



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
1 1/2 HR. LABEL • ULTRA-LOW LEAKAGE
MODELS: 1220 AND 1221 (TYPE A)



QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER**
1 1/2 hr. Label (File # R9492).
- **UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER**
Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- **City of New York. MEA # 366-03-M.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.**
- **Meets NFPA 80, 90A, 92, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.**
- **Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).**

The 1220 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 2 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design. Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.

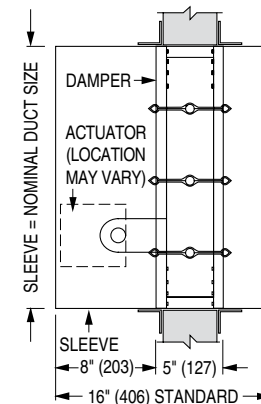
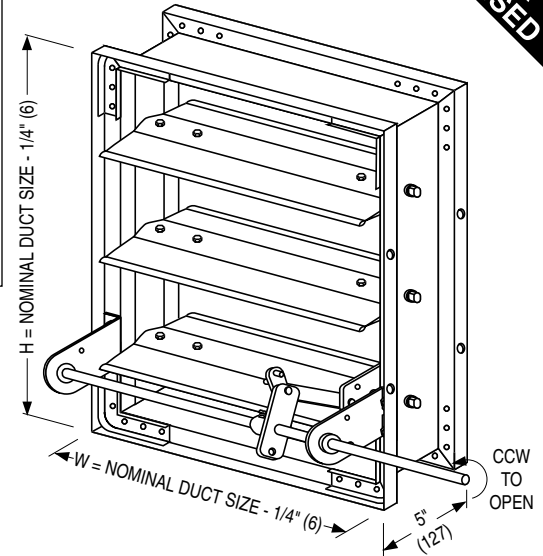
Heat Responsive Device (Controlled Closure):

ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.
 PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum		Maximum			
		Single Section		Single Section		Multiple Section	
		Vertical/Horizontal	Vertical	Horizontal	Vertical	Horizontal	
24, 34, 36, 46	250/350	8" x 8" (203 x 203).	36" x 48" (914 x 1219)	32" x 48" (813 x 1219)	144" x 96" (3658 x 2438)	128" x 96" (3251 x 2438)	
		6" x 6" (152 x 152) with low profile frame (maximum size is 18" x 6" [457 x 152]).	36" x 48" (914 x 1219)	32" x 48" (813 x 1219)	144" x 96" (3658 x 2438)	128" x 96" (3251 x 2438)	
48	250		36" x 24" (914 x 610)	32" x 24" (813 x 610)	144" x 48" (3658 x 1219)	128" x 48" (3251 x 1219)	

Note: Dampers with duct heights less than 6" (152) (8" [203] if width is over 18" [457]) require a Type 'B' sleeve enclosure (Model 1222). Duct sizes less than 8" (203) in width require a Type 'C' enclosure (Model 1223).



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

BASE MODEL SELECTION:

- 1220** With side actuator mounting plate
- 1221** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. (1.3) for dampers over 84" (2134) in width).
- 1221** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:	
PROJECT:	
ENGINEER:	
CONTRACTOR:	

Page 1 of 2
 Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
10 - 14 - 24	1200	7 - 26 - 21	1220-1



**COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
1 1/2 HR. LABEL • ULTRA-LOW LEAKAGE
MODELS: 1220 AND 1221 (TYPE A)**



MOUNTING:

- V Vertical
- H Horizontal

ACTUATOR SELECTION:

- Electric Pneumatic

POWER REQUIREMENT:

- 120 120 VAC
- 230 230 VAC
- 24 24 VAC
- 25 25 psi Pneumatic

LEAKAGE RATING:

- I Class I (Standard)
- II Class II

DYNAMIC VELOCITY/PRESSURE RATING:

- 24 2000 fpm @ 4" w.g. (Standard)
- 34 3000 fpm @ 4" w.g. (Optional)
- 36 3000 fpm @ 6" w.g. (Optional)
- 46 4000 fpm @ 6" w.g. (Optional)
- 48 4000 fpm @ 8" w.g. (Optional)

ELEVATED TEMPERATURE:

- 250 250°F (121°C) (Standard)
- 350 350°F (176°C)

CLOSURE DEVICE:

- ERL Electric Resettable Link
- PRL Pneumatic Link
- DTO Dual Temp. Override Sensor
- FL Fusible Link

CLOSURE TEMPERATURE:

- 250°F (121°C) (std.)
- 165°F (74°C)
- 212°F (100°C) (std.)
- 280°F (138°C)
- 250°F / 165°F (121°C / 74°C) (std.)
- 350°F / 165°F (176°C / 74°C)
- 165°F (74°C) (std.)
- 212°F (100°C)

FL Fusible Link is only available with electric actuator (external mount, fail open) @ 250°F (121°C), 2000 fpm @ 4" w.g. (36" x 36" [914 x 914] Vertical, 32" x 36" [813 x 914] Horizontal max.).

ACTUATOR MOUNTING:

- EXT External (Standard)
- INT Internal (Optional)

ACTUATOR FAIL POSITION:

- CL Closed (Standard)
- OP Open (Optional) (Requires FL Fusible Link)

OPTIONS:

- BS Stainless steel bearings
- MLS-300 Position Indicator Switch Pack
- QS1 Quick-set retaining angle (one side)
- QS2 Quick-set retaining angles (two sides)
- TDF1 Flange (one end) } 22 or 20 ga.
- TDF2 Flange (both ends) } sleeves only

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:	Page 2 of 2			
PROJECT:	Dimensions are in inches (mm)			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	10 - 14 - 24	1200	7 - 26 - 21	1220-1



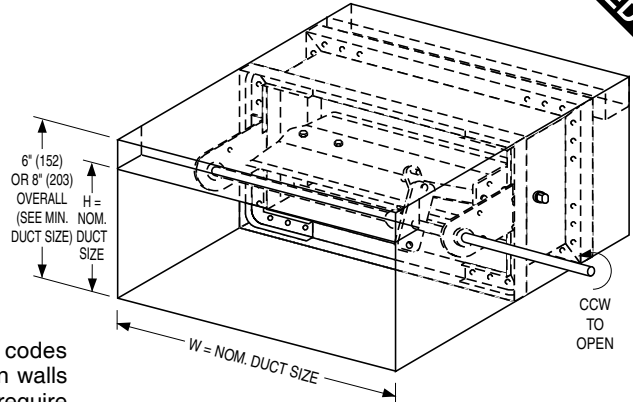
COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
1 1/2 HR. LABEL • ULTRA-LOW LEAKAGE
MODEL: 1222
(TYPE B SLEEVE ENCLOSURE)



FOR DUCTS UNDER 8" (203) IN HEIGHT AND 8" (203) OR MORE IN WIDTH

QUALIFICATIONS:

- UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER 1 1/2 hr. Label (File # R9492).
- UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- City of New York. MEA # 366-03-M.
- California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.
- Meets NFPA 80, 90A, 92A, 92B, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.
- Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).



The 1220 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 2 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design.

Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.

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.

Heat Responsive Device (Controlled Closure):

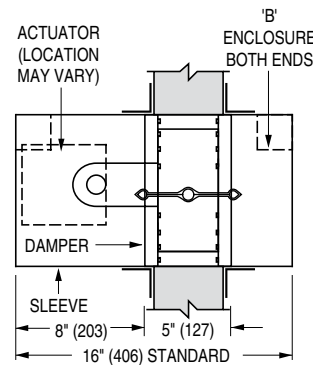
ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.

PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum		Maximum		
		Single Section		Single Section		Multiple Section
		Vertical/Horizontal	Vertical	Horizontal	Vertical	Horizontal
24, 34, 36, 46, 48	250/350	8" x 4" (203 x 102) Overall damper height is 8" (203); 6" (152) on duct sizes 18 x 5 1/2" (457 x 140) and under.		36" x 7 1/2" (914 x 191)	32" x 7 1/2" (813 x 191)	144" x 7 1/2" (3658 x 191) 128" x 7 1/2" (3251 x 191)

Note: Duct sizes less than 8" (203) in width require a Type 'C' enclosure (Model 1223).



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

SLEEVE/ENCLOSURE SELECTION:

- 1222** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. (1.3) for dampers over 84" (2134) in width). Available up to 36" (914) dependent upon wall thickness.
- 1222** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:	
PROJECT:	
ENGINEER:	
CONTRACTOR:	

Page 1 of 2
 Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
10 - 14 - 24	1200	7 - 26 - 21	1220-2



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
1 1/2 HR. LABEL • ULTRA-LOW LEAKAGE
MODEL: 1222
(TYPE B SLEEVE ENCLOSURE)



MOUNTING:

- V Vertical
- H Horizontal

ACTUATOR SELECTION:

- Electric Pneumatic

POWER REQUIREMENT:

- 120 120 VAC
- 230 230 VAC
- 24 24 VAC
- 25 25 psi Pneumatic

LEAKAGE RATING:

- I Class I (Standard)
- II Class II

DYNAMIC VELOCITY/PRESSURE RATING:

- 24 2000 fpm @ 4" w.g. (Standard)
- 34 3000 fpm @ 4" w.g. (Optional)
- 36 3000 fpm @ 6" w.g. (Optional)
- 46 4000 fpm @ 6" w.g. (Optional)
- 48 4000 fpm @ 8" w.g. (Optional)

ELEVATED TEMPERATURE:

- 250 250°F (121°C) (Standard)
- 350 350°F (176°C)

CLOSURE DEVICE:

- ERL Electric Resettable Link
- PRL Pneumatic Link
- DTO Dual Temp. Override Sensor
- FL Fusible Link

CLOSURE TEMPERATURE:

- 250°F (121°C) (std.)
- 165°F (74°C)
- 212°F (100°C) (std.)
- 280°F (138°C)
- 250°F / 165°F (121°C / 74°C) (std.)
- 350°F / 165°F (176°C / 74°C)
- 165°F (74°C) (std.)
- 212°F (100°C)

FL Fusible Link is only available with electric actuator (external mount, fail open) @ 250°F (121°C), 2000 fpm @ 4" w.g. (36" x 7 1/2" [914 x 191] Vertical, 32" x 7 1/2" [813 x 191] Horizontal max.).

ACTUATOR MOUNTING:

- EXT External (Standard)
- INT Internal (Optional)

ACTUATOR FAIL POSITION:

- CL Closed (Standard)
- OP Open (Optional) (Requires FL Fusible Link)

OPTIONS:

- BS Stainless steel bearings
- MLS-300 Position Indicator Switch Pack
- QS1 Quick-set retaining angle (one side)
- QS2 Quick-set retaining angles (two sides)

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:		Page 2 of 2			
PROJECT:		Dimensions are in inches (mm)			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.	
CONTRACTOR:	10 - 14 - 24	1200	7 - 26 - 21	1220-2	



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
1 1/2 HR. LABEL • ROUND DUCT CONNECTION
MODEL: 1223
(TYPE C SLEEVE ENCLOSURE)



QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER** 1 1/2 hr. Label (File # R9492).
- **UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER** Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- **City of New York. MEA # 366-03-M.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.**
- **Meets NFPA 80, 90A, 92A, 92B, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.**
- **Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).**

The 1220 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 2 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design.

Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.
- Axes:** 1/2" (13) dia. plated steel double bolted to blades.
- Jackshaft:** 1/2" (13) dia. cadmium plated steel.
- Jamb Seals:** Stainless steel.

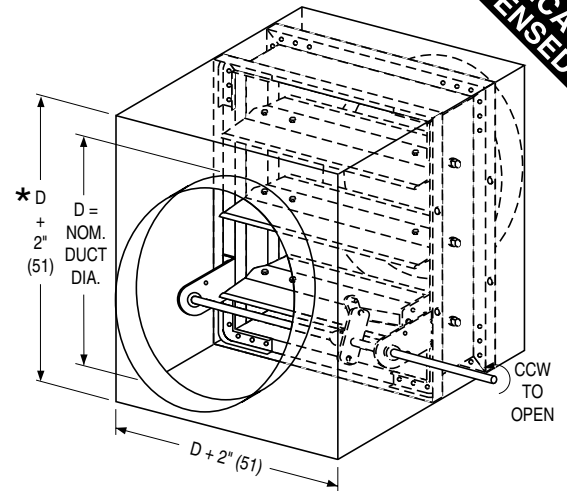
Heat Responsive Device (Controlled Closure):

ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.

PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

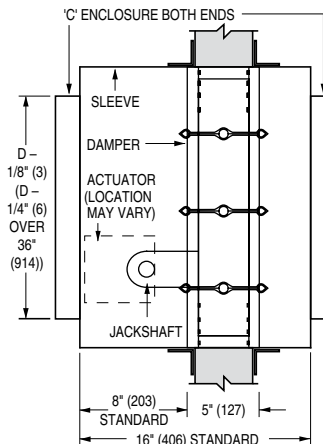
Sizes (Duct Diameter):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum		Maximum	
		Single Section		Multiple Section	
		Vertical/Horiz.	Vertical	Horizontal	Vertical/Horiz.
24, 34, 36, 46	250/350	4" (102) dia.	34" (864) dia.	30" (762) dia.	94" (2388) dia.
48	250		34" (864) dia.	30" (762) dia.	94" (2388) dia.
48	350		22" (559) dia.	22" (559) dia.	46" (1168) dia.



Exception:

*5" (127) duct diameter is 8" (203) overall height.



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

SLEEVE/ENCLOSURE SELECTION:

- 1223** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. [1.3] for dampers over 84" [2134] in width).
- 1223** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:
PROJECT:
ENGINEER:
CONTRACTOR:

Page 1 of 2
 Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
10 - 14 - 24	1200	8 - 23 - 23	1220-3



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
3 HR. LABEL • ULTRA-LOW LEAKAGE
MODELS: 1220-3 AND 1221-3 (TYPE A)



QUALIFICATIONS:

- UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER 3 hr. Label (File # R9492).
- UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- City of New York. MEA # 366-03-M.
- California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.
- Meets NFPA 80, 90A, 92A, 92B, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.
- Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).

The 1220-3 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 4 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220-3 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design. Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.

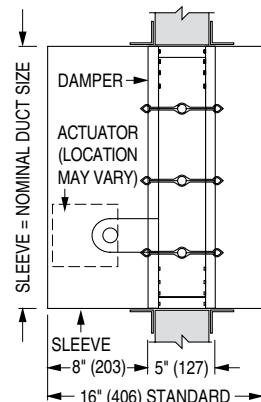
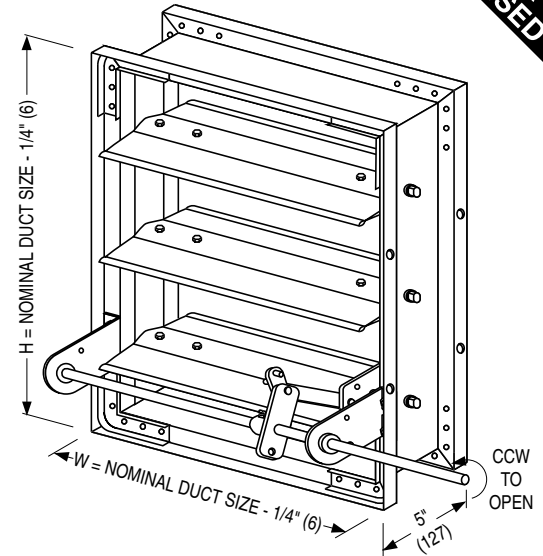
Heat Responsive Device (Controlled Closure):

ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.
 PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum		Maximum	
		Single Section		Single Section	
		Vertical/Horizontal	Vertical	Horizontal	Vertical
24, 34, 36, 46	250/350	8" x 8" (203 x 203).	36" x 48" (914 x 1219)	32" x 48" (813 x 1219)	120" x 96" (3048 x 2438) (maximum each section is 30" x 48" [762 x 1219]).
48	250		36" x 48" (914 x 1219)	32" x 48" (813 x 1219)	120" x 96" (3048 x 2438) (maximum each section is 30" x 48" [762 x 1219]).
48	350		36" x 24" (914 x 610)	32" x 24" (813 x 610)	120" x 48" (3048 x 1219) (maximum each section is 30" x 24" [762 x 610]).

Note: Dampers with duct heights less than 8" (203) require a Type 'B' sleeve enclosure (Model 1222-3). Duct sizes less than 8" (203) in width require a Type 'C' enclosure (Model 1223-3).



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

BASE MODEL SELECTION:

- 1220-3** With side actuator mounting plate
- 1221-3** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. (1.3) for dampers over 84" (2134) in width).
- 1221-3** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	10 - 14 - 24	1200	7 - 26 - 21	1220-3-1



**COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
3 HR. LABEL • ULTRA-LOW LEAKAGE
MODELS: 1220-3 AND 1221-3 (TYPE A)**



MOUNTING:

- V Vertical
- H Horizontal

ACTUATOR SELECTION:

- Electric Pneumatic

POWER REQUIREMENT:

- 120 120 VAC
- 230 230 VAC
- 24 24 VAC
- 25 25 psi Pneumatic

LEAKAGE RATING:

- I Class I (Standard)
- II Class II

DYNAMIC VELOCITY/PRESSURE RATING:

- 24 2000 fpm @ 4" w.g. (Standard)
- 34 3000 fpm @ 4" w.g. (Optional)
- 36 3000 fpm @ 6" w.g. (Optional)
- 46 4000 fpm @ 6" w.g. (Optional)
- 48 4000 fpm @ 8" w.g. (Optional)

ELEVATED TEMPERATURE:

- 250 250°F (121°C) (Standard)
- 350 350°F (176°C)

CLOSURE DEVICE:

- ERL Electric Resettable Link
- PRL Pneumatic Link
- DTO Dual Temp. Override Sensor
- FL Fusible Link

CLOSURE TEMPERATURE:

- 250°F (121°C) (std.)
- 165°F (74°C)
- 212°F (100°C) (std.)
- 280°F (138°C)
- 250°F / 165°F (121°C / 74°C) (std.)
- 350°F / 165°F (176°C / 74°C)
- 165°F (74°C) (std.)
- 212°F (100°C)
- 350°F (176°C)

FL Fusible Link is only available with electric actuator (external mount, fail open) @ 250°F (121°C), 2000 fpm @ 4" w.g. (36" x 36" [914 x 914] Vertical, 32" x 36" [813 x 914] Horizontal max.).

ACTUATOR MOUNTING:

- EXT External (Standard)
- INT Internal (Optional)

ACTUATOR FAIL POSITION:

- CL Closed (Standard)
- OP Open (Optional) (Requires FL Fusible Link)

OPTIONS:

- BS Stainless steel bearings
- MLS-300 Position Indicator Switch Pack
- QS1 Quick-set retaining angle (one side)
- QS2 Quick-set retaining angles (two sides)
- TDF1 Flange (one end) } 22 or 20 ga.
- TDF2 Flange (both ends) } sleeves only

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:		Page 2 of 2			
PROJECT:		Dimensions are in inches (mm)			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.	
CONTRACTOR:	10 - 14 - 24	1200	7 - 26 - 21	1220-3-1	



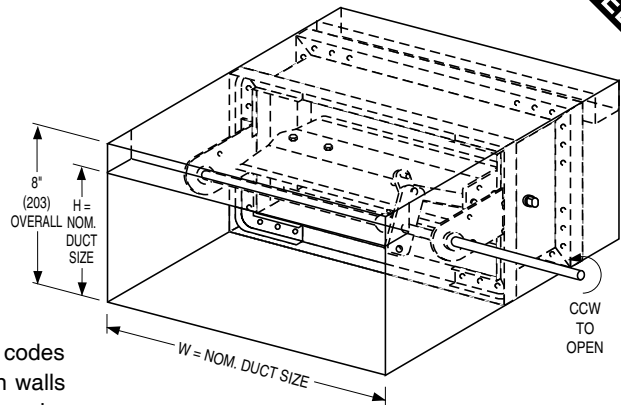
COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
3 HR. LABEL • ULTRA-LOW LEAKAGE
MODEL: 1222-3
(TYPE B SLEEVE ENCLOSURE)



FOR DUCTS UNDER 8" (203) IN HEIGHT AND 8" (203) OR MORE IN WIDTH

QUALIFICATIONS:

- UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER 3 hr. Label (File # R9492).
- UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- City of New York. MEA # 366-03-M.
- California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.
- Meets NFPA 80, 90A, 92A, 92B, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.
- Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).



The 1220-3 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 4 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220-3 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design.

Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.

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.

Heat Responsive Device (Controlled Closure):

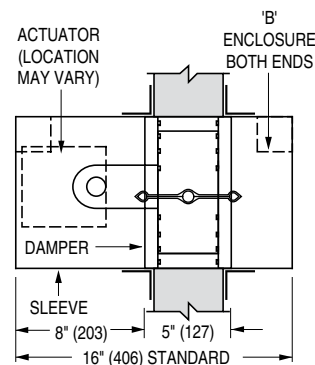
ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.

PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum		Maximum		
		Single Section		Single Section		Multiple Section
		Vertical/Horizontal	Vertical	Horizontal	Vertical	
24, 34, 36, 46, 48	250/350	8" x 4" (203 x 102) (overall damper height is 8" [203]).	36" x 7 1/2" (914 x 191)	32" x 7 1/2" (813 x 191)	120" x 7 1/2" (3048 x 191) (maximum each section is 30" x 7 1/2" [762 x 191]).	

Note: Duct sizes less than 8" (203) in width require a Type 'C' enclosure (Model 1223-3).



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

SLEEVE/ENCLOSURE SELECTION:

- 1222-3** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. [1.3] for dampers over 84" [2134] in width). Available up to 36" (914) dependent upon wall thickness.
- 1222-3** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:	
PROJECT:	
ENGINEER:	
CONTRACTOR:	

Page 1 of 2
 Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
10 - 14 - 24	1200	7 - 26 - 21	1220-3-2



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
3 HR. LABEL • ULTRA-LOW LEAKAGE
MODEL: 1222-3
(TYPE B SLEEVE ENCLOSURE)



MOUNTING:

- V Vertical
- H Horizontal

ACTUATOR SELECTION:

- Electric Pneumatic

POWER REQUIREMENT:

- 120 120 VAC
- 230 230 VAC
- 24 24 VAC
- 25 25 psi Pneumatic

LEAKAGE RATING:

- I Class I (Standard)
- II Class II

DYNAMIC VELOCITY/PRESSURE RATING:

- 24 2000 fpm @ 4" w.g. (Standard)
- 34 3000 fpm @ 4" w.g. (Optional)
- 36 3000 fpm @ 6" w.g. (Optional)
- 46 4000 fpm @ 6" w.g. (Optional)
- 48 4000 fpm @ 8" w.g. (Optional)

ELEVATED TEMPERATURE:

- 250 250°F (121°C) (Standard)
- 350 350°F (176°C)

CLOSURE DEVICE:

- ERL Electric Resettable Link
- PRL Pneumatic Link
- DTO Dual Temp. Override Sensor
- FL Fusible Link

CLOSURE TEMPERATURE:

- 250°F (121°C) (std.)
- 165°F (74°C)
- 212°F (100°C) (std.)
- 280°F (138°C)
- 212°F (100°C) (std.)
- 350°F (176°C)
- 250°F / 165°F (121°C / 74°C) (std.)
- 350°F / 165°F (176°C / 74°C)
- 165°F (74°C) (std.)
- 212°F (100°C)

FL Fusible Link is only available with electric actuator (external mount, fail open) @ 250°F (121°C), 2000 fpm @ 4" w.g. (36" x 7 1/2" [914 x 191] Vertical, 32" x 7 1/2" [813 x 191] Horizontal max.).

ACTUATOR MOUNTING:

- EXT External (Standard)
- INT Internal (Optional)

ACTUATOR FAIL POSITION:

- CL Closed (Standard)
- OP Open (Optional) (Requires FL Fusible Link)

OPTIONS:

- BS Stainless steel bearings
- MLS-300 Position Indicator Switch Pack
- QS1 Quick-set retaining angle (one side)
- QS2 Quick-set retaining angles (two sides)

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:	Page 2 of 2			
PROJECT:	Dimensions are in inches (mm)			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	10 - 14 - 24	1200	7 - 26 - 21	1220-3-2



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
3 HR. LABEL • ROUND DUCT CONNECTION
MODEL: 1223-3
(TYPE C SLEEVE ENCLOSURE)



QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER** 3 hr. Label (File # R9492).
- **UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER** Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- **City of New York. MEA # 366-03-M.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.**
- **Meets NFPA 80, 90A, 92A, 92B, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.**
- **Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).**

The 1220-3 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 4 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220-3 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design.

Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.

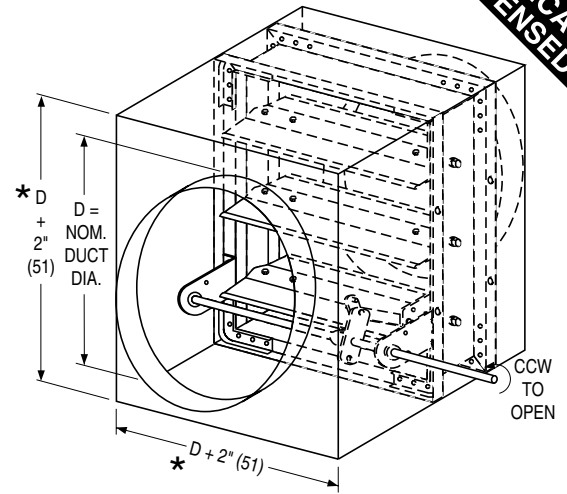
Heat Responsive Device (Controlled Closure):

ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.

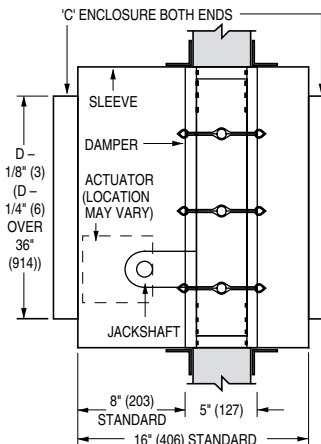
PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

Sizes (Duct Diameter):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum		Maximum		
		Single Section		Single Section		Multiple Section
		Vertical	Horiz.	Vertical	Horizontal	Vertical
24, 34, 36, 46	250/350	4" (102) dia. (overall damper size is 8" x 8" [203 x 203] min.).		34" (864) dia.	30" (762) dia.	94" (2388) dia.
48	250		34" (864) dia.	30" (762) dia.	94" (2388) dia.	
48	350		22" (559) dia.	22" (559) dia.	46" (1168) dia.	



*or 8" (203) min.



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

SLEEVE/ENCLOSURE SELECTION:

- 1223-3** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. [1.3] for dampers over 84" [2134] in width).
- 1223-3** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	10 - 14 - 24	1200	7 - 26 - 21	1220-3-3



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
3 HR. LABEL • SQUARE, RECTANGULAR
OR OVAL DUCT CONNECTION
MODEL: 1223-3 (TYPE C) SLEEVE ENCLOSURE



QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER** 3 hr. Label (File # R9492).
- **UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER** Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- **City of New York. MEA # 366-03-M.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.**
- **Meets NFPA 80, 90A, 92A, 92B, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.**
- **Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).**

The 1220-3 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 4 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220-3 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design.

Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.

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.

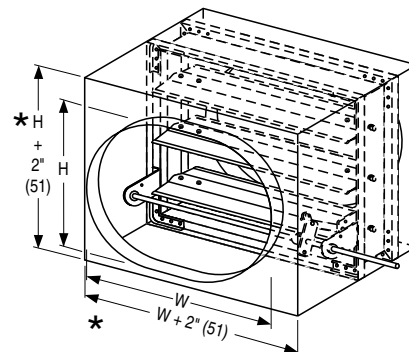
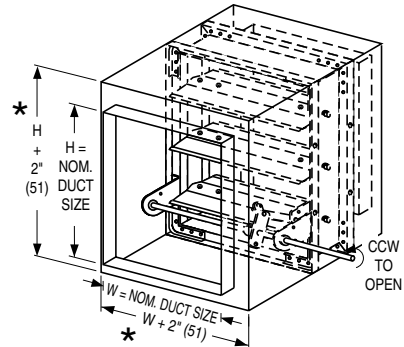
Heat Responsive Device (Controlled Closure):

ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.

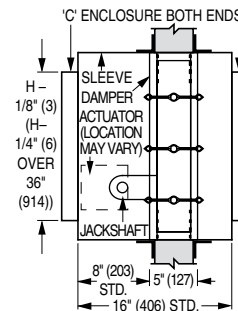
PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum				Maximum		
		Single Section		Single Section		Multiple Section		
		Vert./Horiz.	Vertical	Horizontal	Vertical	Vertical		
24, 34, 36, 46	250/350	4" x 4" (102 x 102) (overall damper size is 8" x 8" [203 x 203] min.).	34" x 46" (864 x 1168)	30" x 46" (762 x 1168)	118" x 94" (2997 x 2388) (maximum each section is 30" x 48" [762 x 1219]).			
48	250		34" x 46" (864 x 1168)	30" x 46" (762 x 1168)	118" x 94" (2997 x 2388) (maximum each section is 30" x 48" [762 x 1219]).			
48	350		34" x 22" (864 x 559)	30" x 22" (762 x 559)	118" x 46" (2997 x 1168) (maximum each section is 30" x 24" [762 x 610]).			



* or 8" (203) min.



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

BASE MODEL SELECTION:

- 1223-3** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. [1.3] for dampers over 84" [2134] in width).
- 1223-3** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	4 - 29 - 24	1200	7 - 26 - 21	1220-3-4



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
3 HR. LABEL • SQUARE, RECTANGULAR
OR OVAL DUCT CONNECTION
MODEL: 1223-3 (TYPE C) SLEEVE ENCLOSURE



MOUNTING:

- V** Vertical
- H** Horizontal

ACTUATOR SELECTION:

- Electric** **Pneumatic**

POWER REQUIREMENT:

- 120** 120 VAC
- 230** 230 VAC
- 24** 24 VAC
- 25** 25 psi Pneumatic

LEAKAGE RATING:

- I** Class I (Standard)
- II** Class II

DYNAMIC VELOCITY/PRESSURE RATING:

- 24** 2000 fpm @ 4" w.g. (Standard)
- 34** 3000 fpm @ 4" w.g. (Optional)
- 36** 3000 fpm @ 6" w.g. (Optional)
- 46** 4000 fpm @ 6" w.g. (Optional)
- 48** 4000 fpm @ 8" w.g. (Optional)

ELEVATED TEMPERATURE:

- 250** 250°F (121°C) (Standard)
- 350** 350°F (176°C)

CLOSURE DEVICE:

- ERL** Electric Resettable Link
- PRL** Pneumatic Link
- DTO** Dual Temp. Override Sensor
- FL** Fusible Link

CLOSURE TEMPERATURE:

- 250°F** (121°C) (std.)
- 212°F** (100°C) (std.)
- 250°F / 165°F**
(121°C / 74°C) (std.)
- 165°F** (74°C) (std.)
- 165°F** (74°C)
- 165°F / 165°F**
(176°C / 74°C)
- 212°F** (100°C)
- 165°F** (74°C)
- 212°F** (100°C)
- 212°F** (100°C)
- 350°F** (176°C)

FL Fusible Link is only available with electric actuator (external mount, fail open) @ 250°F (121°C), 2000 fpm @ 4" w.g. (34" x 34" [864 x 864] Vertical, 30" x 34" [762 x 864] Horizontal max.).

ACTUATOR MOUNTING:

- EXT** External (Standard)
- INT** Internal (Optional)

ACTUATOR FAIL POSITION:

- CL** Closed (Standard)
- OP** Open (Optional) (Requires FL Fusible Link)

OPTIONS:

- BS** Stainless steel bearings
- MLS-300** Position Indicator Switch Pack
- QS1** Quick-set retaining angle (one side)
- QS2** Quick-set retaining angles (two sides)

For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:	Page 2 of 2			
PROJECT:	Dimensions are in inches (mm)			
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	4 - 29 - 24	1200	7 - 26 - 21	1220-3-4



COMBINATION FIRE/SMOKE DAMPER
AIRFOIL BLADE • HIGH PERFORMANCE
1 1/2 HR. LABEL • SQUARE, RECTANGULAR
OR OVAL DUCT CONNECTION
MODEL: 1223 (TYPE C) SLEEVE ENCLOSURE



QUALIFICATIONS:

- **UL 555 & CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER**
1 1/2 hr. Label (File # R9492).
- **UL 555S & CAN/ULC-S112.1 CLASSIFIED SMOKE DAMPER**
Leakage Class I or II at 250°F or 350°F elevated temperature (File # R9492).
- **City of New York. MEA # 366-03-M.**
- **California State Fire Marshal: Fire Damper Listing No. 3225-0935:0106.**
- **Meets NFPA 80, 90A, 92A, 92B, 101 and 105 as well as IBC and NBC (Canada) Building Code requirements.**
- **Maximum velocity: Up to 4000 fpm @ 8" w.g. (20 m/s @ 2 kPa).**

The 1220 Series dampers are ideal for applications where building codes require both a fire damper for the protection of ductwork penetrations in walls or floors that have a fire resistance rating of up to 2 hours and also require a leakage rated damper for operational smoke control in static or dynamic smoke management systems.

The 1220 Series has been especially designed and tested to provide premium performance and is AMCA licensed. It offers the lowest leakage class available and is qualified for installation with airflow in either direction and inverted mounting. Airfoil blade design and elimination of blade sills, top and bottom, provide a low pressure drop design.

Unique, inter-locking double skin blade design provides flame and smoke seal under fire conditions.

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.

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.

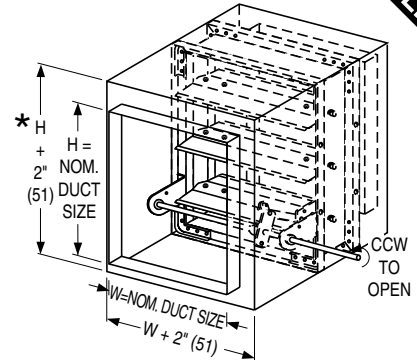
Heat Responsive Device (Controlled Closure):

ERL (Electric Resettable Link) is standard on dampers with electric actuators: 250°F (121°C) standard. 165°F (74°C), 212°F (100°C) and 350°F (176°C) available.

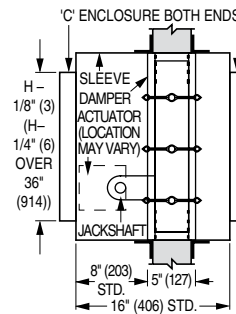
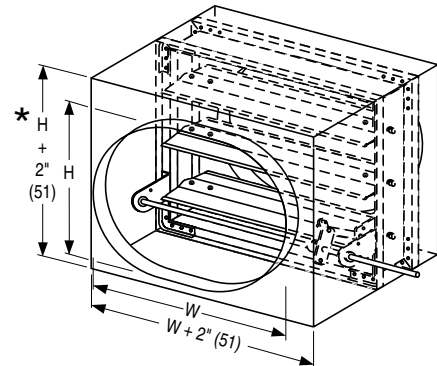
PRL (Pneumatic Replaceable Link) is standard on dampers with pneumatic actuators: 212°F (100°C) standard. 165°F (74°C) and 280°F (138°C) available.

Sizes (Duct W x H):

Velocity/ Pressure Rating	Elevated Temp. °F	Minimum		Maximum			
		Single Section		Single Section		Multiple Section	
		Vertical/	Horiz.	Vertical	Horizontal	Vertical	Horizontal
24, 34, 36, 46	250/350	4" x 4" (102 x 102)	34" x 46" (864 x 1168)	30" x 46" (762 x 1168)	142" x 94" (3607 x 2388)	126" x 94" (3200 x 2388)	
48	250		34" x 46" (864 x 1168)	30" x 46" (762 x 1168)	142" x 94" (3607 x 2388)	126" x 94" (3200 x 2388)	
48	350		34" x 22" (864 x 559)	30" x 22" (762 x 559)	142" x 46" (3607 x 1168)	126" x 46" (3200 x 1168)	



Exception:
 *5" (127) duct height is 8" (203) overall height.



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

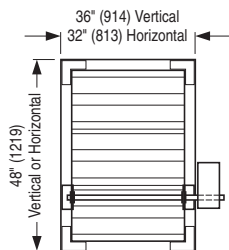
BASE MODEL SELECTION:

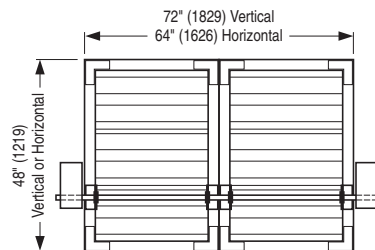
- 1223** Standard factory sleeve (caulked to UL requirements) 16" long x 20 ga. (406 x 1.0) (18 ga. [1.3] for dampers over 84" [2134] in width).
- 1223** Non-standard sleeve. Specify _____ length _____ ga. Available up to 36" (914) dependent upon wall thickness and 10 through 20 ga. (3.5 through 1.0).

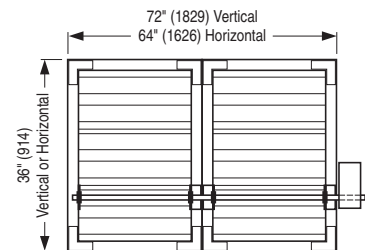
For installation instructions, see IOM-1220INST.

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	10 - 14 - 24	1200	8 - 23 - 23	1220-4

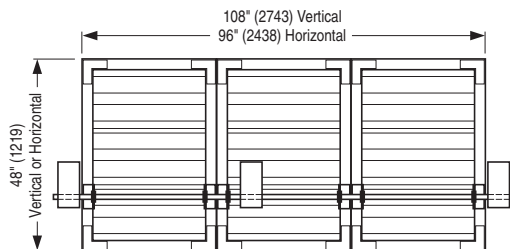
Sizes shown are maximum dimensions for section/actuator configurations as shown in the following figures. Available actuators for each particular configuration are listed below figure number. Multiple section assemblies are made up from equal size sections. All damper/actuator assemblies shown herein have been tested to UL 555S at 250°F (121°C) elevated temperature rating and 2000 fpm @ 4" w.g. Higher ratings are available with reduced actuator selection. External mounting of actuators is recommended whenever possible as internally mounted actuators increase pressure drop, especially on smaller sizes.


FIGURE 1X1

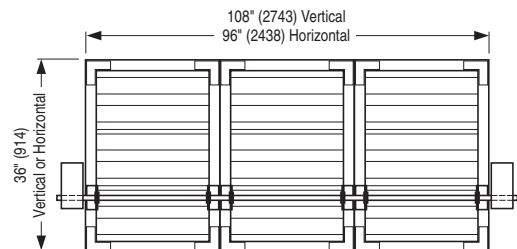
 MS-4X09/MS-8X09, MS-4120/MS-8120,
 FSNF120/FSNF24 & GGD221/GGD121

FIGURE 2X1A

 MS-4X09/MS-8X09, MS-4120/MS-8120,
 FSNF120/FSNF24 & GGD221/GGD121

FIGURE 2X1B

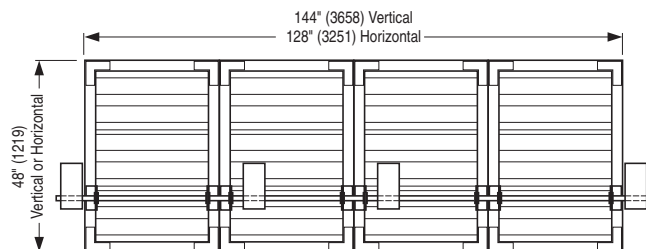
MS-4120/MS-8120


FIGURE 3X1A

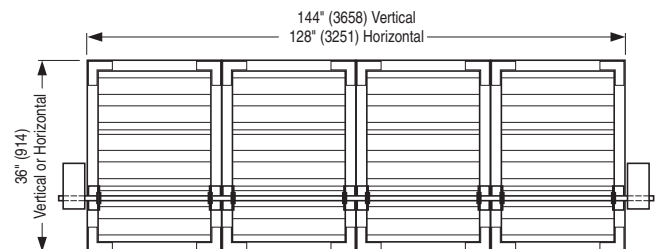
MS-4120/MS-8120, FSNF120/FSNF24 & GGD221/GGD121


FIGURE 3X1B

MS-4120/MS-8120


FIGURE 4X1A

MS-4120/MS-8120, FSNF120/FSNF24 & GGD221/GGD121


FIGURE 4X1B

MS-4120/MS-8120

SCHEDULE TYPE:	Page 1 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	11 - 16 - 04	1220	NEW	MSC-1220

MULTIPLE SECTION CONFIGURATIONS AND ELECTRIC ACTUATOR LOCATIONS FOR COMBINATION FIRE/SMOKE DAMPERS MODEL SERIES: 1220

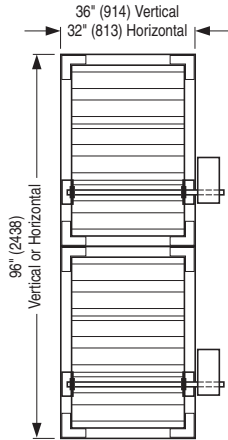


FIGURE 1X2
 MS-4X09/MS-8X09, MS-4120/MS-8120,
 FSNF120/FSNF24 & GGD221/GGD121

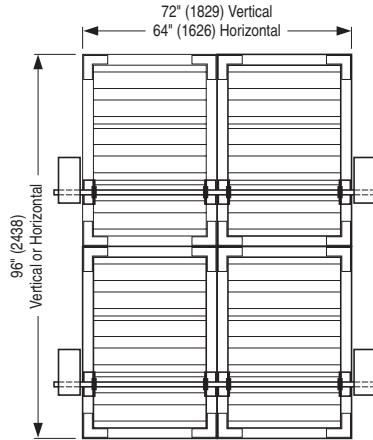


FIGURE 2X2A
 MS-4X09/MS-8X09, MS-4120/MS-8120,
 FSNF120/FSNF24 & GGD221/GGD121

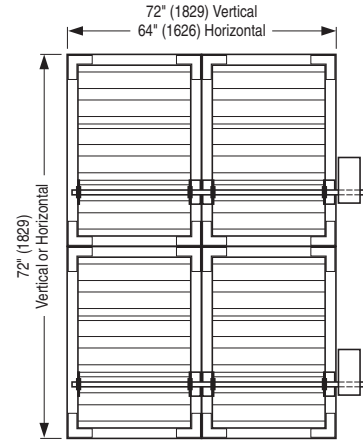


FIGURE 2X2B
 MS-4120/MS-8120

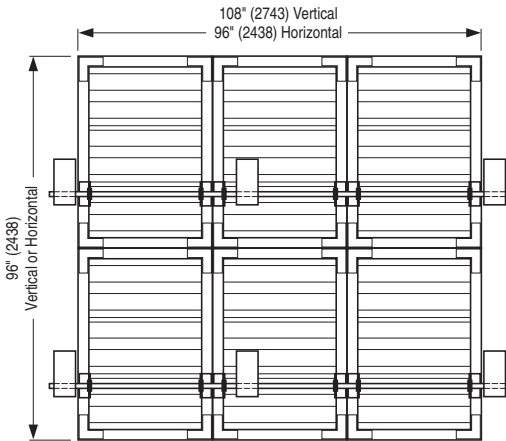


FIGURE 3X2A
 MS-4120/MS-8120, FSNF120/FSNF24 & GGD221/GGD121

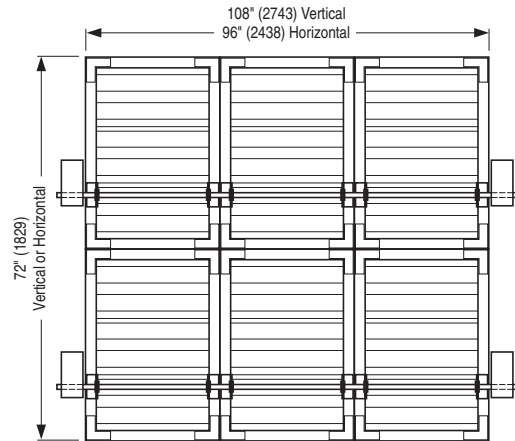


FIGURE 3X2B
 MS-4120/MS-8120

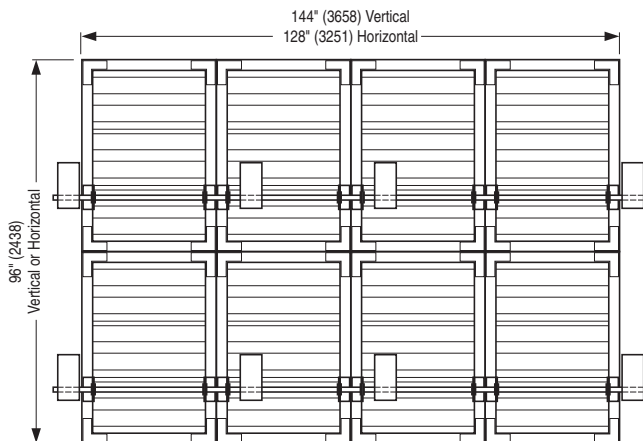


FIGURE 4X2A
 MS-4120/MS-8120, FSNF120/FSNF24 & GGD221/GGD121

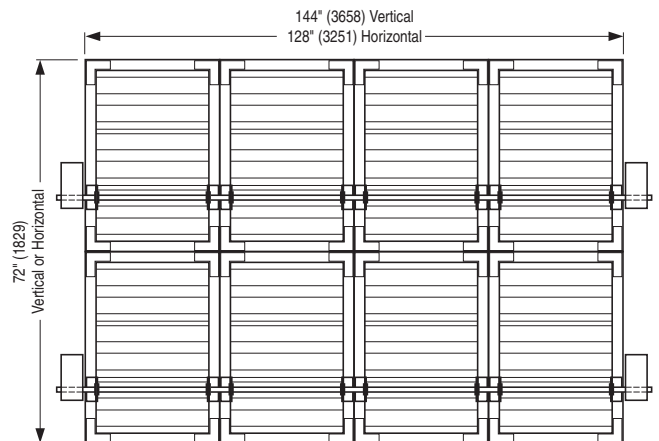


FIGURE 4X2B
 MS-4120/MS-8120

SCHEDULE TYPE:

PROJECT:

ENGINEER:

CONTRACTOR:

Page 2 of 2
 Dimensions are in inches (mm).

DATE

B SERIES

SUPERSEDES

DRAWING NO.

11 - 16 - 04

1220

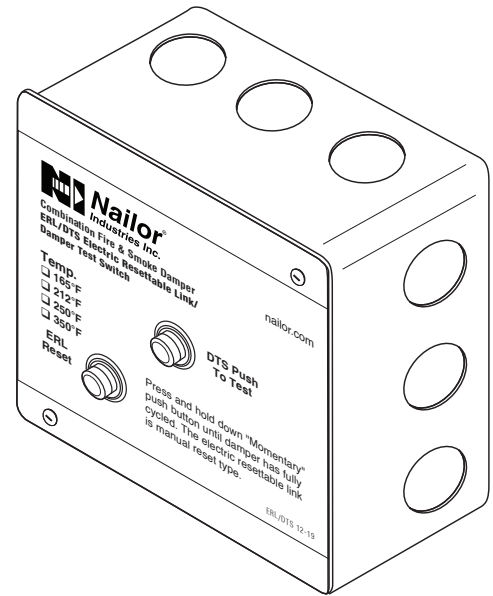
NEW

MSC-1220

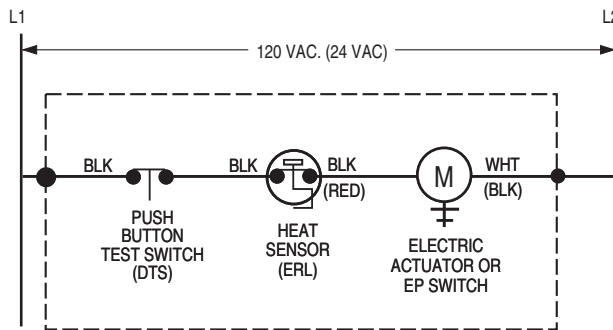
The DTS (Damper Test Switch) is an optional "momentary" push button test switch available on all Nailor smoke and combination fire/smoke dampers. The DTS provides the ability to "cycle test" the damper by pushing and holding down the button until the damper has cycled and closure has been visually verified, 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.

When a combination fire/smoke damper is ordered, the DTS is combined with the ERL (Electric Resettable Link), in a common enclosure.



WIRING DIAGRAMS:



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

Figure 1. DTS/ERL Damper Test Switch with Electric Resettable Link

Belimo Actuator Aux. Switch Wiring Connections

Model Series	Open (OP)	Closed (CL)
FSTF	Orange / Gray	Violet / Red
FSLF / FSAFA	Gray / Gray	Violet / Violet
FSNF / FSAFB	White S4 / S6	White S1 / S2

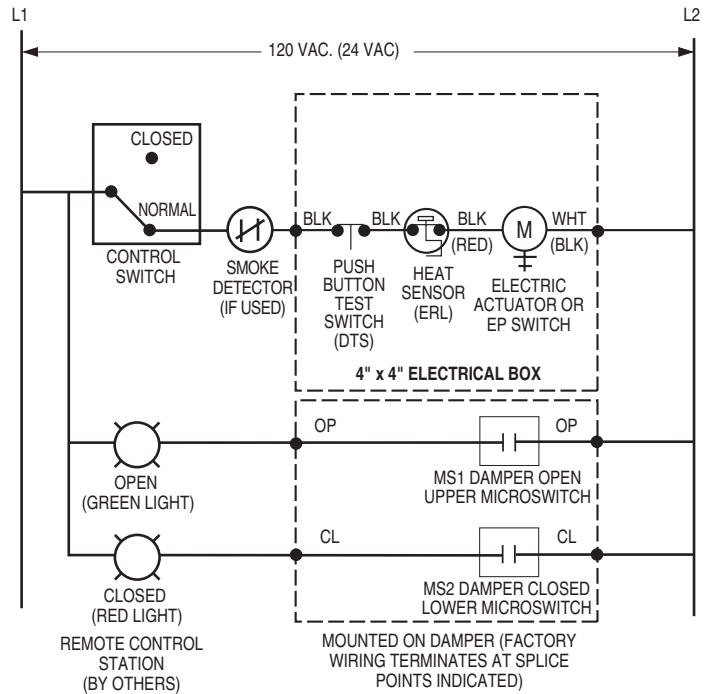


Figure 2. DTS/ERL with MLS-300 Belimo (actuator aux. switches) Position Indicator Package

SCHEDULE TYPE

PROJECT

ENGINEER

CONTRACTOR

DATE

B SERIES

SUPERSEDES

DRAWING NO.

9 - 3 - 20

FD-ACC

3 - 29 - 18

DTS

WIRING DIAGRAMS:

Honeywell Actuator Aux. Switch Wiring Connections

Model Series	Open (OP)	Closed (CL)
MSXX04	Yellow / Yellow	Blue / Blue
MSXX20	Yellow / Yellow	Blue / Blue

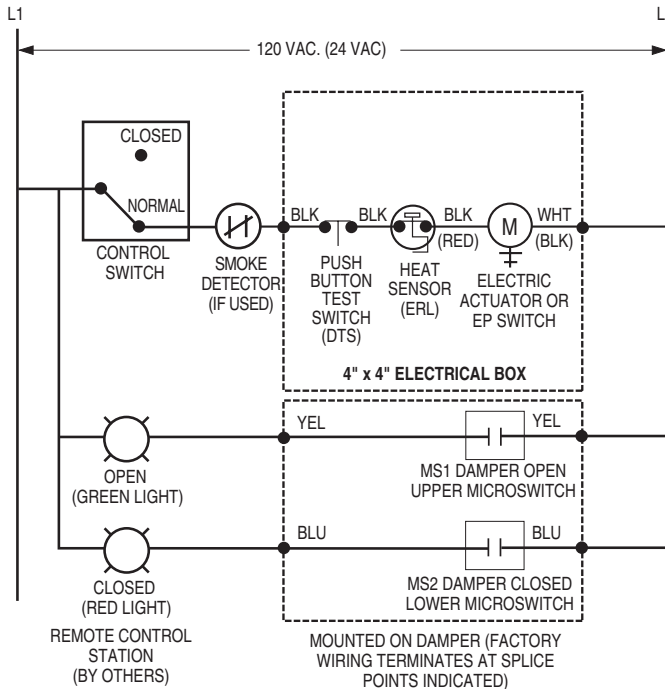


Figure 3. DTS/ERL with MLS-300 Nailor or Honeywell (actuator aux. switches) Position Indicator Package

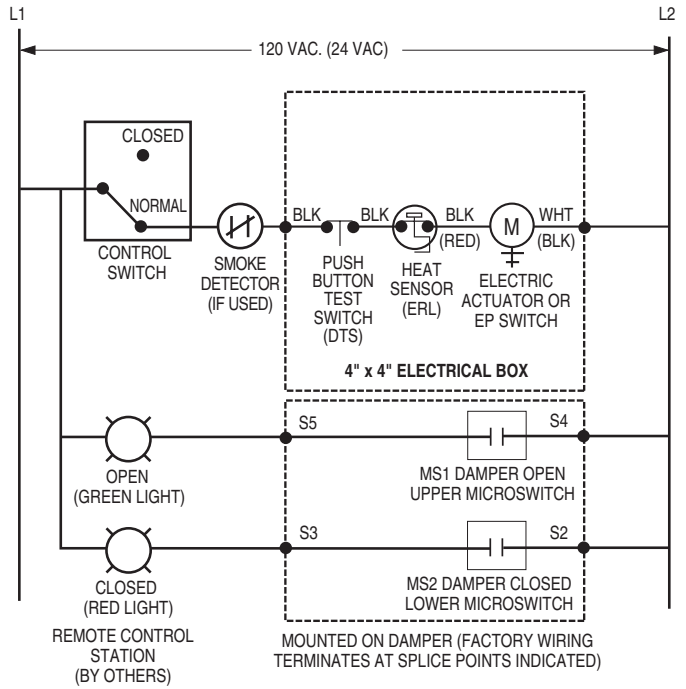
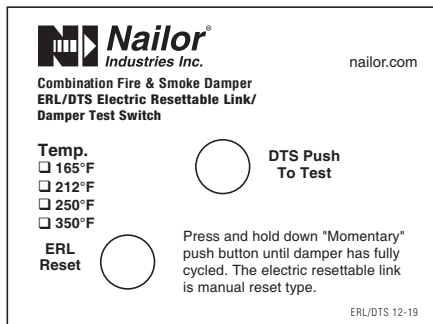
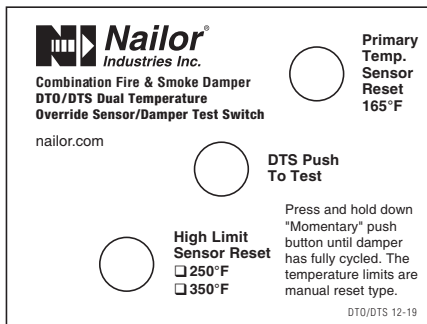


Figure 4. DTS/ERL with MLS-300 Siemens GJD Series (actuator auxiliary switches) Position Indicator Package

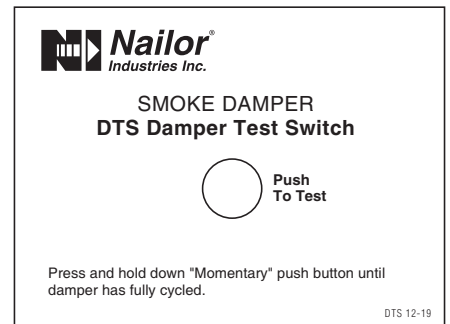
DTS LABEL VARIATIONS:



ERL/DTS Combination Fire/Smoke Damper



DTO/DTS Combination Fire/Smoke Damper



DTS Smoke Damper

SCHEDULE TYPE

PROJECT

ENGINEER

CONTRACTOR

Page 2 of 2

DATE

B SERIES

SUPERSEDES

DRAWING NO.

9 - 3 - 20

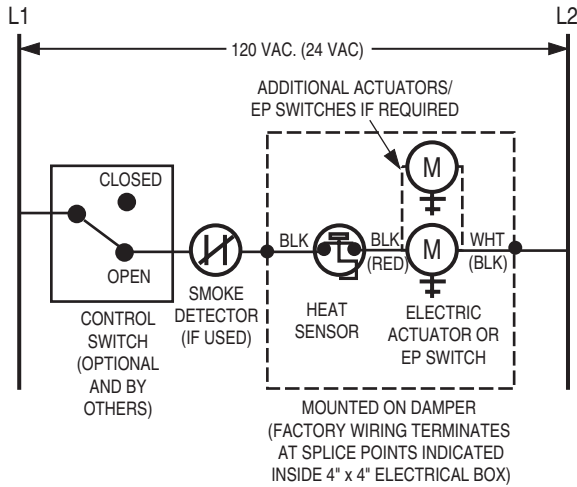
FD-ACC

3 - 29 - 18

DTS



ELECTRIC RESETTABLE LINK FOR COMBINATION FIRE / SMOKE DAMPERS MODEL: ERL



APPLICATION AND OPERATION:

The ERL Electric Resettable Link (heat sensor) is standard on all Nailor combination fire/smoke dampers with an electric actuator. The ERL is a thermally responsive bimetal disc/thermostat that opens and closes electrical contacts at a specific calibrated temperature. The ERL is a UL Classified Heat Responsive Device. The standard ERL has a fixed temperature setting of 250°F (121°C) which is the UL listed elevated/degradation temperature of the damper/actuator assembly. A 350°F (177°C) elevated temperature classification and ERL is available as an option.

[A 165°F and 212°F (74°C and 100°C) ERL are also available. Local codes have specified 165°F (74°C) widely in the past.]

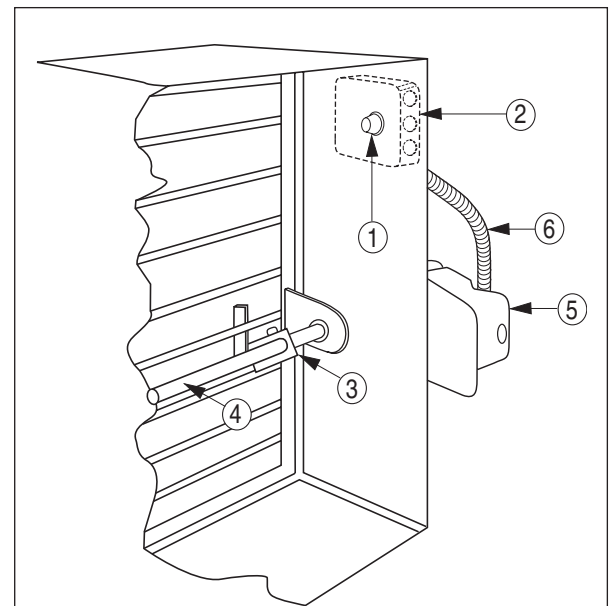
The ERL's function is to sense an abnormally high temperature, as caused by a fire and allow the damper to close in order to prevent the spread of fire and smoke. The sensor interrupts power to the actuator and the actuator's spring return mechanism causes the damper to close and lock.

In smoke control mode, when a signal is detected via a normally closed smoke detector connection, the damper will close and remain closed until the smoke signal ceases. The system will then reset when power is re-applied and the damper will open. The damper may be closed at anytime by placing a control switch (optional and by others) in the closed position.

The ERL in combination with all Nailor qualified electric or pneumatic actuators provides controlled closure and eliminates the instantaneous damper closure associated with traditional fusible links that can cause damage to the ductwork.

The ERL sensor is of the manual reset type and can be reset after the temperature has cooled down below the sensor set point. Exposure to actual fire conditions may render these devices unusable. In this case, it is recommended that a careful inspection of the damper, actuator and ERL be performed.

The ERL requires factory installation and wiring together with the associated actuator to meet UL requirements. If the damper is provided with a pneumatic actuator, an EP switch is required.



DESCRIPTION:

1. ERL 165, 212, 250, 350 Electric Resettable Link (heat sensor)
2. Electrical Junction Box (and EP Switch with Pneumatic Actuator)
3. Over-Center Knee Lock
4. Jackshaft
5. Actuator
6. Flexible Conduit

SCHEDULE TYPE

PROJECT

ENGINEER

CONTRACTOR

Dimensions are in inches (mm).

DATE

9 - 9 - 20

B SERIES

FD-ACC

SUPERSEDES

9 - 23 - 02

DRAWING NO.

ERL

**"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.

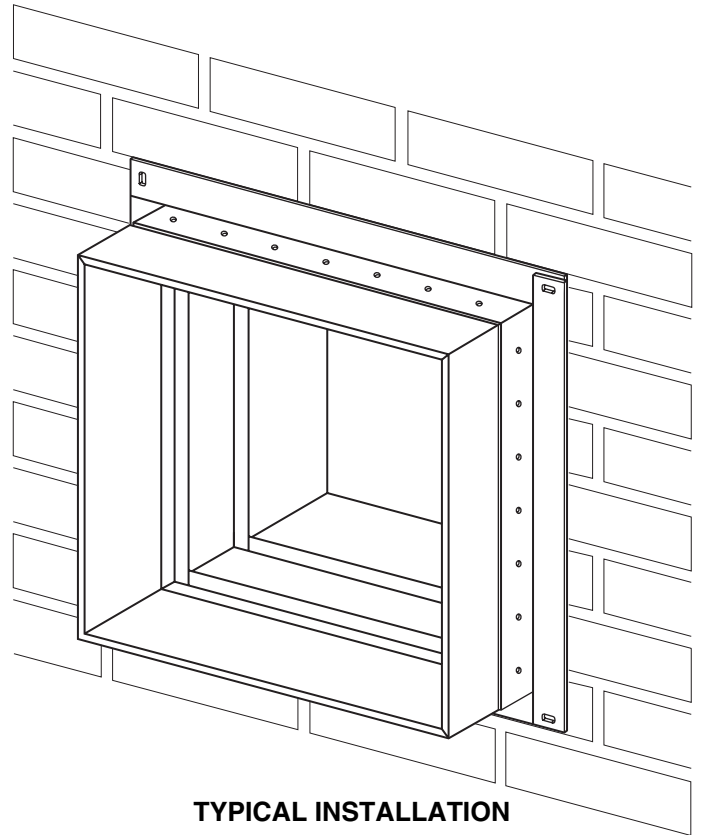
"Quick-Set" retaining angles provide the "complete" installation package. Simple, fast, convenient.

MODELS:

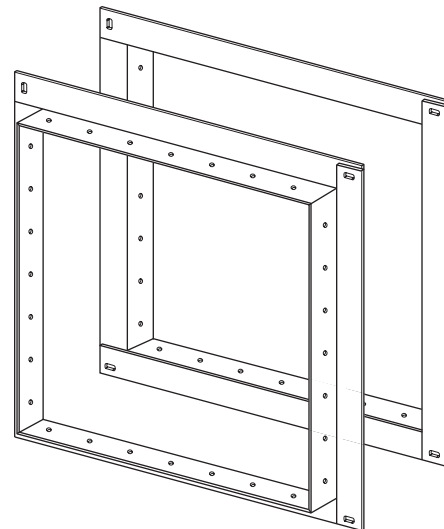
Nailor "Quick-Set" retaining angles are an accessory option for all dampers ordered with factory sleeves.

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.



TYPICAL INSTALLATION



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



SCHEDULE TYPE:
PROJECT:
ENGINEER:
CONTRACTOR:

Page 1 of 2			
Dimensions are in inches (mm).			
DATE	B SERIES	SUPERSEDES	DRAWING NO.
2 - 26 - 09	FD-ACC	6 - 5 - 03	QSRA

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

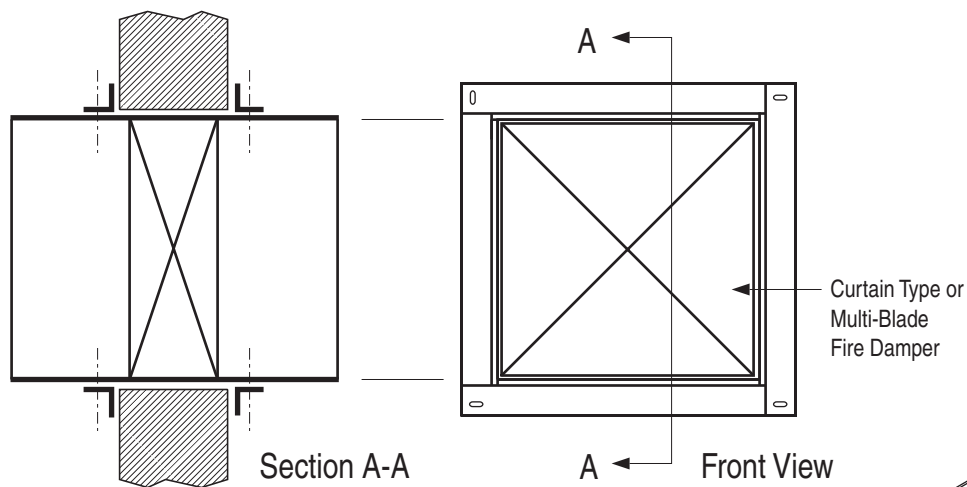


FIGURE 1. TYPICAL TWO SIDED INSTALLATION.

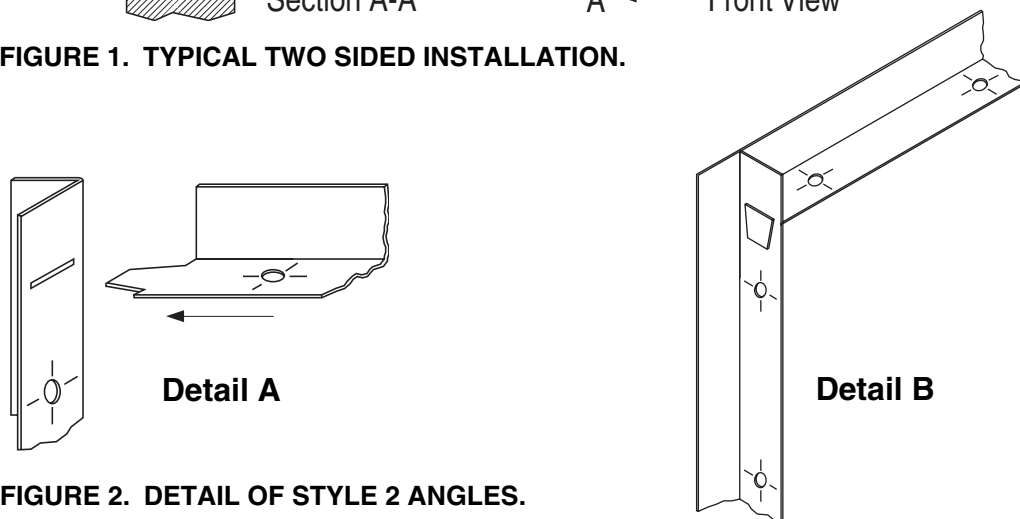


FIGURE 2. DETAIL OF STYLE 2 ANGLES.

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

PERFORMANCE DATA:

MODEL SERIES: 1220 - 1 1/2 HOUR LABEL AND 1220-3 - 3 HOUR LABEL

LEAKAGE CLASS:

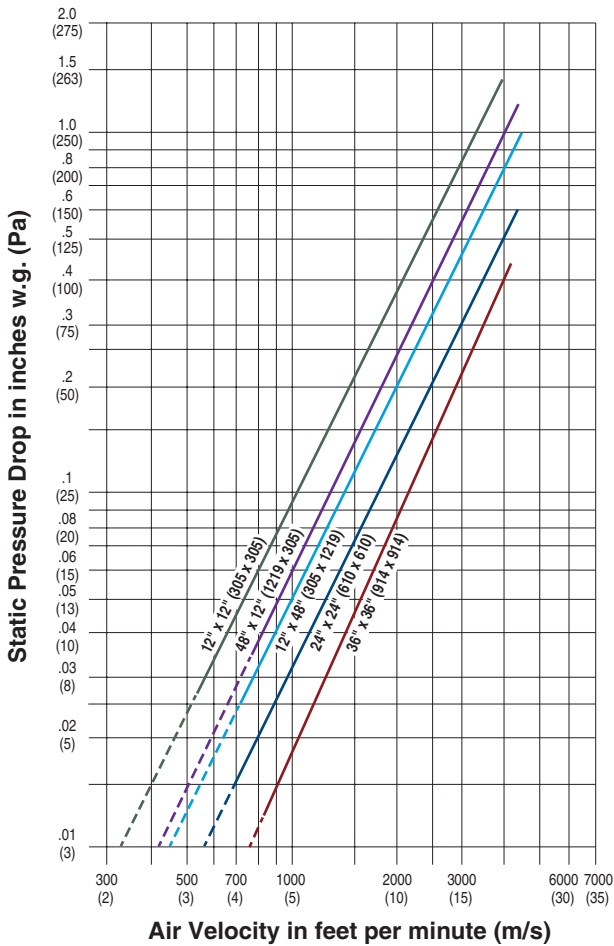
The 1220 Series Combination Fire/Smoke Damper has been designed and qualified under UL 555S in order to provide maximum system design flexibility. They are available with a Class I (currently the lowest available) or Class II leakage rating with all damper/actuator assemblies having been tested successfully at an elevated temperature of 250°F (121°C) or 350°F (177°C), dependent on actuator under airflow of 2000 fpm @ 4" w.g. (10 m/s @ 1 kPa). The 1220 Series has also qualified under extended testing up to 4000 fpm (20 m/s) and 8" w.g. (2 kPa), with some size and actuator restrictions.

The 1220-3 Series Combination Fire/Smoke Damper has been designed and qualified under UL 555S in order to provide maximum system design flexibility. They are available with a Class I (currently the lowest available) or Class II leakage rating with all damper/actuator assemblies having been tested successfully at an elevated temperature of 250°F (121°C) or 350°F (177°C), dependent on actuator under airflow of 2000 fpm @ 4" w.g. (10 m/s @ 1 kPa). The 1220-3 Series has also qualified under extended testing up to 4000 fpm (20 m/s) and 8" w.g. (2 kPa), with some size and actuator restrictions.

1220 Series - Maximum Performance Ratings	
UL 555 Fire Rating	1 1/2 Hour
UL 555S Leakage Rating	Class I
Maximum Velocity	4000 fpm (20 m/s)
Maximum Pressure	8 in. w.g. (2 kPa)
Maximum Temperature	350°F (177°C)

1220-3 Series - Maximum Performance Ratings	
UL 555 Fire Rating	3 Hour
UL 555S Leakage Rating	Class I
Maximum Velocity	4000 fpm (20 m/s)
Maximum Pressure	8 in. w.g. (2 kPa)
Maximum Temperature	350°F (177°C)

PRESSURE DROP:



Pressure drop tested per AMCA Standard 500-D, Figure 5.3.
Data corrected to standard air density of 0.075 lbs./ft.³.



Nailor Industries Inc. certifies that the Models 1220 and 1220-3 Dampers shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only.

COMBINATION FIRE/SMOKE DAMPERS

