

SD35, SD35SS, SD36, SD36SS, SD37, SD50, SD60 AND SD60-2 MULTIPLE SECTION DETAIL

APPLICATION

Ruskin smoke dampers are available with a variety of electric and pneumatic actuators for internal or external mounting. Ruskin has the largest selection of actuators and damper configurations available to meet the needs of our customers. All configurations and actuators called out are two position (Power Open and Fail Closed) actuators. Contact Ruskin for availability of Modulating, 3-position or Fail Open damper assemblies.

Ruskin smoke dampers are tested as a damper/actuator assembly per UL555S. The minimum UL555S test requirement is 2000 FPM, 4" S.P. and 250°F. Other velocities, static pressures and temperatures are available.

HOW TO USE

1. Verify the damper size.
2. Determine the number of sections from which the damper is constructed (refer to note #1 & #2).
3. Find the detail(s) that fit the damper assembly. If more than one detail fits, determine the number of actuators required from the chart on pages 2 & 3.

NOTES:

1. Maximum single section size:
SD35, SD36, SD35SS and SD36SS – 36" w x 72" h (914 x 1829).
SD37, SD50, SD60 and SD60-2 – 48" w x 72" h (1219 x 1829).
2. Dampers larger than the maximum single section size are manufactured in multiple section assemblies consisting of equal size sections not exceeding 36" w x 48" h (914 x 1219) single section size.
3. The details shown on the following pages reflect maximum actuator/damper size limitations based on testing to UL555S.
4. All actuators must be factory mounted.
5. Actuators installed out of the air stream may extend above or below the height of the damper. Refer to the data sheet "Actuators and Accessories Space Envelope for All Fire and Smoke Dampers" for more information.
6. Actuator sizing from the chart below is for one actuator. The actuator cannot exceed the damper width, height or square footage. Multiple actuators may be utilized.
7. When obstructions are in the way, the actuators may be factory located in the airstream or a combination of internal and external mounting can be done to access the actuators.

Example 1

SD60 – 16" w x 10" h (406 x 254) is 1.11 Ft.² (.10m²)

A. Assembly configuration 1 x 1 - Detail 11

(Note: all actuators meet detail 11 so start with the smallest actuator.)

B. ML4202 – 24" w (610) and 18" h (457) and 1 Ft.² (.09m²). The damper width and height is within the limitations of the ML4202 but the 1 Ft.² (.09m²) is not. Move to the next actuator on the list.

C. H2000/3 – 32" w (813) and 32" h (813) and 3 Ft.² (.28m²).

The damper's width, height and sq. ft. are within the damper size.

Example 2

SD60 – 54" w x 24" h (1372 x 610) is 21.33 Ft.² (1.98m²)

A. Assembly configuration 2 x 1 - Detail 21X pr 21Y

B. ML4209 (Detail 21Y) – 64" w (1626) and 32" h (914) and 8 Ft.² (.74m²). The damper width and height is within the limitations of the ML4209 but the 8 Ft.² (.74m²) is not.

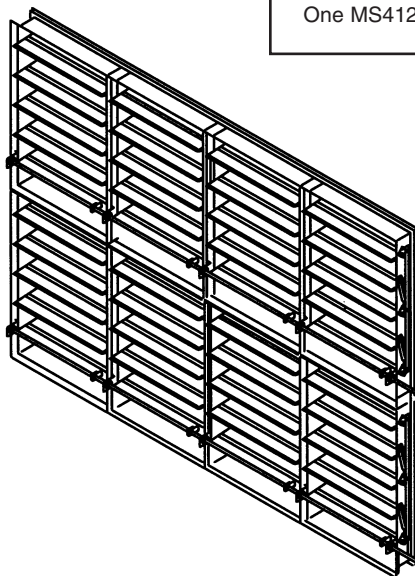
C. H2000/8 (Detail 21X) – 32" w (813) and 36" h (914) and 7.1 Ft.² (.66m²).

Divide the assembly in half 27" w (686) x 32" h (813) and 6 Ft.² (.55m²). the H2000/8 works on half the assembly so 2 actuators are required.

OR

D. MS4120 (Detail 21Y – 64" w (1626) and 32" h (813). The damper's width and height are within the damper size.

One MS4120 works so this assembly would be chosen.



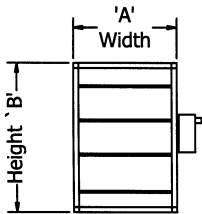
Electric Actuator Sizing (250°F and 4" Static Pressure and 2000 FPM)

Single Section and One Actuator for Multiple Sections ("Y" Details)

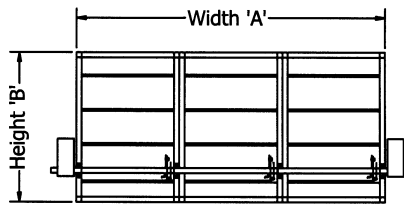
Actuator Model	Corresponding Details	Damper Assembly Size
ML4202, ML8202	11	24"w (610) and 18"h (457) and 1 Ft. ² (.09m ²)
H2000/3, H2024/3		36"w (914) and 32"h (813) and 3 Ft. ² (.28m ²)
FSLF120, FSLF120S, FSLF24, FSLF24S		24"w (610) and 24"h (610)
H2000/6, H2024/6		36"w (914) and 32"h (813) and 6 Ft. ² (.56m ²)
H2000/8, H2024/8		36"w (914) and 32"h (813) and 8 Ft. ² (.74m ²)
MS4209, MS8209		36"w (914) and 36"h (914) and 8 Ft. ² (.74m ²)
FSNF120, FSNF120S, FSNF24, FSNF24S		36"w (914) and 36"h (914) and 8 Ft. ² (.74m ²)
FSAF120, FSAF120S, FSAF24, FSAF24S		36"w (914) and 48"h (1219)
MS4120, MS4120S, MS8120, MS8120S		36"w (914) and 48"h (1219)
MS4209, MS8209, FSNF120, FSNF120S, FSNF24, FSNF24S		21Y, 22Y, 31Y, 41Y and 42Y
MS4120, MS4120S, MS8120, MS8120S	21Y, 22Y, 31Y, 41Y and 42Y	72"w (1829) and 32"h (813)

Pneumatic Actuator Sizing (250°F and 4" Static Pressure and 2000 FPM)

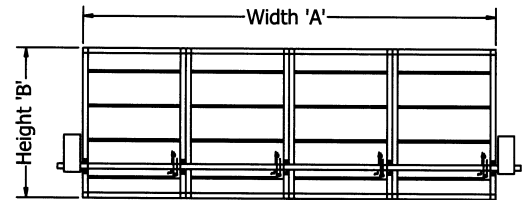
Actuator Model	PSI	Corresponding Details	Damper Assembly Size
331-4827	25 PSI	11	24"w (610) and 24"h (610)
331-2961	25 PSI	11	36"w (914) and 48"h (1219)
331-3060	25 PSI	11	36"w (914) and 72"h (1829) SD35 and SD36 48"w (1219) and 72"h (1829) SSD37, 50, 60 and 60-2
331-2961	25 PSI	21Y, 22Y, 31Y, 31Y-2, 41Y, 42Y-2, 42Y, 42Y-2	72"w (1829) and 36"h (914) 8 Ft. ² (.74m ²)
331-3060	25 PSI	21Y, 22Y, 31Y, 41Y and 42Y	72"w (1829) and 48"h (1219)



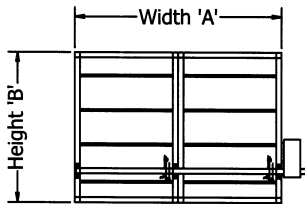
DETAIL 11



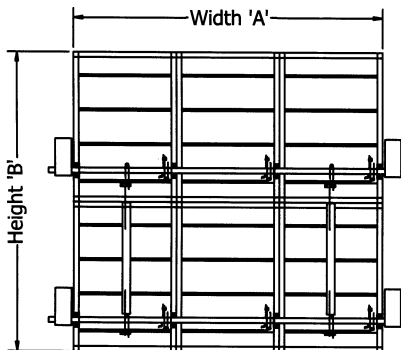
DETAIL 31Y



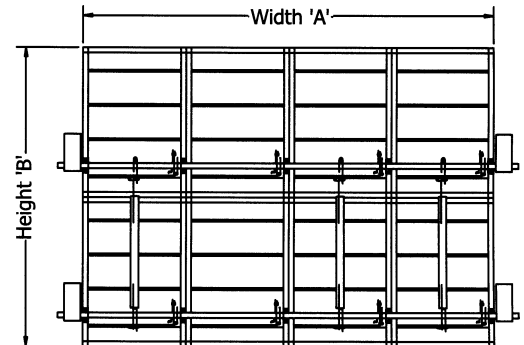
DETAIL 41Y



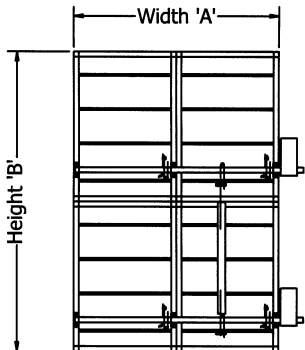
DETAIL 21Y



DETAIL 32Y



DETAIL 42Y



DETAIL 22Y

Electric Actuator Sizing (250°F and 4" Static Pressure and 2000 FPM)

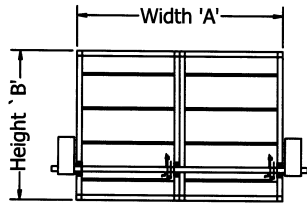
Multiple Section Assemblies ("X" Details) Actuator per Section

Actuator Model	Corresponding Details	Damper Assembly Size
H2000/8, H2024/8	21X	36"w (914) and 32"h (813) and 8 Ft. ² (.74m ²)
MS4209, MS8209	12X, 21X, 22X, 31X and 41X	36"w (914) and 36"h (914) and 8 Ft. ² (.74m ²)
FSNF120, FSNF120S, FSNF24, FSNF24S	12X, 21X, 22X, 31X and 41X	36"w (914) and 36"h (914) and 8 Ft. ² (.74m ²)
FSAF120, FSAF120S, FSAF24, FSAF24S	12X, 21X, 22X, 31X and 41X	36"w (914) and 48"h (1219)
MS4120, MS4120S, MS8120, MS8120S	12X, 21X, 22X, 31X, 32X, 41X and 42X	36"w (914) and 48"h (1219)

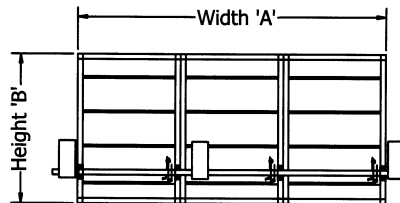
Pneumatic Actuator Sizing (250°F and 4" Static Pressure and 2000 FPM)

Detail "X" (Actuator Per Section)

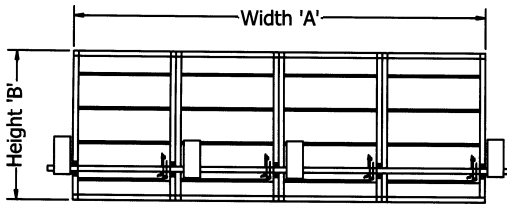
Actuator Model	PSI	Corresponding Details	Damper Assembly Size
331-2961	25 PSI	12X, 21X, 22X, 31X, 32X, 41X and 42X	36"w (914) and 48"h (1219)



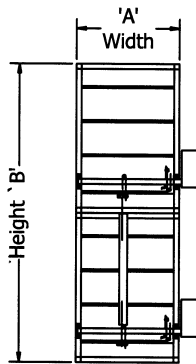
DETAIL 21X



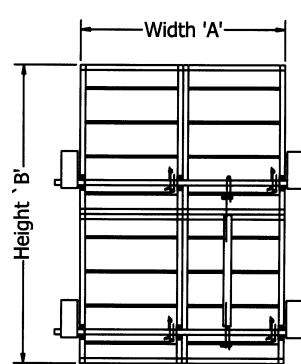
DETAIL 31X



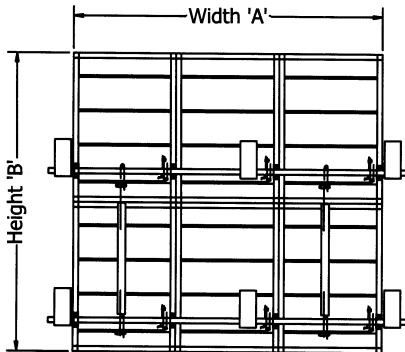
DETAIL 41X



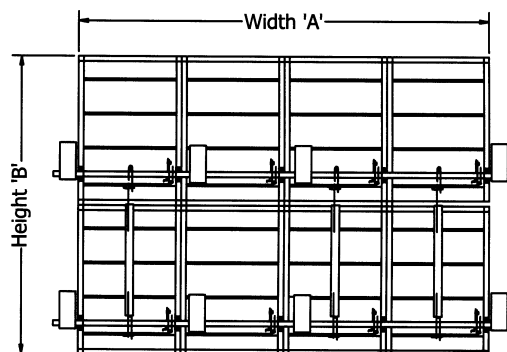
DETAIL 12X



DETAIL 22X

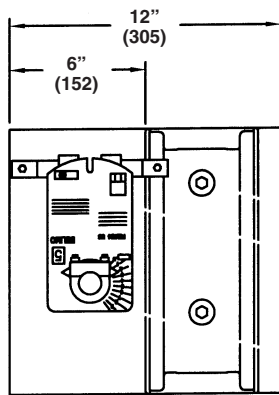


DETAIL 32X

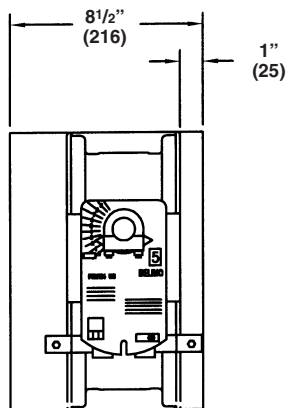


DETAIL 42X

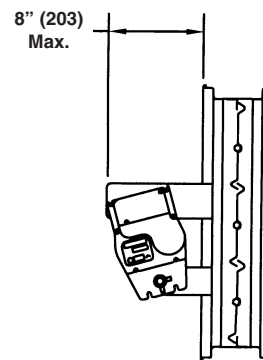
TYPICAL ACTUATOR MOUNTING



Multiple Section with Side Plate



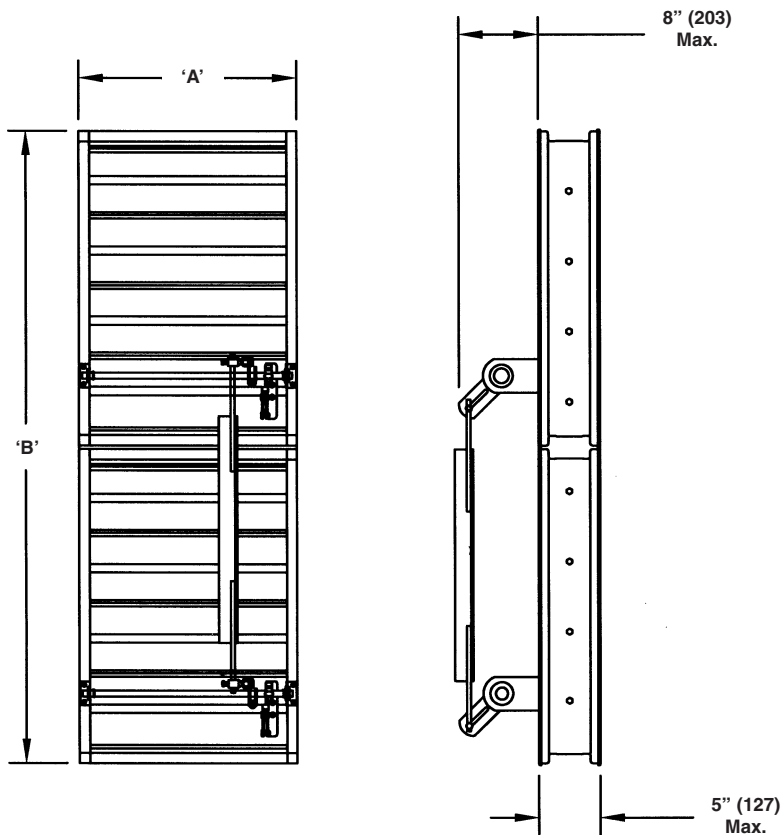
Single Section with Side Plate



Typical Internal Mount

CROSS-OVER LINKAGE DETAIL

NOTE: Damper assemblies two sections high require crossover linkage per the detail below.



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