STATIC THINLINE CURTAIN FIRE DAMPER

1 1/2 HR. LABEL • VERT. OR HORIZ.
FOR USE IN STATIC SYSTEMS
MODELS: 0210V AND 0210H (TYPE A)

Nailor Industries Inc.

CLASSIFIED C UL US

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 0210 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 0210 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.

Thinline fire dampers are only 2" (51) deep and permit installation in narrow fire partitions, transfer openings, behind grilles or in any application where clearance is restricted.

STANDARD CONSTRUCTION:

Frame: 2" (51) 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):

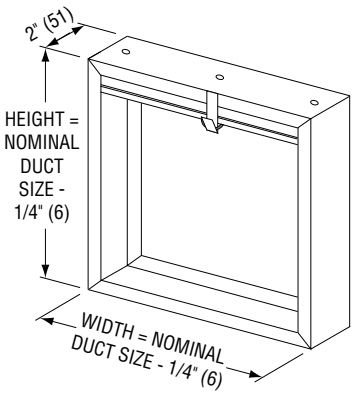
Minimum	Maximum	
Single Section	Single Section	
Vertical/Horizontal	Vertical	Horizontal
4" x 4" (102 x 102)	41" x 36" or 36" x 60" (1041 x 914 or 914 x 1524)	41" x 36" (1041 x 914)

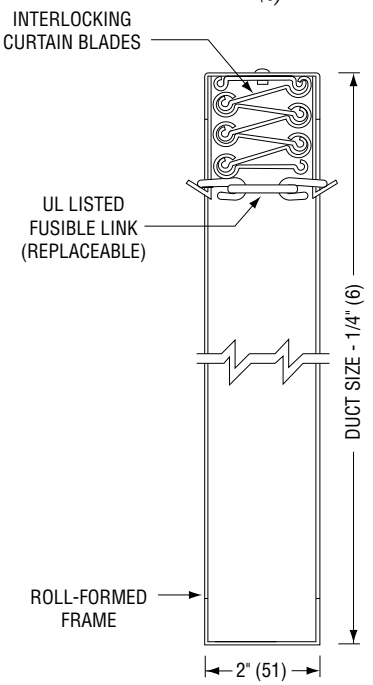
OPTIONS:

- ❑ 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.

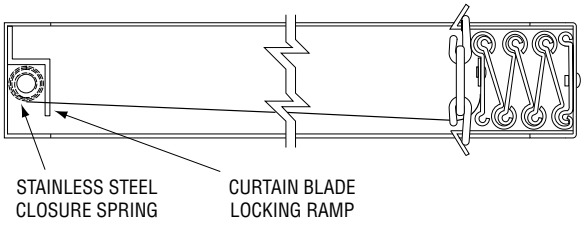
NOTES:

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





MODEL 0210V – VERTICAL MOUNT



MODEL 0210H – HORIZONTAL MOUNT

For installation instructions, see IOM-FDTINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**4 - 28 - 14**	**FD**	**3 - 1 - 05**	**0200-1**

STATIC THINLINE CURTAIN FIRE DAMPER

1 1/2 HR. LABEL • VERT. OR HORIZ.
FOR USE IN STATIC SYSTEMS
MODELS: 0220V AND 0220H (TYPE B)

Nailor Industries Inc.

CLASSIFIED C UL US

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 0220 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 0220 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.
Thinline fire dampers are only 2" (51) deep and permit installation in narrow fire partitions, transfer openings, behind grilles or in any application where clearance is restricted.
Type B fire dampers place the curtain blade pack out of the airstream for higher free area and reduced pressure drop.

STANDARD CONSTRUCTION:

Frame:	2" (51) wide, 22 ga. (0.85) roll-formed G60 galvanized steel.
Blades:	Curtain type interlocking blades, 22 ga. (0.85) roll-formed G60 galvanized steel.
Enclosure:	22 ga. (0.85) 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):

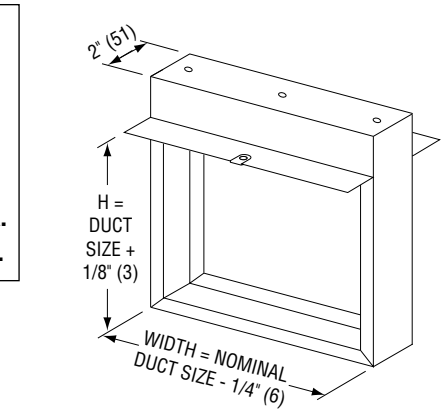
Minimum	Maximum	
Single Section	Single Section	
Vertical/Horizontal	Vertical	Horizontal
4" x 3" (102 x 76)	41" x 30" or 36" x 50" (1041 x 762 or 914 x 1270)	41" x 30" (1041 x 762)

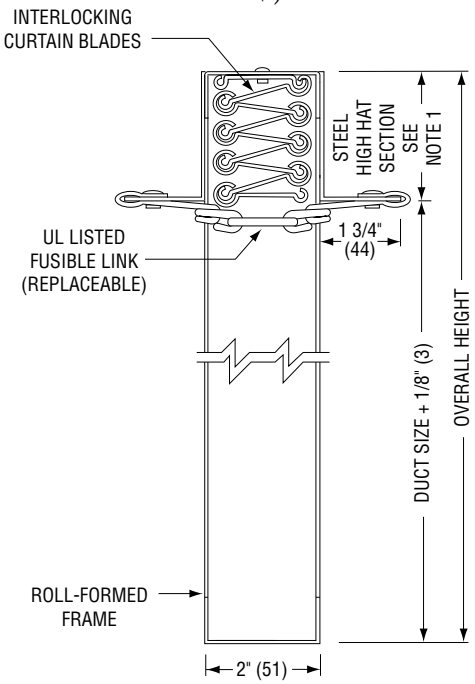
OPTIONS:

- ❑ 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.

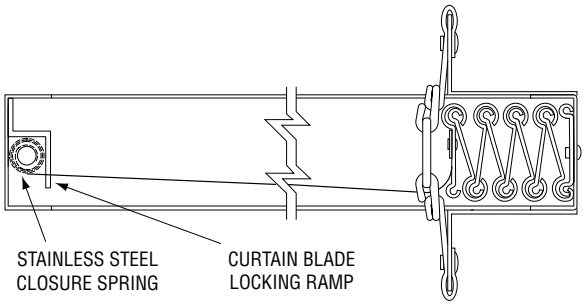
NOTES:

1. See sizing chart for relationship of duct size and damper size. Refer to drawings SC3 and SC4.





MODEL 0220V – VERTICAL MOUNT



MODEL 0220H – HORIZONTAL MOUNT

For installation instructions, see IOM-FDTINST.

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**4 - 28 - 14**	**FD**	**3 - 1 - 05**	**0200-2**

STATIC THINLINE CURTAIN FIRE DAMPER
1 1/2 HR. LABEL • VERT. OR HORIZ.
FOR USE IN STATIC SYSTEMS
MODELS: 0230V AND 0230H (TYPES CR & CO)

Nailor Industries Inc.

CLASSIFIED C UL US

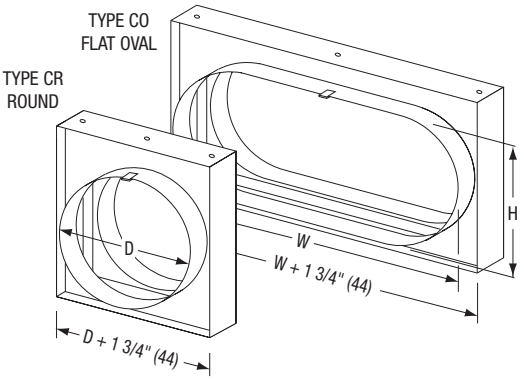
QUALIFICATIONS:

- **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 0230 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 0230 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.

Type CR round and CO oval fire dampers use transition collars to place the curtain blade pack and damper frame out of the airstream, providing 100% free area.

Thinline fire dampers are only 2" (51) deep and permit installation in narrow fire partitions, transfer openings, behind grilles or in any application where clearance is restricted.

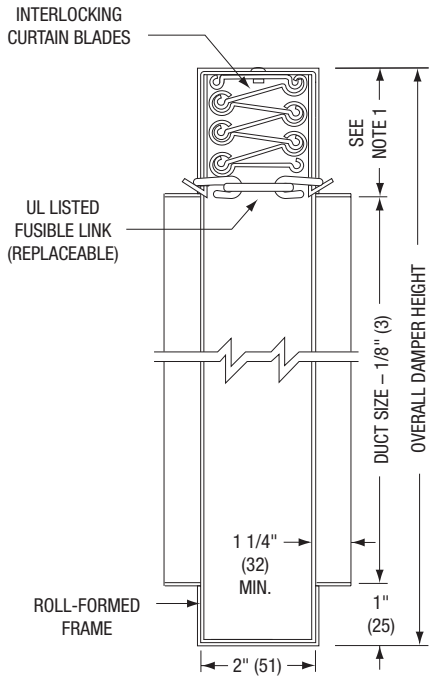


STANDARD CONSTRUCTION:

Frame:	2" (51) wide, 22 ga. (0.85) roll-formed G60 galvanized steel.
Blades:	Curtain type interlocking blades, 22 ga. (0.85) roll-formed G60 galvanized steel.
Enclosure:	22 ga. (0.85) 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):

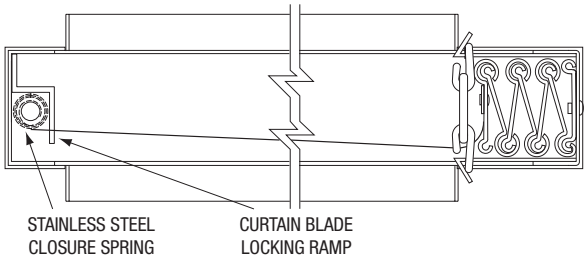
Model Type	Minimum Single Section Vertical/Horizontal	Maximum Single Section Vertical/Horizontal
Round CR	3" (76) dia.	34" (864) dia.
Oval CO	4" x 3" (102 x 76)	39" x 29" (991 x 737)



MODEL 0230V – VERTICAL MOUNT

OPTIONS:

- ❑ Non-standard temperature fusible link. Specify _____ .
- ❑ **LP** Unsealed. Suitable for low pressure systems.
- ❑ **HP** Sealed. Suitable for medium/high pressure systems. Externally caulked.
- ❑ Factory Sleeve. Available in 10 (3.5) through 22 ga. (0.85) galvanized steel and in lengths required for application. Specify: _____ length. _____ ga.



MODEL 0230H – HORIZONTAL MOUNT

NOTES:

1. See sizing chart for relationship of duct size and damper size. Refer to drawings SC3 and SC4.

For installation instructions, see IOM-FDTINST.

Dimensions are in inches (mm)

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**12 - 30 - 25**	**FD**	**4 - 28 - 14**	**0200-3**

STATIC THINLINE CURTAIN FIRE DAMPER
1 1/2 HR. LABEL • VERT. OR HORIZ.
FOR USE IN STATIC SYSTEMS
MODELS: 0240V AND 0240H (TYPE CSR)

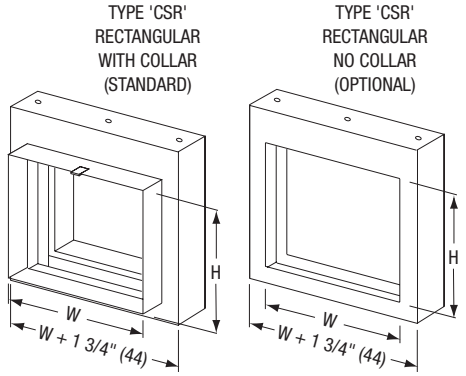
Nailor Industries Inc.

CLASSIFIED C UL US

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 0240 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 0240 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.
Thinline fire dampers are only 2" (51) deep and permit installation in narrow fire partitions, transfer openings, behind grilles or in any application where clearance is restricted.
Type CSR square or rectangular fire dampers use full enclosure and transition collars to place the curtain blade pack and frame out of the airstream, providing 100% free area.

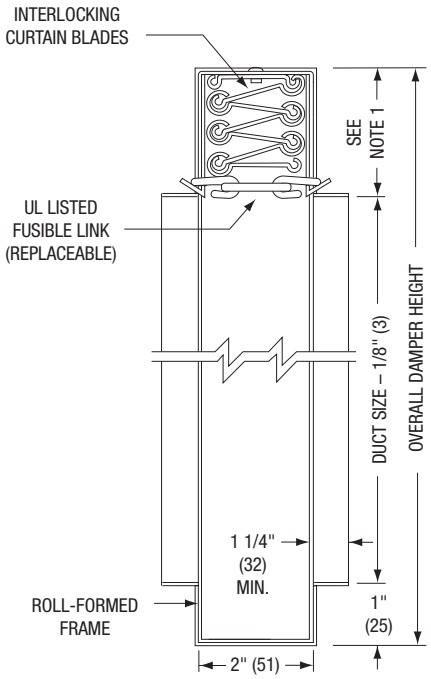


STANDARD CONSTRUCTION:

Frame:	2" (51) wide, 22 ga. (0.85) roll-formed G60 galvanized steel.
Blades:	Curtain type interlocking blades, 22 ga. (0.85) roll-formed G60 galvanized steel.
Enclosure:	22 ga. (0.85) 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	
Vertical/Horizontal	Vertical	Horizontal
3" x 3" (76 x 76)	39" x 29" or 34" x 49" (991 x 737 or 864 x 1245)	39" x 29" (991 x 737)



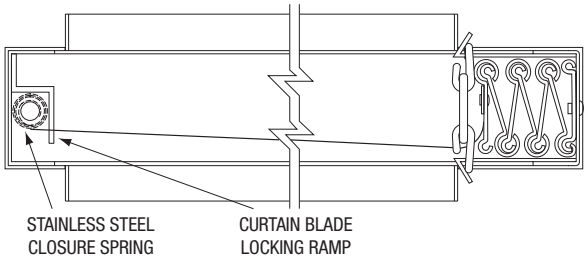
MODEL 0240V – VERTICAL MOUNT

OPTIONS:

- ❑ Non-standard temperature fusible link. Specify _____ .
- ❑ **LP** Unsealed. Suitable for low pressure systems.
- ❑ **HP** Sealed. Suitable for medium/high pressure systems. Externally caulked.
- ❑ **NC** No collar.
- ❑ 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. See sizing chart for relationship of duct size and damper size. Refer to drawings SC3 and SC4.



MODEL 0240H – HORIZONTAL MOUNT

For installation instructions, see IOM-FDTINST.

Dimensions are in inches (mm)

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**12 - 30 - 25**	**FD**	**4 - 28 - 14**	**0200-4**

Nailor Industries Inc.

FIRE DAMPER SIZING CHART • IMPERIAL
THINLINE FRAME (2" WIDE)
MODEL SERIES 0210 – 0240, 0570 – 0590

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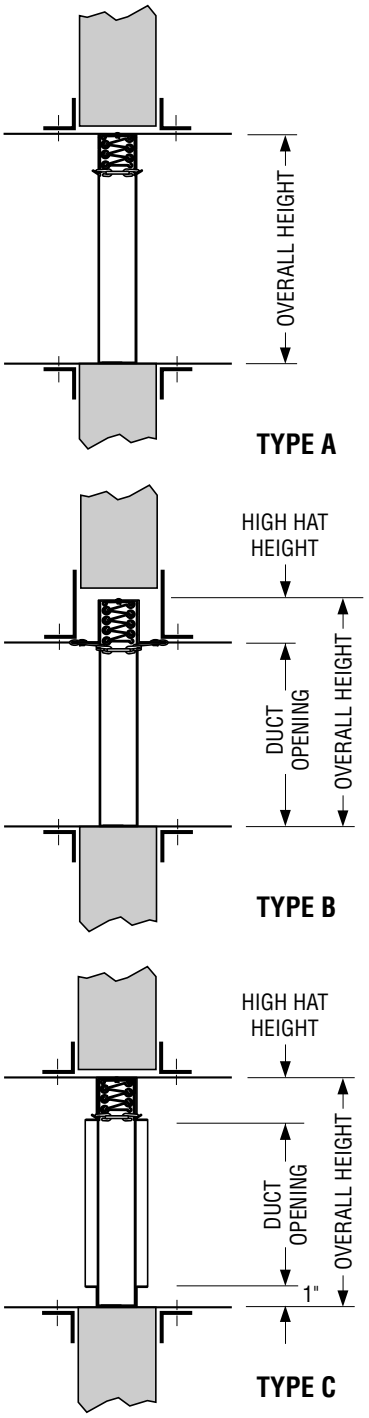
53	52 3/4		
54	53 3/4		
55	54 3/4		
56	55 3/4		
57	56 3/4		
58	57 3/4		
59	58 3/4		
60	59 3/4		

DAMPER WIDTH OVERALL
Type "A" = Duct Opening - 1/4".
Type "B" = Duct Opening - 1/4".
Type "C" = Duct Opening + 1 3/4".



Dimensions are in inches (mm).

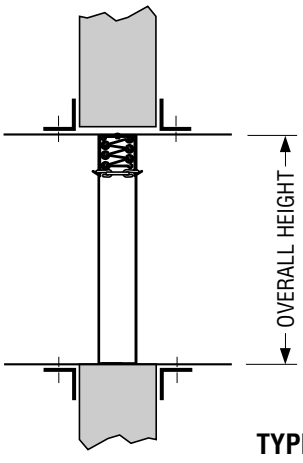
SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 10 - 00R**	**FD**	**8-90/0200-3A**	**SC3**

Nailor Industries Inc.

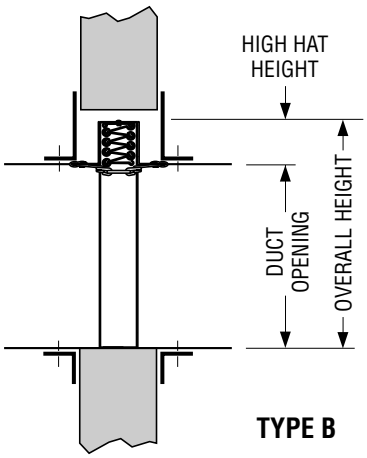
FIRE DAMPER SIZING CHART • METRIC
THINLINE FRAME (51 MM WIDE)
MODEL SERIES 0210 – 0240, 0570 – 0590

DUCT OPENING HEIGHT (mm)	TYPE "A" OVERALL HEIGHT (mm)	TYPE "B" OVERALL HEIGHT (mm)	TYPE "C" OVERALL HEIGHT (mm)
76		130	146
102	95	156	171
127	121	181	197
152	146	206	222
178	171	232	248
203	197	257	273
229	222	283	298
254	248	333	349
279	273	359	375
305	298	384	400
330	324	410	425
356	349	435	451
381	375	460	476
406	400	511	527
432	425	537	552
457	451	562	578
483	476	587	603
508	502	638	654
534	527	664	679
559	552	689	705
584	578	714	730
610	603	740	756
635	629	765	781
661	654	816	832
656	679	841	857
711	705	867	883
737	730	892	908
762	756	918	933
787	781	943	959
813	806	994	1010
838	832	1019	1035
864	857	1045	1060
889	883	1095	1111
914	908	1121	1137
940	933	1146	1162
965	959	1172	1187
991	984	1197	1213
1016	1010	1222	1238
1041	1035	1273	1289
1067	1060	1299	1314
1092	1086	1324	1340
1117	1111	1349	1365
1143	1137	1375	1391
1168	1162	1400	1416
1194	1187	1451	1467
1219	1213	1476	1492
1245	1238	1502	1518
1270	1264	1527	
1296	1289		
1321	1314		
1346	1340		
1372	1365		
1397	1391		
1423	1416		
1448	1441		
1473	1467		
1499	1492		
1524	1518		

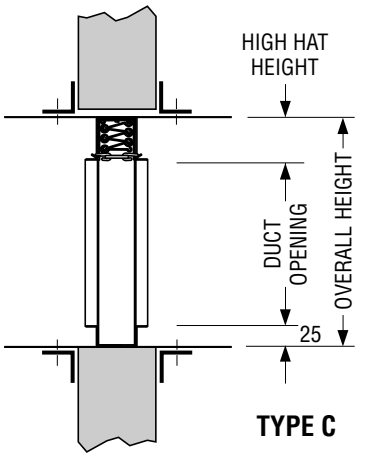
DAMPER WIDTH OVERALL
Type "A" = Duct Opening - 6.
Type "B" = Duct Opening - 6.
Type "C" = Duct Opening + 44.



TYPE A



TYPE B



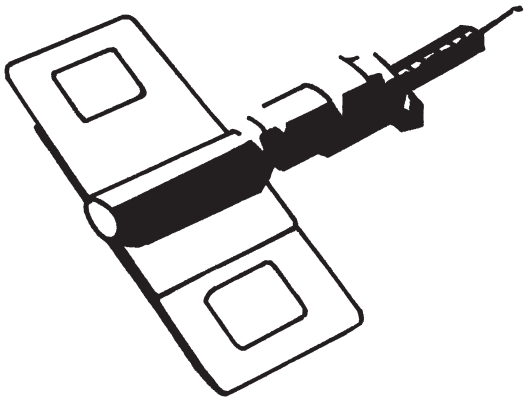
TYPE C

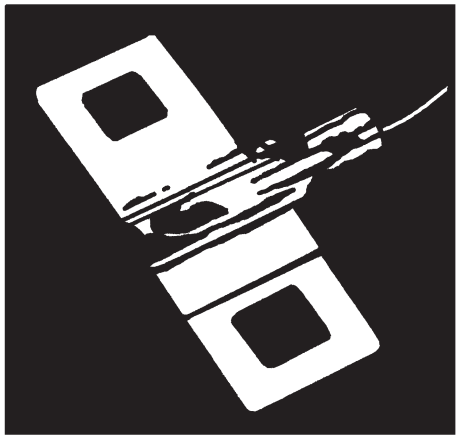
Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 10 - 00R**	**FD**	**NEW**	**SC4**

Nailor Industries Inc.

CURTAIN FIRE DAMPER ACCESSORY ELECTRO-THERMAL LINK MODEL: ETL





ETL®

WHAT IT IS – WHAT IT DOES

The Electro Thermal Link (ETL®) is a multi purpose, dual responsive fusible link which reacts (melts) when subjected to;

1. Local heat (165°F (74°C)) exactly the same as an ordinary link.
2. External electrical impulse of low power and short duration.

It is specifically designed to substitute for ordinary links and/or actuators in existing and new installations of Fire Dampers, Fire Doors, Fire Extinguishers, Fire and Smoke Roof Hatches, Sprinklers, Smoke Towers, and chemical or gas Automatic Release Systems.

The substitution should be made in every installation of the above devices where it is desirable to improve life safety by making those devices responsive to -

SMOKE in the early form of invisible products of combustion through ionization detectors, or

FIRE at an earlier stage than ordinary links thru the use of rate of rise or maximum temperature devices.

The ETL's electro-response is the unique feature. It is not smoke responsive of itself, but its power requirement is so low that it can be released with an electrical impulse from any smoke detector's power source. It is compatible with every smoke detector on the market in the United States today.

The operating range is 6 to 30 volts AC or DC, less than 0.2 ampere of trip current required, and 1/2 millisecond (.0005 second) response at 24 v. The electrical response is a trigger for the chemical heating of the center element which is a self-contained exothermic reactor, yielding no noise, smoke, or gas - just quick heat to open the link in seven seconds.

The ETL's thermal response is identical to that of ordinary fusible links of identical temperature (165°F (74°C)) and strength (40#) rating.

In its capacity of converting a FIRE safety device into a FIRE/SMOKE safety device the ETL can be substituted for both an ordinary link and motor, or link and electromagnetic operator with advantages of simplicity, economy, operational reliability and wide acceptability. With its dual responsiveness the ETL can be substituted for two other devices at a savings in first cost as well as operating cost and maintenance. The ETL is a Space Age Device built to zero defect standards and to last at least fifty years and then still react properly – only on fire or smoke emergency. It is totally independent of power failures since it draws power from the detector standby source if needed. The ETL is listed by Underwriter's Laboratories, Inc. as a Fusible Link.

With the ongoing development of dynamic smoke control systems and building code changes in recent years, application and use of this product should be governed by acceptance of the local authority having jurisdiction.

SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**31 - 7 - 00R**	**ACC**	**1 - 98R/0100-6**	**ACC.ETL**

Nailor Industries Inc.

PULL TAB RELEASE FOR CURTAIN TYPE FIRE DAMPERS

ACCESSORY FOR STANDARD AND WIDE FRAME TYPE A AND B SPRING LOADED MODELS

CLASSIFIED UL

DESCRIPTION:

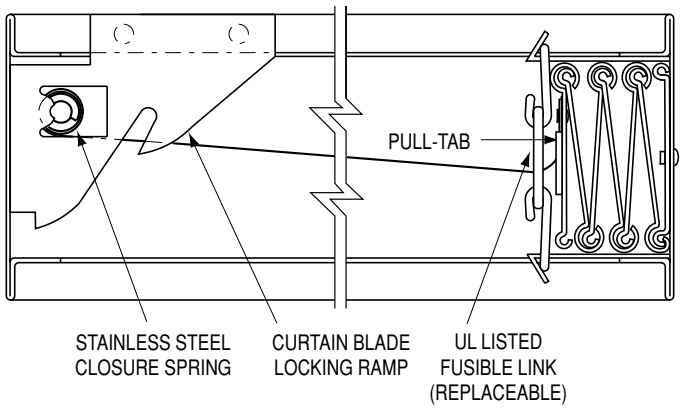
1. Pull ring: 1 1/4 (32) diameter nickel plated steel.
2. Attachment strap: 22 ga. galvanized or stainless steel.

Horizontal curtain type fire dampers for use in static systems and all dynamic dampers utilize stainless steel springs and locking ramps to draw the curtain closed in the event of a fire or upon manual release.

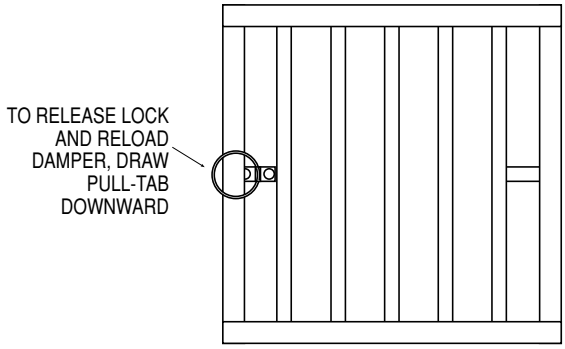
Horizontally installed dampers are designed and tested to be mounted with the locking ramps on the top side. When periodic testing (as well as maintenance and inspection) is required, access doors should be located above the damper, so that the damper blade pack can be "pushed down" and released off the locking ramp for reset.

When access from above is not possible or convenient, the Pull-Tab release option permits simple resetting from beneath the damper.

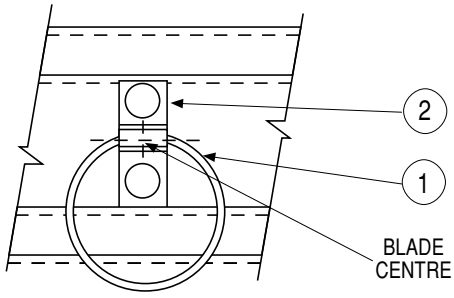
TOP OF UNIT (Horizontal Installation)



TYPE “A” MODEL 0110H (TYPE “B” SIMILAR).



VIEW ON DAMPER FACE (BLADES CLOSED)



DETAIL OF PULL-TAB

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**3- 10 - 00R**	**ACC-PTR**	**7-90/0100-16**	**ACC-PTR**

Nailor Industries Inc.

"QUICK-SET" RETAINING ANGLES
FOR ALL SLEEVED FIRE AND COMBINATION FIRE/SMOKE DAMPERS
MODELS: QS1 AND QS2

"QUICK-SET" RETAINING ANGLES BOTH SIMPLIFY AND SPEED INSTALLATION, SAVING BOTH TIME AND MONEY.

BENEFITS:

- One piece angles are fastened together in the corners. Only two sets of angles to handle per damper (rather than four separate angles per side).
- Angles are shipped with damper - no sorting or matching.
- Provided with pre-drilled fastening holes on 2" (51) centers to ensure correct angle/sleeve attachment.
- Factory fabricated by Nailor to suit the individual fire damper.
- Reduced cost when compared to conventional retaining angles.
- Dampers can ship directly to the job site complete with all necessary installation sheet metal hardware (saves on double handling at contractor's shop).
- Help ensure a correct installation as per U.L. approved installation instructions.

The majority of installing contractors view fire damper installation as a costly time consuming and troublesome procedure. Eight conventional angles must be custom fabricated for each damper either in a sheet metal shop or at the job site and sized to suit each individual damper. Invariably, they are mislaid or lost and must be matched to each factory supplied damper.

The Nailor "Quick-Set" solution solves the majority of problems. They are pre-formed to fit and ship with the individual damper for ultimate convenience. "Quick-Set" angles are supplied with correctly spaced pre-drilled screw-holes to ensure a quick, easy and accurate installation for all integral sleeve Nailor fire and combination fire/smoke dampers - no measuring required.

"Quick-Set" retaining angles provide the "complete" installation package. Simple, fast, convenient.

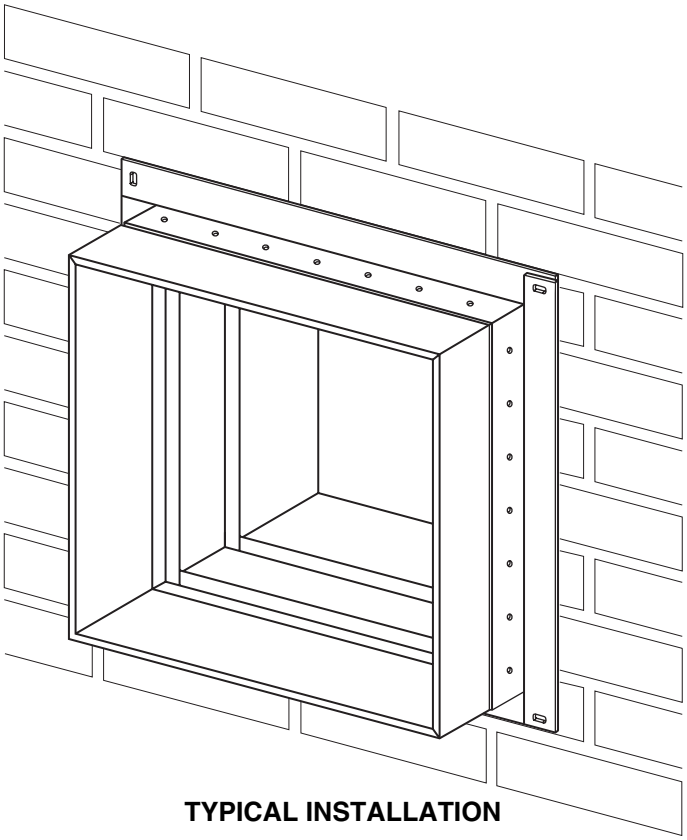
MODELS:

Nailor "Quick-Set" retaining angles are an accessory option for all dampers ordered with factory sleeves.

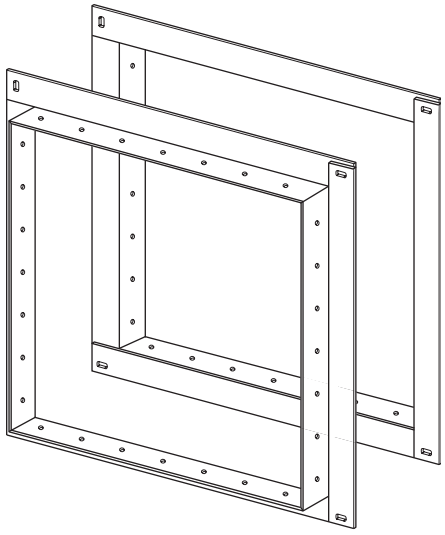
QS2: Two sides (pair). For standard installations where angles are installed on both sides of the fire partition.

QS1: One side (single set). For use in single side retaining angle installations and with grille mount and "out of wall" damper models.

Refer to the UL or ULC Classification marking the product.



TYPICAL INSTALLATION



TYPICAL PAIR OF PRE-ASSEMBLED QUICK-SET' RETAINING ANGLES

SCHEDULE TYPE:	Page 1 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**2 - 26 - 09**	**FD-ACC**	**6 - 5 - 03**	**QSRA**

Nailor Industries Inc.

"QUICK-SET" RETAINING ANGLES
FOR ALL SLEEVED FIRE AND COMBINATION FIRE/SMOKE DAMPERS
MODELS: QS1 AND QS2

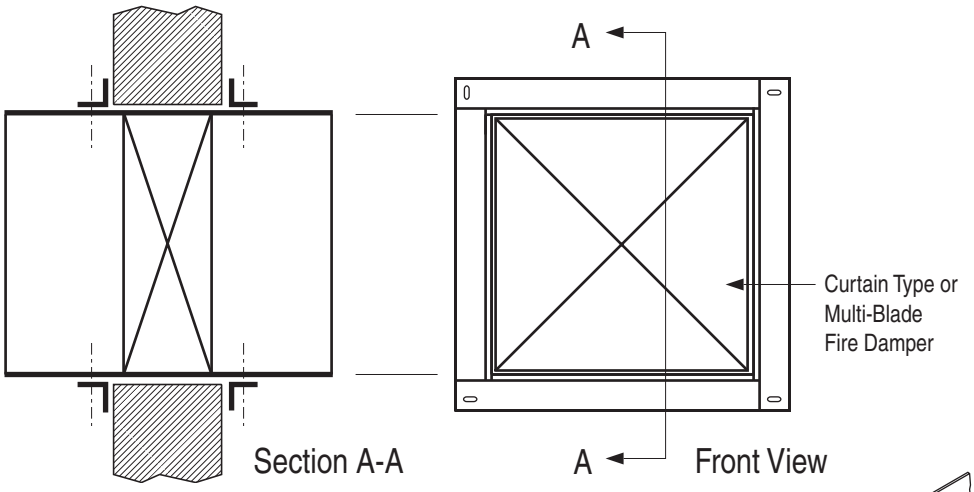


FIGURE 1. TYPICAL TWO SIDED INSTALLATION.

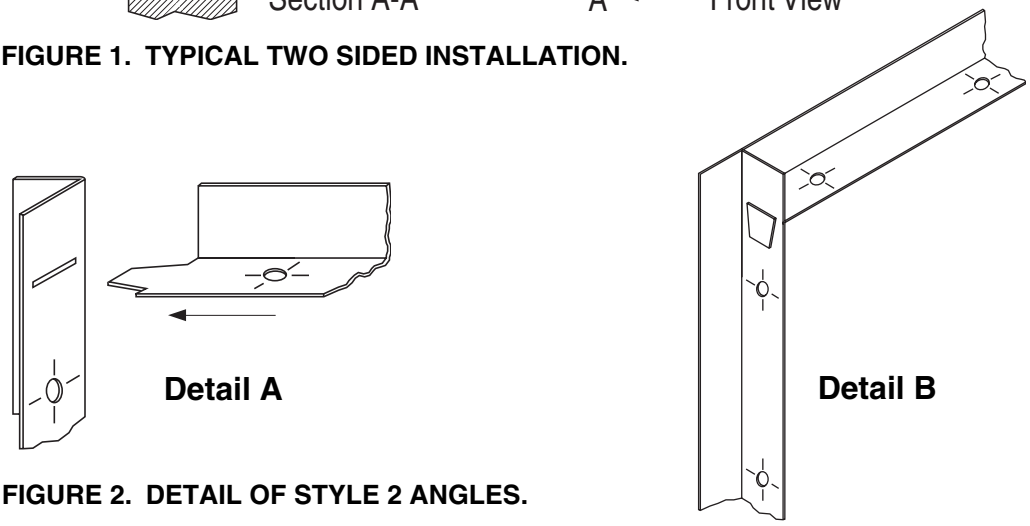


FIGURE 2. DETAIL OF STYLE 2 ANGLES.

APPLICATION:

The Nailor Quick-Set Retaining Angle System may be used in lieu of conventional retaining angles on all Nailor Fire and Combination Fire/Smoke Dampers.

Quick-Set angles are supplied in one of two styles, dependent upon fire resistance label, damper size and installation method.

Style 1: 1 1/2" x 1 1/2" x 20 ga. (38 x 38 x 1.0) Four sides are connected together with rivets in three corners.

Standard for the majority of applications with the following limitations:

- 1 1/2 hour label fire dampers.
- Maximum Size: 36" x 36" (914 x 914)
- Two sided installation only

Style 2: 1 1/2" x 1 1/2" x 16 ga. (38 x 38 x 1.6) Slot and tab design. The retaining angle assembly for each side has four angles, each with a tab end and a slot end (Detail A). The tabs are to be inserted into the slots and knocked down either before or after fastening to the sleeve (Detail B).

- 1 1/2 or 3 hour label fire dampers
- Maximum Size: 90" x 48" (2286 x 1219) or 48" x 90" (1219 x 2286)
- Single side (1 1/2 hour only. Refer to Single Side Retaining Angles Supplementary Installation Instructions for size limitations) or two sided installation

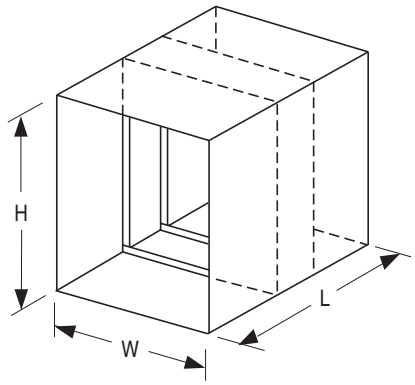
Refer to the Following Installation Instructions:

Quick-Set Retaining Angles	FDQSRA
Curtain Type Fire Dampers (D)0100 & (D)0500	FDINST
Curtain Type Fire Dampers 0200 & 0500 Thinline	FDTINST
Multi-Blade Fire Dampers 1200 & 1250	MBFDINST
Combination Fire/Smoke Dampers 1220	1220INST
Combination Fire/Smoke Dampers 1270	1270INST
Single Side Retaining Angles	FDSSRAINST

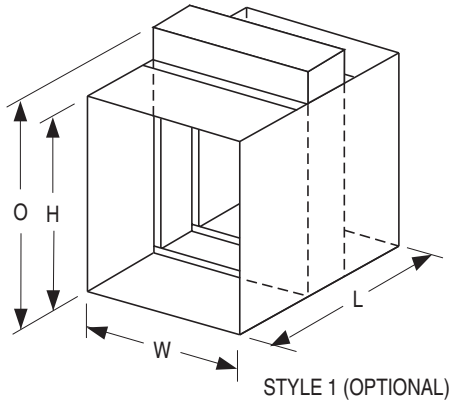
SCHEDULE TYPE:	Page 2 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**2 - 26 - 09**	**FD-ACC**	**5 - 5 - 03**	**QSRA**

Nailor® Industries Inc.

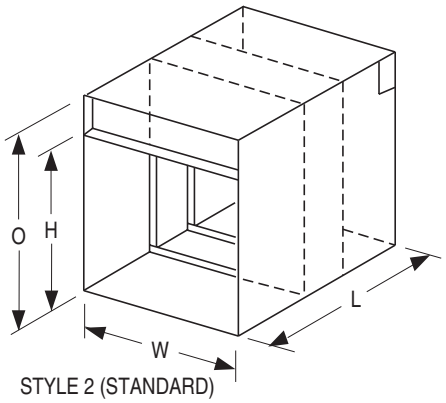
FACTORY FURNISHED SLEEVES FOR CURTAIN TYPE FIRE DAMPERS
(NON-INTEGRAL SLEEVE MODELS)



TYPE 'A'
BLADES AND FRAME IN AIRSTREAM



STYLE 1 (OPTIONAL)



STYLE 2 (STANDARD)

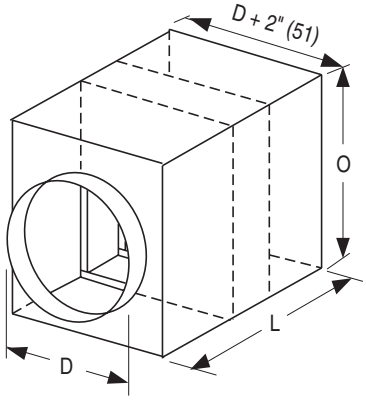
TYPE 'B' BLADES OUT OF AIRSTREAM

NOTES:

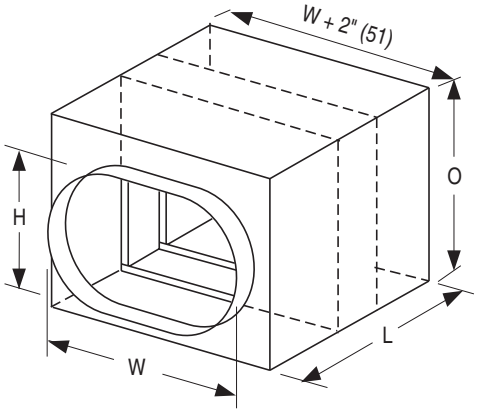
1. **Dimensional Data.**
   W = Nominal duct width
   H = Nominal duct height
   L = Sleeve length
   O = Overall damper height
   For 'O' dimension and relationship to duct height, refer to dwgs. SC1/SC2 (standard frame) or SC3/SC4 (thinline frame) depending on damper model.
   Type CR duct collars are furnished 1/8" (3) undersize for duct dimensions up to 36" dia. (914) and 1/4" (6) undersize on larger sizes.
   Type CO and CSR duct collars are furnished 1/8" (3) undersize for duct dimensions up to 36" x 24" (914 x 610) and 1/4" (6) undersize on larger sizes. Collars are 1 1/4" (32) minimum length.
2. Sleeves are available in lengths up to 36" (914) and in 10 through 22 gauge (3.51 through 0.85) galvanized steel as required for application.
   Standard sleeve is 12" (305) long x 20 gauge (1.01).
   Sleeve gauge must conform to SMACNA Duct Construction Standards and shall not be less than the gauge of the duct to which it is attached for sleeves exposed to the airstream.
3. See individual models for minimum and maximum size limitations.
4. Dampers are centered in sleeve unless specified otherwise.
5. Multiple section damper assemblies are shipped knocked down for field assembly.

Type CR, CO and CSR Option:

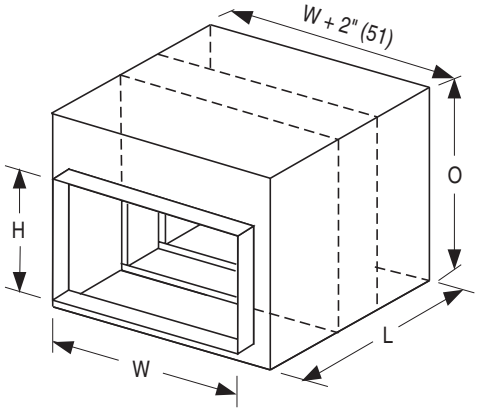
- ❑ LP Unsealed. Suitable for low pressure systems.
- ❑ HP Sealed. Suitable for medium/ high pressure systems. Externally caulked.



TYPE 'CR'
ROUND TRANSITION COLLARS/DUCT.
100% FREE AREA.



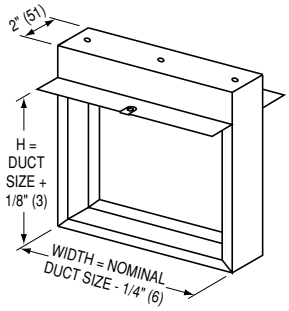
TYPE 'CO'
FLAT OVAL TRANSITION COLLARS/DUCT.
100% FREE AREA.



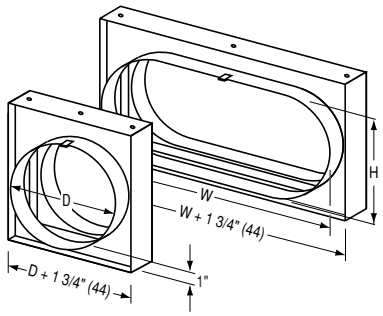
TYPE 'CSR'
RECTANGULAR TRANSITION COLLARS/DUCT. 100% FREE AREA.

SCHEDULE TYPE:	Dimensions are in inches (mm)			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**12 - 30 - 25**	**FD**	**25 - 10 - 00R**	**STD-SL**

DIMENSIONAL DATA:

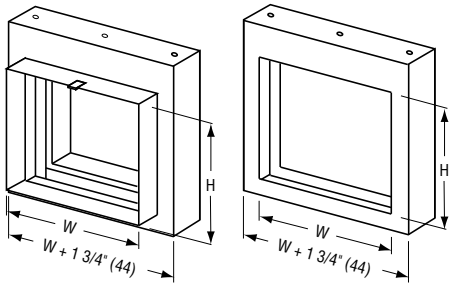


MODEL 0220: TYPE B



MODEL 0230: TYPE CR

MODEL 0230: TYPE CO



MODEL 0240: TYPE CSR WITH COLLAR (STANDARD)

MODEL 0240: TYPE CSR WITHOUT COLLAR

For overall damper dimensions see sizing chart on page D54.

PERFORMANCE DATA:

MODEL SERIES: 0210V/H - 1 1/2 HOUR LABEL

Curtain type fire dampers impose minimal resistance to air flow in the system. The following charts indicate both free area for the different damper types and static pressure losses for various velocities.

Type A Thinline Damper Free Area – sq. ft.

Duct Height in inches (mm)	Duct Width in inches (mm)						
	6" (152)	12" (305)	18" (457)	24" (610)	30" (762)	36" (914)	40" (1016)
6" (152)	.12	.27	.44	.59	.75	.94	1.02
12" (305)	.27	.61	.93	1.36	1.7	2.1	2.4
18" (457)	.42	.94	1.5	2.2	2.7	3.4	3.7
24" (610)	.55	1.29	2.1	3.0	3.7	4.5	4.9
30" (762)	.71	1.65	2.6	3.8	4.3	5.7	6.3
36" (914)	.86	2.1	3.2	4.6	5.7	7.0	7.7
42" (1067)	.93	2.3	3.5	5.1	6.3	7.6	8.8
48" (1219)	1.14	2.7	4.3	6.0	7.7	9.4	n/a
54" (1372)	1.32	3.1	4.9	6.2	8.8	10.7	n/a
60" (1524)	1.51	3.5	5.5	7.7	9.9	11.8	n/a

Type B Thinline Damper Free Area – sq. ft.

Duct Height in inches (mm)	Duct Width in inches (mm)						
	6" (152)	12" (305)	18" (457)	24" (610)	30" (762)	36" (914)	40" (1016)
6" (152)	.15	.32	.52	.69	.88	1.09	1.17
12" (305)	.31	.70	1.07	1.55	1.95	2.4	2.7
18" (457)	.47	1.05	1.7	2.5	3.05	3.8	4.2
24" (610)	.62	1.44	2.3	3.4	4.2	5.1	5.6
30" (762)	.80	1.84	2.9	4.3	4.9	6.5	7.2
36" (914)	.95	2.33	3.6	5.1	6.4	7.8	n/a
42" (1067)	1.0	2.5	3.8	5.6	7.0	8.5	n/a
48" (1219)	1.3	3.1	4.8	6.8	8.6	10.4	n/a

Type C Dampers have Free Area equal to Nominal Duct Area.

To calculate Free Area of round duct: Diameter^2 x .00545 = Free Area (sq ft.)

To determine pressure drop across open damper, calculate **free area velocity** as shown, find velocity on curve and read across for s.p. differential.

Free Area Velocity (fpm) = $\frac{\text{cfm}}{\text{Free Area}}$

Example:
1 – 36" x 36" Damper required for 14,000 cfm. (Type A)

FAV = $\frac{14{,}000}{7 \text{ sq. ft.}}$ = 2000 fpm

2000 fpm located on the 'A' curve shows a pressure drop of .12 in. wg.

cfm = cubic feet per minute
fpm = feet per minute velocity
S.P. = static pressure in inches water gauge
FAV = Free Area Velocity

Imperial System Shown
To convert to SI (metric) system:

Multiply cfm by .4719 for liters per second
Multiply fpm by .00508 for meters per second
Multiply in. wg. by .2486 for kilopascals
Multiply sq. ft. by .0929 for square meters.

Pressure Drop