

MODEL SERIES 1210M

AIRFOIL BLADE • MODULATING ACTUATOR

Model Series 1210M Modulating Smoke Dampers are classified for use as a volume control damper in applications where building codes require a leakage rated smoke damper as part of a static smoke control or dynamic smoke management system. The 1210M Series has been designed and tested to offer premium performance, tested and certified to offer the lowest leakage class available and is qualified for vertical or horizontal installation with airflow in either direction. Airfoil blade design and elimination of blade sills, top and bottom, provide lowest pressure drop. Unique inter-locking double skin blade design eliminates combustible blade seals and provides flame and smoke seal under fire conditions.



Model 1210M



Model 1210VB

MODEL SERIES 1210VB

VERTICAL AIRFOIL BLADE

Model Series 1210VB Vertical Blade Smoke Damper is a high performance smoke damper that provides superior protection and versatility. The vertical blade configuration allows for the actuator to be mounted below the damper and is ideal for applications where bottom access is desired or where there isn't space for a side mounted actuator. Model Series 1210VB dampers are ideal for applications where building codes require a leakage rated smoke damper as part of a static smoke control or dynamic smoke management system. The 1210VB Series has been designed and tested to provide premium performance, offers the lowest leakage class available and is qualified for installation with airflow in either direction. Airfoil blade design, elimination of blade sills and a maintenance free concealed blade linkage provide superb air performance and low pressure drop.

MODEL SERIES 1210SS

AIRFOIL BLADE • STAINLESS STEEL

Model Series 1210SS Stainless Steel Airfoil Blade Smoke Dampers are ideal for high humidity, mildly corrosive or, with optional Type 316 construction, more severe environment applications where building codes require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

Model Series 1210SS dampers have been designed and tested to provide premium performance and offers the lowest leakage class available, qualified for installation with airflow in either direction and inverted mounting. Features include a stainless steel airfoil blade, low pressure drop frame design and maintenance free concealed blade linkage for superb air performance, minimal turbulence and noise.



Model 1210SS

- BOTTOM ACTUATOR ACCESS
- HIGH PERFORMANCE
- CLASS I OR II LEAKAGE @ 250°F
- UL 555S CLASSIFIED SMOKE DAMPER

Models:

1210VB No Sleeve

1211VB Type A Sleeve

1212VB Type B Sleeve Enclosure

1213VB Type C Sleeve Enclosure



Model 1210VB

Model Series 1210VB Vertical Steel Airfoil Blade Smoke Dampers are a high performance smoke damper that provides superior protection and versatility. The vertical blade configuration allows for the actuator to be mounted below the damper and is ideal for applications where bottom access is desired or where there isn't space for a side mounted actuator. The 1210VB Series dampers are ideal for applications where building codes require a leakage rated smoke damper as part of a static smoke control or dynamic smoke management system.

The 1210VB Series has been designed and tested to provide premium performance and offers the lowest leakage class available and is qualified for installation with airflow in either direction. Airfoil blade design, elimination of blade sills and a maintenance free concealed blade linkage provide superb air performance and low pressure drop.

QUALIFICATIONS:

- **UL 555S CLASSIFIED SMOKE DAMPER (File # R9492)**
Leakage Class I or II at 250°F elevated temperature.
- Meets NFPA 90A, 92, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.
- City of New York. MEA # 366-03-M.
- California State Fire Marshal: Fire Damper Listing No. 03230-0935:0107.
- Maximum velocity: 2000 fpm @ 4" w.g. (10 m/s @ 1 kPa).

STANDARD CONSTRUCTION:

Frame: 5" x 7/8" x 16 ga. (127 x 22 x 1.6) galvanized steel hat channel.

Blades: 14 ga. (2.0) equivalent galvanized steel formed airfoil on 5 1/2" (140) centers. Opposed action.

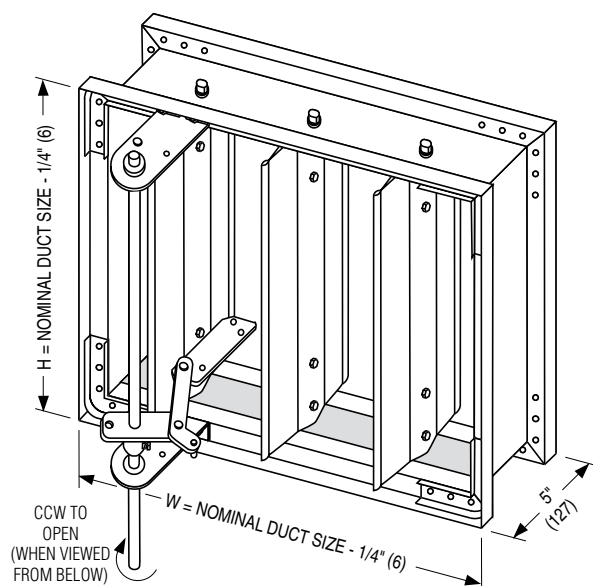
Linkage: Concealed in frame. 12 ga. (2.7) plated steel.

Bearings: 1/2" (13) dia. self-lubricating oilite bronze.

Axles: 1/2" (13) dia. plated steel double bolted to blades.

Jackshaft: 1/2" (13) dia. cadmium plated steel.

Jamb Seals: Stainless steel.



MODEL 1210VB

(Side Mounting Plate/Sleeve not shown)

Models 1210VB and 1211VB Sizes (Duct W x H):

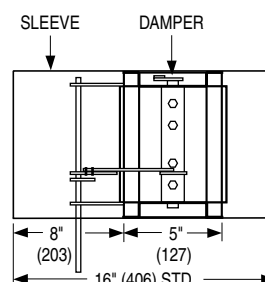
Velocity/ Pressure Rating	Elevated Temp. °F	Minimum	Maximum
		Single Section Vertical	Single Section Vertical
24	250	8" x 8" (203 x 203)	48" x 36" (1219 x 914)

Note: Dampers with duct heights less than 8" (203) require a Type 'B' sleeve enclosure (Model 1212VB). Duct sizes less than 8" (203) in width require a Type 'C' enclosure (Model 1213VB).

Multiple section assemblies are not permitted.

COMMON OPTIONS:

- DTS Damper Test Switch for cycle testing.
- DSDL/DSDN Duct Smoke Detectors.
- MLS-300 Position Indicator Switch Pack.
- Factory fitted sleeves in custom lengths, gauges and transition styles.



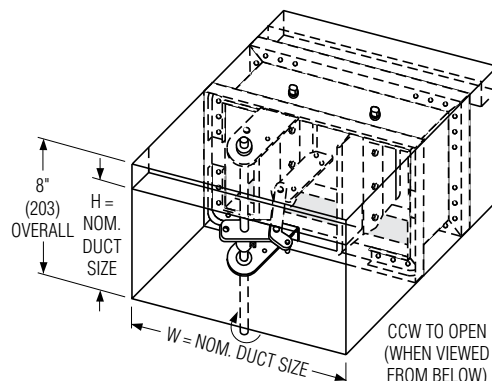
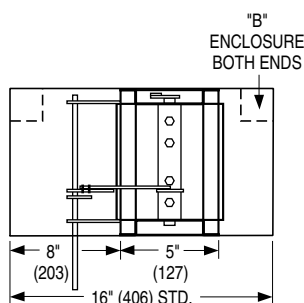
MODEL 1211VB: TYPE A SLEEVE

Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0). Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

DIMENSIONAL DATA:

Model Series 1210VB dampers with duct heights less than 8" (203) require a Type 'B' sleeve enclosure (Model 1212VB). Duct sizes less than 8" (203) in width require a Type 'C' enclosure (Model 1213VB).

MODEL 1212VB TYPE B SLEEVE ENCLOSURE:



Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0). Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

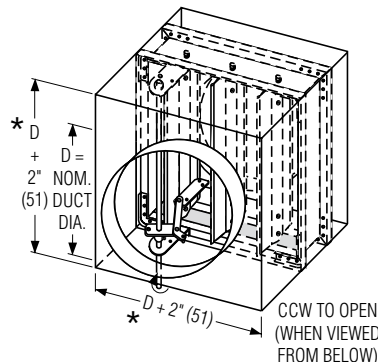
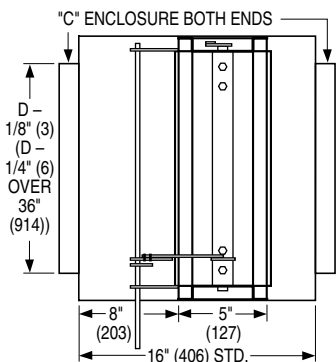
Wall Thickness	Minimum Sleeve Length
4 (102)	16 (406)
8 (203)	20 (508)
12 (305)	24 (610)
16 (406)	28 (711)

Model 1212VB Sizes (Duct W x H):

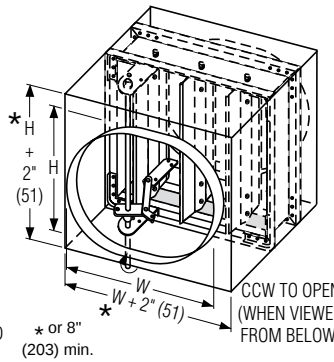
Velocity/ Pressure Rating	Elevated Temp. °F	Minimum	Maximum
		Single Section Vertical	Single Section Vertical
24	250	8" x 4" (203 x 102) (overall damper height is 8" [203]).	48" x 7 1/2" (1219 x 191)

Note: Multiple section assemblies are not permitted.

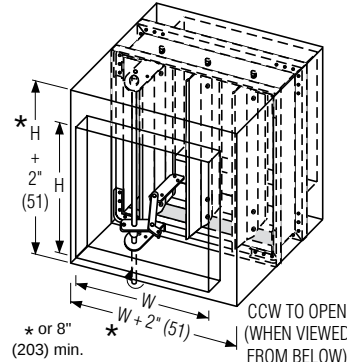
MODEL 1213VB TYPE C SLEEVE ENCLOSURES:



STYLE CR : FOR ROUND DUCT



STYLE CO : FOR OVAL DUCT



STYLE CSR : FOR SQUARE OR RECTANGULAR DUCT

Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0). Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

Wall Thickness	Minimum Sleeve Length
4 (102)	16 (406)
8 (203)	20 (508)
12 (305)	24 (610)
16 (406)	28 (711)

Model 1213VB - Round Duct Connection Sizes (Duct Dia.):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum	Maximum
		Single Section Vertical	Single Section Vertical
24	250	4" (102) dia. (overall damper size is 8" x 8" [203 x 203]).	34" (864) dia.

Note: Multiple section assemblies are not permitted.

Model 1213VB - Sq., Rect. or Oval Duct Conn. Sizes (Duct W x H):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum	Maximum
		Single Section Vertical	Single Section Vertical
24	250	4" x 4" (102 x 102) (overall damper size is 8" x 8" [203 x 203] min.).	46" x 34" (1168 x 864)

Note: Multiple section assemblies are not permitted.

HOW TO ORDER OR TO SPECIFY

VERTICAL AIRFOIL BLADE SMOKE DAMPERS

MODEL SERIES: 1210VB

EXAMPLE: 1211VB - 24X24 - V - AUTO - 24 - I - 24 - 250 - BO - SL = 16 - 20G - EXT - RH - CL - HH1 - L8

- | | | |
|---|---|---|
| <p>1a. Models
1210VB Vertical, Steel, Airfoil Blade</p> <p>1b. Sleeve/Enclosure Style (4th Digit)
0 = No Sleeve
1 = Type A Sleeve
2 = Type B Sleeve Enclosure
3 = Type C Sleeve Enclosure</p> <p>2. Duct Size
Width x Height
inches (mm's)</p> <p>3. Mounting
V Vertical (default)</p> <p>4. Leakage Rating
I Class I (default)
II Class II</p> <p>5. Actuator Selected By
AUTO Least Cost (Auto-Select)
BEL Belimo
HON Honeywell</p> <p>6. Power Requirement
120 120 VAC (default)
230 230 VAC
24 24 VAC</p> <p>7. Max. Velocity / Pressure Rating
24 2000 fpm @ 4" w.g. (default)</p> <p>8. Elevated Temperature
250 250°F (default)</p> | <p>9. Bearings
BO Oilite Bronze (default)
BS Stainless Steel</p> <p>10. Duct Smoke Detector
— None (default)
DSDL Low-Flow, factory mounted
DSDN No-Flow, factory mounted</p> <p>11a. Side Mounting Plate
(No Sleeve models only)
SMP Side Mounting Plate</p> <p>11b. Sleeve Length
SL = Specify
16" (406) standard (default)
12" – 28" (305 – 711)</p> <p>12. Sleeve Gauge
20G 20 Ga. standard (default)
18G 18 Ga.
16G 16 Ga.
14G 14 Ga.
10G 10 Ga.</p> <p>13. Transition
(Sleeve Type C models only)
CR Round
CO Oval
CSR Square/Rectangular</p> <p>14. Actuator Mounting
EXT External (default)
INT Internal</p> <p>15. Actuator Location
RH Right hand (default)
LH Left hand</p> | <p>16. Actuator Fail Position
CL Close (default)
OP Open</p> <p>17. Actuator Models
Electric:
HM1 MS4109F 120 VAC
HM2 MS8109F 24 VAC
HM3 MS4609F 230 VAC
HH1 MS4120F 120 VAC
HH2 MS8120F 24 VAC
HH3 MS4620F 230 VAC</p> <p>18. Damper Location
L8 8" (203) From sleeve end (default)
LX Other (specify)
8" – 16" (203 – 406)</p> <p>OPTIONS & ACCESSORIES:</p> <p>19. Position Indicator
— None (default)
300 MLS-300 (4-wire)</p> <p>20. TDF Flange
— None (default)
TDF1 One end
TDF2 Both ends</p> <p>21. Damper Test Switch
— None (default)
DTS Damper Test Switch</p> <p>Notes:
1. Not all variants and options are available on all models. Refer to individual model for selection availability.</p> |
|---|---|---|

SUGGESTED SPECIFICATION:

Provide and install, as shown on plans and/or schedules, Smoke Dampers as manufactured by Nailor Industries, Inc. which meet or exceed the following criteria: Smoke dampers shall meet the requirements of NFPA 90A, 92, 101 and 105 and shall be classified as a **(specifier select class)** Class I or Class II Leakage Rated Smoke Damper under UL 555S at an elevated temperature of 250°F (121°C) and each damper shall bear a UL label verifying same. Dampers shall be suitable for use in dynamic or static smoke control systems. Dampers shall have been operation tested by UL to a minimum velocity/pressure rating of 2000 fpm @ 4" w.g. (10 m/s @ 1 kPa).

Frame shall be constructed of 16 ga. (1.6) galvanized steel hat channel with mitered corners reinforced with die-formed corner gussets for strength. Blades shall be 14 ga. (2.0) equivalent galvanized steel formed double skin, airfoil design, on 5 1/2" (140) centers and shall be oriented vertically to allow for bottom mount actuator. Dampers shall be opposed blade configuration with an interlocking blade design that provides complete smoke seal under elevated temperature conditions when in closed position. Dampers requiring blade seals to maintain leakage class when under elevated temperature conditions are not acceptable. Blade axles shall be 1/2" (13) dia. plated steel, double bolted at each end of blade to provide positive locking connection. Hex, square friction-fit or press-fit axles are not acceptable. Bearings shall be self-lubricating oilite bronze type. Blade linkage shall be zero-maintenance, concealed in frame, out of airstream. Jamb seals shall be compression type stainless steel. Appropriate **(specifier select)** externally or internally mounted electrical actuators shall be installed by the damper manufacturer in the factory. Actuators shall incorporate an OEM internal spring return mechanism, external after-market spring mechanisms are not acceptable. Damper and actuator assembly shall be factory cycled a minimum of 3 times to ensure correct operation.

Submitted pressure drop data to be based on tests in accordance with AMCA Standard 500-D. Standard of acceptance shall be Nailor Industries, Inc. Model Series 1210VB.

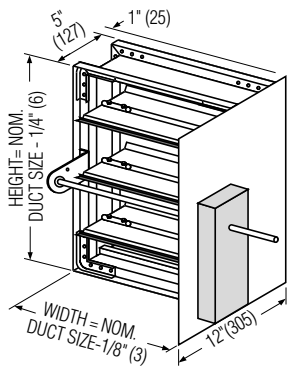
Options and Accessories

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

SIDE PLATES/SLEEVES
FOR ACTUATOR MOUNTING:

OPTION CODE **SMP**
SIDE ACTUATOR MOUNTING PLATE

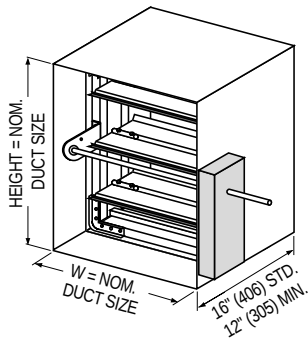
Nailor’s **SMP**, Side Mounting Plate, provides a practical and cost effective method of factory installing an actuator onto Model Series 1210, 1260, and 1280 smoke dampers. UL 555S, Standard for Smoke Dampers requires actuators to be factory mounted securely in position. This is to help ensure that the damper/actuator assembly functions properly and eliminates possible job site installation errors. Nailor’s SMP option allows the damper/actuator assembly to be conveniently mounted in duct opening for fast, worry-free installation.



SIDE ACTUATOR MOUNTING
PLATE FOR JACKSHAFT DRIVE

TYPE A SLEEVES
MODELS 1211, 1261, 1281

As an alternative to using a side mounting plate to mount an actuator onto a Series 1210, 1260 or 1280 smoke damper, Nailor smoke dampers can be provided in a full factory-fitted sleeve, factory caulked to UL specifications between the damper frame and sleeve. This eliminates on site worries about proper damper mounting in the duct and provides for quick and convenient job site installations. Standard Type A sleeve is 16" (406) long x 20 ga. (1.0) (18 ga. for dampers over 84" (2134) in width). Non-standard lengths and gauges are available to suit specific applications. See chart for specific sleeved model numbers.



TYPE A SLEEVE FOR
JACKSHAFT DRIVE

The following indicates model numbers to order for smoke dampers with factory fitted Type A sleeves:

Standard Model #	With Type A Sleeve
1210	Model 1211
1260	Model 1261
1280	Model 1281

SMOKE DAMPERS

POSITION INDICATORS:

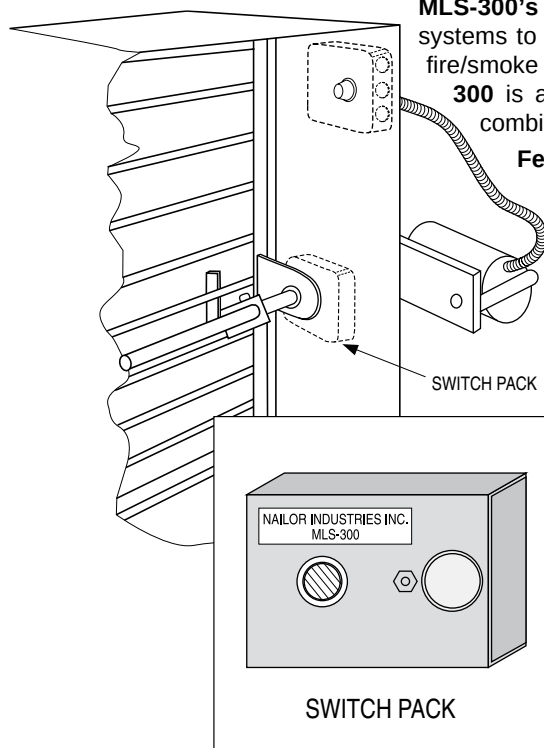
OPTION CODE 300
MLS-300 POSITION INDICATOR
SWITCH PACK

The **MLS-300 Series Position Indicator Switch Pack** is generally utilized to indicate open and closed position of the damper blades. It incorporates two SPDT switches that may be used to operate signal lamps or to provide a start/stop circuit for remote fans or to signal alarms.

MLS-300's are used in active smoke control management systems to positively indicate the status of all combination fire/smoke and smoke dampers in the building. The **MLS-300** is available only as a factory installed option on combination fire/smoke and smoke dampers.

Features:

- Operates as a function of the damper blade position.
- Provides remote indication of damper blade position.
- Provides the ability to remotely control ON/OFF fan stations.
- Provides the ability to remotely signal alarms.



Built-in Actuator Switch Packs

Many of the newer application specific actuators designed for use on fire/smoke dampers feature "add-on" component position indicator switches manufactured and UL tested by the actuator manufacturer. Honeywell MS4109F/MS8109F actuators are examples.

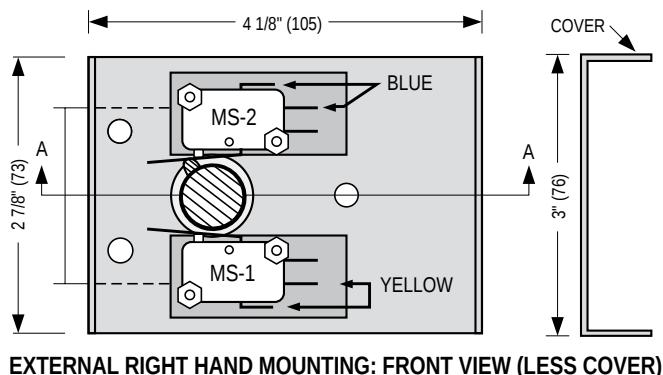
Some actuator models have variants with position indicator switches built right in to the actuator. Honeywell MS4120F/MS8120F and Belimo FSNF24S/FSNF120S actuators are examples.

When ordered with the MLS-300 Position Indicator Switch Pack, Nailor combination fire/smoke and smoke dampers that utilize these actuators will usually be supplied with the actuator mounted switch pack, factory installed as required by UL.

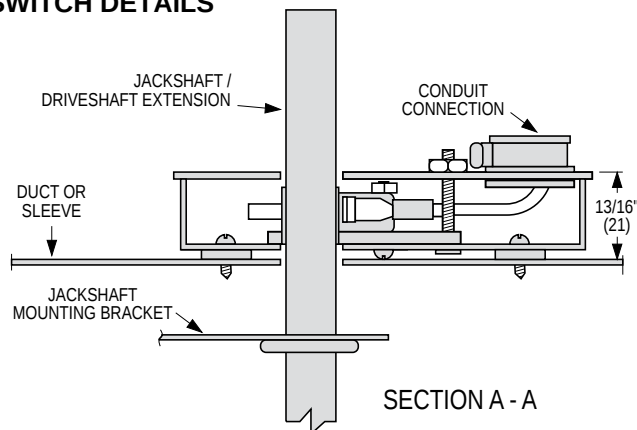


POSITION INDICATORS:

MLS-300N (NAILOR) SWITCH DETAILS



EXTERNAL RIGHT HAND MOUNTING: FRONT VIEW (LESS COVER)



TYPICAL JACKSHAFT MOUNTING

Position Indicator Microswitch Data:

Switch Type: Single Pole double throw (2)
15 Amps, 1/3 HP, 125, 250 Vac or 24 Vdc.
1/2 Amp, 125 Vdc. 1/4 Amp, 250 Vdc.

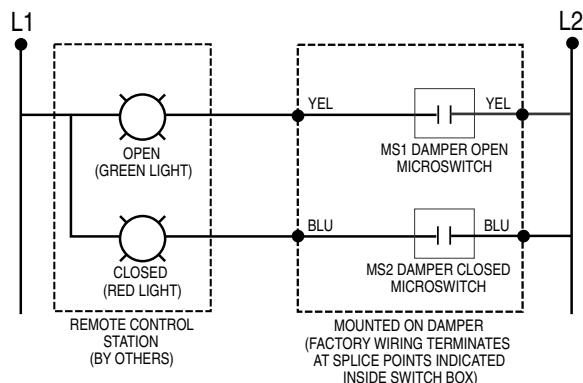
Standard Mounting:

MS1 is damper open signal.

MS2 is damper closed signal.

Non-Standard Mounting:

Important: Installer must double check continuity of MS1 and MS2 before wiring to determine which switch signals the damper's open or closed position.



FLANGED SLEEVE

OPTION CODES

TDF FLANGE

TDF2 BOTH ENDS

TDF1 ONE END



TDF (by Engle) and **TDC** (by Lockformer) proprietary flange systems are available as an option on all model smoke dampers fitted with a factory Type A sleeve of 22 or 20 gauge thickness. The flange system allows for fast, simple duct connections in the field. 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,

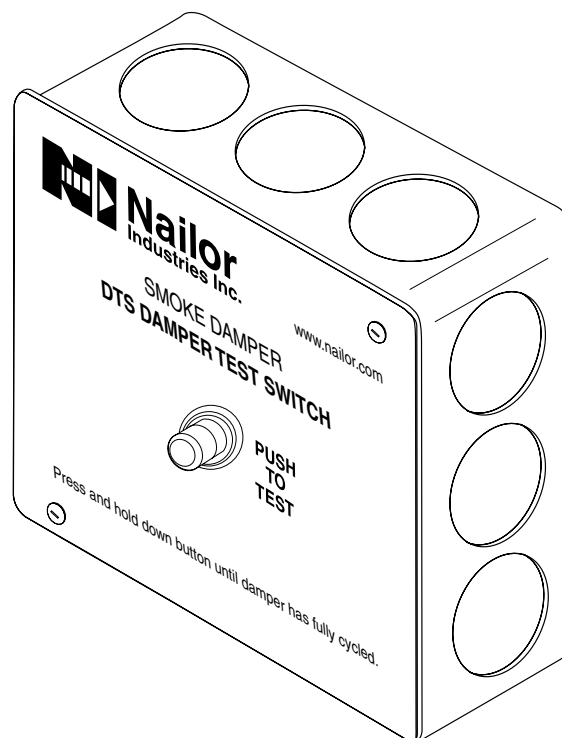
may not physically allow the flange to fit through the opening. Consultation and co-ordination with the wall/floor contractor is recommended. **TDF1**, flange on one end only, will permit the non-flanged end of the sleeve to fit through the opening. Specify which end of sleeve to be flanged in relation to the jackshaft.

DAMPER TEST SWITCH

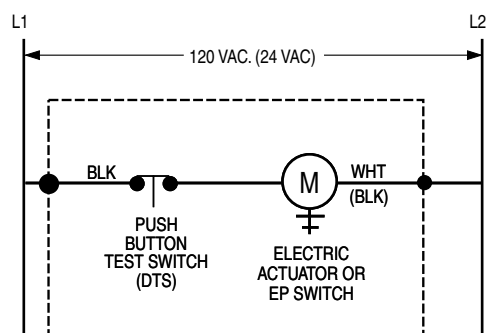
OPTION CODE DTS PUSH BUTTON TEST SWITCH

The DTS (Damper Test Switch) is an optional "momentary" push button test switch available on all Nailor smoke and combination fire/smoke dampers. The DTS provides the ability to "cycle test" the damper by pushing and holding down the button until the damper has cycled and closure has been visually verified, either by inspecting the damper through the access door or by confirmation at a remote control panel when equipped with the optional MLS-300 position indicator.

The DTS is mounted right on the damper and enables a single maintenance person to test and cycle the damper, eliminating the need for help from another person in the control room.



DTS Damper Test Switch



MOUNTED ON DAMPER (FACTORY WIRING TERMINATES AT SPLICE POINTS INDICATED INSIDE 4" x 4" ELECTRICAL BOX)

Figure 1. DTS Damper Test Switch

ELECTRO-PNEUMATIC SWITCHES:

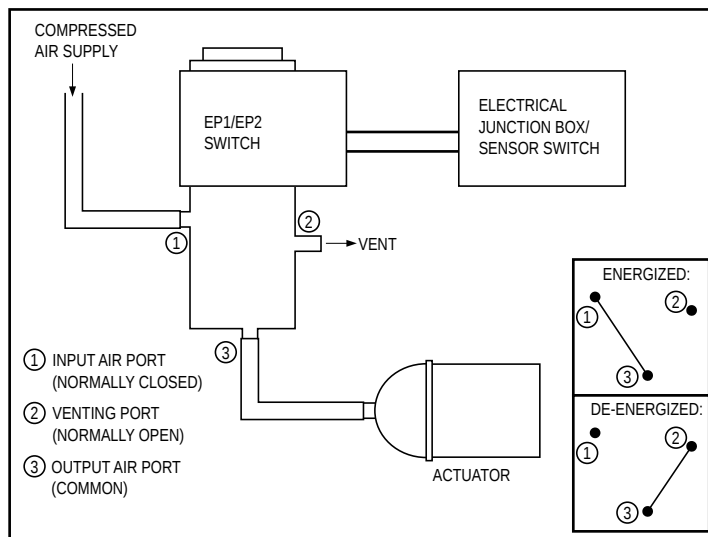
OPTION CODES **EP1** AND **EP2**
 EP1 120 VAC E/P SWITCH
 EP2 24 VAC E/P SWITCH



Nailor Options **EP1** and **EP2** electro-pneumatic switches are electrically operated, two-position 3-way air valves. They are used to interlock an electrical smoke or fire alarm system with a pneumatic damper actuator. The **EP1 (120 VAC)** and **EP2 (24 VAC)** valves are utilized to alternately apply pressure to, and exhaust pressure from a pneumatic damper actuator by an electrical input that energizes or de-energizes the solenoid of the switch. Barb type pneumatic piping connections are sized for 1/4" (6) O.D. Polyethylene tubing. Units are UL and CSA approved and may be mounted in any position.

EP1 Siemens 265-1008 120 V/60 Hz

EP2 Siemens 265-1007 24 VAC



OPERATION:

Input air is connected to port 1 (normally closed) and the output to the actuator is connected to port 3 (common). When the solenoid is energized port 1 connects to port 3 allowing the actuator to be controlled by input air, usually holding the damper in open position. When the solenoid is de-energized, port 2 (normally open) is connected to port 3, exhausting the air from the actuator allowing it to return to its normal fail position (fail open or fail closed).

Note:

E.P. Switches ship loose when ordered with Smoke Dampers and require field installation.

DUCT SMOKE DETECTORS:

OPTION CODE **DSDN**

DSD-NF NO-FLOW
DUCT SMOKE DETECTOR

APPLICATION:

Nailor Model DSD-NF duct smoke detector (no-flow) can be utilized with Nailor UL555S Classified smoke dampers to detect the presence of smoke within HVAC ductwork, whether or not there is airflow, and close the damper to prevent the smoke from spreading. As most fatalities resulting from fires can be attributed to the effects of toxic smoke, detecting and controlling the smoke from spreading within the HVAC system is vital to preventing injury as well as limiting property damage, including damage to the HVAC system itself. Refer to NFPA Standards 72, 90A and 92 to determine when and where duct smoke detectors are required.

The DSD-NF detector features a low-profile design for optimum pressure drop and will operate with airflow in either direction. It can be factory installed to top of sleeve (side mounting optional) on Nailor Model Series 1210, 1260 and 1280 smoke dampers.

OPERATION:

Upon detection of smoke, the smoke detector causes the damper to close by cutting off power to the actuator. The actuator return spring forces the damper closed. The detector can be reset only by a momentary power interruption. The standard model DSD-NF detector and smoke damper combination is designed simply to close the damper upon detection of smoke. For applications requiring the detector to be wired into a fire fighters' smoke-control station (FSCS), contact Nailor.

DSD-NF STANDARD SPECIFICATION:

Model: System Sensor 2151 Low-Profile.

Sensor Type: Photoelectronic.

Dimensions: 6.1" (155) dia. flanged base.

Weight: 3.6 oz. (104 g).

Airflow Velocity Range: 0 to 3000 fpm (0 to 15.24 m/s).

Operating Temperature Range: 32°F to 120°F (0°C to 49°C).

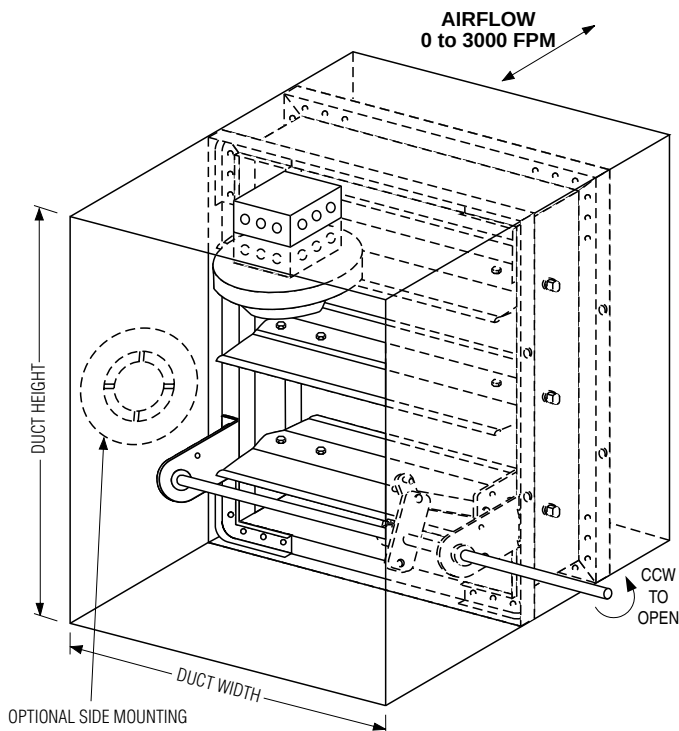
Operating Humidity Range: 10% to 93% Relative Humidity Non-Condensing.

Sensitivity: 3% ± .7%/ft

Voltage: 120 VAC or 24 VAC/DC.

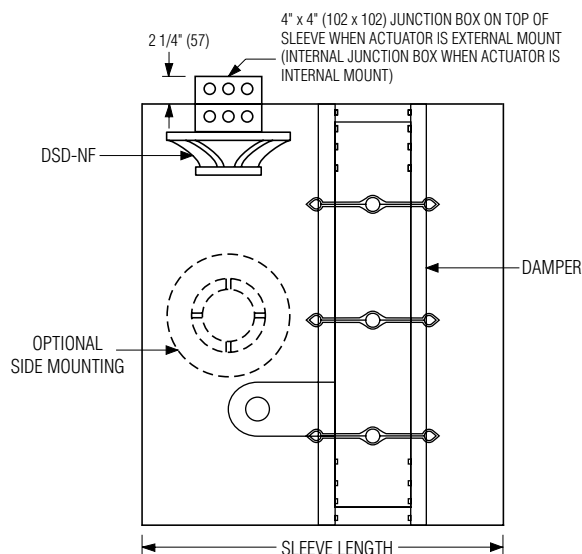
Latching Alarm: Reset by momentary power interruption.

Contact Nailor for minimum damper size and sleeve length for your specific application. See page C13 for general damper size, sleeve length and damper position guidelines.



NOTES:

1. Factory mounted smoke detectors will be factory wired to actuator(s) (or E.P. switch) and heat sensor(s), as applicable, into a 4" x 4" (102 x 102) common junction box in order to provide a single point wiring connection in the field.



DUCT SMOKE DETECTORS:

OPTION CODE **DSDL**
DSD-LF LOW-FLOW
DUCT SMOKE DETECTOR

APPLICATION:

Nailor Model DSD-LF duct smoke detector (low-flow) can be utilized with Nailor UL555S Classified smoke dampers to detect the presence of smoke within HVAC ductwork and close the damper to prevent the smoke from spreading. As most fatalities resulting from fires can be attributed to the effects of toxic smoke, detecting and controlling the smoke from spreading within the HVAC system is vital to preventing injury as well as limiting property damage, including damage to the HVAC system itself. Refer to NFPA Standards 72, 90A and 92A to determine when and where duct smoke detectors are required. The DSD-NF detector can be factory installed to side of sleeve on Nailor Model Series 1210, 1260 and 1280 smoke dampers.

A minimum airflow velocity of 100 fpm (0.5 m/s) is required for Model DSD-LF.

OPERATION:

Upon detection of smoke, the smoke detector causes the damper to close by cutting off power to the actuator. The actuator return spring forces the damper closed. The detector can be reset only by a momentary power interruption. The standard model DSD-LF detector and smoke damper combination is designed simply to close the damper upon detection of smoke. For applications requiring the detector to be wired into a fire fighters' smoke-control station (FSCS), contact Nailor.

DSD-LF STANDARD SPECIFICATION:

Model: System Sensor D4120.

Sensor Type: Photoelectric.

Dimensions: (Rectangular) 14.38" (365) Length, 5" (127) Width, 2.5" (64) Depth.

Weight: 2.5 lbs. (1.14 kg.).

Airflow Velocity Range: 100 to 4000 fpm (0.5 to 20.3 m/s).

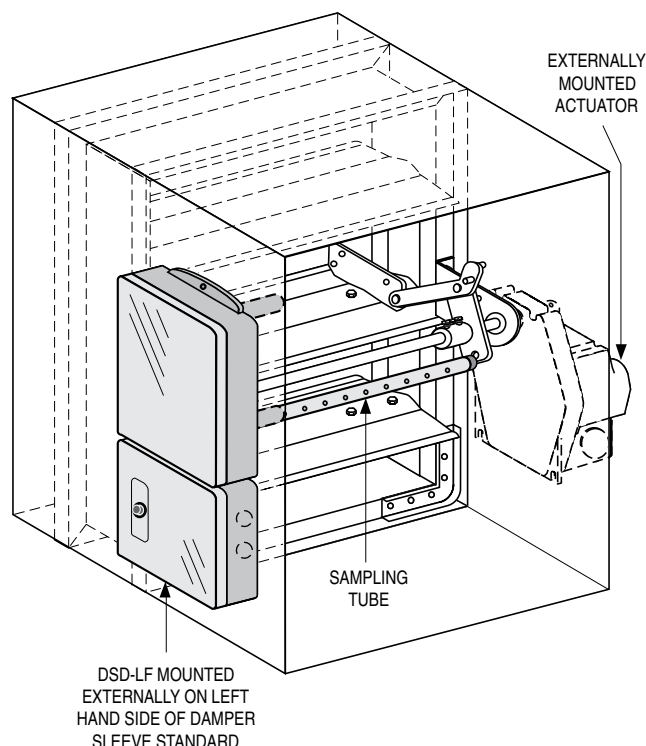
Operating Temperature Range: -4°F to 158°F (-20°C to 70°C).

Operating Humidity Range: 0% to 95%

Relative Humidity Non-Condensing.

Voltage: 24 VAC/DC or 120 VAC.

Contact Nailor for minimum damper size and sleeve length for your specific application. See page C13 for general damper size, sleeve length and damper position guidelines.



NOTES:

1. Smoke detector is factory mounted externally on left side of sleeve (opposite side of sleeve to the actuator) and will be mounted horizontally on dampers under 20" (508) in height and mounted vertically on dampers 20" (508) in height and over. See orientation details below.
2. Factory mounted smoke detectors will be factory wired to actuator(s) (or E.P. switch) and heat sensor(s), as applicable, into a 4" x 4" (102 x 102) common junction box in order to provide a single point wiring connection in the field.

