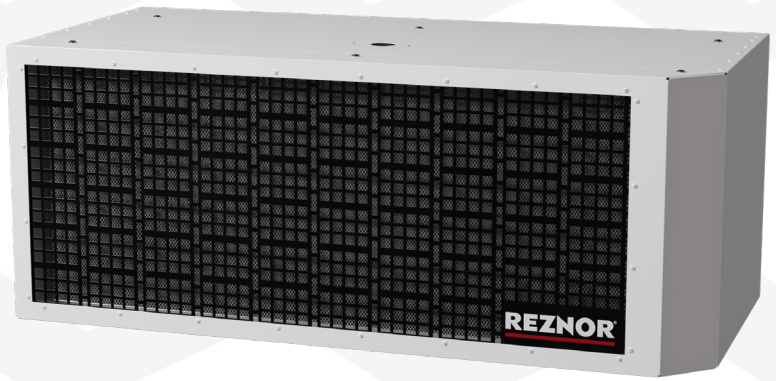
# Commercial/Industrial Air Curtains

# REZNOR®

## Models HAC & HACE

### Separates Outdoor Air from Indoor Air to Enhance Air Quality, Safety, Comfort, and Efficiency

- Ideal for retail stores, healthcare facilities, manufacturing, grow farms, cold storage and vestibule exceptions
- Industry-leading plenum design for maximum uniformity and efficiency
- Wall of air prevents infiltration of insects, dirt, dust, debris and maintains interior temperature
- Attractive, modern design and quiet operation

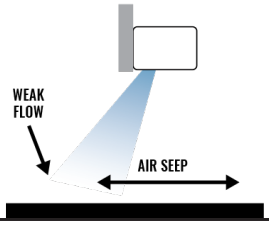



## ALLIES IN COMFORT

# What is an Air Curtain?

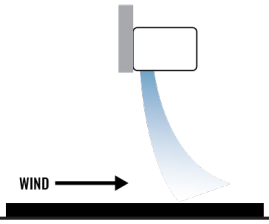
Air curtains mount over doors and openings to create a barrier of air that effectively separates environments. Along with blocking unwanted outdoor elements, air curtains reduce the load on HVAC systems, helping to save on energy costs and create more pleasant indoor conditions.

## ✗ DISCHARGE ANGLE TOO HIGH



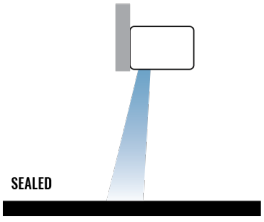

As the discharge angle increases, air travels until hitting the floor. The ideal discharge angle for maximum wind stoppage is around 15°. Since air velocity decreases farther away from the air curtain, large discharge angle installations won't be able to stop much wind from entering near the floor.

## ✗ DISCHARGE ANGLE TOO LOW




Small discharge angles mean air leaving the unit will not have enough horizontal force to stop a significant gust of wind from entering.

## ✓ PROPER DISCHARGE ANGLE




Air curtains are most effective when the discharged air reaches the floor and splits. This split allows most of the conditioned air to be retained while at the same time discharging conditioned air outside to seal the bottom of the doorway. For climate control, the air curtain should be mounted inside, where it is recirculating conditioned air. For example, in winter when preventing cold air from entering, the air curtain should be placed inside so that it is recirculating warm air. When the warm air hits the floor, some leaks out, but most is retained.

For insect control, the air curtain should be mounted on the outside and the discharge angle adjusted so that the air is blowing toward the outside. For this application, the fact that some unconditioned outside air is blowing into the conditioned space inside is of secondary importance to the fact that insects are not able to enter.

# Performance Highlights

Mounted over an inside doorway, an air curtain pulls air into its intake where this air takes form to match the conditioned environment. A laminar airflow is created when this air is accelerated and forced through a narrow discharge along the air curtain's length. To achieve optimum performance, the discharge angle can be adjusted using the provided turning vanes.

## QUIET OPERATION

Most air curtains generate noise by forcing high volumes of air through a narrow, linear discharge. Reznor's industry-leading plenum acts as a muffler, spreading out air in a more even manner before discharging through the plenum.

## POSITION OF HEATING ELEMENTS

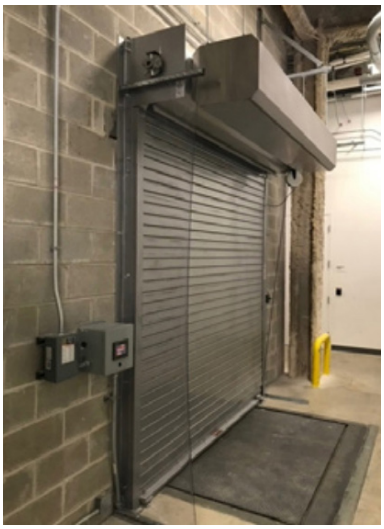
Heating elements are mounted inside the plenum, on the discharge side of the blowers. Here, heat won't affect motor life and the heaters are protected from dust that would accumulate on them if they were mounted on the air intake. Extended life of components means less maintenance costs and longer duration between capital expenditures. Positioning heaters in the plenum also allows ambient air to pass over the motors before being heated in plenum. This ensures heating air for a longer period, creating more heat at the discharge.

# HAC & HACE General Specifications

| Model | HAC | HACE |
|---|---|---|
| Maximum Installation Height (ft) | 16 | |
| Discharge Plenum | High-efficiency with adjustable air foil vane (+/-20°) | |
| Outer Cabinet | Corrosion-resistant painted steel | |
| Air Intake Screen | Perforated stainless-steel with mill grain finish | |
| Motors | 3/4 HP ODP (Open Drip Proof) heavy-duty, direct-drive, dual-speed, 1630 rpm | |
| Single-Phase Motor Options* (V/A) | 120/8.0, 208/230/3.6 | |
| Three-Phase Motor Options* (V/A) | 480/2.0, 575/1.5 | |
| Fans | Galvanized | |
| Sound Levels (dBA) | 63 (high speed)/56 (low speed) measured 10 feet from unit in a free field based on a 1 motor unit | |
| Electrical | Single point power connection available (see electrical table) | |
| Filter | 1/2" cleanable | |
| Controls | SmartTouch controller, Low/Off/High switch, Thermostat (HACE only), 24V Magnetic door switch for activation | |
| Options | N/A | Factory-mounted, single-stage electric heat |
| Approved As | Meets criteria for vestibule exception - tested in accordance with ANSI/AMCA 220 and meets ASHRAE 90.1 and IECC requirements | |
| Listings | ETL for United State and Canada; AMCA tested performance | |

*Contact factory for 3 phase motors

# Considerations for Air Curtain Selection & Placement



- Air curtain selection is dependent on the width and height of the opening.
- For climate control, the air curtain should be mounted on the inside of the opening, so the unit takes in and discharges inside air, which circulates back inside the building. Inside installations will also work for insect control.
- Outside air curtain installation is primarily for insect control, not climate control. The air curtain takes in outside air and discharges it. When the air hits the ground it splits, with some going out and some going in, which defeats the purpose of climate control.
- Typically, the air curtain is mounted above the opening.
- To maximize efficiency, the air curtain must cover the entire true opening.
- For optimum performance, the air curtain discharge must have a free and clear path over the entire opening.

## Other Considerations

### NEGATIVE AIR PRESSURE

If a building has a negative air pressure due to mechanical exhaust, stack pressure, etc., the air curtain will not be as effective.

### INSTALLATION ISSUES

Take note of any obstacles above the opening, and how much room there is to the ceiling on the side of the opening where the air curtain will be mounted.

### VERTICAL INSTALLATION

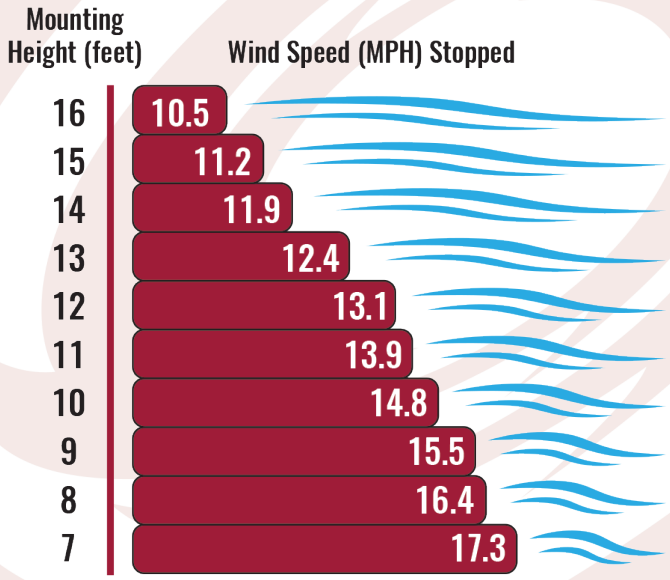
Vertically air curtain mounting brings operational noise of the unit to ground level. A barrier or bollards are recommended to protect against damage and to safeguard employees. A barrier placed on the opposite side of the opening is also recommended to stop the air.

## Sizing Your Air Curtain

Typically, the air curtain is mounted above the opening.

In order to maximize efficiency, the air curtain must cover the entire true opening.

The air curtain discharge must have a free and clear path over the entire opening for optimum performance.

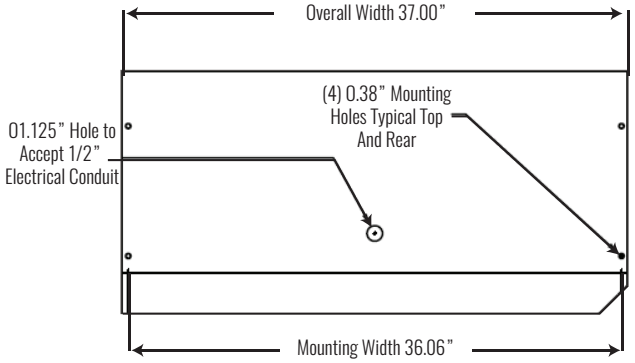


# Performance Table and Mechanical Details

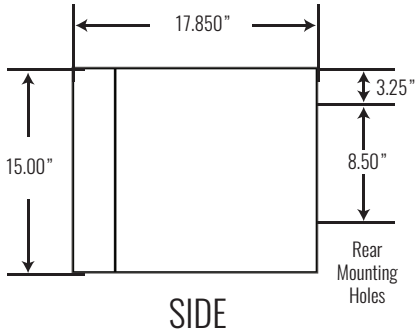
| Model | Overall Width (in.) | Mounting Width (in.) | Nozzle Width (in.) | Maximum FPM at Nozzle | HAC (HACE) | | | | | | | Electric Heat - HACE Only | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Average Outlet Velocity FPM | Airflow Rate CFM | Outlet Velocity Uniformity | Power Rating | Weight lbs | Number of Motors | Motor HP | Heater kW | Temperature Rise (°F) |
| HAC-1-36 (E) | 37 | 36.06 | 36 | 5654 | 2060 (1845) | 1401 (1310) | 88% (82%) | 0.76 (.68) | 90 (95) | 1 | 3/4 | 10 | 24.4 |
| HAC-1-42 (E) | 43 | 42.06 | 42 | 5321 | 2022 (1903) | 1678 (1503) | 88% (83%) | 0.84 (.71) | 97 (102) | 1 | 3/4 | 10 | 21.2 |
| HAC-1-48 (E) | 49 | 48.06 | 48 | 5296 | 1849 (1514) | 1757 (1438) | 84% (85%) | 0.86 (.72) | 104 (109) | 1 | 3/4 | 10 | 22.2 |
| HAC-1-60 (E) | 61 | 60.06 | 60 | 5288 | 1619 (1343) | 2007 (1665) | 72% (79%) | 0.94 (.78) | 117 (121) | 1 | 3/4 | 10 | 19.2 |
| HAC-2-72 (E) | 73 | 72.06 | 72 | 5654 | 2060 (1845) | 2802 (2620) | 88% (82%) | 1.52 (1.36) | 169 (177) | 2 | 3/4 | 20 | 24.4 |
| HAC-2-84 (E) | 85 | 84.06 | 84 | 5321 | 2022 (1903) | 3356 (3006) | 88% (83%) | 1.68 (1.42) | 187 (195) | 2 | 3/4 | 20 | 21.2 |
| HAC-2-96 (E) | 97 | 96.06 | 96 | 5296 | 1849 (1514) | 3514 (2876) | 84% (85%) | 1.72 (1.44) | 203 (210) | 2 | 3/4 | 20 | 22.2 |
| HAC-3-108 (E) | 109 | 108.06 | 108 | 5654 | 2060 (1845) | 4203 (3930) | 88% (82%) | 2.28 (2.04) | 245 (255) | 3 | 3/4 | 30 | 24.4 |
| HAC-3-120 (E) | 119 | 118.06 | 118 | 5340 | 2033 (1886) | 4757 (4316) | 88% (82%) | 2.44 (2.1) | 274 (284) | 3 | 3/4 | 30 | 22.2 |
| HAC-3-132 (E) | 134 | 133.06 | 133 | 5305 | 1860 (1617) | 4809 (4285) | 72% (79%) | 2.46 (2.14) | 290 (301) | 3 | 3/4 | 30 | 22.4 |
| HAC-4-144 (E) | 146 | 145.06 | 145 | 5654 | 2060 (1845) | 5604 (5240) | 88% (82%) | 3.04 (2.72) | 338 (354) | 4 | 3/4 | 40 | 24.4 |
| HAC-4-156 (E) | 158 | 157.06 | 157 | 5648 | 2040 (1876) | 6158 (5626) | 88% (82%) | 3.2 (2.78) | 356 (372) | 4 | 3/4 | 40 | 22.7 |
| HAC-4-168 (E) | 170 | 169.06 | 169 | 5321 | 2022 (1903) | 6712 (6012) | 88% (83%) | 3.36 (2.84) | 374 (390) | 4 | 3/4 | 40 | 21.2 |

E = Electrically Heated

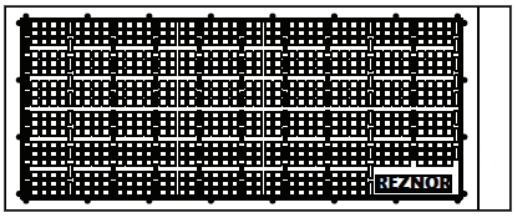
# Mechanical Drawings



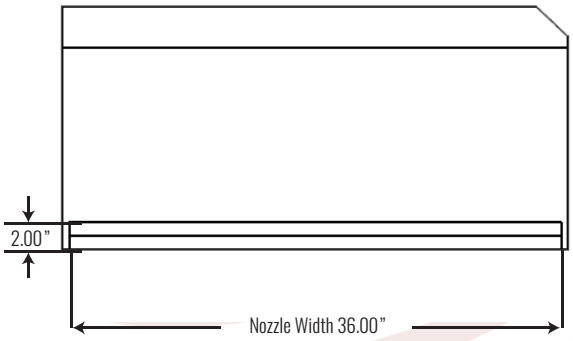

TOP




SIDE



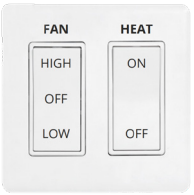

FRONT




BOTTOM

# Control Options: Switches

## COMMERCIAL APPLICATIONS





- Decorator Switches - attractive installation for remote mounting
- Variable Speed Selector Switch - directly varies the speed of the air curtain or turns the unit off. For use with 120 and 208/240 motors only.

## INDUSTRIAL APPLICATIONS



- ON / OFF Selector Switch - switches air curtain on and off
- HIGH / OFF / LOW Selector Switch - switches between high and low speeds or turns air curtain off
- Heat ON / OFF Selector Switch - turns electric heat on and off while fans are running, or when used in conjunction with a thermostat, can disable the heat.

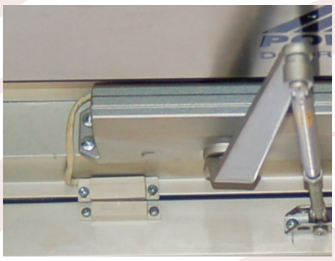
## PROGRAMMABLE


- SmartTouch Control Features
  - Cost-effective, compact and multi-functional controller
  - Remote mount or affix directly to air curtain
  - User can select and set key features including temperature, fan mode, and heat control
  - Adjustments can be made quickly and easily to accommodate changing conditions, seasons, and user requirements

# Control Options: Activation

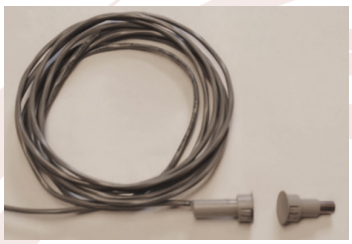
Door switches are used for the automatic starting and stopping of air curtain systems, as doors open and close.

## COMMERCIAL MAGNETIC DOOR SWITCH - SM-300



- Consists of a magnet portion and switch portion
- Switch is mounted on frame and magnet is mounted on moving door such that when door is closed, magnet comes in proximity of switch
- When door starts to open, magnet will move away from switch, closing switch and activating air curtain

## INDUSTRIAL MAGNETIC DOOR SWITCH - SM-226L



- L-shaped bracket minimizes effect of steel door on magnets
- Weather-proof die-cast aluminum switch mounts to floor and can withstand heavy vehicle pressure without damage
- Flexible armored cable protects switch wiring

The AMCA Certified Ratings Seal applies to airflow rate, average outlet velocity, outlet velocity uniformity, velocity projection and power rating at free delivery only.
Reznor certifies that Model HAC shown herein is licensed to bear the AMCA Seal for Air Performance. Ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211and comply with the requirements of the AMCA Certified Ratings Program.

**Call your Reznor® Rep at 800.695.1901 to find a product that works for you.**

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