

APPLICATION

The PRAD (Positive) and the VRAD (Negative) pressure relief doors are designed to open automatically at 1 in. wg (.25 kPa) above normal operating system pressure. The function of these doors is to prevent ductwork from imploding or exploding in the event the dampers close while the fan is still operating. By opening outward (PRAD) or inward (VRAD) at a specified pressure setting, the doors permit rapid neutralization of the pressure differential between the inside and outside of the HVAC system. The pressure relief setting is factory set and tested prior to shipment. The pressure setting of the door can be factory adjusted from 2 in. wg to 12 in. wg (.5 kPa to 3 kPa) in 1 in. (25mm) increments.

CONSTRUCTION

Frame: .062 in. (1.6 mm) thick aluminum extrusion, Z & T-shape

Door: .050 in. (1.3mm) thick aluminum extruded perimeter with 24 to 16 ga. (.7mm to 1.5mm) skin and polyurethane filled seal core (NFPA 90A compliant).

Trim Flange: 1 in. (25mm) around perimeter

Seal: Co-extruded PVC leaf gasket

Range of Settings: Factory adjusted pressure settings range from 2 in. wg to 12 in. wg (.5 kPa to 3 kPa). Door is specifically set 1 in. (25mm) above normal operating system pressure, unless otherwise specified.

Cable Assembly

with Spring: Cable assembly limits door opening to 80°, preventing door and duct damage.

Latch: Adjustable magnet assembly is factory set at desired relief pressure. Pressure must be given at time of order to properly place latch. Latch is field adjustable.

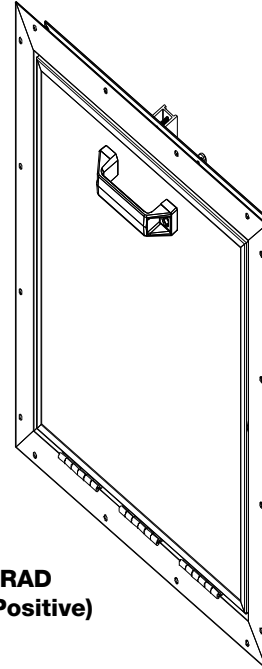
Service

Temperature: -40°F (-40°C) to 120°F (49°C)

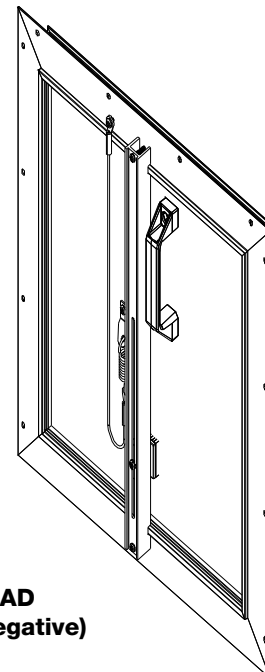
Door sizes:

- 10 in. W x 10 in. H (254mm x 254mm)
- 12 in. W x 12 in. H (305mm x 305mm)
- 18 in. W x 18 in. H (457mm x 457mm)
- 24 in. W x 24 in. H (610mm x 610mm)

Width and height dimensions are undersize 3/16 in. (4.7mm).



PRAD
(Positive)



VRAD
(Negative)

Selection

1. Locate the fan curve for the system (see figure A).
2. Determine the maximum pressure the ductwork is designed to handle. Locate where the maximum pressure of the ductwork intersects the fan curve (see Figure A).
3. The figure from step 2 gives the volume of air that should be relieved.
4. Refer to the Relief Airflow vs. Static Pressure chart (see Figure B).
5. Select an appropriate door size (standard 18 in. x 18 in. [457mm x 457mm]). Determine the volume of air the door will relieve at the maximum design pressure.
6. Divide step 2 by step 5 to determine the number of doors required.
7. Select the set point ranging from 2 in. wg to 12 in. wg (.5 kPa to 3 kPa). The set point is usually 1 in. (25mm) above normal operating pressure.

This table shows the amount of door leakage versus duct static pressure.

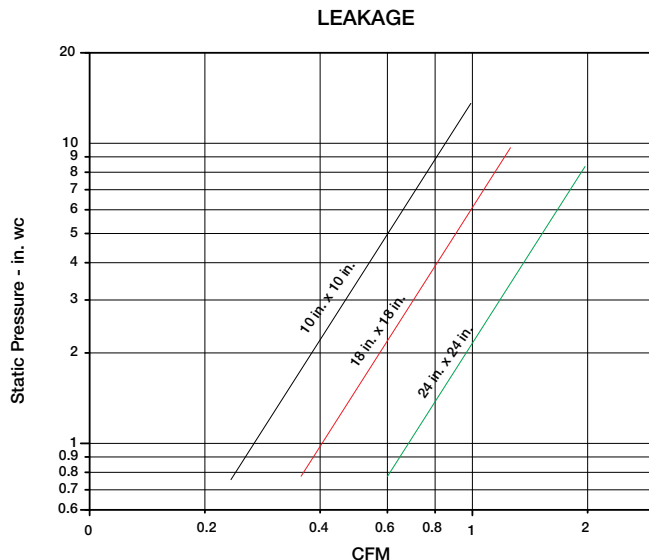
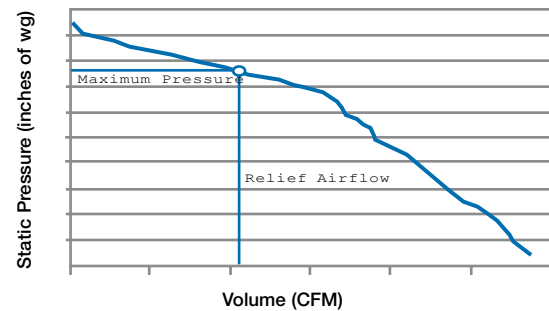
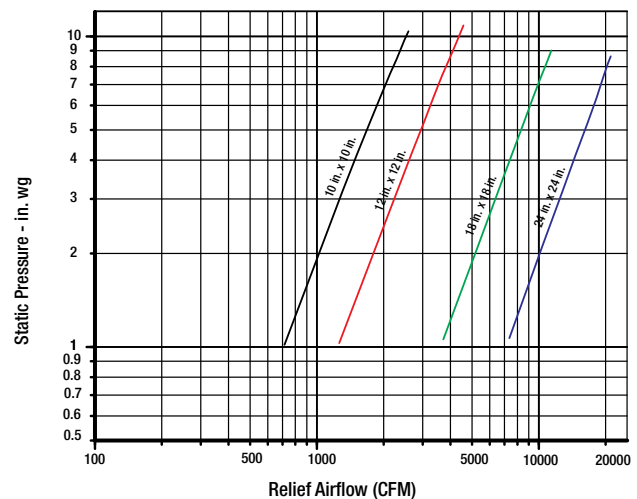


Figure A Fan Curve



** Note Fan curve should be supplied with Manufacturer's documentation



Note:

- 1) Door must be installed vertically and level, with hinges down, for proper operation.
- 2) Desired static pressure settings should be given at time of order.
- 3) The pressure relief doors must be manually closed after opening due to excess pressure or vacuum.

Installation:

Cut door opening to size of door selected. Doors are 3/16 in. (4.7mm) undersize. Attach door using #10 self drilling tek screws.

Specifications

Greenheck Pressure relief doors (PRAD & VRAD) meet the following minimum specification.

Frames shall be of Z (out swing) or T (in swing) shape, extruded aluminum with minimum wall thickness of .062 in. (1.6mm). Door panels shall be of solid core, 1 in. (25mm) thick, of extruded aluminum and minimum G60 galvanized steel, injected with closed-cell polyurethane foam. Door gasket shall be of extruded PVC of a leaf-type design, positioned so that the pressure differential of the unit will increase the contact of the gasket against the door. Doors shall open freely at least 70 degrees to afford maximum unobstructed airflow when activated.

Door assemblies shall include a spring-cushioned stop device to limit open travel to 80 degrees maximum in order to prevent damage to ductwork and adjacent structures upon pressure relief and system shutdown. Pressure relief settings shall be available from 2 in. wg to 12 in. wg (.5 kPa to 3 kPa) increments. (Designer selects pressure setting). Pressure relief mechanism shall be factory and field adjustable. Leakage, as tested and certified by an independent laboratory, shall not exceed 0.6 cfm/ft² at 12 in. wg (.0003 m³/s @ 3 kPa).

Basis of design is Greenheck model PRAD and VRAD.

