

Application

The EXA-645-MD is engineered and tested to withstand extreme loads, debris impact, and cyclic fatigue failure associated with the severe weather effects of hurricanes (Miami-Dade County approval #16-0824.04). When closed, the EXA-645-MD also protects against high-velocity wind-driven rain per AMCA 550. The design features stationary drainable louver blades to protect against water penetration and an integral airfoil blade control damper to allow positive shut-off of air intake and exhaust openings. The EXA-645-MD is available in a wide array of painted finishes including custom color matching, and may be ordered with a variety of factory-mounted electric or pneumatic actuators.

Standard Construction

Material: Mill finish extruded aluminum.

Frame: 6" deep × 0.125" thick (152 × 3) channel.

Blades:

Front: 37.5° × 0.081" (2) thick drainable style.

Back: 45° × 0.162" (4) thick operable airfoil style.

Screen: 1/2" × 0.063" (12.7 × 1.6) expanded and flattened aluminum.

Axles: 1/2" (12.7) diameter plated steel hex.

Linkage: Concealed in frame.

Low Leakage Seals: TPV blade edge and flexible metal jamb.

Bearings: Synthetic.

Mullion: Visible.

Minimum Size: 12" × 12" (305 × 305)

Maximum Size: Single section:
60" × 120" (1524 × 3048)
Multiple section: Unlimited width × 120" height

Options

- Factory finish:
 - High Performance Fluoropolymer - 100% resin Newlar®/70% resin Kynar®
 - Baked Enamel/Polyester
 - Prime Coat
- Flange Frame:
 - 1 1/2" (38) flange
- Alternate bird or insect screens.
- Filter racks.
- Head and/or sill flashing.
- Factory mounted electric or pneumatic actuator.
- Sleeve (galvanized steel):
 - 20-GA 16-GA

Ratings

Free Area: [48" × 48" (1219 × 1219) unit]: 7.7 ft² (0.72 m²)
48.1%

Leakage: Class 2 (10 cfm/sq.ft. @ 1 in. wg.)
(50.8 L/s/m² @ 0.2 kPa)
Air Leakage is not AMCA certified

Performance @ Beginning Point of Water Penetration

Free Area Velocity: 1,076 fpm (5.46 m/s)

Air Volume Delivered: 8,281 cfm (3.91 m³/s)

Pressure Loss: 0.12 in.wg. (31 Pa)

Velocity @ 0.15 in.wg. Pressure Loss: 1,184 fpm (6.02 m/s)

Operating Temperature Range: -20°F to +180°F (-7°C to +82°C)

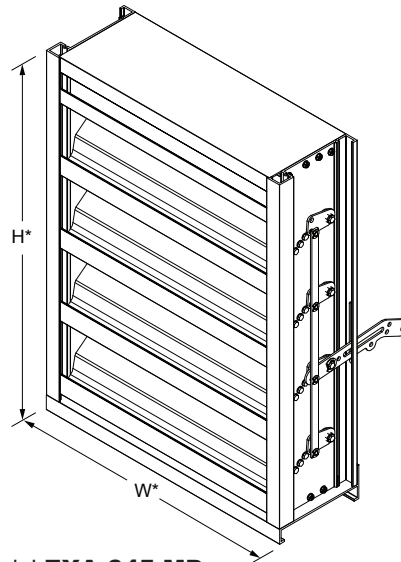
AMCA 540 (impact resistance) listed.

AMCA 550 (high velocity rain resistant) listed.

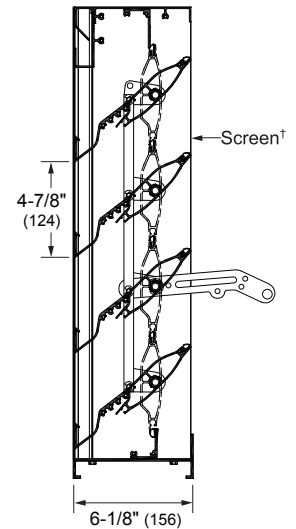
Miami Dade County: NOA No. 16-0824.04 (Expires 10/20/2021)
Approved to FBC TAS201-94, TAS202-94
and TAS203-94.

Florida Building Code Approval (2017-FBC): No. FL21051

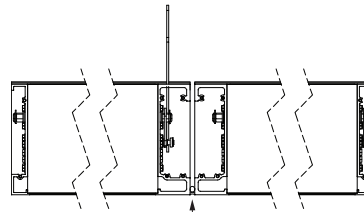
Design Load: 120 psf



Model **EXA-645-MD**
(standard)
*Louver dimensions furnished
approximately 1/2" (13) undersize.

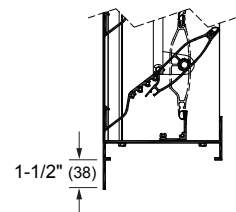


Vertical Section
†Screen adds approximately
3/16" (5) to louver depth.



Caulk and Backer Rod
(field applied)

Vertical Mullion
(standard)



1-1/2" (38)

Flange Frame
(optional)



Certified Ratings:

Pottorff certifies that the model EXA-645-MD shown herein is 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 and water penetration ratings.



**HIGH VELOCITY
RAIN RESISTANT
AND IMPACT RESISTANT
LOUVER**
Basic Protection

See www.AMCA.org for all certified or listed products

This label does not signify AMCA airflow performance certification.

Certified Ratings:

Pottorff certifies that the model EXA-645-MD shown herein is approved to bear the AMCA Listing Label. The ratings shown are based on tests and procedures performed in accordance with AMCA publications and comply with the requirements of the AMCA Listing Label Program. The AMCA Listing Label applies to Wind Borne Debris Impact Resistant Louvers and High Velocity Rain Resistant Louvers.

Performance Data

Free Area (ft²)

		Width (Inches)									
		12	18	24	30	36	42	48	54	60	
Height (Inches)	12	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.7	0.7
	18	0.5	0.8	1.0	1.3	1.6	1.9	2.2	2.5	2.8	2.8
	24	0.7	1.1	1.6	2.0	2.4	2.8	3.3	3.7	4.1	4.1
	30	0.9	1.4	2.0	2.5	3.1	3.6	4.1	4.7	5.2	5.2
	36	1.1	1.7	2.4	3.1	3.7	4.4	5.0	5.7	6.3	6.3
	42	1.4	2.3	3.2	4.0	4.9	5.7	6.6	7.5	8.3	8.3
	48	1.7	2.7	3.7	4.7	5.7	6.7	7.7	8.7	9.7	9.7
	54	1.9	3.0	4.1	5.2	6.3	7.5	8.6	9.7	10.8	10.8
	60	2.1	3.3	4.5	5.8	7.0	8.2	9.5	10.7	12.0	12.0
	66	2.4	3.8	5.3	6.7	8.2	9.6	11.1	12.5	13.9	13.9
	72	2.6	4.2	5.8	7.4	8.9	10.5	12.1	13.7	15.3	15.3
	78	2.8	4.5	6.2	7.9	9.6	11.3	13.0	14.7	16.4	16.4
	84	3.0	4.8	6.6	8.5	10.3	12.1	13.9	15.7	17.6	17.6
90	3.2	5.1	7.1	9.0	10.9	12.9	14.8	16.7	18.7	18.7	
96	3.6	5.7	7.8	10.0	12.1	14.3	16.4	18.6	20.7	20.7	
102	3.8	6.1	8.3	10.6	12.9	15.2	17.5	19.8	22.0	22.0	
108	4.0	6.4	8.8	11.2	13.6	16.0	18.4	20.8	23.2	23.2	
114	4.2	6.7	9.2	11.7	14.2	16.7	19.3	21.8	24.3	24.3	
120	4.5	7.2	9.9	12.7	15.4	18.1	20.8	23.6	26.3	26.3	

Selection Criteria

Follow the steps listed below to calculate the louver size needed to satisfy the required air volume while minimizing the adverse effects of water penetration and pressure loss.

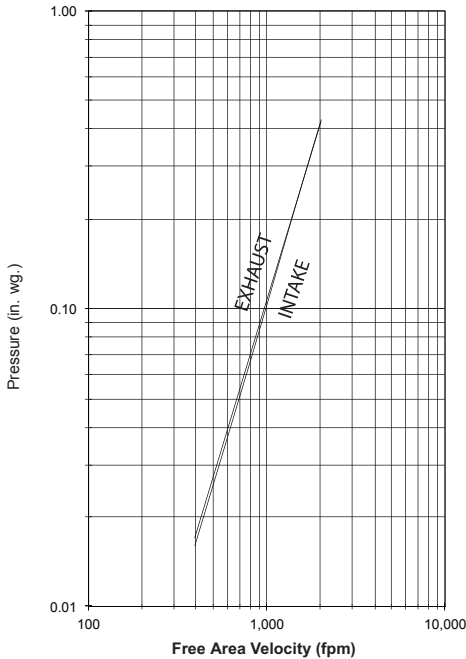
1. Determine the Free Area Velocity (FAV) at the maximum allowable pressure loss using the *Pressure Loss* chart to the left. While job conditions vary, typically, the maximum allowable pressure loss should not exceed 0.15 in.wg., and the FAV for 0.15 in.wg. pressure loss is listed on the front page of this sheet.
2. **Intake Applications** If the FAV at the Beginning Point of Water Penetration (shown below) is less than the FAV from step 1, then use the FAV at the Beginning Point of Water Penetration in step 3, otherwise use the FAV from step 1.
- Exhaust Applications** Use the FAV from step 1 in step 3.
3. Calculate the total louver square footage required using the following equation.

$$\frac{\text{Required Air Volume (cfm)}}{\text{FAV (fpm)}} = \text{Required Louver (Free-Area) Size in ft}^2$$

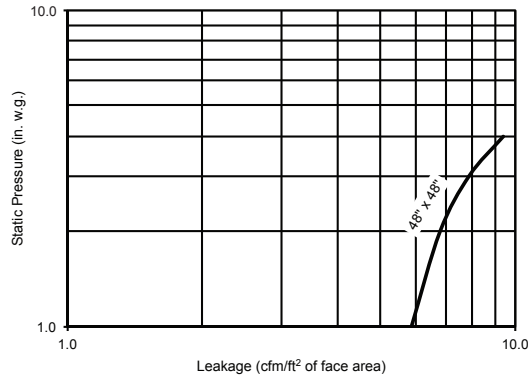
4. Using the *Free Area* chart left, select a louver width and height that yields a free area ft² greater than or equal to the required louver size from step 3.

Pressure Loss

Air Leakage



Pressure loss tested in accordance with Figure 5.5 of AMCA Standard 500-L.
Data corrected to standard air density.



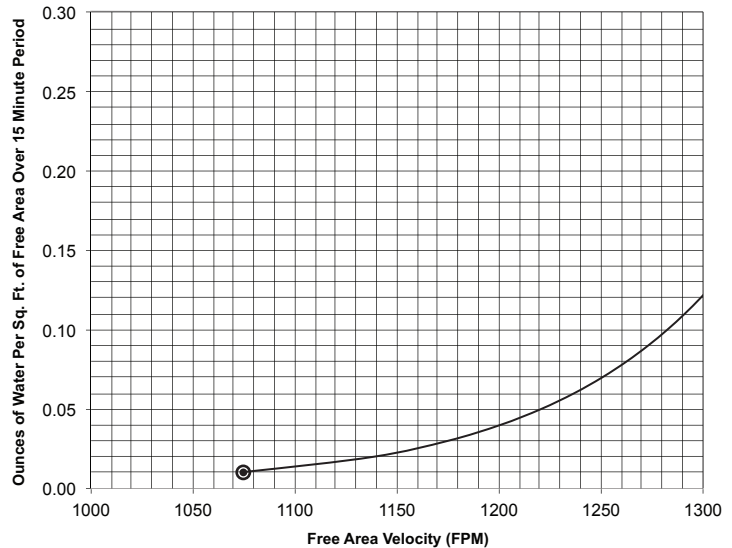
Data corrected to standard air density.
Air Leakage is not AMCA certified.

NOTES:

1. Leakage testing in accordance with Figure 5.4, 5.5 and 6.6A of AMCA Standard 500-L.
2. Data are based on the maximum torque of 2.8 in lb/sq. ft. (3.5 N-m/sq. m) applied to the louver during the test.
3. Air leakage is based on operation between 50°F - 104°F (10°C - 40°C).

Water Penetration

Beginning Point of Water Penetration = 1076 fpm



Water Penetration

AMCA defines the beginning point of water penetration as the free area velocity at the intersection of a simple linear regression of test data and the line of 0.01 ounces of water per square foot of free area measured through a 48" x 48" louver during a 15 minute period. The AMCA water penetration test provides a method for comparing louver models and designs as to their efficiency in resisting the penetration of rainfall under specific lab conditions. Pottorff recommends that intake louvers are selected with a reasonable margin of safety below the beginning point of water penetration in order to avoid unwanted penetration during severe storm conditions.