

MODEL 0310V/H (1 1/2 HR.)

WIDE FRAME

Model 0310V/H Wide Frame Static 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 rating of 2 hours or less, classified for use only in static "fans off" systems where the HVAC system is automatically shut down in the event of a fire alarm. The wide frame allows for fewer blades and is ideal for use when maximum free area is desired in situations where space or design does not yield room for a Type B damper style.



Model 0310V



Model 0510V

MODELS 0510V/H, 0520V/H, 0530V/H (3 HR.) STANDARD FRAME

Models 0510V/H, 0520V/H and 0530V/H Standard Frame Static Curtain Fire Dampers, for use in static "fans off" systems where the HVAC system shuts down in the event of a fire, are UL approved to provide protection of HVAC ductwork penetrations in walls, partitions or floors that have a fire resistance rating of 4 hours or less. The 0500V/H Series features corrosion resistant steel frame and blades for performance that will last and a choice of transition styles and factory installed sleeves to suit duct size, making installation fast and simple.

MODELS 0570V, 0580V, 0590V (3 HR.)

THINLINE FRAME

Models 0570V, 0580V and 0590V Thinline Static Curtain Fire Dampers are UL approved for use where building codes require the protection of HVAC ductwork penetrations in vertical fire separations (walls or partitions) that have a fire resistance rating of 4 hours or less, classified for use in static "fans off" systems where the HVAC system is automatically shut down in the event of a fire alarm. These thinline dampers are only 2" (51) deep, making them ideal for installation in narrow fire rated partitions, transfer duct openings, behind grilles or any other application where room is limited. They feature corrosion resistant steel frame and blades for lasting performance and a choice of transition styles and factory installed sleeves to suit duct size, making installation fast and simple.



Model 0570V



Model 0540V

MODEL 0540V (3 HR.)

WIDE FRAME

Model 0540V Wide Frame Static Curtain Fire Damper is UL approved for use where building codes require the protection of HVAC ductwork penetrations in vertical fire separations (walls or partitions) that have a fire resistant rating of 4 hours or less. The 0540 is classified for use in static "fans off" systems where the HVAC system is automatically shut down in the event of a fire and is ideal for applications where maximum free area is desired, in situations where space or design does not yield room for a Type B damper style. The design includes corrosion resistant steel frame and blades for lasting performance and is available with factory installed sleeve for fast and simple installation.

CURTAIN FIRE DAMPER BASICS:

Definition of a Fire Damper (per NFPA Standard 90A):

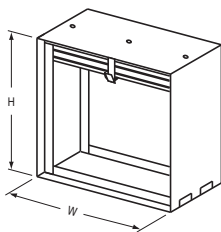
“A device, installed in an air distribution system, that is designed to close automatically upon detection of heat, to interrupt migratory airflow, and to restrict the passage of flame.”

Although curtain fire dampers restrict flame and airflow passage as described in the NFPA definition, they are virtually transparent to heat and therefore ineffective for use in openings in fire-rated ceiling assemblies. See Ceiling Damper Basics for more details.

TYPES OF CURTAIN FIRE DAMPERS

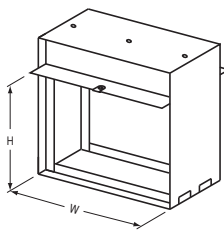
Curtain type fire dampers are generally available in three configuration as follows:

TYPE 'A'



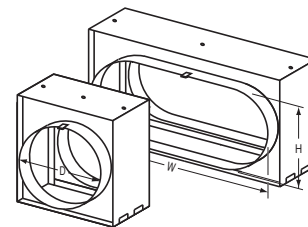
Blades and frame in the airstream.

TYPE 'B'



Blades out of the airstream; With blades out of airstream, provides better free area and resulting pressure drop characteristics than Type 'A', especially on smaller size dampers.

TYPE 'C'



Blades and frame out of the airstream; used mainly for transitioning to round or oval duct. Provides optimum pressure drop characteristics with blades and frame out of airstream.

Openings in vertical fire separations ie: **walls** and **partitions**, require a **vertical mount** fire damper (duct runs horizontally). Gravity causes the blades to drop closed (static rated dampers).

Openings in horizontal fire separations ie: **floors**, require a **horizontal mount** fire damper (duct runs vertically). Horizontal mount fire dampers utilize springs to pull the blades closed.

Dynamic rated fire dampers utilize closure springs in both vertical and horizontal applications to ensure the blades close fully under airflow conditions.

STATIC RATED VS. DYNAMIC RATED FIRE DAMPERS:

Static fire dampers were designed for use in HVAC systems that shut down (fans off) in the event of a fire alarm. They have not been tested to ensure closure while air is moving in the duct.

Dynamic fire dampers have been tested under specific airflow and static pressure conditions in order to ensure that the damper will close in today's HVAC designs that utilize 'fans on' smoke management systems. See **Dynamic Fire Damper Selection Procedures** in this section.

Generally, a dynamic rated damper can be used in both static (fans off) or dynamic (fans on) type systems, but a static rated fire damper can only be used in a 'static' system (fans shut down during alarm).

DID YOU KNOW?....

- Fire dampers must be mounted in a steel sleeve. The damper/sleeve assembly is held in place in the wall, partition or floor by use of retaining angles on each side of the wall etc. Ductwork shall connect to the sleeve on either side, as required, providing a connection that can 'break away' should the ductwork fall during a fire. This allows the damper/sleeve assembly to remain in the wall etc., maintaining the integrity of the fire barrier.
- NFPA 90A requires that fire barriers of less than 3 hours utilize a 1 1/2 hour rated fire damper. Fire barriers of 3 hours or more require a 3 hour rated fire damper.
- All fire dampers must be installed as per manufacturer's UL approved instructions.

STATIC CURTAIN TYPE FIRE DAMPERS (For use in static "fans off" systems.)

MINIMUM AND MAXIMUM UL CLASSIFIED SIZES

Model/ Series	Type	Single Section				Multiple Section Assembly	
		Minimum Size (W x H)		Maximum Size (W x H)		Maximum Size (W x H)	
		Installation		Installation		Installation	
		Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal
0110	A	4" x 4" (102 x 102)	4" x 4" (102 x 102)	60" x 60" (1524 x 1524)	60" x 60" (1524 x 1524)	120" x 120" (3048 x 3048)	① 102" x 60" (2591 x 1524)
0120	B	4" x 3" (102 x 76)	4" x 4" (102 x 102)	60" x 54" (1524 x 1372)	60" x 54" (1524 x 1372)	120" x 114" (3048 x 2896)	① 102" x 54" (2591 x 1372)
0130	CR, Round	3" (76) dia.	4" (102) dia.	53" (1346) dia.	53" (1346) dia.	112" (2845) dia.	53" (1346) dia.
0130	CO, Oval	4" x 3" (102 x 76)	5" x 4" (127 x 102)	58" x 53" (1473 x 1346)	58" x 53" (1473 x 1346)	118" x 112" (2997 x 2845)	① 100" x 53" (2540 x 1346)
0140	CSR, Sq./Rect.	3" x 3" (76 x 76)	4" x 4" (102 x 102)	58" x 53" (1473 x 1346)	58" x 53" (1473 x 1346)	118" x 112" (2997 x 2845)	① 100" x 53" (2540 x 1346)
0114-12/14/16	A	4" x 4" (102 x 102)	4" x 4" (102 x 102)	48" x 48" (1219 x 1219)	48" x 48" (1219 x 1219)	—	—
0124-12/14/16	B	4" x 3" (102 x 76)	4" x 4" (102 x 102)	48" x 43" (1219 x 1092)	48" x 43" (1219 x 1092)	—	—
0134-12/14/16	CR, Round	3" (76) dia.	4" (102) dia.	42" (1067) dia.	42" (1067) dia.	—	—
0100G	A, B, CR	4" x 4" (102 x 102)	4" x 4" (102 x 102)	24" x 24" (610 x 610)	24" x 24" (610 x 610)	—	—
0200G	A, B, CR	4" x 4" (102 x 102)	4" x 4" (102 x 102)	24" x 24" (610 x 610)	24" x 24" (610 x 610)	—	—
0110GOW	A	4" x 4" (102 x 102)	4" x 4" (102 x 102)	36" x 24" (914 x 610)	36" x 24" (914 x 610)	—	—
0210	A	4" x 4" (102 x 102)	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)	—	—
0220	B	4" x 3" (102 x 76)	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)	—	—
0230	CR, Round	3" (76) dia.	3" (76) dia.	34" (864) dia.	34" (864) dia.	—	—
0230	CO, Oval	4" x 3" (102 x 76)	4" x 3" (102 x 76)	39" x 29" (991 x 737)	39" x 29" (991 x 737)	—	—
0240	CSR, Sq./Rect.	3" x 3" (76 x 76)	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)	—	—
0310	A	4" x 4" (102 x 102)	4" x 4" (102 x 102)	60" x 48" or 24" x 60" (1524 x 1219 or 610 x 1524)	48" x 48" (1219 x 1219)	—	—
0510	A	4" x 4" (102 x 102)	4" x 4" (102 x 102)	48" x 48" (1219 x 1219)	36" x 36" (914 x 914)	② 108" x 72" (2743 x 1829)	72" x 36" (1829 x 914)
0520	B	4" x 3" (102 x 76)	4" x 4" (102 x 102)	48" x 43" (1219 x 1092)	36" x 32" (914 x 813)	② 108" x 68" (2743 x 1727)	72" x 32" or 64" x 36" (1829 x 813 or 1626 x 914)
0530	CR, Round	3" (76) dia.	4" (102) dia.	42" (1067) dia.	31" (767) dia.	66" (1676) dia.	34" (864) dia.
0530	CO, Oval	4" x 3" (102 x 76)	5" x 4" (127 x 102)	46" x 42" (1168 x 1067)	34" x 31" (864 x 787)	② 106" x 66" (2692 x 1676)	70" x 31" (1778 x 787)
0530	CSR, Sq./Rect.	3" x 3" (76 x 76)	4" x 4" (102 x 102)	46" x 42" (1168 x 1067)	34" x 31" (864 x 787)	② 106" x 66" (2692 x 1676)	70" x 31" (1778 x 787)
0540	A	4" x 4" (102 x 102)	—	60" x 48" or 24" x 60" (1524 x 1219 or 610 x 1524)	—	—	—
0570	A	4" x 4" (102 x 102)	—	36" x 60" (914 x 1524)	—	—	—
0580	B	4" x 3" (102 x 76)	—	36" x 50" (914 x 1270)	—	—	—
0590	CR, Round	3" (76) dia.	—	34" (864) dia.	—	—	—
0590	CO, Oval	4" x 3" (102 x 76)	—	34" x 49" (864 x 1245)	—	—	—
0590	CSR, Sq./Rect.	3" x 3" (76 x 76)	—	34" x 49" (864 x 1245)	—	—	—

D
CURTAIN FIRE DAMPERS

① Maximum individual sections not to exceed 34" x 60" (864 x 1524).
 ② Maximum individual sections not to exceed 36" x 36" (914 x 914).

- STANDARD FRAME
- 3 HOUR RATING
- FOR USE IN STATIC SYSTEMS
- UL 555 CLASSIFIED

Models:

- 0510V Type A
- 0520V Type B
- 0530V Type CR/CO, Round/Oval
- 0530V Type CSR, Square/Rectangular



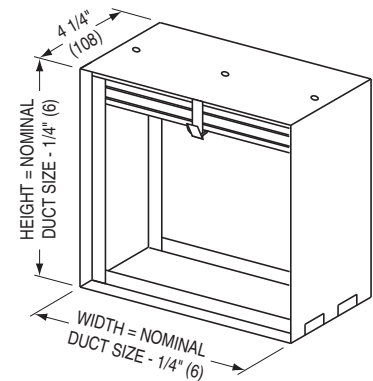
Model 0510V

Series 0500 Standard Frame Curtain Fire Dampers, for use in static "fans off" systems where the HVAC system shuts down in the event of a fire, are UL approved to provide protection of HVAC ductwork penetrations in walls, partitions or floors that have a fire resistance rating of 4 hours or less. The 0500 Series features durable corrosion resistant roll formed steel frame and blades designed for lasting performance and a choice of transition styles and factory installed sleeves to suit duct size, making installation fast and simple.

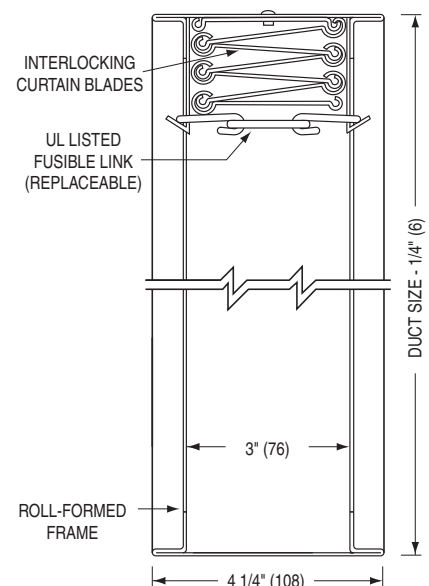
QUALIFICATIONS:	
•	UL 555 & CAN/ULC-S112 CLASSIFIED FIRE DAMPER. 3 hr. label (File # R9492).
•	Meets all the requirements of UL and NFPA 80, 90A and 101 for fire dampers in static HVAC systems, as well as IBC and NBC (Canada) Building Code requirements.
•	City of New York Board of Standards and Appeals. Cal. No. 460-88-SA.
•	California State Fire Marshal: Fire Damper Listing No. 3225-0935:0100.

STANDARD CONSTRUCTION:

	0510V (Type A)	0520V (Type B)	0530V (Type CR/CO)	0530V (Type CSR)
Frame:	4 1/4" (108) wide, 22 ga. (0.85) roll-formed galv. steel	4 1/4" (108) wide, 22 ga. (0.85) roll-formed galv. steel	4 1/4" (108) wide, 22 ga. (0.85) roll-formed galv. steel; out of airstream	4 1/4" (108) wide, 22 ga. (0.85) roll-formed galv. steel; out of airstream
Blades:	Curtain type, interlocking blades, 22 ga. (0.85) roll-formed galv. steel	Out of airstream, curtain type, interlocking blades, 22 ga. (0.85) roll-formed galv. steel	Out of airstream, curtain type, interlocking blades, 22 ga. (0.85) roll-formed galv. steel	Out of airstream, curtain type, interlocking blades, 22 ga. (0.85) roll-formed galv. steel
Enclosure:	n/a	Type B 22 ga. (0.85) galvanized steel	Type C Round or Oval 22 ga. (0.85) galvanized steel	Type C Square or Rect. 22 ga. (0.85) galvanized steel
Fusible Link: (UL Listed)	165°F (74°C) std. 212°F (100°C) available	165°F (74°C) std. 212°F (100°C) available	165°F (74°C) std. 212°F (100°C) available	165°F (74°C) std. 212°F (100°C) available
Blade Closure:	Vert. mount; gravity Horizontal mount; stainless steel closure springs with galvanized steel locking ramps	Vert. mount; gravity Horizontal mount; stainless steel closure springs with galvanized steel locking ramps	Vert. mount; gravity Horizontal mount; stainless steel closure springs with galvanized steel locking ramps	Vert. mount; gravity Horizontal mount; stainless steel closure springs with galvanized steel locking ramps
Mounting:	Vertical or Horiz.	Vertical or Horiz.	Vertical or Horiz.	Vertical or Horiz.
Available Sleeve:	Galvanized steel; Specify SL option	Galvanized steel; Specify SL option	Galvanized steel; Specify SL option	Galvanized steel; Specify SL option



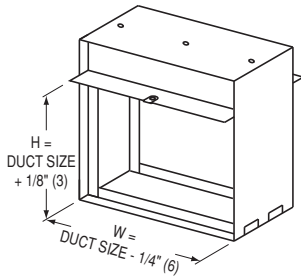
MODEL 0510: TYPE A



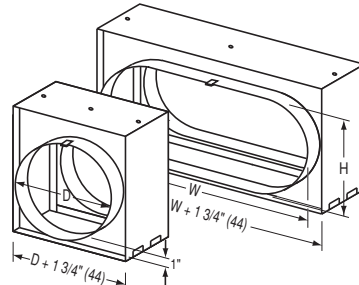
MODEL 0510V – VERTICAL MOUNT

For MIN./MAX. UL SIZES see chart on page D11.

DIMENSIONAL DATA:

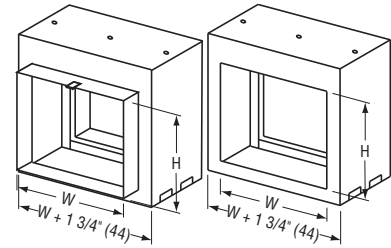


**MODEL 0520:
TYPE B**



**MODEL 0530:
TYPE CR**

**MODEL 0530:
TYPE CO**



**MODEL 0530:
TYPE CSR
WITH COLLAR
(STANDARD)**

**MODEL 0530:
TYPE CSR
WITHOUT COLLAR**

For overall damper dimensions see sizing chart on page D53.

PERFORMANCE DATA:

MODELS: 0510V, 0520V, 0530V - 3 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 Damper Free Area – sq. ft.

		Duct Width in inches (mm)									
		6" (152)	12" (305)	18" (457)	24" (610)	30" (762)	36" (914)	42" (1067)	48" (1219)	54" (1372)	60" (1524)
Duct Height in inches (mm)	6" (152)	.14	.33	.52	.70	.89	1.1	1.3	1.5	1.7	1.8
	12" (305)	.31	.72	1.1	1.5	1.9	2.4	2.8	3.2	3.6	4.0
	18" (457)	.48	1.1	1.7	2.4	3.0	3.7	4.3	4.9	5.6	6.2
	24" (610)	.65	1.5	2.4	3.2	4.1	5.0	5.8	6.7	7.5	8.4
	30" (762)	.82	1.9	3.0	4.1	5.2	6.3	7.3	8.4	9.5	10.6
	36" (914)	.99	2.3	3.6	4.9	6.3	7.6	8.9	10.2	11.5	12.8
	42" (1067)	1.2	2.7	4.2	5.8	7.3	8.8	10.4	11.9	13.4	15.0
	48" (1219)	1.3	3.1	4.9	6.6	8.4	10.2	11.9	13.7	15.5	17.2
	54" (1372)	1.5	3.5	5.5	7.5	9.5	11.5	13.5	15.5	17.5	19.4
	60" (1524)	1.7	3.9	6.1	8.3	10.6	12.8	15.0	17.2	19.4	21.7

Type B Damper Free Area – sq. ft.

		Duct Width in inches (mm)									
		6" (152)	12" (305)	18" (457)	24" (610)	30" (762)	36" (914)	42" (1067)	48" (1219)	54" (1372)	60" (1524)
Duct Height in inches (mm)	6" (152)	.17	.39	.62	.84	1.1	1.3	1.5	1.7	2.0	2.2
	12" (305)	.36	.83	1.3	1.8	2.3	2.7	3.2	3.7	4.1	4.6
	18" (457)	.54	1.3	2.0	2.7	3.4	4.2	4.9	5.6	6.3	7.1
	24" (610)	.73	1.7	2.7	3.7	4.6	5.6	6.6	7.5	8.5	9.5
	30" (762)	.92	2.1	3.4	4.6	5.8	7.0	8.3	9.5	10.7	11.9
	36" (914)	1.1	2.6	4.1	5.5	7.0	8.5	9.9	11.4	12.9	14.4
	42" (1067)	1.3	3.0	4.7	6.5	8.2	9.9	11.6	13.4	15.1	16.8
	48" (1219)	1.5	3.5	5.4	7.4	9.4	11.4	13.3	15.3	17.3	19.2
	54" (1372)	1.7	3.9	6.1	8.3	10.6	12.8	15.0	17.2	19.5	21.7

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

To calculate Free Area of round duct: Diameter² 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.

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

Example:

1 – 36" x 24" Damper required for 8,500 cfm. (Type A)

$$\text{FAV} = \frac{8500}{5 \text{ sq. ft.}} = 1700 \text{ fpm}$$

1700 fpm located on the 'A' curve shows a pressure drop of .07 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:

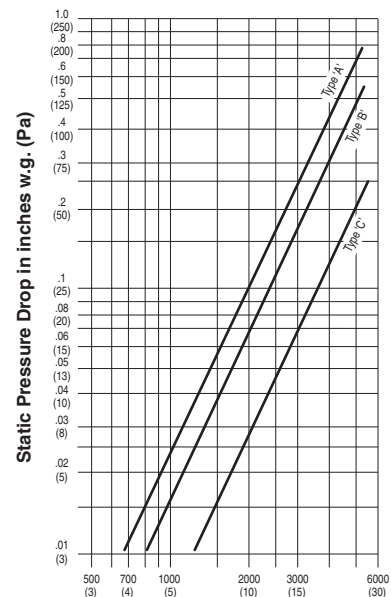
Multiply cfm by .4719 for liters per second

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



Free Air Velocity in feet per minute (m/s)

OPTIONS & ACCESSORIES:

	CODE	DESCRIPTION
PULL TAB RELEASE	PT	Pull Tab Release for Simple Testing and Maintenance
QUICK-SET ANGLE	QS1/QS2	Single set or Pair of "Quick-Set" Retaining Angles
HEMMED SLEEVE	HM1/HM2	One or Both Sleeve Ends Hemmed for Slip and Drive Connection
FLANGED SLEEVE	TDF1/TDF2	One or Both Sleeve Ends Flanged for Breakaway Connection
MICROSWITCH	MS	24V Microswitch
	MSE	120/24V Microswitch with Enclosure

HOW TO SPECIFY

MODELS: 0510V, 0520V, 0530V - 3 HOUR LABEL

STATIC CURTAIN FIRE DAMPERS

SUGGESTED SPECIFICATION:

Provide and install, as shown on plans and/or schedules, Static Curtain Fire Dampers as manufactured by Nailor Industries, Inc. which meet or exceed the following criteria: Fire dampers shall meet the requirements of NFPA 80, 90A and 101 and shall be manufactured, tested and labeled in accordance with UL 555. Each damper shall bear a UL 3 hour fire resistance rating label and in addition, a label verifying intended mounting position. Damper shall be tested and approved for either vertical or horizontal mounting as required for each specific location. Frame shall be constructed of 22 ga. (0.85) roll formed G60 galvanized steel and include sleeve of appropriate length/gauge with Nailor 'Quick-Set' retaining angles supplied by damper manufacturer to ensure proper installation in accordance with damper manufacturer's instructions. Blades shall be curtain type interlocking blades constructed of 22 ga. (0.85) roll formed G60 galvanized steel. Damper shall be complete with a (**specifier select temperature**) 165°F (74°C) or 212°F (100°C) UL Listed fusible link. Contractor shall provide and install an access door at each fire damper of appropriate size to allow for inspection, testing and fusible link replacement Data submitted for approval shall include confirmation of UL qualifications in addition to manufacturer's installation instructions. Each shipment of fire dampers shall include same installation instructions. Standard of acceptance shall be Nailor Models 0510V (Type A), 0520V (Type B) and 0530V (Type C) Static Curtain Fire Dampers.

D
CURTAIN FIRE DAMPERS

HOW TO ORDER

MODEL SERIES: 0100 – 0500

STATIC CURTAIN FIRE DAMPERS

EXAMPLE: 0110H - 24X24 - FL - 165

1a. Models

Static Applications Only

Non-Integral Sleeve

- 0110H Horizontal, Type A, 1 1/2 Hr. Label
- 0110V Vertical, Type A, 1 1/2 Hr. Label
- 0120H Horizontal, Type B, 1 1/2 Hr. Label
- 0120V Vertical, Type B, 1 1/2 Hr. Label
- 0130H Horizontal, Type C, Round/Oval, 1 1/2 Hr. Label
- 0130V Vertical, Type C, Round/Oval, 1 1/2 Hr. Label
- 0140H Horizontal, Type C, Sq./Rect., 1 1/2 Hr. Label
- 0140V Vertical, Type C, Sq./Rect., 1 1/2 Hr. Label
- 0210H Thinline, Horizontal, Type A, 1 1/2 Hr. Label
- 0210V Thinline, Vertical, Type A, 1 1/2 Hr. Label
- 0220H Thinline, Horizontal, Type B, 1 1/2 Hr. Label
- 0220V Thinline, Vertical, Type B, 1 1/2 Hr. Label
- 0230H Thinline, Horizontal, Type C, Round/Oval, 1 1/2 Hr. Label
- 0230V Thinline, Vertical, Type C, Round/Oval, 1 1/2 Hr. Label
- 0240H Thinline, Horiz., Type C, Sq./Rect., 1 1/2 Hr. Label
- 0240V Vertical, Type C, Sq./Rect., 1 1/2 Hr. Label
- 0310H Wide Frame, Horizontal, Type A, 1 1/2 Hr. Label
- 0310V Wide Frame, Vertical, Type A, 1 1/2 Hr. Label
- 0510H Horizontal, Type A, 3 Hr. Label
- 0510V Vertical, Type A, 3 Hr. Label
- 0520H Horizontal, Type B, 3 Hr. Label
- 0520V Vertical, Type B, 3 Hr. Label
- 0530H Horizontal, Type C, 3 Hr. Label
- 0530V Vertical, Type C, 3 Hr. Label
- 0540V Wide Frame, Vertical, Type A, 3 Hr. Label
- 0570V Thinline Frame, Vertical, Type A, 3 Hr. Label
- 0580V Thinline Frame, Vertical, Type B, 3 Hr. Label
- 0590V Thinline Frame, Vertical, Type C, 3 Hr. Label
- 0130GC Garbage Chute Fire Damper

Integral Sleeve

- 0114 Type A, 1 1/2 Hr. Label
- 0124 Type B, 1 1/2 Hr. Label
- 0134 Type C, 1 1/2 Hr. Label
- 0110G Grille Mount, Type A, 1 1/2 Hr. Label
- 0120G Grille Mount, Type B, 1 1/2 Hr. Label
- 0130G Grille Mount, Type C, 1 1/2 Hr. Label
- 0210G Thinline, Grille Mount, Type A, 1 1/2 Hr. Label
- 0220G Thinline, Grille Mount, Type B, 1 1/2 Hr. Label
- 0230G Thinline, Grille Mount, Type C, 1 1/2 Hr. Label
- 0110GOW Out of Wall, Grille Mount, Type A, 1 1/2 Hr. Label

1b. Integral Sleeve Length (01X4 Series only)

- Add Suffix to Model Number
- 12H 12" (305) Horiz. Mount 12" x 22 GA.
 - 12V 12" (305) Vert. Mount 12" x 22 GA.
 - 14H 14" (356) Horiz. Mount 14" x 22 GA.
 - 14V 14" (356) Vert. Mount 14" x 22 GA.
 - 16H 16" (406) Horiz. Mount 16" x 22 GA.
 - 16V 16" (406) Vert. Mount 16" x 22 GA.

1c. Transition:

- #### (Non-Integral Sleeve Type C only)
- CO Oval
 - CR Round
 - CSR Sq./Rect. (1 1/2 Hr. Label only)

2. Duct Size

Width x Height
inches (mm's)

2b. Pressure (Type C only)

- LP Low Pressure (unsealed)
- HP High Pressure (sealed)

2c. Collar (Type CSR only)

- WC With Collar (default)
- NC No Collar

3. Closure Device

- FL Fusible Link (default)
- EML Easy Maintenance Link
- ETL Electrothermal Link

4. Closure Temperature

- 165 165°F (74°C) (default)
- 212 212°F (100°C)

5. Sleeve Length

– None (default)

SL = Specify

8" - 28" (203 - 700)

6a. Sleeve Gauge

- None (default)
- 20G 20 Ga. Standard
- 22G 22 Ga.
- 18G 18 Ga.
- 16G 16 Ga.
- 14G 14 Ga.
- 10G 10 Ga.

6b. *Sleeve Style (0120 only)

- STY2 Type 2 Standard (default)
- STY1 Type 1 Optional

OPTIONS & ACCESSORIES:

7. Pull Tab Release

- None (default)
- PT Pull Tab Release

8. Micro Switch

- None (default)
- MS 24 VAC Micro-Switch
- MSE 24/120 VAC Micro-Switch w/Enc.

9. Retaining Angles

- None (default)
- QS1 One Side
- QS2 Two Sides (pair)

10. Sleeve Accessory

- None (default)
- HM1 One End and G Type
- HM2 Both Ends
- TDF1 One End
- TDF2 Both Ends

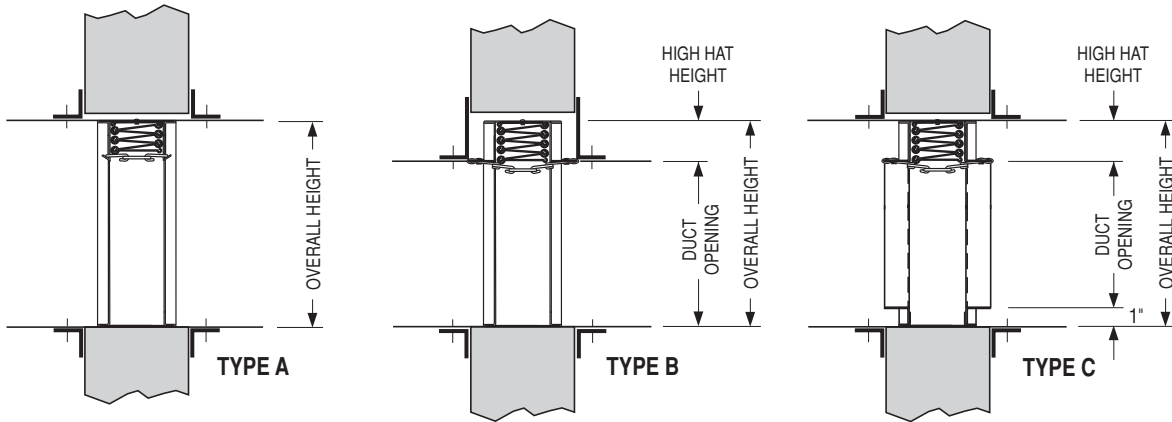
Notes:

1. Not all variants and options are available on all models. Refer to individual model for selection availability.
2. *Refer to "Options and Accessories" page D64 for details on Sleeve B types.

STANDARD 4 1/4" (108) FRAME FIRE DAMPERS:

SERIES/MODELS: D0100, D0500, 0100, 0510, 0520, 0530

Use the following chart to determine overall dimensions for Type A, B, and C curtain type fire dampers:



	Duct Opening Height		Overall Height	
	Imperial	Metric	Imperial	Metric
Type A	4" → 60"	102 mm → 1524 mm	Duct Height – 1/4"	Duct Height – 6 mm
	Note: Type A Damper Overall Width = Duct Opening – 1/4" (6 mm)			
Type B	3" → 17"	76 → 432 mm	Duct Height + 2 1/8"	Duct Height + 54 mm
	18" → 27"	457 → 656 mm	" + 3 1/8"	" + 79 mm
	28" → 36"	711 → 914 mm	" + 4 1/8"	" + 105 mm
	37" → 45"	940 → 1143 mm	" + 5 1/8"	" + 130 mm
	46" → 54"	1168 → 1372 mm	" + 6 1/8"	" + 156 mm
Note: Type B Damper Overall Width = Duct Opening – 1/4" (6 mm)				
Type C	3" → 17"	76 → 432 mm	Duct Height + 2 3/4"	Duct Height + 70 mm
	18" → 27"	457 → 656 mm	" + 3 3/4"	" + 95 mm
	28" → 36"	711 → 914 mm	" + 4 3/4"	" + 121 mm
	37" → 45"	940 → 1143 mm	" + 5 3/4"	" + 146 mm
	46" → 53"	1168 → 1346 mm	" + 6 3/4"	" + 172 mm
Note: Type C Damper Overall Width = Duct Opening + 1 3/4" (44 mm)				

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.

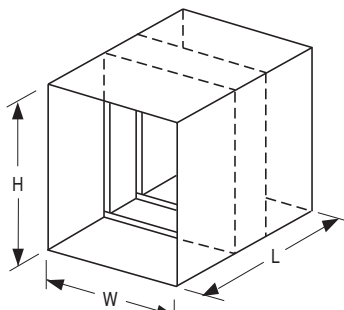
Options and Accessories

Nailor curtain type fire dampers are tested by and listed with Underwriters Laboratories Inc. and are manufactured within UL procedural requirements.

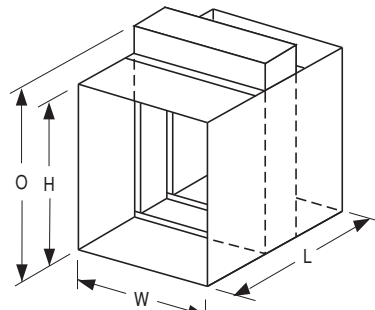
SLEEVE OPTIONS:

CUSTOM SLEEVES FOR NON-INTEGRAL SLEEVE MODELS

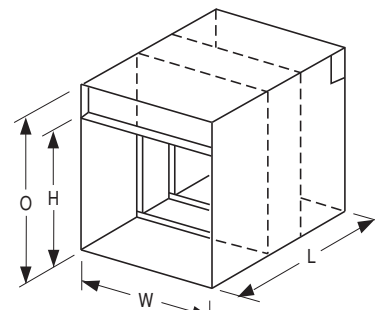
Fire dampers, in most cases, must be mounted in a steel sleeve and the damper/sleeve assembly is to be held in place in the wall, partition or floor by use of steel retaining angles. This allows for the ductwork to 'break-away' from the sleeve should the ductwork fall during a fire, thus leaving the sleeve/fire damper intact in the opening to maintain the integrity of the fire separation. Nailor factory furnished sleeves ensure proper fit to UL standards, allow for direct shipment of dampers to jobsite eliminating the need for costly shop handling and provide for convenient, fast installation.



TYPE 'A'
BLADES AND FRAME IN AIRSTREAM

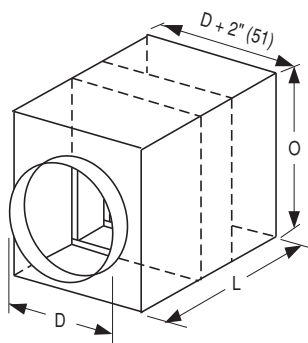


STYLE 1 (OPTIONAL)

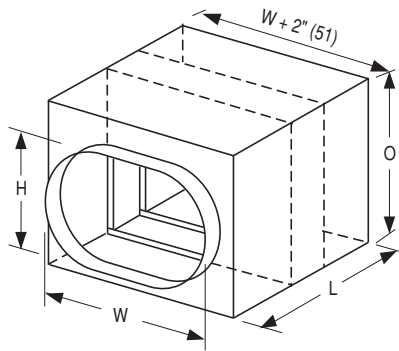


STYLE 2 (STANDARD)

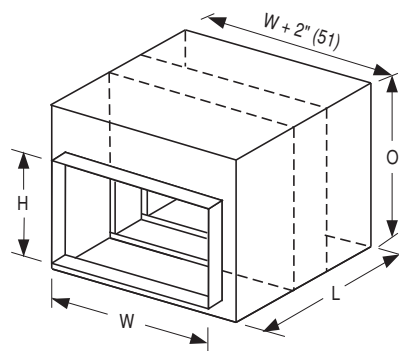
TYPE 'B' BLADES OUT OF AIRSTREAM



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.

Dimensional Data:

- W = Nominal duct width
 - H = Nominal duct height
 - D = Nominal duct diameter
 - L = Sleeve length
 - O = Overall damper height
- For 'O' dimension and relationship to duct height, refer to the particular damper model sizing chart.

Notes:

1. 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. For size limitations see MIN/MAX. UL SIZES charts beginning on page D8.
3. Dampers are centered in sleeve unless specified otherwise.

SLEEVE OPTIONS:

OPTION CODE **SL**
SLEEVE LENGTH

CUSTOM SLEEVES FOR NON-INTEGRAL SLEEVE MODELS

When selecting sleeve option SL please specify sleeve length.

Fire damper sleeves are required to extend out beyond the wall or floor opening an adequate amount in order to allow for fastening of perimeter angles to sleeve and connection to duct. UL 555 requires that the length of the sleeve extending beyond the wall or floor opening shall not exceed 6" (152) on each side for fire dampers intended for use without an actuator or factory installed access door in the sleeve.

However, the sleeve may extend up to a maximum of 16" (406) beyond the wall or floor on either side provided the extended side(s) is used to accommodate an actuator or a factory mounted access door (See UL 555 Sixth Edition June 1999, Section 6.4).

Sleeves are available in lengths from 8" (203) minimum up to 36" (914). Standard sleeve is 12" (305) long x 20 ga. (1.0).

OPTION CODES
10G, 14G, 16G, 18G, 20G, 22G
SLEEVE GAUGE

When selecting sleeve option SL please specify sleeve gauge if other than standard.

Nailor factory-fitted sleeves are constructed from quality galvanized steel and are available in 22 ga. through 10 ga. (0.85 through 3.5) as required for application. Standard sleeve is 12" (305) long x 20 ga. (1.0). Sleeves over 84" (2134) in width are minimum 18 ga. (1.3) to meet SMACNA minimum requirements. 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.

OPTION CODES **HM1, HM2**
HEMMED SLEEVE END(S)



Sleeve with Option Code HM2 shown.

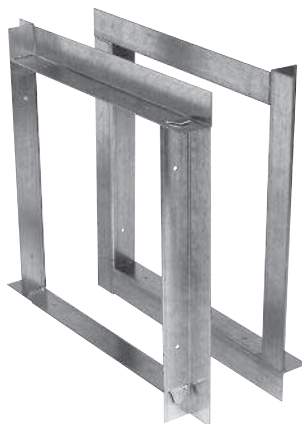
In order to more easily facilitate connection to square or rectangular ducts, Nailor offers hemmed sleeve ends suitable for use as a 'breakaway' connection on sleeves of up to a maximum 20" (508) in height, in accordance with UL requirements. This allows "S" slips and flat drive slips to be used. Option Code **HM1** will provide only one end hemmed, suitable for use on sleeves that terminate flush with a wall to facilitate grille mounting for example. Option Code **HM2** will provide both ends hemmed for connection of ductwork to both ends of sleeve.

RETAINING ANGLES:

FOR USE WITH ALL SLEEVED FIRE DAMPERS

- Maximum size: 90" x 48" (2286 x 1219) or 48" x 90" (1219 x 2286).

OPTION CODES
QS2 TWO SIDES (PAIR)
QS1 ONE SIDE
 'QUICK-SET' RETAINING ANGLES



BENEFITS:

- Factory fabricated by the manufacturer to suit the individual fire damper.
- Dampers can ship directly to the job site complete with all necessary installation sheet metal hardware (saves on double handling at contractor's shop).
- Reduced cost when compared to conventional retaining angles.
- Only two sets of angles to handle per damper (rather than eight).
- Angles ship with individual damper - no sorting or matching.
- Pre-drilled holes on 8" (203) centers to ensure correct angle/sleeve attachment.
- Help ensure a correct installation as per U.L. approved installation instructions.

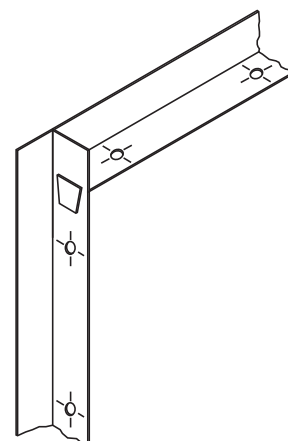
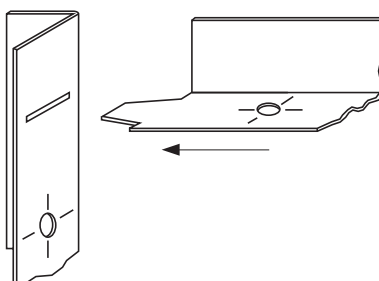
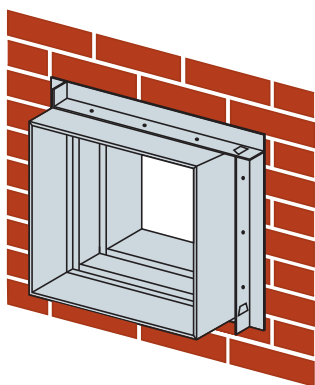
The majority of installing contractors view fire damper installation as a costly time consuming and troublesome procedure. Eight conventional angles must be custom fabricated for each damper either in a sheet metal shop or at the job site and sized to suit each individual damper. Invariably, they are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

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 a single side retaining angle installations and with grille mount and "out of wall" damper models. "Quick-Set" angles are supplied with correctly spaced pre-drilled screw-holes to ensure a quick, easy and accurate installation for all Nailor fire dampers - no measuring required.

"Quick-Set" retaining angles when specified and supplied with Nailor integral sleeve fire dampers provide the "complete" installation package. Simple, fast, convenient.



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).

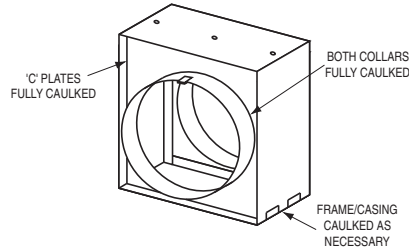
- 1 1/2 or 3 hour label fire dampers.
- Maximum Size: 90" x 48" (2286 x 1219) or 48" x 90" (1219 x 2286).
- Single side (1 1/2 hour only. Refer to Single Side Retaining Angles Supplementary Installation Instructions for size limitations) or two sided installation.

SEALING OPTIONS FOR TYPE C TRANSITIONS:

OPTION CODE LP
LOW PRESSURE (UNSEALED)

Standard construction on Type C fire dampers. Transition casing and collars are unsealed. Suitable for use in most low pressure applications involving static pressures up to 2" w.g. (5 kPa).

OPTION CODE HP
HIGH PRESSURE (SEALED)



Sealed for use in medium and high pressure applications up to 6" w.g. (1.5 kPa), Type C fire dampers with HP option are externally caulked to minimize leakage through casing and collars.

CLOSURE DEVICES:

OPTION CODE FL
FUSIBLE LINK



All Nailor curtain type fire dampers are equipped as standard with a UL Listed fusible link that will melt, or 'fuse', when it is subjected to its rated melting temperature, allowing the damper to close. 165°F (74°C) fusible link is provided as standard. 212°F (100°C) is also available (See Closure Temperature Options).

CLOSURE DEVICES:

OPTION CODE **EML**
EASY MAINTENANCE LINK

Nailor's Easy Maintenance Link provides a simple solution for the awkward task of manually testing curtain type fire dampers.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, requires periodic inspection and testing of fire dampers 1 year after installation and then every 4 years, except for hospitals, where the frequency is every 6 years. Nailor's EML allows you to release, test and reload a standard 4 1/4" (108) deep frame fire damper quickly and easily with one hand, even through the smallest access door. This saves time and money, and even encourages fire damper maintenance, ensuring the protection of building occupants. 165°F (74°C) temperature rating is standard. 212°F (100°C) is also available. The EML is accessible from either side of the damper, providing safe and reliable convenience. EML must be factory installed and cannot be added in the field.



SUGGESTED SPECIFICATION:

(Add to standard frame fire damper specifications):

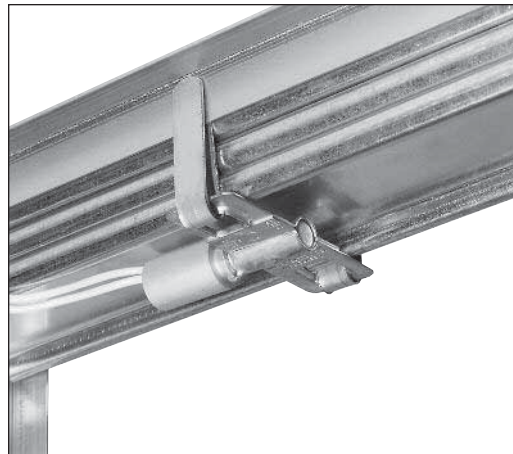
Curtain type fire dampers shall each be equipped with factory installed Easy Maintenance Link (EML), as manufactured by Nailor Industries. EML shall be accessible from either side of damper and shall allow for releasing, testing and relatching of blades with one hand.

CLOSURE DEVICES:

OPTION CODE ETL
ELECTRO-THERMAL LINK

Nailor's Electro-Thermal Link (ETL[®]) is a dual responsive fusible link that melts when either the link is subjected to local heat (165°F (74°C)) exactly the same as an ordinary fusible link, or when an electrical impulse from an external source such as a smoke detector is sent to it. The ETL[®] can be substituted for ordinary fusible links in existing or new installations of fire dampers where it is desirable to improve life safety by making the fire damper respond to smoke in the early form of invisible products of combustion through ionization smoke detectors for example.

The ETL[®]'s electro-response is the unique feature. It in itself is not smoke responsive, but it's power requirement is so low that it can be released by 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 amperes of trip current required (for 50 millisecond duration). The electrical response is a trigger for the chemical heating of the center element which is a self-contained exo-thermic reactor,



yielding no noise, smoke or gas... just quick heat to open the link in about seven seconds. The ETL[®]'s thermal response is the same as that of ordinary fusible links that have a 165°F (74°C) and 40 lbs. rating.

With it's dual responsiveness the ETL[®] can be substituted for two other devices at a savings in initial cost as well as operating cost and maintenance. It is 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 UL as a Fusible Link, however, with the ongoing development of dynamic smoke control systems and building code changes, application and use should be governed by acceptance of the local authority having jurisdiction.

SUGGESTED SPECIFICATION:

(Add to standard frame fire damper specifications)

Curtain type fire dampers, where indicated on plans and/or schedules, shall each be equipped with factory installed Electro-Thermal Links (ETL[®]), as supplied by Nailor Industries. Operating range shall be 6 to 30 volts AC or DC, less than 0.2 amperes of trip current required (for 50 millisecond duration). Link shall open within seven seconds and shall have a temperature rating of 165°F (74°C) and a 40 lbs. strength rating.

CLOSURE TEMPERATURES:

OPTION CODES **165 & 212**
165 or 212°F FUSIBLE LINKS

Fusible links for curtain type fire dampers are available with a choice of several melting temperature ratings. Nailor fire dampers are provided as standard with 165°F (74°C) fusible link. Available 212°F (100°C) link can be installed on damper at time of manufacturing, or can be ordered separately as a replacement part for field installation as part of a regular maintenance program or after a fire emergency (providing damper is still functional).

The National Fire Protection Association Standard 90A states that "fusible links shall have a temperature rating approximately 50°F (28°C) above the maximum temperature that normally is encountered when the system is in operation or shut down, but not less than 160°F (71°C)." Adhering to this guideline helps prevent 'nuisance trips' resulting in unnecessary replacement costs and labor time.

OPTIONAL PULL-TAB RELEASE

OPTION CODE **PT**
PULL-TAB RELEASE



To release locked blades simply tug Pull-Tab downward!

Nailor's Pull-Tab release permits easy resetting of horizontal fire dampers from either side of damper.

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.

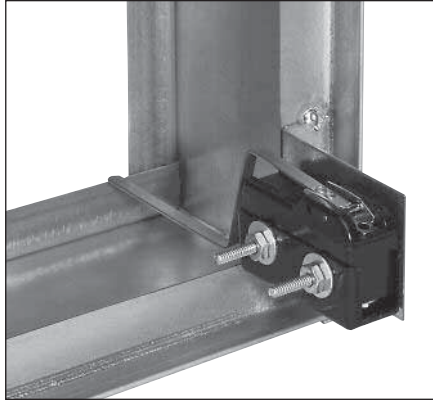
When access from above is not possible or convenient, the Pull-Tab release option permits simple resetting from beneath the damper.

A 1 1/4" (32) dia. nickel plated steel pull ring is fastened to the locking blade on the downward facing side allowing for unlocking and resetting of the blades from below the fire damper, as well as from above. The PT option is available on all Type A and Type B horizontal mount curtain fire dampers.

OPTIONAL MICROSWITCHES:

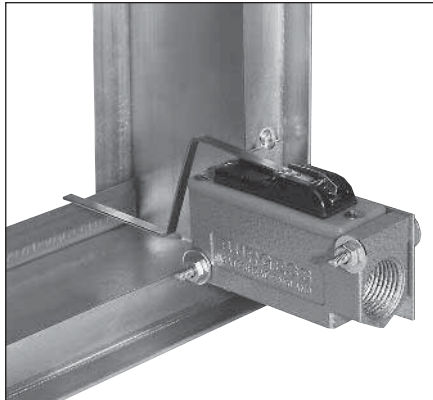
FOR DAMPER STATUS INDICATION OR HVAC FAN SHUT-DOWN

OPTION CODE MS
24V MICROSWITCH



Option Code MS provides any Nailor fire damper with a factory mounted micro switch suitable for use in low voltage (24V) applications. Activated when the damper blades are closed, the switch can be used for status indication of damper when wired into a control panel or can be utilized to shut a fan off upon closure of damper. UL and CSA approved single pole, double throw switch is rated up to 15 amps. and can be wired up as normally closed or normally open, depending upon application.

OPTION CODE MSE
120/24V MICROSWITCH WITH
ENCLOSURE



Option Code MSE, microswitch with enclosure, provides a factory mounted micro switch similar to Option MS, except the MSE with its safety enclosure is suitable for use in line voltage (120V) applications. Similarly, the MSE can be used for status indication or fan shut down and also can be wired for normally closed or normally open applications. Enclosure is tapped with 1/2 inch NPS threads for conduit connection and is also provided with an internal earthing (ground) screw.

FLANGED SLEEVE

OPTION CODES
 TDF FLANGE
TDF2 BOTH ENDS
TDF1 ONE END



TDF (by Engle) and **TDC** (by Lockformer) proprietary flange systems are approved as breakaway connections for connecting a factory sleeved (22 or 20 gauge) Type A or B curtain type fire damper to ductwork. They may be used in place of the approved slip joints shown in standard installation instructions.

For Option **TDF1** the sleeve is factory flanged on one end only.

For Option **TDF2** the sleeve is factory flanged on both ends.

Note that the maximum wall/floor opening size permitted by UL, relative to the damper size, may not physically allow the flange to fit through the opening. Consultation and co-ordination with the wall/floor contractor is recommended. **TDF1**, flange on one end only, will permit the non-flanged end of the sleeve to fit through the opening.

Maximum TDF1/TDF2 Sleeve Size Allowed:

For Curtain Type Fire Damper: 60" wide x 60" high (1524 x 1524).

For Multi-Blade Type Fire Damper: 36" wide x 48" high (914 x 1219).