

Chapter 24 HVAC FANS

MANUFACTURER/DISTRIBUTOR:

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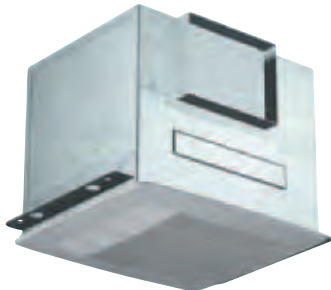
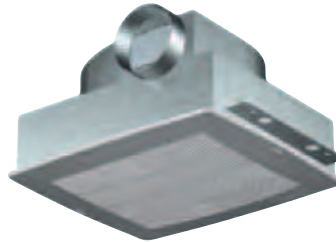
24.1 **GREENHECK EXHAUST FAN SP-A250**

24.2 **FIRE DAMPER FD-A-S -- 3 HR RATING, 14" LG SLEEVE 20 GA.,
VERTICAL**

Inline, Ceiling and Sidewall Exhaust

Ceiling Exhaust - SP

Model SP ceiling exhaust fans are designed for clean air applications where low sound levels are desired. Low sound levels are achieved through quiet running forward-curved wheels.


SP-A

SP-B

SP-C

SP FANS			STANDARD FEATURES
A	B	C	
✓	✓	✓	Backdraft Damper - Prevents unwanted backdrafts.
✓			Spring Loaded Aluminum Backdraft Damper - Eliminates rattling or unwanted backdrafts (sizes 110 and up).
✓			Outlet - Both square and round outlets are field rotatable from horizontal to vertical discharge.
✓	✓	✓	Round Outlet (4 or 6 in.) - up to size A90. Versatile for quick, easy connections.
✓	✓		Power Assembly - Removes quickly for maintenance.
✓			External Electrical Access - Eliminates removing motor pack, saving installation time.
✓	✓		Electrical Knockout - Eliminates drilling holes.
✓	✓	✓	Disconnect (Plug Type) - Servicing is quick and safe.
✓	✓		Electrical Junction Box - Large for easy wiring.
✓	✓		Attractive Designer Grille - Concealed attachment screws securely to fasten grille to housing for quiet, rattle free operation.
✓	✓	✓	Mounting Brackets - Fully adjustable for multiple installation types.
✓	✓		Housing - Embossed galvanized steel for rigidity and low-profile for height restricted areas.
✓	✓	✓	PSC Compatible Motors - 50 cycle, 220v, and 240v options. 60 cycle, 115v, 208v, 220v, 230v, and 277v options. (Check factory for availability)
✓	✓	✓	3 Year Warranty
✓	✓	✓	UL listed for above showers w/ GFCI branch protected circuit

SERVICE CHART	IN STOCK	3 DAY	10 DAY
Standard Construction	✓	✓	✓
Speed Control, Mounted & Wired		✓	✓
Light, SP-A50, 70, 90, 110, 125 SP-B50, 80, 150		✓	✓
Light, SP-B70, 90, 110		✓	✓
Fan/CRD UL Listed Assembly		✓	✓
277 volt SP-A 110, 125, 190		✓	✓
277 volt SP-B 110, 150, 200		✓	✓
Contractor 4-Packs		✓	✓
Contractor Packs-Housings (sizes B70-B110) - Miami	✓	✓	✓
Motion Sensor - Grille Mounted			✓

PERFORMANCE

Models SP-A, SP-B, and SP-C are compact exhaust fans with performance capabilities of 29 cfm to 1600 cfm and up to 1 in. wg.

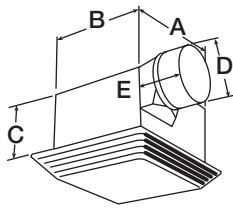
OPTIONS AND ACCESSORIES

- Grilles
- Lights
- Ceiling radiation dampers (CRD)
- Vibration isolation kits
- Speed controls
- Motion detectors
- Time delays
- Roof discharge accessories
- Wall discharge accessories
- Transitions
- Filters
- Contractor paks

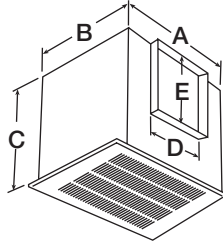
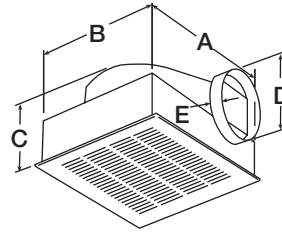
SHOP DRAWING	
Reviewed by: Samuel Charbonneau	
Date: 21 juin 2016	
Reviewed	☒
Reviewed as noted	☐
Resubmit	☐
Out for approval	
SIFEC NORTH INC.	

Note: See pages 44-47 for full stock accessory listing

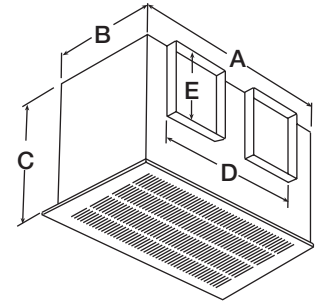
Ceiling Exhaust - SP



SP-C50

SP-A110 through SP-A510
and SP-A710 & SP-A780

SP-B50 through SP-B200

SP-A700, SP-A900
& SP-A1550

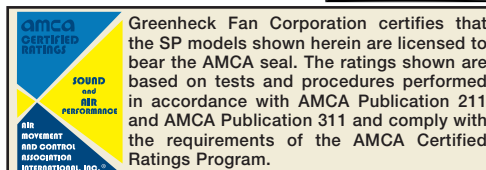
SP PERFORMANCE & DIMENSIONAL DATA - IN STOCK

MODEL	A	B	C	OUTLET		RPM	AMPS	WATTS	SONES @ 0 IN.	GRILLE SIZE	PERFORMANCE IN INCHES WG								
				D	E						0.00	.100	.125	.250	.375	.500	.625	.750	1.00
SP-C50-QD	7½	7½	3¾	3 dia. x 1½		1680	0.80	46	2.9	9¼ x 9	52	49	48	47	44	38	29		
SP-B50-QD	13¾	11½	6½ ₁₆	4 dia. x ¾		625	0.50	38	1.7	14¾ x 13¼	67	54	51	41	30				
SP-B70-QD	13¾	11½	6½ ₁₆	4 dia. x ¾		675	0.53	45	1.7	14¾ x 13¼	77	71	68	57	50	40			
SP-B80-QD	13¾	11½	6½ ₁₆	4 dia. x ¾		900	0.60	54	2.9	14¾ x 13¼	87	80	78	69	61	54	44	30	
SP-B90-QD	13¾	11½	7½ ₁₆	6 dia. x 1¼		700	0.65	50	1.9	14¾ x 13¼	102	93	89	75	59	45	30		
SP-B110-QD	13¾	11½	7½ ₁₆	6 dia. x 1¼		950	1.14	80	2.0	14¾ x 13¼	133	114	111	98	96	94	92	85	51
SP-B150-QD	13¾	11½	7½ ₁₆	6 dia. x 1¼		1050	1.70	129	3.0	14¾ x 13¼	160	156	156	154	152	150	147	139	92
SP-B200-QD	13¾	11½	7½ ₁₆	6 dia. x 1¼		1100	2.20	173	4.4	14¾ x 13¼	197	195	195	191	188	184	181	166	128
SP-A50-QD	13¼	10¾	11¾	6	6	700	0.31	18	0.7	14¾ x 13¼	76	51	48	30					
SP-A70-QD	13¼	10¾	11¾	6	6	850	0.27	20	1.1	14¾ x 13¼	83	70	67	42					
SP-A90-QD	13¼	10¾	11¾	6	6	900	0.34	29	1.1	14¾ x 13¼	99	88	85	62	25				
SP-A110-QD	13¼	10¾	10½	8	6	950	0.58	49	1.3	14¾ x 13¼	119	110	106	89					
SP-A125-QD	13¼	10¾	10½	8	6	1100	0.62	53	1.4	14¾ x 13¼	135	123	121	105					
SP-A190-QD	13¼	10¾	10½	8	6	1400	1.30	113	3.2	14¾ x 13¼	216	197	192	167	134				
SP-A200-QD	14	11¾	11¼	8	8	900	0.43	48	2.0	14¾ x 13¼	247	226	220	197	172	142	106	68	
SP-A250-QD	14	11¾	11¼	8	8	1000	0.77	83	2.9	14¾ x 13¼	272	252	246	228	211	186	158	119	
SP-A290-QD	14	11¾	11¼	8	8	1050	0.72	81	3.2	14¾ x 13¼	315	293	287	258	232	207	176	125	
SP-A390-QD	14	11¾	11¼	8	8	1350	1.34	135	5.4	14¾ x 13¼	410	395	392	369	345	325	308	280	
SP-A410-QD	18	14¾	14½	8	8	1000	1.74	121	4.1	19¾ x 16¾	443	413	405	351	306				
SP-A510-QD	18	14¾	14½	8	8	1070	3.30	224	6.0	19¾ x 16¾	557	512	501	439	392	325			
SP-A700-QD	23¾	11¾	11¾	19½	8	1100	3.20	350	6.1	25¾ x 13½	757	730	723	700	680	650	613	560	397
SP-A710-QD	18	14¾	14½	10	8	1080	4.40	285	7.4	19¾ x 16¾	752	714	701	653	588	486	320		
SP-A780-QD	18	14¾	14½	10	8	1600	3.30	348	10.2	19¾ x 16¾	812	783	765	741	700	556	351		
SP-A900-QD	23¾	14¾	14½	18¾	8	950	4.00	285	5.2	25 x 6¾	955	907	897	842	774	701			
SP-A1050-QD	23¾	14¾	14½	18¾	8	1095	6.30	420	7.2	25 x 6¾	1125	1059	1043	964	886	797	663		
SP-A1410-QD	23¾	14¾	14½	18¾	8	1450	7.40	786	11.6	25 x 6¾	1455	1415	1404	1334	1263	1189	1115		
SP-A1550-QD	23¾	14¾	14½	18¾	8	1610	8.60	818	12.4	25 x 6¾	1687	1588	1559	1477	1400	1318	1233		

All dimensions in inches. Grille dimensions are for the designer grille except on model SP-C50 where the dimensions are shown for the decorative grille. Performance certified is for installation type B: Free inlet, Ducted outlet. Performance ratings include only the inlet grille and backdraft damper. Sound ratings (RPM) shown is nominal. Performance is based on actual speed of test. The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m). The AMCA Certified Ratings Sound Seal applies to some ratings only.

Reviewed By: MLM Reviewed Date: 24 June 2016
 Resubmit ☐
☒
☐

CHIARELLI ENGINEERING LTD.



For complete product information refer to catalog Models SP and CSP, or contact your local representative.

Vapac

Humidificateur

ROSEMEX

Unité de ventilation sur mesure

SPINNAKER

Filtration d'odeur, échangeurs de chaleur air/air

seresco

Déshumidificateurs de piscine commerciale

delta
2000 inc.

Serpentins de chauffage électrique sur mesure

@cosaire
BY DESIGN

Unités de climatisation de précision pour salle informatique

GRADA
INTERNATIONAL

Diffuseurs haute induction et canons d'air

IQAir
Air Cleaning Perfection

Filtration à particule haute efficacité (hyper Hepa)

Nailor
Industries Inc.

Grilles, diffuseurs, volets, persiennes et boîtes VAV

aeromatic

Unité de ventilation avec échangeur à roue thermique

VENTEX

Persiennes; cabanons et volet motorisés

Jenco Fan
A Tradition of Quality

Ventilateur

SECTION 2:

CÉDULE POUR VOLETS COUPE FEU



SHOP DRAWING

Reviewed by: Samuel Charbonneau

Date: 21 juin 2016

Reviewed

☒

Reviewed as noted

☐

Resubmit

☐

Out for approval

SIFEC NORTH INC.

CÉDULE POUR VOILETS COUPE-FEU

CLIENT: LES ENTREPRISES SIFEC NORD INC.

INGÉNIEURS :

BON DE COMMANDE : #YGT12

NOTRE RÉFÉRENCE : #58794

PROJET : IGLOOLIK WATER & WASTERWATER

DATE: mercredi, 15 juin 2016

No. Modèle Nailor	Dimensions du conduit (POUCES) L X H	Description	No. de dessin	Qté
TYPE AV, MODÈLE 0110V	12X12	V.C.F.	0100-1	1
TYPE AV, MODÈLE 0110V	14X14	V.C.F.	0100-1	1
SHOP DRAWING This review is solely for the verification of general design quality and does not alleviate the responsibility of the contractor for insuring that all specification, space and installation requirements are met. Reviewed By: M.M. Reviewed ☒ Date: 24 June 2016 Reviewed as noted ☐ Resubmit ☐ CHIARELLI ENGINEERING LTD.				
CHARTRE DE DIMENSIONS			SC1	
INSTRUCTION D'INSTALLATION			1.050 @ 1.053	



STATIC CURTAIN TYPE FIRE DAMPER
1 1/2 HR. LABEL • VERT. OR HORIZ.
FOR USE IN STATIC SYSTEMS
MODELS: 0110V AND 0110H (TYPE A)



QUALIFICATIONS:

- UL 555 & CAN/ULC-S112 CLASSIFIED FIRE DAMPER. 1 1/2 hr. label (File # R9492).
- Meets all the requirements of UL and NFPA 80, 90A and 101 for fire dampers in static HVAC systems, as well as IBC and NBC (Canada) Building Code requirements.
- City of New York Board of Standards and Appeals. Cal. No. 460-88-SA.
- California State Fire Marshal: Fire Damper Listing No. 3225-0935:0100.

Model 0110 curtain fire damper is UL approved for use where local building codes require the protection of HVAC ductwork penetrations in walls, partitions or floors that have a fire resistance rating of up to 2 hours. The 0110 is classified for use only in static "fans off" systems where the HVAC system is automatically shut down in the event of a fire alarm.

STANDARD CONSTRUCTION:

- Frame:** 4 1/4" (108) wide, 22 ga. (0.85) roll-formed G60 galvanized steel.
- Blades:** Curtain type interlocking blades, 22 ga. (0.85) roll-formed G60 galvanized steel.
- Fusible Link:** 165°F (74°C) standard. UL Listed. 212°F (100°C) available.
- Blade Closure:** Vertical mount model; gravity. Horizontal mount models are equipped with stainless steel closure springs and galvanized steel locking ramps.

Sizes (Duct W x H):

Minimum		Maximum	
Single Section	Single Section	Multiple Section	
Vertical/Horizontal	Vertical/Horizontal	Vertical	Horizontal
4" x 4" (102 x 102).	60" x 60" (1524 x 1524)	120" x 120" (3048 x 3048)	① 102" x 60" (2591 x 1524)

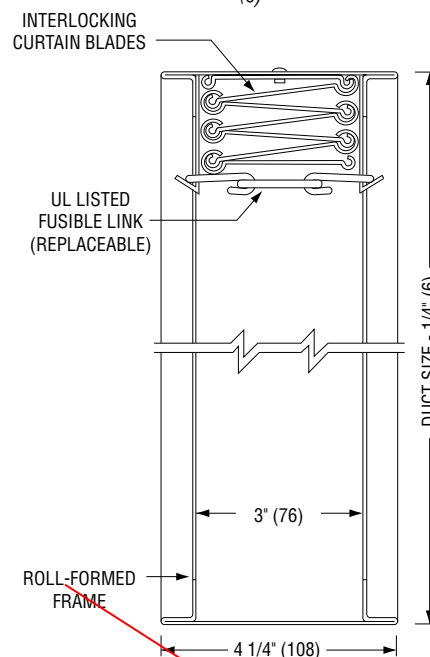
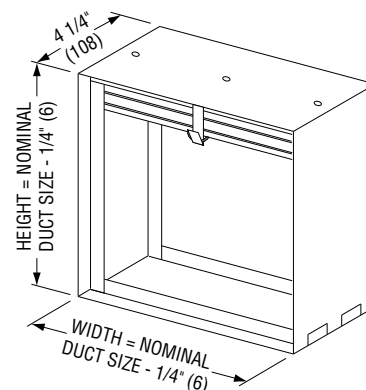
① Maximum individual sections not to exceed 34" x 60" (864 x 1524).

OPTIONS:

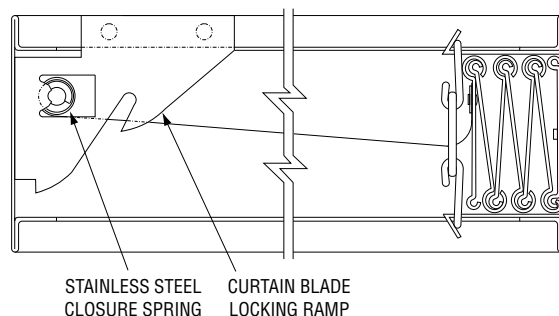
- ☐ Non-standard temperature fusible link. Specify _____.
- ☐ PT Pull Tab Release. Permits simple reset of horizontal damper when access door is located below damper. (See dwg. ACC-PTR for details).
- ☐ Factory Sleeve. Available in 10 (3.5) through 22 ga. (0.85) galvanized steel and in lengths required for application. Specify: _____ length. _____ ga.

NOTES:

1. Units are manufactured 1/4" (6) under nominal duct size.



MODEL 0110V – VERTICAL MOUNT



MODEL 0110H – HORIZONTAL MOUNT

For installation instructions, see IOM-FDINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:

PROJECT:

ENGINEER:

CONTRACTOR:

DATE

B SERIES

SUPERSEDES

DRAWING NO.

4 - 28 - 14

FD

10 - 6 - 06

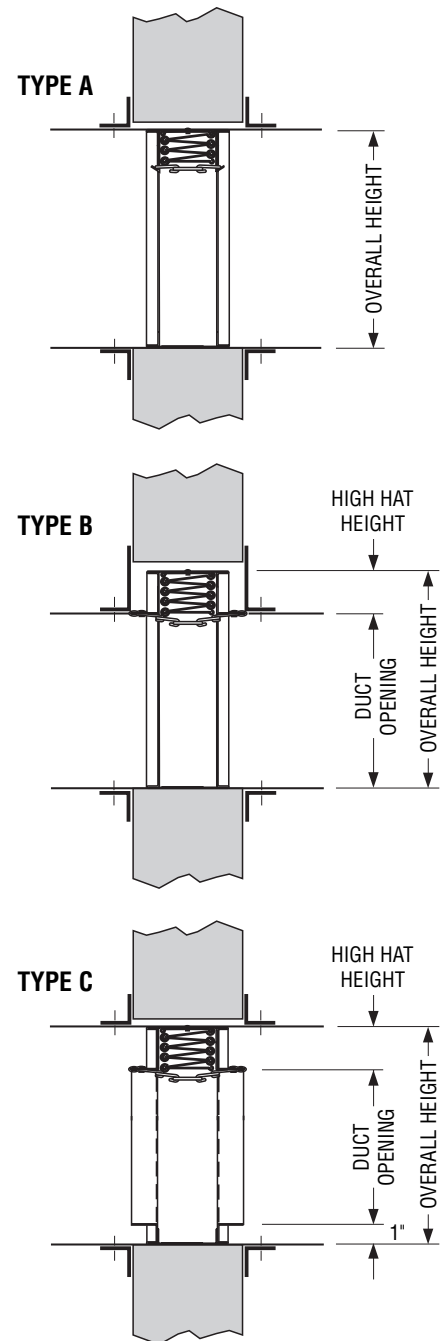
0100-1



FIRE DAMPER SIZING CHART • IMPERIAL **STANDARD FRAME (4 1/4" WIDE)** **MODEL SERIES 0100, 0500**

DUCT OPENING HEIGHT (inches)	TYPE "A" OVERALL HEIGHT (inches)	TYPE "B" OVERALL HEIGHT (inches)	TYPE "C" OVERALL HEIGHT (inches)
4	3 3/4	6 1/8	5 3/4
5	4 3/4	7 1/8	6 3/4
6	5 3/4	8 1/8	8 3/4
7	6 3/4	9 1/8	9 3/4
8	7 3/4	10 1/8	10 3/4
9	8 3/4	11 1/8	11 3/4
10	9 3/4	12 1/8	12 3/4
11	10 3/4	13 1/8	13 3/4
12	11 3/4	14 1/8	14 3/4
13	12 3/4	15 1/8	15 3/4
14	13 3/4	16 1/8	16 3/4
15	14 3/4	17 1/8	17 3/4
16	15 3/4	18 1/8	18 3/4
17	16 3/4	19 1/8	19 3/4
18	17 3/4	21 1/8	21 3/4
19	18 3/4	22 1/8	22 3/4
20	19 3/4	23 1/8	23 3/4
21	20 3/4	24 1/8	24 3/4
22	21 3/4	25 1/8	25 3/4
23	22 3/4	26 1/8	26 3/4
24	23 3/4	27 1/8	27 3/4
25	24 3/4	28 1/8	28 3/4
26	25 3/4	29 1/8	29 3/4
27	26 3/4	30 1/8	30 3/4
28	27 3/4	32 1/8	32 3/4
29	28 3/4	33 1/8	33 3/4
30	29 3/4	34 1/8	34 3/4
31	30 3/4	35 1/8	35 3/4
32	31 3/4	36 1/8	36 3/4
33	32 3/4	37 1/8	37 3/4
34	33 3/4	38 1/8	38 3/4
35	34 3/4	39 1/8	39 3/4
36	35 3/4	40 1/8	40 3/4
37	36 3/4	42 1/8	42 3/4
38	37 3/4	43 1/8	43 3/4
39	38 3/4	44 1/8	44 3/4
40	39 3/4	45 1/8	45 3/4
41	40 3/4	46 1/8	46 3/4
42	41 3/4	47 1/8	47 3/4
43	42 3/4	48 1/8	48 3/4
44	43 3/4	49 1/8	49 3/4
45	44 3/4	50 1/8	50 3/4
46	45 3/4	52 1/8	52 3/4
47	46 3/4	53 1/8	53 3/4
48	47 3/4	54 1/8	54 3/4
49	48 3/4	55 1/8	55 3/4
50	49 3/4	56 1/8	56 3/4
51	50 3/4	57 1/8	57 3/4
52	51 3/4	58 1/8	58 3/4
53	52 3/4	59 1/8	59 3/4
54	53 3/4	60 1/8	
55	54 3/4	DAMPER WIDTH OVERALL Type "A" = Duct Opening - 1/4". Type "B" = Duct Opening - 1/4". Type "C" = Duct Opening + 1 3/4".	
56	55 3/4		
57	56 3/4		
58	57 3/4		
59	58 3/4		
60	59 3/4		

Important Note: Type "B" and "C" overall height dimensions only apply to sizes that are single section high. For overall height dimensions for sizes that are multi-section in height, please contact factory. Refer to individual model submittal drawings for maximum single section heights.



Dimensions are in inches (mm).

SCHEDULE TYPE:

PROJECT:

ENGINEER:

CONTRACTOR:

DATE

B SERIES

SUPERSEDES

DRAWING NO.

1 - 24 - 06

FD

2 - 25 - 02R

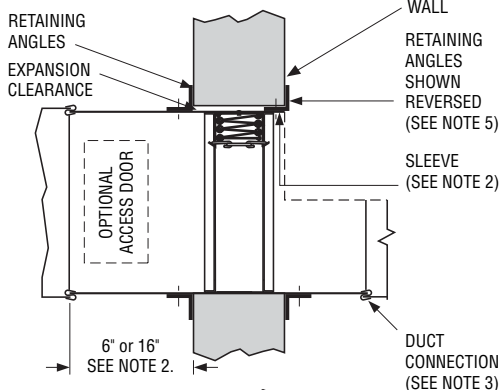
SC1



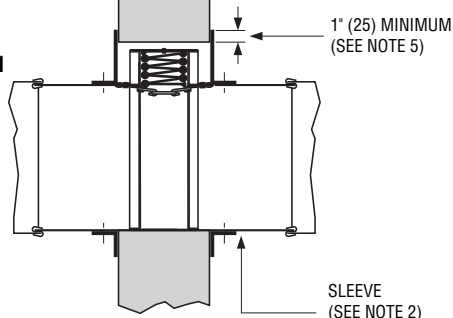
INSTALLATION INSTRUCTIONS

CURTAIN TYPE FIRE DAMPERS • STANDARD & WIDE FRAME
1 1/2 & 3 HR. LABEL • VERTICAL & HORIZONTAL MOUNT
MODEL SERIES: (D) 0100, 0300, (D) 0500

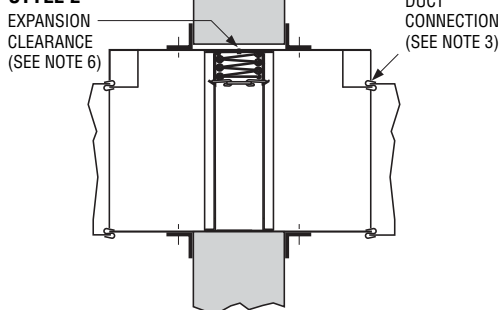
TYPE A



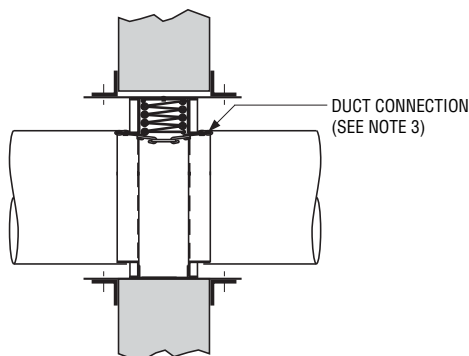
TYPE B STYLE 1



TYPE B STYLE 2



TYPE C



QUALIFICATIONS:

- Meets all the requirements of UL 555 and CAN/ULC-S112.
- Meets the requirements for NFPA 80, 90A and 101, as well as IBC and NBC (Canada) building codes.
- California State Fire Marshal Listing No. 03225-0935:0113.
- City of New York Board of Standards and Appeals. Cal. No. 460-88-SA.



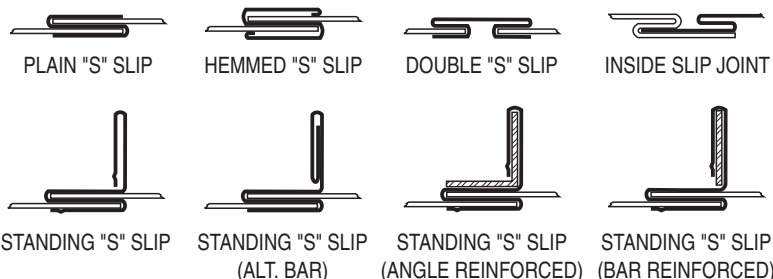
Refer to the
UL Classification
Marking on the
Product

NOTES:

1. Installation shall be in accordance with the appropriate requirements of the National Fire Protection Association Standard NFPA 90A latest edition.
2. **Damper Sleeve:** Sleeve thickness must be equal to or thicker than the duct connected to it. Sleeve gauge requirements are listed in the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems and in NFPA 90A. If a break-away style duct/sleeve connection is not used, damper sleeves up to 36" wide by 24" (914 x 610) high of not less than 16 gauge (1.61) coated steel, or larger sleeves of not less than 14 gauge (1.99) thick coated steel may be attached to the duct with screws or other types of mechanical fasteners. The maximum sleeve thickness for such rigid joints is 10 gauge (3.51) for coated steel.
The connecting duct shall not be continuous thru the wall or floor opening but shall terminate at the sleeve. Sleeves shall extend a maximum of 6" (152) on either side of the wall or floor opening or 16" (406) on one side when incorporating a factory installed access door.

3. Break-away duct/sleeve connections:

- a. Rectangular ducts must use one or more of the following connections if the gauge is less than the requirement in note 2 for rigid connections:



In addition:

- A maximum of two #10 sheet metal screws on each side and on the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used.
- One of the above connections on the top and bottom joints with flat drive slip connections on the side joints may be used for dampers up to 20" (508) in height.



FLAT DRIVE SLIP

- b. Round and oval duct may be attached to the round or oval collar which is part of the damper/sleeve in the following manner:
 - Duct diameters 22" (559) and smaller must use three #10 sheet metal screws equally spaced around the circumference.
 - Duct diameters over 22" (559) up to and including 36" (914) may use five #10 sheet metal screws equally spaced around the circumference.
 - Duct diameters larger than 36" (914) wide or diameter may use eight #10 sheet metal screws equally spaced around the circumference.

Dimensions are in inches (mm).

Note: When optional sealing of these break-away connections is desired, the duct sealant shall be PA2084T Duct Sealant by Precision or water based DP1010 by Design Polymetrics.

c. For the use of approved alternative Ductmate or TDC/TDF break-away connections, refer to the supplements noted on page 4.

4. Damper/sleeve attachment: Damper shall be secured to sleeve with 1/4" (6) long welds, spot welds, 3/16" (4.76) steel rivets, 1/4" (6.35) dia. bolts and nuts, #8 sheet metal screws, or 3/16" (4.76) dia. buttonloks on both sides at 6" (152) on center and a maximum of 2" (51) from the corners of the damper on all four sides. For field assembled sleeves, the inner dimensions of the sleeve shall be equal to the outer dimensions of the damper.

5. Retaining angles shall be a minimum of 1 1/2" x 1 1/2" x 16 gauge (38 x 38 x 1.61) for dampers up to 90" (2286) in width and up to 90" (2286) in height. For dampers exceeding these dimensions, the angles shall be a minimum of 2" x 2" x 10 gauge (51 x 51 x 3.51). Secure the retaining angles to the sleeve with 1/2" (12.7) long welds, 1/4" (6.35) dia. bolts and nuts, 3/16" (4.76) dia. steel rivets or #8 sheet metal screws 8" (203) on center and 2" (51) maximum from corner of sleeve on all four sides. The retaining angles must lap the structural opening by 1" (25.4) minimum. When the ductwork terminates at the wall or floor, the retaining angles may be turned inwards, providing the opening size is increased by an amount equal to twice the combined thickness of the angle and the height of the screw or bolthead to maintain the required expansion clearance. Field fabricated retaining angles are not to be mechanically fastened at the corners.

6. Expansion clearance between the sleeve and wall or floor shall be a minimum of 1/8" per foot (3.18 per 305) of width or height of the sleeve. The maximum size of the opening shall be 2" (50.8) larger in either dimension than the allowable minimum size. For example; a sleeve dimension of 36" x 36" (914 x 914) shall have an opening size of 36 3/8" x 36 3/8" (924 x 924) minimum and 38 3/8" x 38 3/8" (975 x 975) maximum.

7. The maximum Type A fire damper sizes are as follows:

Model Series				Single Section	Multiple Section
0100	Static	Vertical	(1 1/2 hr. label)	60" x 60" (1524 x 1524)	120" x 120" (3048 x 3048)
		Horizontal	(1 1/2 hr. label)	60" x 60" (1524 x 1524)	102" x 60" (2591 x 1524) **
0300	Static	Vertical	(1 1/2 hr. label)	60" x 48" (1524 x 1219)	—
		Horizontal	(1 1/2 hr. label)	48" x 48" (1219 x 1219)	—
D0100	Dynamic	Vertical	(1 1/2 hr. label)	36" x 36" (914 x 914)	36" x 48" (914 x 1219) OR **** 72" x 24" (1829 x 610)
		Horizontal	(1 1/2 hr. label)	24" x 24" (610 x 610)	—
0500	Static	Vertical	(3 hr. label)	48" x 48" (1219 x 1219)	108" x 72" (2743 x 1829) ***
		Horizontal	(3 hr. label)	36" x 36" (914 x 914)	72" x 36" (1829 x 914)
0540	Static	Vertical	(3 hr. label)	60" x 48" (1524 x 1219) or 24" x 60" (610 x 1524)	—
		Horizontal	(3 hr. label)	36" x 36" (914 x 914)	36" x 48" (914 x 1219) OR **** 72" x 24" (1829 x 610)
D0500	Dynamic	Vertical	(3 hr. label)	36" x 36" (914 x 914)	36" x 48" (914 x 1219) OR **** 72" x 24" (1829 x 610)
		Horizontal	(3 hr. label)	24" x 24" (610 x 610)	—

* Type B and C dampers have the same overall damper size but the connecting ducts are smaller due to the B or C enclosures. See Type B and Type C specification drawings for maximum duct sizes.

** Maximum individual sections not to exceed 34" x 60" (864 x 1524).

*** Maximum individual sections not to exceed 36" x 36" (914 x 914).

**** Maximum individual sections not to exceed 24" x 24" (610 x 610), up to 48" x 24" (1219 x 610). Assemblies larger than 48" x 24" (1219 x 610) will be made up of individual sections not to exceed 18" x 24" (457 x 610).

8. Multiple Section Assemblies. Individual dampers may be joined together to make multiple section damper assemblies (see Figure 1). The frames shall be fastened together using 1/4" (6) long welds, 3/16" (4.76) steel rivets, 1/4" (6.35) bolts and nuts, #8 sheet metal screws or 3/16" (4.76) buttonloks on both sides of the damper at 6" (152) max. on center and 2" (51) max. from the corner of the damper on all 4 sides. The following additional requirements shall be met:

Vertical dampers, 1 1/2 hr. label over 84" (2134) in width require a 12 ga. x 4 1/4" (2.75 x 108) wide steel mullion plate placed between adjacent vertical damper frames and the frames fastened together through this with 1/4" (6.35) bolts and nuts, 12" (305) max. on center. Dampers over 84" (2134) in height require a full length 2" x 2" x 10 ga. (51 x 51 x 3.51) steel angle bolted along horizontal joints on both sides of the assembly using 1/4" (6.35) bolts and nuts, 12" (305) max. on center (see Figure 2).

Horizontal dampers, 1 1/2 hr. label over 84" (2134) wide require a 14 ga. x 4 1/4" (1.99 x 108) wide steel mullion plate placed between adjacent damper frames and the frames fastened together through this using 1/4" (6.35) bolts and nuts, 1/4" (6) long welds or #8 sheet metal screws, 4" (102) max. on center.

Vertical dampers, 3 hr. label multiple sections require a 16 ga. x 6" (1.61 ga. x 152) wide "Z" mullion with 7/8" (22) flanges shall be placed between any horizontal joints (see Figure 3). The frames shall be joined together using 3/16" (4.76) bolts and nuts, 1/4" (6) long welds or #8 sheet metal screws, 6" (152) max. on center.

Dimensions are in inches (mm).

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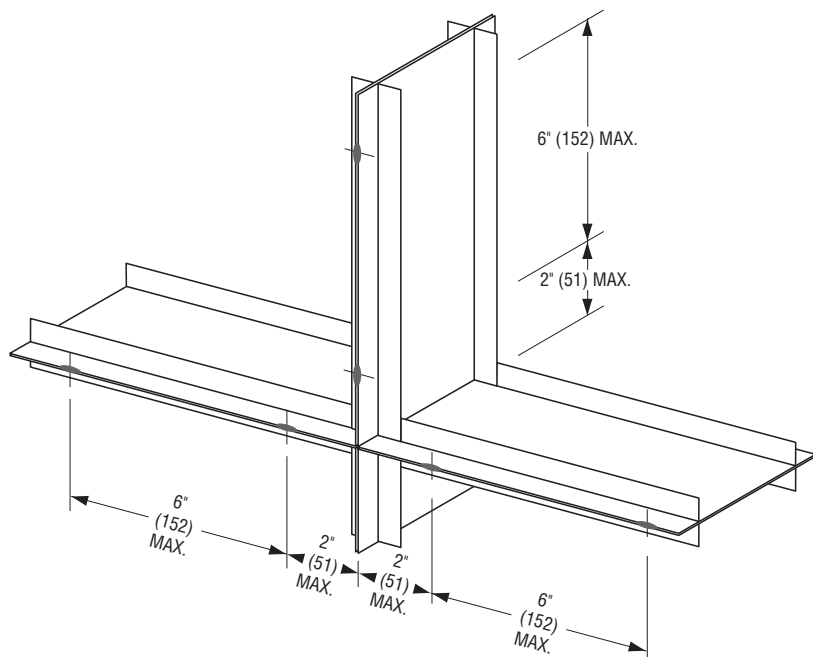


Figure 1.
Fastening of damper frames (see note 8).

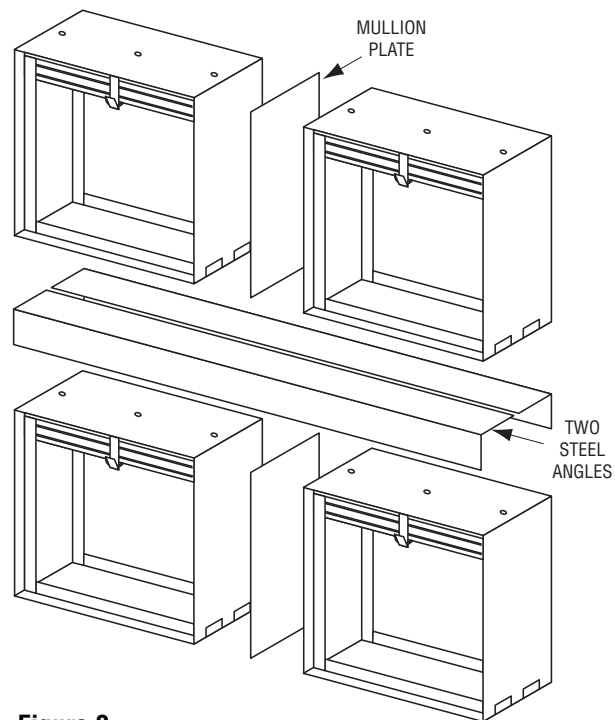


Figure 2.
1 1/2 hr. label vertical installation
over 84" x 84" (2134 x 2134) (see note 8).

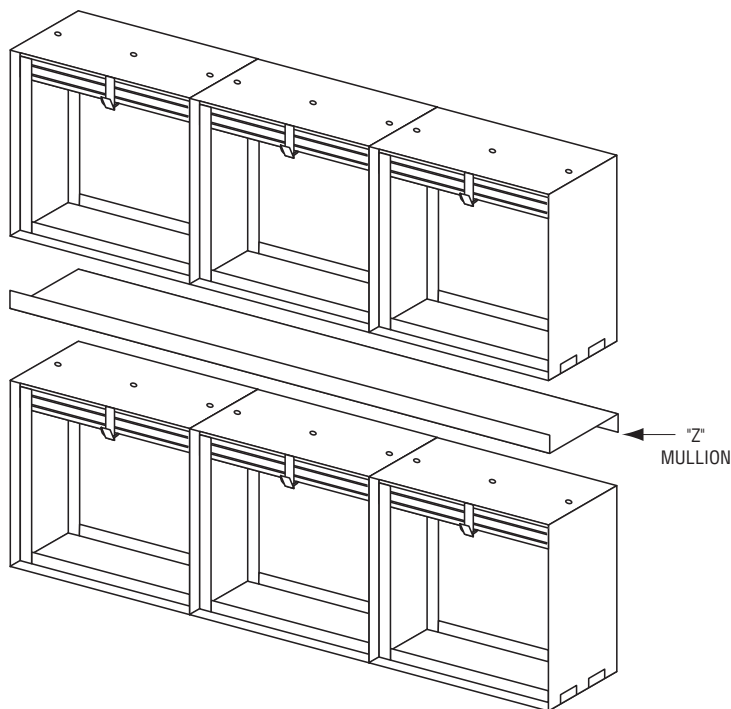


Figure 3.
3 hr. label vertical installation multiple section (see note 8).

9. In cases where the openings are larger than specified in note 7, a UL tested and qualified steel mullion must be provided between assemblies (refer to supplementary installation sheet FDSMINST).

IMPORTANT

DO NOT CAST DAMPER IN PLACE.
DO NOT FASTEN RETAINING ANGLES OR DAMPER DIRECTLY TO WALL OR FLOOR.
DO NOT INSTALL DAMPER OUT OF SQUARE OR OUT OF FLAT.
VERTICAL MOUNTING SHOWN ON MASONRY WALL.
FOR INSTALLATION IN DRYWALL FRAMING, SEE DOC. FDSWSFINST.
HORIZONTAL MOUNTING SIMILAR FOR MASONRY FLOOR.

REFER TO THE APPROPRIATE NAILOR INSTALLATION INSTRUCTION SUPPLEMENTS FOR THE FOLLOWING SPECIAL REQUIREMENTS:

STEEL MULLIONS (for dampers in oversized wall openings)	FDSMINST
SINGLE SIDED RETAINING ANGLES	FDSSRAINST
STEEL AND WOOD STUD FRAMING	FDSWSFINST
CAVITY SHAFT WALL PARTITIONS	FDSCWINST
FLANGED TYPE ALTERNATIVE BREAKAWAY CONNECTIONS	FDFABC
TDC/TDF FLANGED DUCT CONNECTION	FDTCDFINST
QUICK-SET RETAINING ANGLES	FDQSRA

Dimensions are in inches (mm).

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