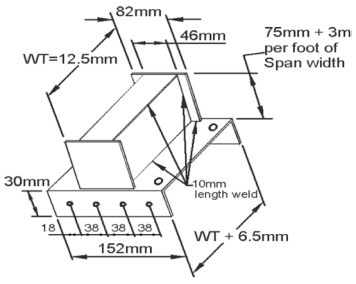
Detail 1



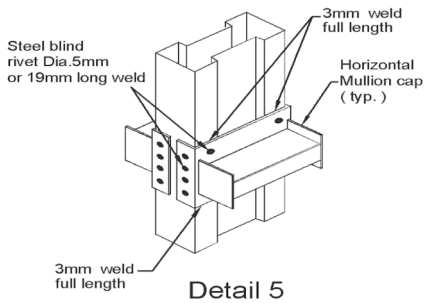
Detail 2



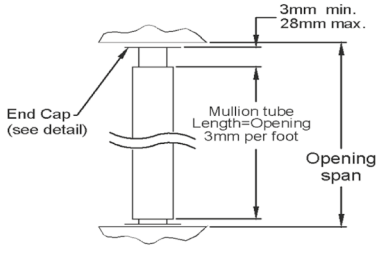
Detail 3



Detail 4



Detail 5



Detail 6

SMACNA

CLASSIFIED UL ®

R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

STANDARD CONSTRUCTION

Standards: Designed and tested in accordance with UL555 for DYNAMIC applications. Meets NFPA 90A and SMACNA requirements for fire dampers.

Application: For fire barriers in DYNAMIC systems.

Frame: 133mm Roll formed hat-shaped made of 1.4mm thick galvanized steel with reinforced corners, having integral bracing and 90° perpendicular overlap at a corner.

Blades: Roll formed 3 V-shaped made of 1.4mm thick galvanized steel.

Bushes: Bronze bushes.

Axles: ⅜" Square axles made of galvanized steel.

Linkage: Mechanical and concealed in frame.

Drive Mechanism: ½" Round Jack Shaft made of galvanized steel.

Jamb Seals: Stainless steel jamb seals.

Models BMFD-TF, BMFDLT-TF, BEMFDLT-TF & BEMFD-TF

Fusible link: UL Listed 165° F.

Sleeve: Sleeve made of 400mm depth and 1.1mm thickness galvanized steel.

Mounting: Vertical mounting.

Fire Rating: 3 hr (Model BFD)

Max. Pressure: 4 IWG

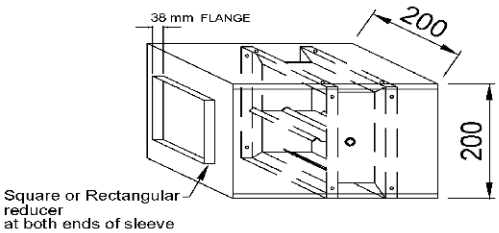
Max. Velocity: 2000 FPM

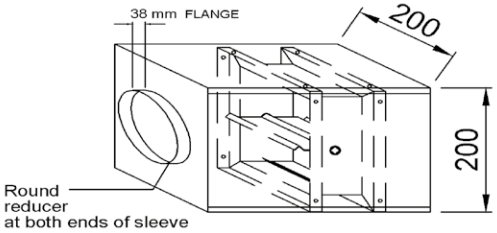
Quadrant: Manual locking quadrant made of galvanized steel (becomes option for motorized models).

Sizes: Single Section: Max. 36" X 36"
Multiple Section: Max. 72" X 72"

Models BMFD/R, BMFDLT/R BEMFDLT/R & BEMFD/R

Reducer on sleeve used when damper sizes are requested below 200X200mm





CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

OPTIONS

- ☐ Fire Rating: 1½ hr (Model BEFD)
- ☐ Without Sleeve. With one side plate only.
- ☐ Round spigots for models BFD/R and BEFD/R.
- ☐ UL Listed 212° F fusible link.
- ☐ Motorized by BELIMO & HONEYWELL actuators
- ☐ Manual locking quadrant made of galvanized steel (option for motorized models and standard for non motorized models).
- ☐ With UL Listed 165° F Thermal Responsive Device TRD instead of fusible link (BMFD-T & BEMFD-T).
- ☐ With BOTH UL Listed 165° F Thermal Responsive Device TRD and 212° F fusible link(BMFD-TF & BEMFD-TF).

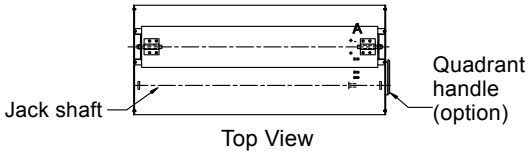
Models BFD-XS & BEFD-XS (without sleeve)

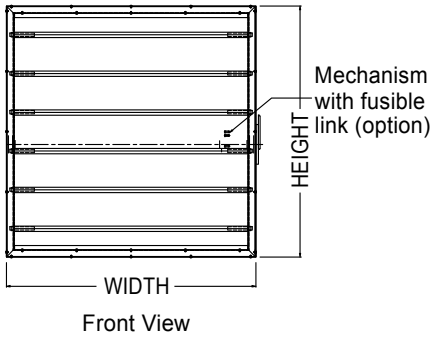
FEATURE / MODEL	BFD-F165	BFD-F212	BFD/R-F165	BFD/R-F212	BEFD-F165	BEFD-F212	BEFD/R-F165	BEFD/R-F212	BMFD-F165	BMFDLT-F165	BMFD-F212	BMFDLT-F212	BMFD/R-F165	BMFDLT/R-F165	BMFD/R-F212	BMFDLT/R-F212	BMFD-T	BMFDLT-T	BMFD/R-T	BMFDLT/R-T	BMFD-TF	BMFDLT-TF	BMFD/R-TF	BMFDLT/R-TF	BEMFD-F165	BEMFDLT-F165	BEMFD-F212	BEMFDLT-F212	BEMFD/R-F165	BEMFDLT/R-F165	BEMFD/R-F212	BEMFDLT/R-F212	BEMFD-T	BEMFDLT-T	BEMFD/R-T	BEMFDLT/R-T	BEMFD/TF	BEMFDLT-TF	BEMFD/R-TF	BEMFDLT/R-TF
USE — FIRE BARRIER	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
USE — SMOKE BARRIER																																								
SYSTEM — STATIC																																								
SYSTEM — DYNAMIC	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
AIR FLOW RATING — 2000 FPM	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
PRESSURE RATING — 4 IWG	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
LEAKAGE CLASS — CLASS 2 - 250°F																																								
FIRE RATING — 3 HR	√	√	√	√					√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√																
FIRE RATING — 1½ HR					√	√	√	√																	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
MOTORIZED — NO	√	√	√	√	√	√	√	√																																
MOTORIZED — YES									√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
ROUND SPIGOTS — WITH			√	√			√	√					√	√	√	√			√	√			√	√					√	√	√	√			√	√			√	√
ROUND SPIGOTS — WITHOUT	√	√			√	√			√	√							√	√			√	√			√	√	√	√					√	√			√	√		
TEMPERATURE RESPONSIVE DEVICE — 165°F FUSIBLE LINK	√		√		√		√		√	√			√	√											√	√			√	√										
TEMPERATURE RESPONSIVE DEVICE — 212°F FUSIBLE LINK		√		√		√		√			√	√			√	√											√	√			√	√								
TEMPERATURE RESPONSIVE DEVICE — "165°F RESETTABLE THERMOELECTRIC TRD"																	√	√	√	√	√	√											√	√	√	√				
TEMPERATURE RESPONSIVE DEVICE — 165°F TRD & 212°F FUSIBLE LINK																					√	√	√	√													√	√	√	√
SLEEVE — WITH	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
SLEEVE — WITHOUT	ABOVE MODELS WITHOUT ROUND SPIGOT CAN BE WITHOUT SLEEVE & WITH ONE SIDE PLATE WHEN THE MODEL ENDS BY "-XS"																																							

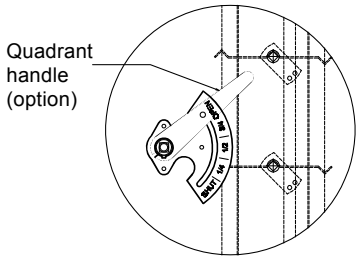
MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

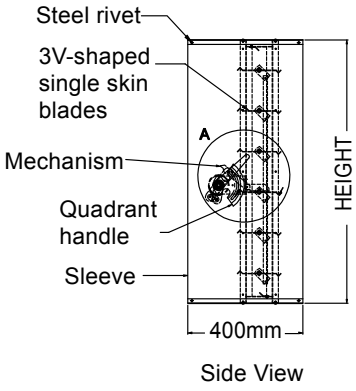
ASSEMBLY

Single section assembly
up to 36" X36" (915X915mm)

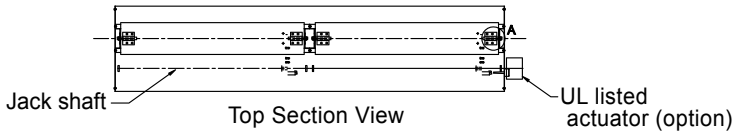


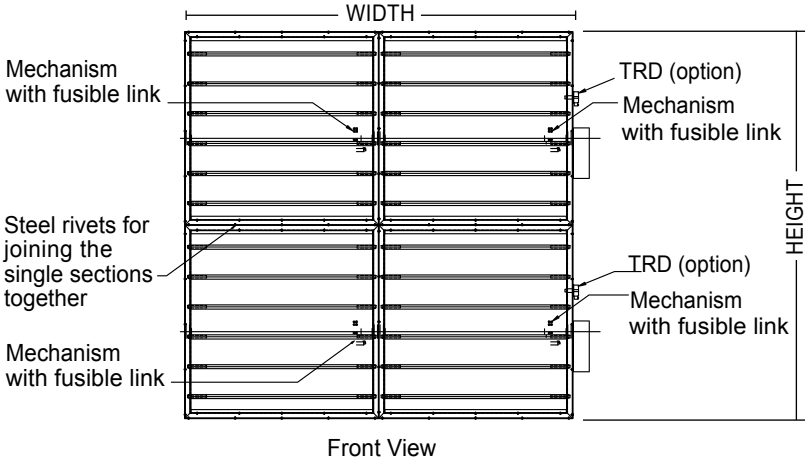


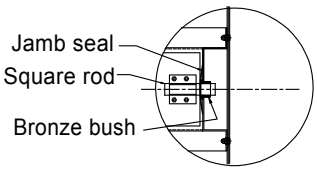


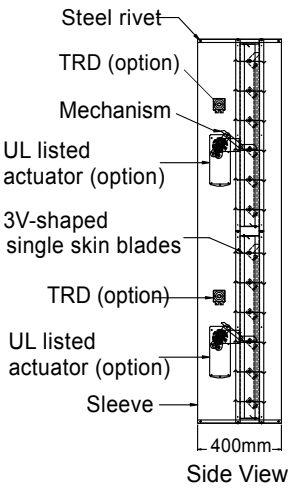


Multiple section assembly
up to 72"X72" (1830X1830mm)





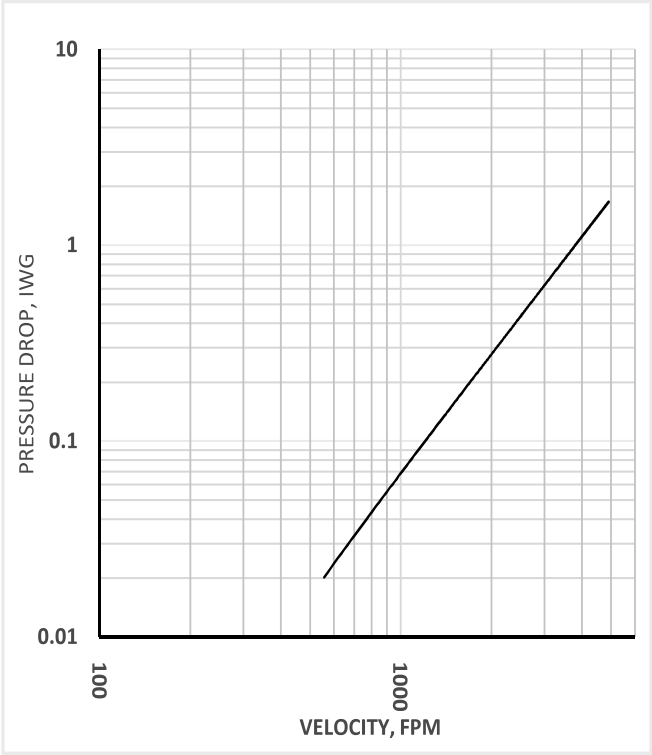




CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

PERFORMANCE DATA



Note:
Pressure drop test was done at an independent laboratory in accordance with the AMCA 500-D standard on 36"X36" sample.

MEMBER

R21930

ORDERING KEY

STATIC	B	FD	/R8	-F165	SIZE	XS
-FOR DYNAMIC SYSTEMS						
B: 3 HRS RATED BE: 1½ HRS RATED						
FD: MULTI-BLADES FIRE DAMPER - NOT MOTORIZED MFD: MOTORIZED MULTI-BLADES FIRE DAMPER						
---: WITHOUT ROUND SPIGOT /Rd: WITH ROUND SPIGOTS OF "d" DIA. ("d" IS DIAMETER IN INCH UP TO 32")						
-F165: WITH 165°F FUSIBLE LINK -F212: WITH 212°F FUSIBLE LINK -T: WITH 165°F RESETTABLE THERMOELECTRIC TRD -TF: WITH 165°F RESETTABLE THERMOELECTRIC TRD AND 212°F FUSIBLE LINK						
SIZE: WIDTH X HEIGHT						
---: WITH SLEEVE (STANDARD) XS: WITHOUT SLEEVE						

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(A)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMFD-F, BMFDLT-F, BMFD/R-F, BMFDLT/R-F, BEMFD-F, BEMFDLT-F, BEMFD/R-F & BEMFDLT/R-F

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 1).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) A fusible link –Elsie model-E rated at 165°F or 212°F used.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.

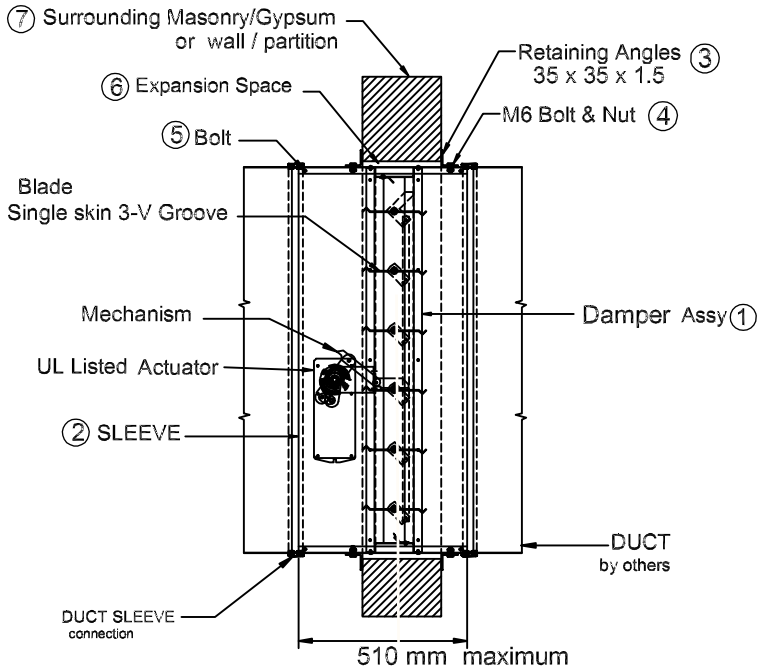


FIGURE 1

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(B)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMFD-T, BMFDLT-T, BMFD/R-T, BMFDLT/R-T, BEMFD-T, BEMFDLT-T, BEMFD/R-T & BEMFDLT/R-T

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 2).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) Push the re-set button to reset the TRD 165°F.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.

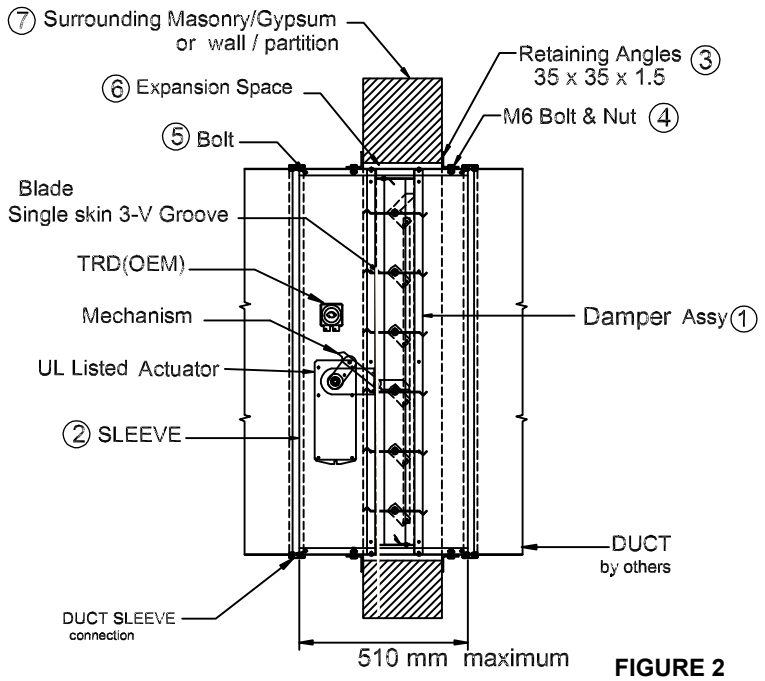


FIGURE 2

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(C)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMFD-TF, BMFDLT-TF, BMFD/R-TF, BMFDLT/R-TF, BEMFD-TF, BEMFDLT-TF, BEMFD/R-TF & BEMFDLT/R-TF

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 3).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) A fusible link –Elsle model-E rated 212°F used.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.
10) Push the re-set button to reset the TRD (optional).

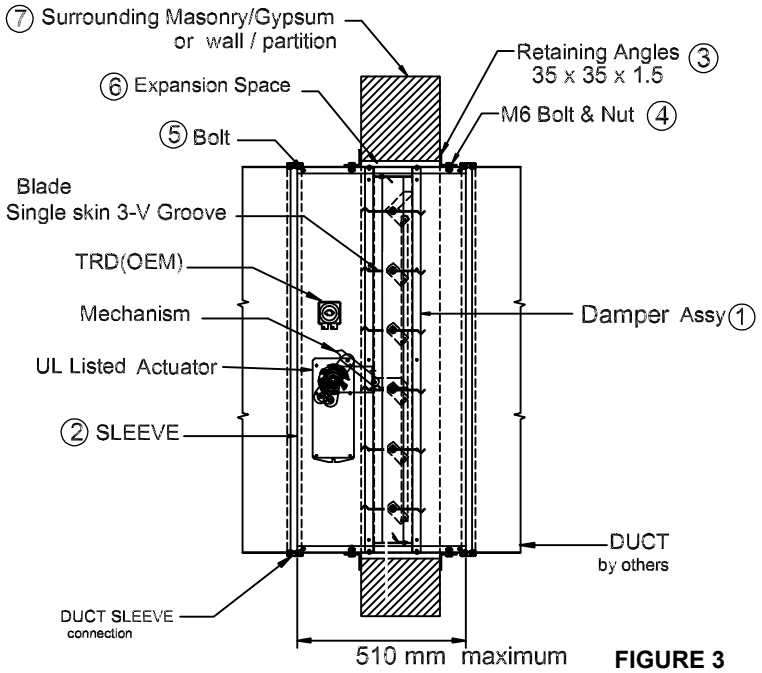


FIGURE 3

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

(D)
INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BFD-F, BEFD-F, BFD/R-F & BEFD/R-F

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 4).
2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.
3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10 mm per meter) of width or height unless otherwise stated in the listing of the assembly.
4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90mm from the wall and total depth of the sleeve should not exceed more than 510mm.
5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts. Note: The retaining angles bolts should be out of the area of the damper frame.
6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5mm GI.
7) A fusible link –Elsle model-E rated at 165°F or 212°F used.
8) The duct sleeve connection to be of as per listed in UL 555. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.
9) All fixing of frames must be positioned clear of the damper blade path so as not to Impede proper closure.
10) Lock the quadrant after adjusting the blade position / damper opening.

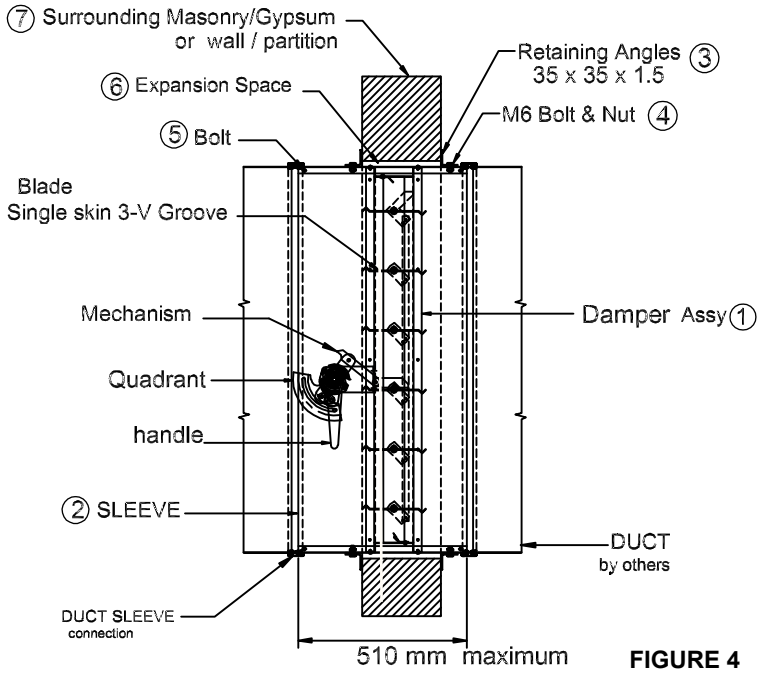


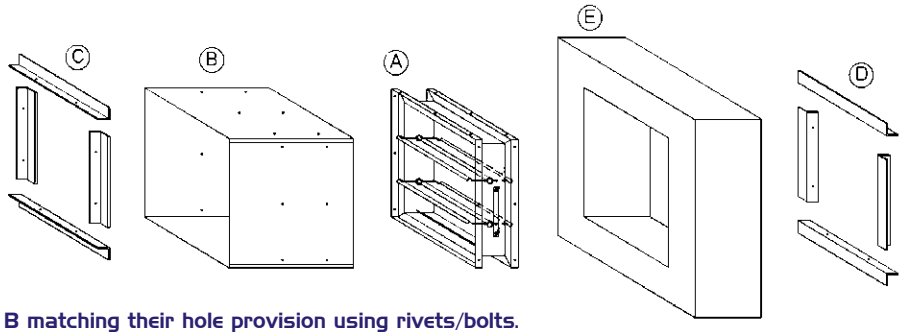
FIGURE 4

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION

EXPLODED ASSEMBLY WITH SLEEVE:



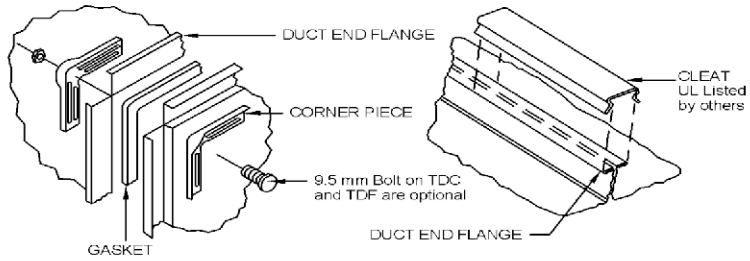
ASSEMBLY PROCEDURES:

1- Fix the damper A into the sleeve B matching their hole provision using rivets/bolts.
2- Fix the damper with sleev into the concrete/gypsum wall opening E using the front retaining angle C 35X35 and matching their hole provision using M6 Hex bolt & nut. The sleeve B must overhang by a minimum of 90mm and maximum of 152mm. Opening size should have clearance of 3mm per 305mm of width and height.
3- Finally, when the subassembly is already fitted to the wall, fix the back retaining angle D 35X35 using M6 Hex bolt & nut.

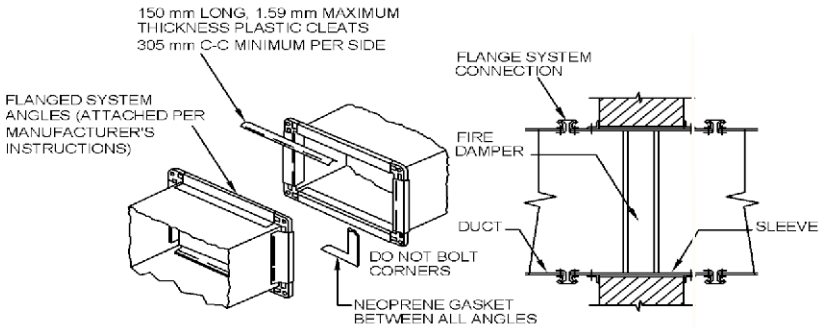
DUCT-SLEEVE CONNECTIONS

FLANGED BREAKWAY CONNECTIONS:

TDC AND TDF ROLL-FORMED 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS, METAL CLEATS AND FOUR 9.5 mm METAL NUTS AND BOLTS.

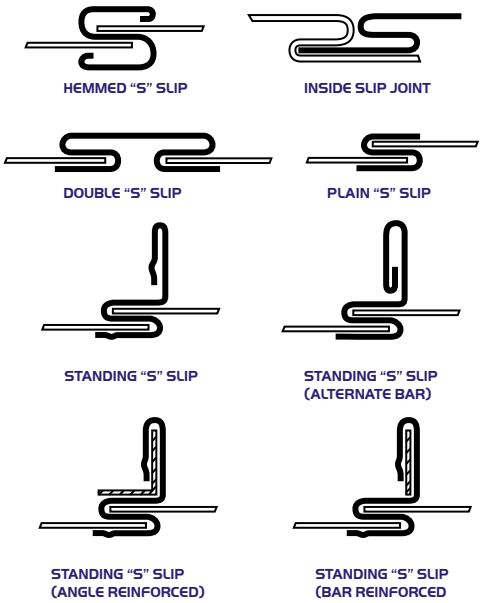


MANUFACTURED SLIP ON 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS AND PLASTIC CLEATS AS SHOWN BELOW.



(UL TESTED CONNECTIONS BY OTHERS)

TRANSVERSE JOINTS BREAKWAY CONNECTIONS (WITHOUT FLANGES):



SMACNA

CLASSIFIED UL R21930

MULTI-BLADE UL CLASSIFIED DYNAMIC FIRE DAMPER MODEL BFD (3 HR) / MODEL BEFD (1½ HR)

INSTALLATION / STEEL MULLIONS

MANUFACTURING AND FIELD INSTALLATION INSTRUCTIONS FOR STEEL MULLIONS (as per SMACNA):

The mullions are used / necessary whenever the fire damper is installed into and opening that is larger than the largest UL rated size for the damper. The damper fire rated 1-1/2 hours.

Vertical, horizontal or vertical and horizontal mullions can be used depending on the area at the opening. The opening must not exceed 120" (inch) height, but it can be any width provided a vertical support mullion is used a maximum of every 120" (inch).

The mullions must be kept out of the air stream. For ducted system each subdivided opening (e.g. A x B) must be ducted individually.

The mullions are for using concrete block or poured walls only. The thickness of the wall is min, 177mm and max, 300mm.

INSTALLATION

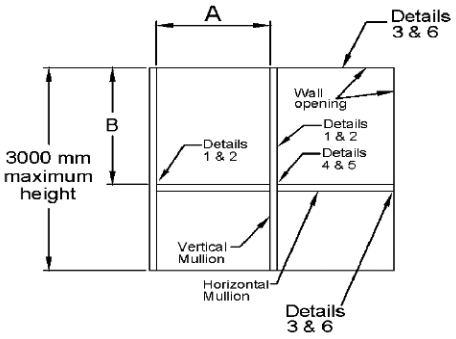
The END CAPS are attached to wall opening by means of 25mm long and 9mm Dia steel expansion anchor embedded with M6 list headed screws.

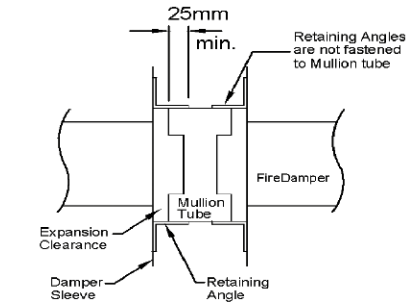
If a steel inlet are used then make welding 2 x 25mm long weld per length / each side of the mullions (eg. Before installing the End Caps make sure that they are inserted in the ends of the mullions.

NOTES:

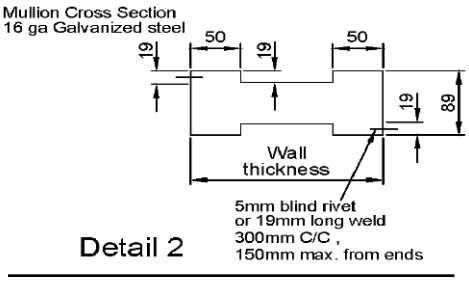
(a) After installations of steel mullions refer installation page of the fire damper which is provided by the manufacturer.

(b) Do not fastened retaining angle to the wall or steel mullions. The steel mullions must be free to float.

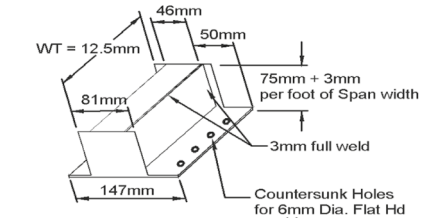




Detail 1

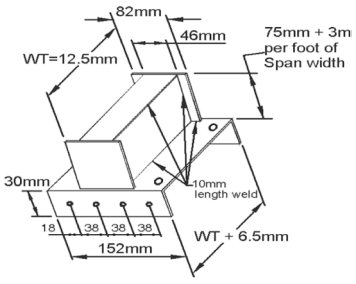


Detail 2



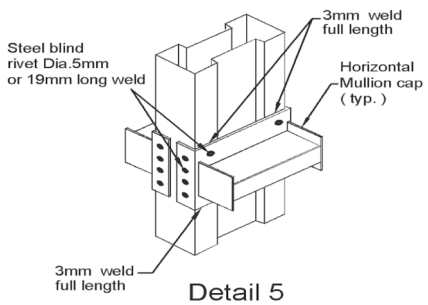
Top, Bottom or Side End caps
12 ga Galvanized steel
Note: WT = Wall Thickness

Detail 3

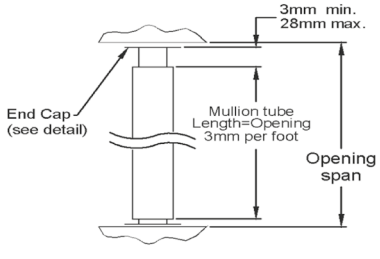


Horizontal to Vertical Mullion End cap
12 ga Galvanized steel

Detail 4



Detail 5



Detail 6

SMACNA

CLASSIFIED UL ®

R21930

COMBINATION FIRE/SMOKE DAMPER

CLASS I - 350°F - CLASS I - 250°F - CLASS 2 - 250°F

MODEL BMFSD (3 HR) / MODEL BEMFSD (I½ HR)

STANDARD CONSTRUCTION

Standards: Designed and tested in accordance with UL555 & UL555S. Meets NFPA 90A and SMACNA requirements for fire & smoke dampers.

Application: For fire & smoke barriers in dynamic fire & smoke management systems.

Frame: 133mm Roll formed hat-shaped made of 1.4mm thick galvanized steel with reinforced corners, having integral bracing and 90° perpendicular overlap at a corner.

Blades: Roll formed 3 V-shaped made of 1.4mm thick galvanized steel.

Bushes: Bronze bushes.

Axles: ⅜" Square axles made of galvanized steel.

Linkage: Mechanical and concealed in frame.

Drive Mechanism: ½" Round Jack Shaft made of galvanized steel.

Jamb Seals: Stainless steel jamb seals.

Models BMFSD-T, BMFSDLT-T, BEMFSDLT-T & BEMFSD-T

Blades Seals: UL listed high-temperature (exceeding 450°F) Silicone blades edges seal/gasket manufactured in accordance with UL555S requirements.

Temperature Responsive Device: Resettable Thermoelectric set at 165° F.

Sleeve: Sleeve made of 400mm depth and 1.1mm thickness galvanized steel.

Mounting: Vertical mounting.

Fire Rating: 3 hr (Model BMFSD).

Air Flow Rating: 2000 FPM / 4 IWG.

Leakage: Available in Class I @ 350°F
Class I @ 250°F
Class 2 @ 250°F

Sizes: Single Section: Max. 36" X 36"
Multiple Section: Max. 72" X 72"

CLASSIFIED UL®

R21930

COMBINATION FIRE/SMOKE DAMPER

CLASS 1 - 350°F - CLASS 1 - 250°F - CLASS 2 - 250°F

MODEL BMFSD (3 HR) / MODEL BEMFSD (1½ HR)

OPTIONS

- ☐ Fire Rating: 1½ hr (Model BEMFSD & BEMFSDLT).
- ☐ Without Sleeve. With one side plate only (Models BMFSD-XS, BEMFSD-XS, BMFSDLT-XS & BEMFSDLT-XS).
- ☐ Round spigots for models BMFSD/R, BEMFSD/R, BMFSDLT/R & BEMFSDLT/R.

FEATURE	MODEL	BMFSD-T	BMFSD/R-T	BEMFSD-T	BEMFSD/R-T	BMFSDLT- T	BMFSDLT/R- T	BEMFSDLT- T	BEMFSDLT/R- T
USE	FIRE BARRIER	√	√	√	√	√	√	√	√
	SMOKE BARRIER	√	√	√	√	√	√	√	√
SYSTEM	STATIC								
	DYNAMIC	√	√	√	√	√	√	√	√
AIR FLOW RATING	2000 FPM	√	√	√	√	√	√	√	√
PRESSURE RATING	4 IWG	√	√	√	√	√	√	√	√
LEAKAGE CLASS	CLASS 1 - 350	√	√	√	√				
	CLASS 1 - 250	√	√	√	√	√	√	√	√
	CLASS 2 - 250	√	√	√	√				
FIRE RATING	3 HR	√	√			√	√		
	1½ HR			√	√			√	√
MOTORIZED	NO								
	YES	√	√	√	√	√	√	√	√
ROUND SPIGOTS	WITH		√		√		√		√
	WITHOUT	√		√		√		√	
TEMPERATURE RESPONSIVE DEVICE	"165°F RESETTABLE THERMOELECTRIC TRD"	√	√	√	√	√	√	√	√
SLEEVE	WITH	√	√	√	√	√	√	√	√
	WITHOUT	ABOVE MODELS WITHOUT ROUND SPIGOT CAN BE WITHOUT SLEEVE & WITH ONE SIDE PLATE WHEN THE MODEL ENDS BY "-XS"							

Models BMFSD/R, BEMFSD/R BMFSDLT/R & BEMFSDLT/R

Models BMFSD-XS, BEMFSD-XS, BMFSDLT-XS & BEMFSDLT-XS

CLASSIFIED UL®

R21930

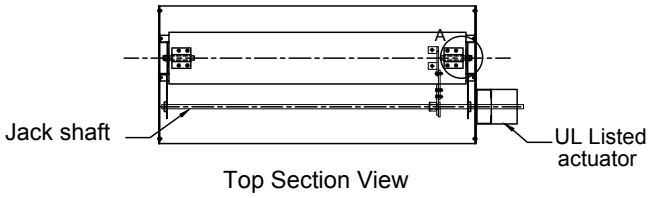
COMBINATION FIRE/SMOKE DAMPER

CLASS 1 - 350°F - CLASS 1 - 250°F - CLASS 2 - 250°F

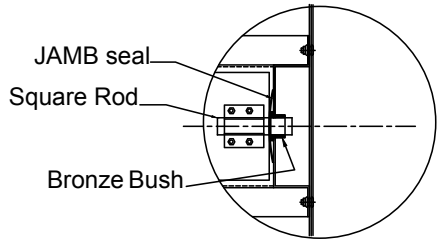
MODEL BMFSD (3 HR) / MODEL BEMFSD (1½ HR)

ASSEMBLY

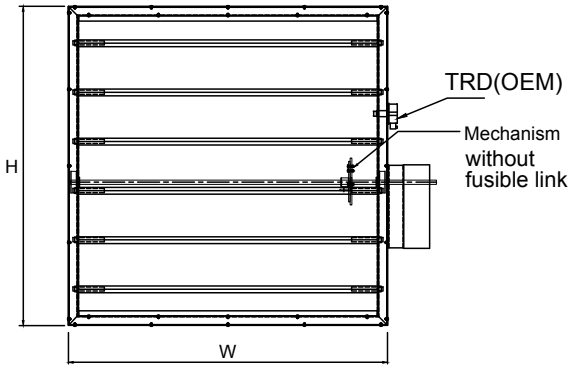
Single section assembly
up to 36"X36" (915X915mm)



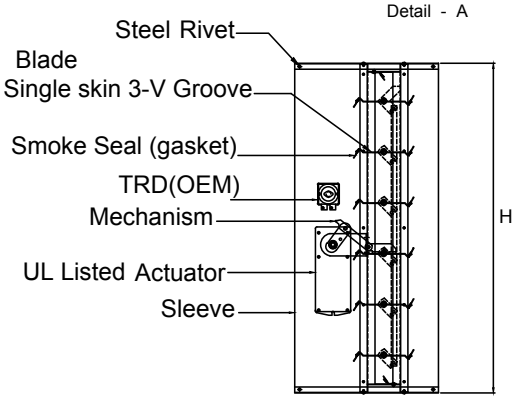
Top Section View



Detail - A

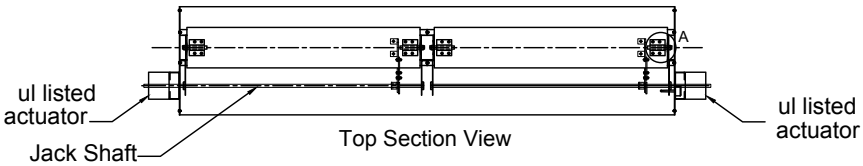


Front View

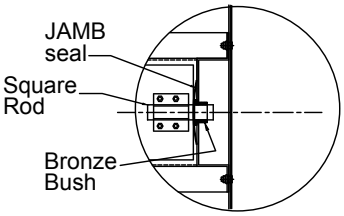


Side Section View

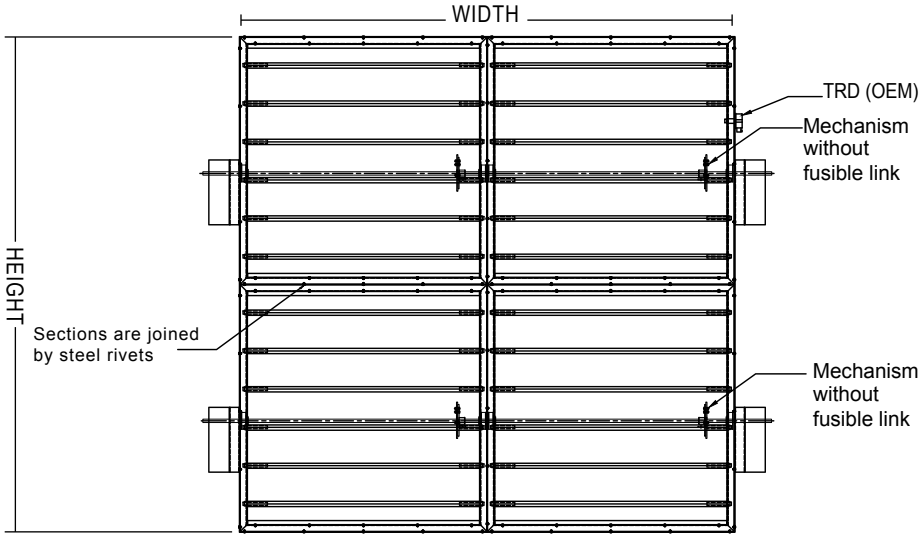
Multiple section assembly
up to 72"X72" (1830X1830mm)



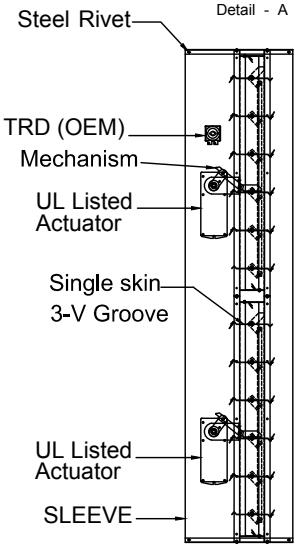
Top Section View



Detail - A



Front View



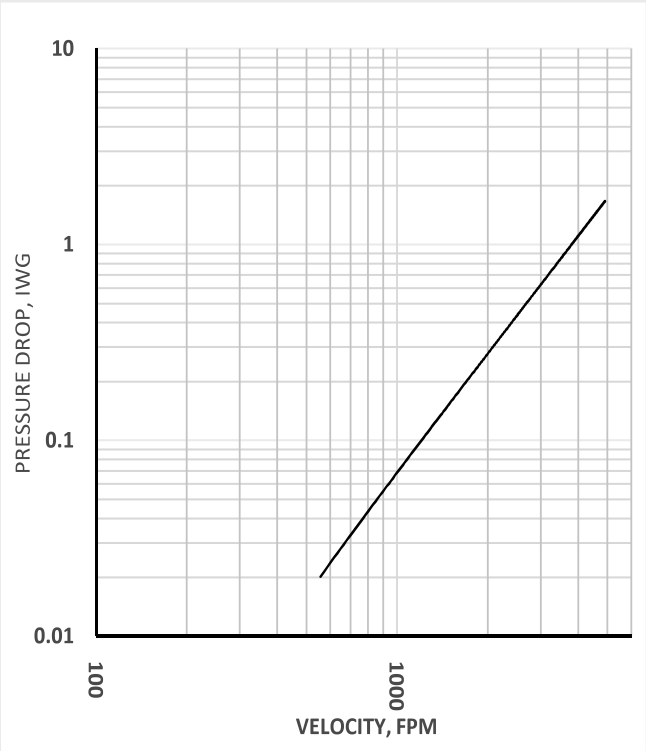
Side Section View

COMBINATION FIRE/SMOKE DAMPER

CLASS 1 - 350°F - CLASS 1 - 250°F - CLASS 2 - 250°F

MODEL BMFSD (3 HR) / MODEL BEMFSD (1½ HR)

PERFORMANCE DATA



Note:
Pressure drop test was done at an independent laboratory in accordance with the AMCA 500-D standard on 36"X36" sample.

MEMBER

R21930

ORDERING KEY

B	MFSD	/R8	-T	SIZE	XS
B: 3 HRS RATED BE: 1½ HRS RATED					
-- MFSD - MOTORIZED COMBINED FIRE & SMOKE DAMPER WITH 9Nm ACTUATOR -- MFSDLT - MOTORIZED COMBINED FIRE & SMOKE DAMPER WITH 3.4Nm ACTUATOR					
--: WITHOUT ROUND SPIGOT /Rd: WITH ROUND SPIGOTS OF "d" DIA. ("d" IS DIAMETER IN INCH UP TO 32")					
-T: WITH RESETTABLE THERMOELECTRIC 165°F TEMPERATURE RESPONSIVE DEVICE (TRD)					
SIZE: WIDTH X HEIGHT --MFSD - SINGLE SECTION: MAX. 36" X 36" MULTIPLE SECTION: MAX. 72" X 72" --MFSDLT - SINGLE SECTION: MAX. 20" X 20"					
--: WITH SLEEVE (STANDARD) XS: WITHOUT SLEEVE					

COMBINATION FIRE/SMOKE DAMPER

CLASS I - 350°F - CLASS I - 250°F - CLASS 2 - 250°F

MODEL BMFSD (3 HR) / MODEL BEMFSD (I½ HR)

INSTALLATION

(E)

INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMFSD-T, BMFSDLT-T, BEMFSD-T, BEMFSDLT-T, BMFSD/R-T, BMFSDLT/R-T, BEMFSD/R-T & BEMFSDLT/R-T

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 1).

2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.

3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10mm per meter) of width or heigth unless otherwise stated in the listing of the assembly.

4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90 mm from the wall and total depth of the sleeve should not exceed more than 510 mm.

5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30mm maximum from the corners. Retaining angles will be send in loose parts.
Note: The retaining angles bolts should be out of the area of the damper frame.

6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5 mm GI.

7) Push the re-set button to reset the TRD 165°F.

8) The duct-sleeve connection to be of as per listed in UL 555s .
Connecting ducts shall not be continuous and shall terminate at the sleeve.
Installation shall comply with NFPA 90A.

9) All fixing of frames must be positioned clear of the damper blade path so as not to impede proper closure.

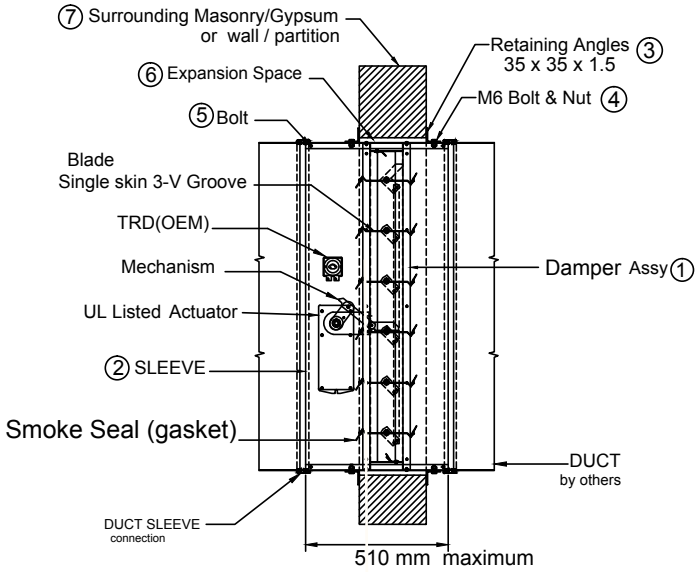


FIGURE 1

CLASSIFIED UL R21930

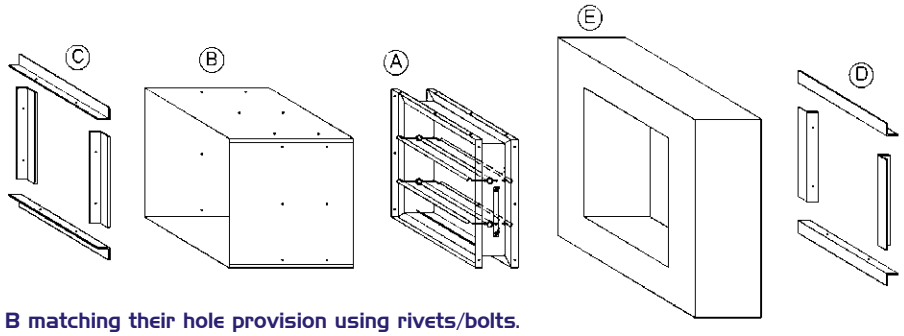
COMBINATION FIRE/SMOKE DAMPER

CLASS 1 - 350°F - CLASS 1 - 250°F - CLASS 2 - 250°F

MODEL BMFSD (3 HR) / MODEL BEMFSD (1½ HR)

INSTALLATION

EXPLODED ASSEMBLY WITH SLEEVE:



ASSEMBLY PROCEDURES:

1- Fix the damper A into the sleeve B matching their hole provision using rivets/bolts.

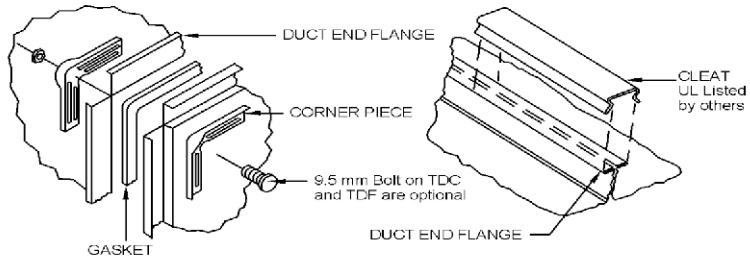
2- Fix the damper with sleev into the concrete/gypsum wall opening E using the front retaining angle C 35X35 and matching their hole provision using M6 Hex bolt & nut. The sleeve B must overhang by a minimum of 90mm and maximum of 152mm. Opening size should have clearance of 3mm per 305mm of width and height.

3- Finally, when the subassembly is already fitted to the wall, fix the back retaining angle D 35X35 using M6 Hex bolt & nut.

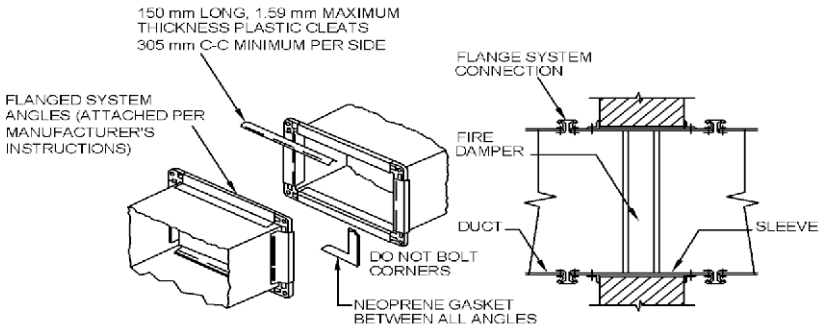
DUCT-SLEEVE CONNECTIONS

FLANGED BREAKWAY CONNECTIONS:

TDC AND TDF ROLL-FORMED 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS, METAL CLEATS AND FOUR 9.5 mm METAL NUTS AND BOLTS.

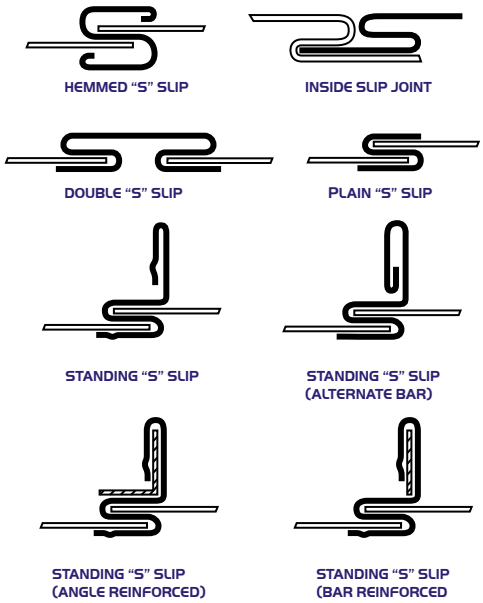


MANUFACTURED SLIP ON 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS AND PLASTIC CLEATS AS SHOWN BELOW.



(UL TESTED CONNECTIONS BY OTHERS)

TRANSVERSE JOINTS BREAKWAY CONNECTIONS (WITHOUT FLANGES):



SMACNA

CLASSIFIED UL R21930

SMOKE DAMPER

CLASS I - 350°F - CLASS I - 250°F - CLASS 2 - 250°F

MODEL BMSD / MODEL BMSDLT

STANDARD CONSTRUCTION

Standards: Designed and tested in accordance with UL555S. Meets NFPA 90A and SMACNA requirements for fire & smoke dampers.

Application: For dynamic smoke management systems.

Frame: 133mm Roll formed hat-shaped made of 1.4mm thick galvanized steel with reinforced corners, having integral bracing and 90° perpendicular overlap at a corner.

Blades: Roll formed 3 V-shaped made of 1.4mm thick galvanized steel.

Bushes: Bronze bushes.

Axles: ⅜" Square axles made of galvanized steel.

Linkage: Mechanical and concealed in frame.

Drive Mechanism: ½" Round Jack Shaft made of galvanized steel.

Model BMSD & BMSDLT

Jamb Seals: Stainless steel jamb seals.

Blades Seals: UL listed high-temperature (exceeding 450° F) Silicone blades edges seal/gasket manufactured in accordance with UL555S requirements.

Sleeve: Sleeve made of 400mm depth and 1.1mm thickness galvanized steel.

Mounting: Vertical/Horizontal mounting.

Air Flow Rating: 2000 FPM / 4 IWG.

Leakage: Class I @ 350°F
Class I @ 250°F
Class 2 @ 250°F

Sizes: Single Section: Max. 36" X 36"
Multiple Section: Max. 72" X 72"

CLASSIFIED UL®

R21930

SMOKE DAMPER

CLASS I - 350°F - CLASS I - 250°F - CLASS 2 - 250°F

MODEL BMSD / MODEL BMSDLT

OPTIONS

☐ Without Sleeve. With one side plate only (Model BMSD-XS & BMSDLT-XS).

☐ Round spigots for model BMSD/R & BMSDLT/R.

FEATURE / MODEL		BMSD	BMSD/R	BMSDLT	BMSDLT/R
USE	FIRE BARRIER				
	SMOKE BARRIER	√	√	√	√
SYSTEM	STATIC				
	DYNAMIC	√	√	√	√
AIR FLOW RATING	2000 FPM	√	√	√	√
PRESSURE RATING	4 IWG	√	√	√	√
LEAKAGE CLASS	CLASS I - 250°F	√	√	√	√
	CLASS I - 350°F	√	√		
	CLASS 2 - 250°F	√	√		
FIRE RATING	3 HR				
	1½ HR				
MOTORIZED	NO				
	YES	√	√	√	√
ROUND SPIGOTS	WITH		√		√
	WITHOUT	√		√	
TEMPERATURE RESPONSIVE DEVICE	"165°F RESETTABLE THERMOELECTRIC TRD"				
SLEEVE	WITH	√	√	√	√
	WITHOUT	ABOVE MODELS WITHOUT ROUND SPIGOT CAN BE WITHOUT SLEEVE & WITH ONE SIDE PLATE WHEN THE MODEL ENDS BY "-XS"			

Model BMSD/R & BMSDLT/R

Model BMSD-XS & BMSDLT-XS

CLASSIFIED UL®

R21930

SMOKE DAMPER

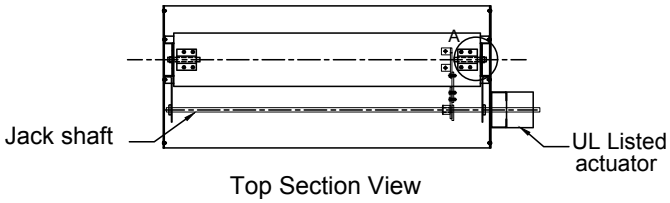
CLASS 1 - 350°F - CLASS 1 - 250°F - CLASS 2 - 250°F

MODEL BMSD / MODEL BMSDLT

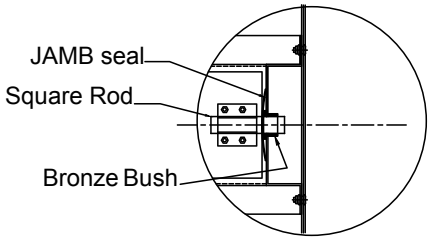
ASSEMBLY

Single section assembly

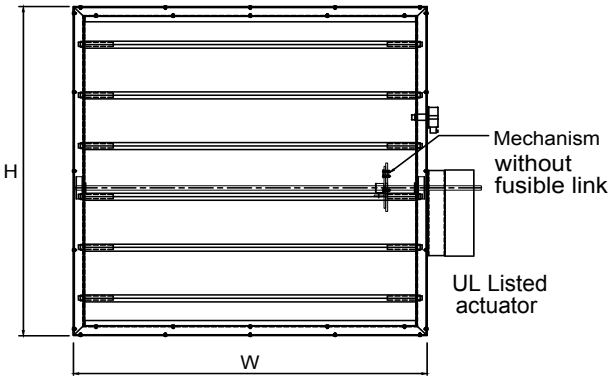
up to 36"X36" (915X915mm)



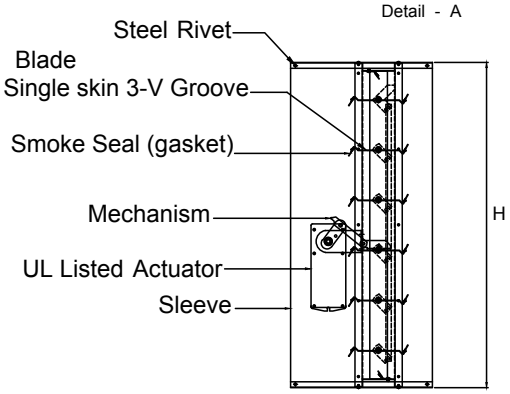
Top Section View



Detail - A



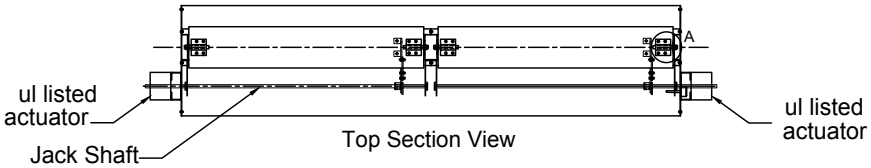
Front View



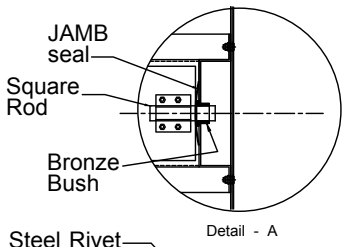
Side Section View

Multiple section assembly

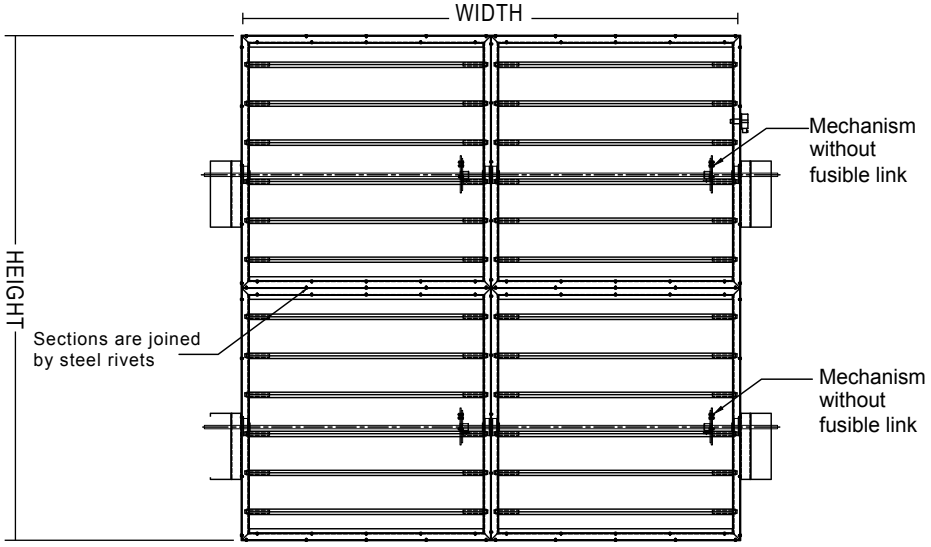
up to 72"X72" (1830X1830mm)



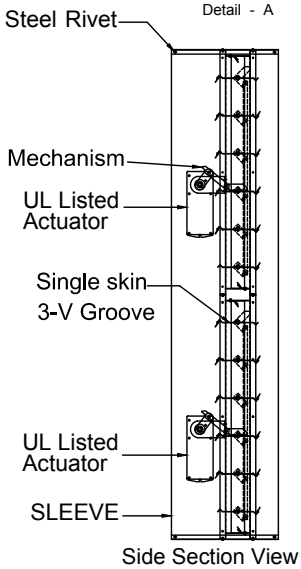
Top Section View



Detail - A



Front View



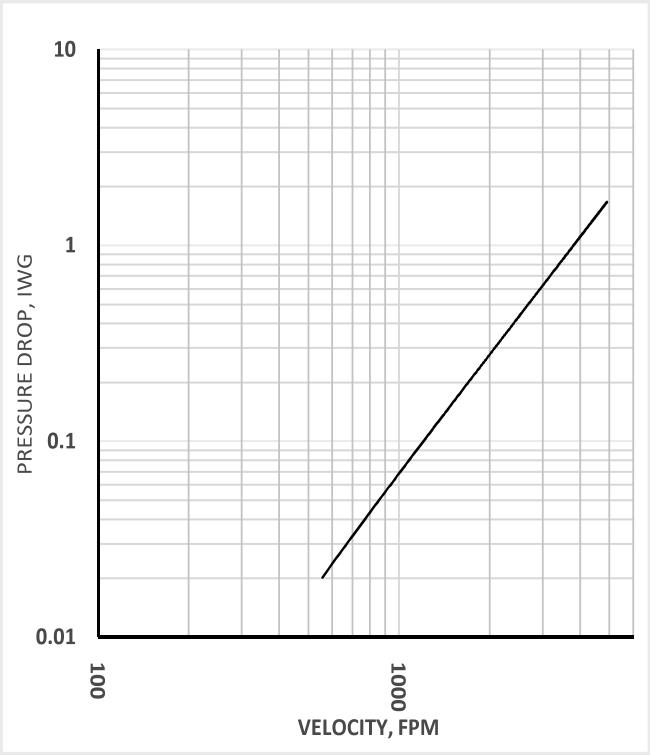
Side Section View

SMOKE DAMPER

CLASS I - 350°F - CLASS I - 250°F - CLASS 2 - 250°F

MODEL BMSD / MODEL BMSDLT

PERFORMANCE DATA



Note:
Pressure drop test was done at an independent laboratory in accordance with the AMCA 500-D standard on 36"X36" sample.

MEMBER

R21930

ORDERING KEY

BMSD	/R8	SIZE	XS
--MSD - MOTORIZED SMOKE DAMPER WITH 9Nm ACTUATOR --MSDLT - MOTORIZED SMOKE DAMPER WITH 3.4Nm ACTUATOR	--: WITHOUT ROUND SPIGOT /Rd: WITH ROUND SPIGOTS OF "d" DIA. ("d" IS DIAMETER IN INCH UP TO 32")	SIZE: WIDTH X HEIGHT --MSD - SINGLE SECTION: MAX. 36" X 36" MULTIPLE SECTION: MAX. 72" X 72" --MSDLT - SINGLE SECTION: MAX. 20" X 20"	--: WITH SLEEVE (STANDARD) XS: WITHOUT SLEEVE

SMOKE DAMPER

CLASS I - 350°F - CLASS I - 250°F - CLASS 2 - 250°F

MODEL BMSD / MODEL BMSDLT

INSTALLATION

(F)

INSTALLATION AND OPERATING INSTRUCTIONS FOR MODELS BMSD, BMSDLT, BMSD/R & BMSDLT/R

1) The damper (1) should be installed vertical, centrally and resting on the bottom opening within the surrounding masonry / gypsum wall (7). Actuator should be out of wall / gypsum partition as shown in (figure 1).

2) The damper (1) should be installed in a rectangular galvanized steel sleeve (2) with a minimum thickness of 1.1mm. This sleeve should be attached to the damper using M6 bolts (5) and spaced at not more than 110 mm centers and 30 mm from corners.

3) Clearance requirements for damper sleeves within a wall opening are based on 1/8 inch per foot (10mm per meter) of width or height unless otherwise stated in the listing of the assembly.

4) The sleeve (2) should be of suitable length to extend through the wall to enable the fitting of the cover angles and ductwork. Minimum of 90 mm from the wall and total depth of the sleeve should not exceed more than 510 mm.

5) The retaining angles (3) should be attached to the sleeve by 6 mm dia (4) bolts at a maximum of 110 mm centers, and should form a complete frame around the sleeve and cover over the expansion space (6) required between sleeve and wall opening. The four corner of the retaining angles are not to be welded. The bolts connecting the retaining angles to the sleeve to be 30 mm maximum from the corners. Retaining angles will be send in loose parts.
Note: The retaining angles bolts should be out of the area of the damper frame.

6) The retaining angles (3) should be of such a size as always to form an overlap with the wall by 25mm minimum and should be manufactured from a minimum size of 35 x 35 x 1.5 mm GI.

7) The duct-sleeve connection to be of as per listed in UL 555s. Connecting ducts shall not be continuous and shall terminate at the sleeve. Installation shall comply with NFPA 90A.

8) All fixing of frames must be positioned clear of the damper blade path so as not to impede proper closure.

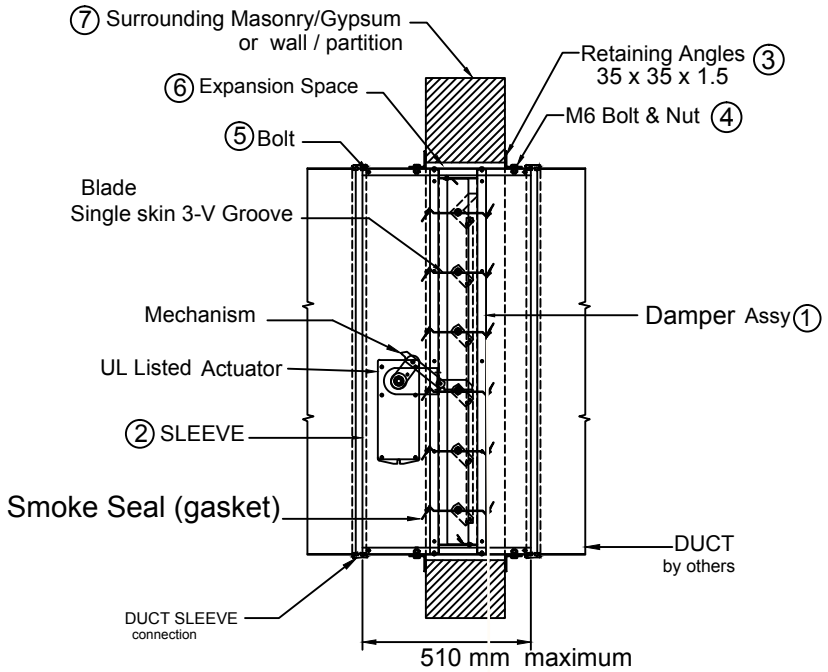


FIGURE 1

CLASSIFIED UL R21930

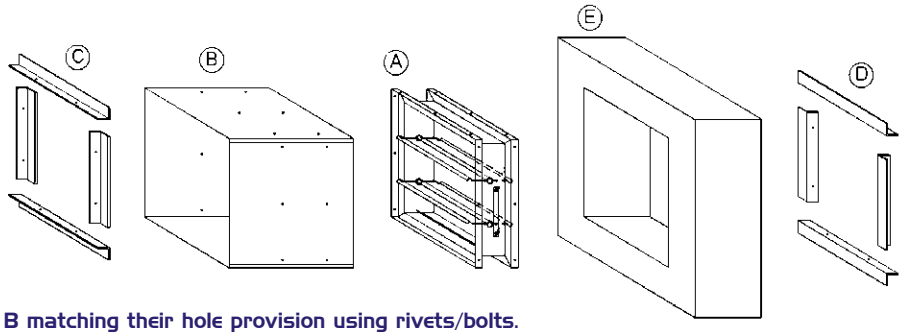
SMOKE DAMPER

CLASS 1 - 350°F - CLASS 1 - 250°F - CLASS 2 - 250°F

MODEL BMSD / MODEL BMSDLT

INSTALLATION

EXPLODED ASSEMBLY WITH SLEEVE:



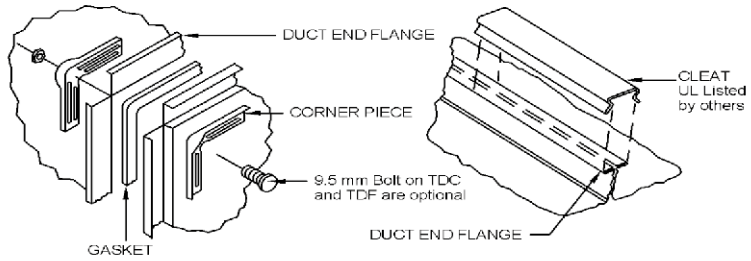
ASSEMBLY PROCEDURES:

1- Fix the damper A into the sleeve B matching their hole provision using rivets/bolts.
2- Fix the damper with sleev into the concrete/gypsum wall opening E using the front retaining angle C 35X35 and matching their hole provision using M6 Hex bolt & nut. The sleeve B must overhang by a minimum of 90mm and maximum of 152mm. Opening size should have clearance of 3mm per 305mm of width and height.
3- Finally, when the subassembly is already fitted to the wall, fix the back retaining angle D 35X35 using M6 Hex bolt & nut.

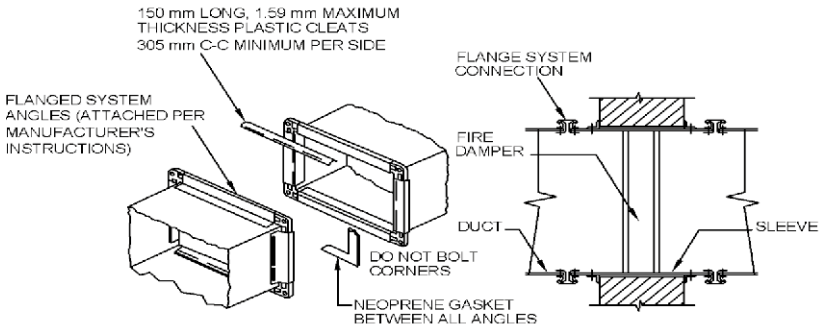
DUCT-SLEEVE CONNECTIONS

FLANGED BREAKWAY CONNECTIONS:

TDC AND TDF ROLL-FORMED 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS, METAL CLEATS AND FOUR 9.5 mm METAL NUTS AND BOLTS.

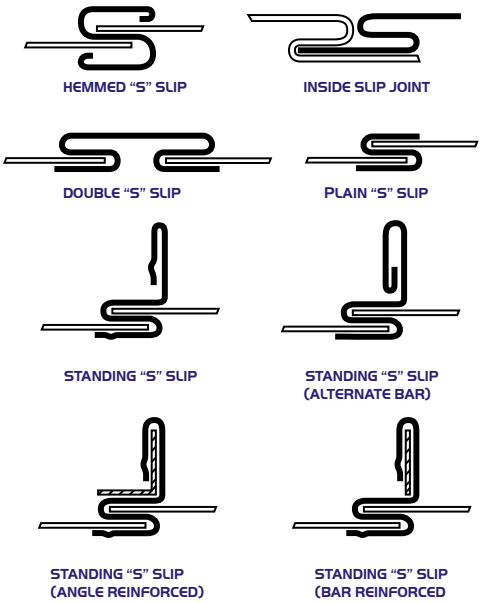


MANUFACTURED SLIP ON 4-BOLT FLANGED CONNECTIONS ASSEMBLED PER THE MANUFACTURER'S INSTRUCTIONS USING GASKETS AND PLASTIC CLEATS AS SHOWN BELOW.



(UL TESTED CONNECTIONS BY OTHERS)

TRANSVERSE JOINTS BREAKWAY CONNECTIONS (WITHOUT FLANGES):



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