

PRD18 (POSITIVE) / NRD18 (NEGATIVE) PRESSURE RELIEF DOORS

APPLICATION

The PRD18 (positive) and the NRD18 (negative) pressure relief doors are designed to open automatically to prevent exploding or imploding ductwork in the event dampers close while the fan is still operating. The doors open outward (positive) or inward (negative) at a specified pressure setting relieving or supplying pressure within the duct to equalize the pressure.

The accurate pressure relief setting is factory set and tested in an AMCA approved lab prior to shipping.

STANDARD CONSTRUCTION

FRAME

12 gage (2.8) galvanized steel, Z-shape.

DOOR

12 gage (2.8) galvanized steel.

FLANGE

1" (25) around full perimeter.

SEAL

Polyurethane foam around door perimeter.

PRESSURE RELIEF SETTINGS

The PRD18 is available for relief pressures from 2" (.50 kPa) to 10" (2.49 kPa) w.g. while the NRD18 is available for relief pressures from -4" (-1kPa) to -10" (-2.49 kPa) w.g. Specify pressure desired for door operation. Set pressure must be at least 1" w.g. above normal system pressure.

(Consult factory for availability of other settings.)

SPRINGS

Negator type springs are used for door closure upon pressure relief and system shutdown. Pressure relief at low pressures may require manual door closure.

INSTALLATION

Cut openings $\frac{5}{8}$ " (16) larger than door size. Fasten door to duct with flange using fasteners appropriate for each application.

DOOR SIZE (w x h)

PRD18 - 18" x 18" (457 x 457)

24 x 10 (610 x 254)

24 x 12 (610 x 305).

NRD18 - 18" x 18" (457 x 457) only.

TEMPERATURE LIMITS

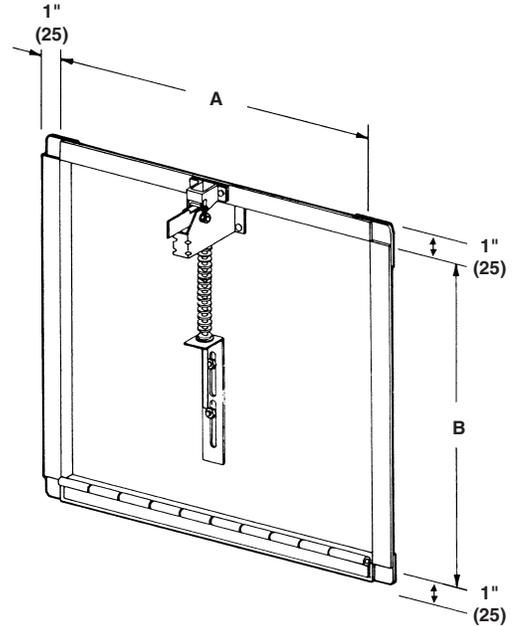
-40°F (-40°C) minimum and 120°F (49°C) maximum.

VARIATIONS

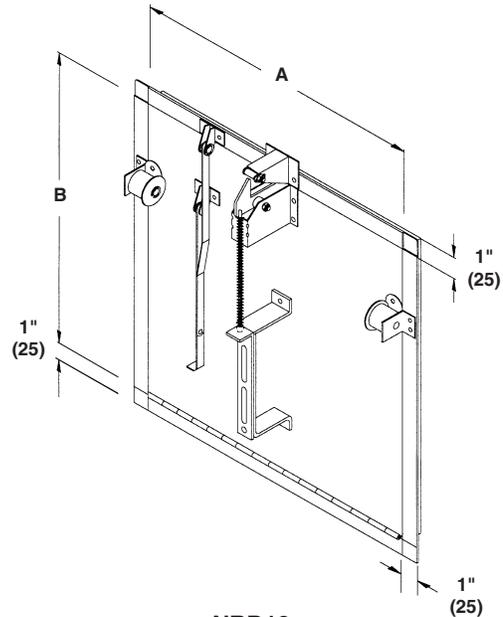
- Stainless steel construction.
- Heavier construction for high pressure

NOTES:

- (1) Door must be installed vertically and level for proper operation.
- (2) Pressure Relief Setting is not field adjustable.
- (3) Dimensions in parenthesis () indicate millimeters.



PRD18



NRD18
(18" x 18" [457 x 457] only)

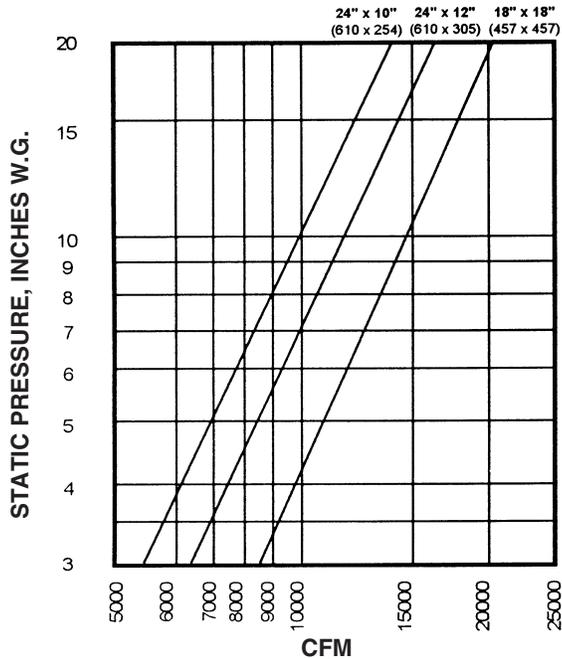
SPECIFICATION

Furnish and install, at locations shown on plans or in accordance with schedules, pressure relief doors that meet the following minimum specifications. Frames shall be Z-shape 12 gage (2.8) galvanized steel. Door shall be 12 gage (2.8) galvanized steel hinged on one side. Seal shall be around the door perimeter allowing no more than 7 CFM per FT² at 1.0 inch w.g. Leakage and relief volume information must be included in submittals. Door shall include stainless steel springs to close door upon pressure relief and system

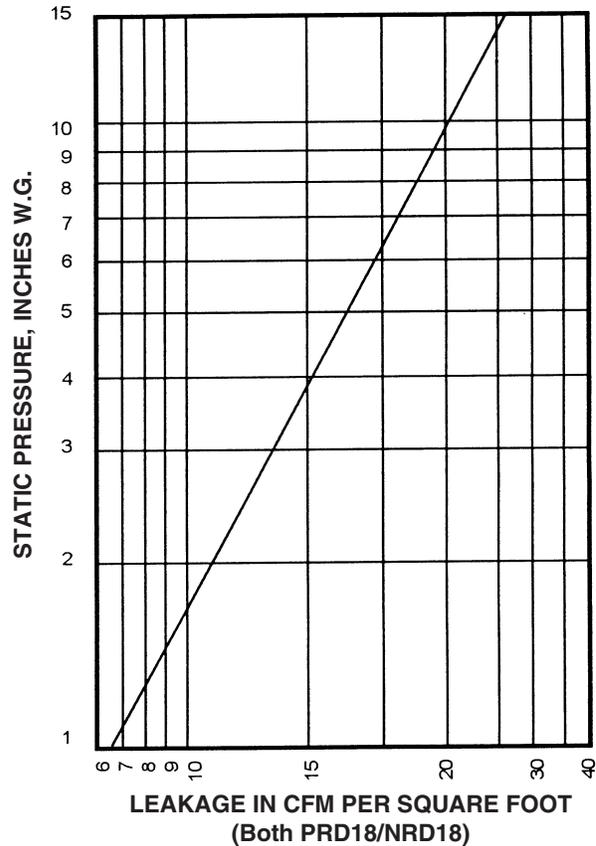
shutdown. All release mechanisms springs and parts shall be completely out of airstream. Pressure relief settings available from 2" (.50 kPa) to 10" (2.49 kPa) increments of 1" w.g. (.25 kPa). (Specify Select pressure setting). Pressure relief mechanism shall be factory calibrated in an AMCA Registered Laboratory. Pressure relief doors shall be Ruskin PRD18 (positive relief) or NRD18 (negative relief).

PRD18 PERFORMANCE INFORMATION

AIRFLOW vs. PRESSURE, IN. W.G.



LEAKAGE vs. PRESSURE, INCHES W.G.

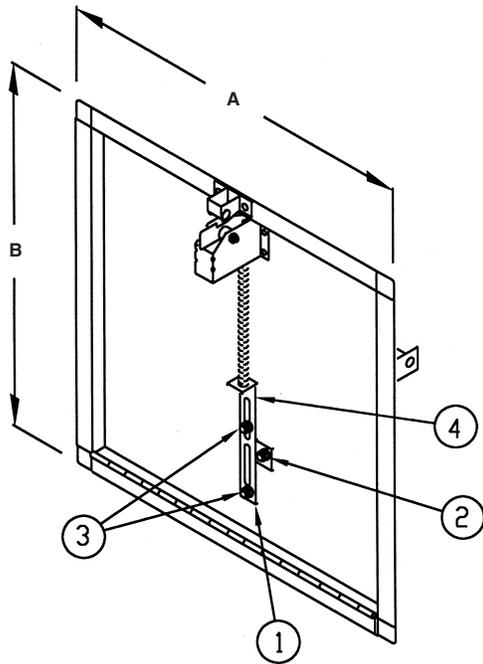


APPLICATION INFORMATION

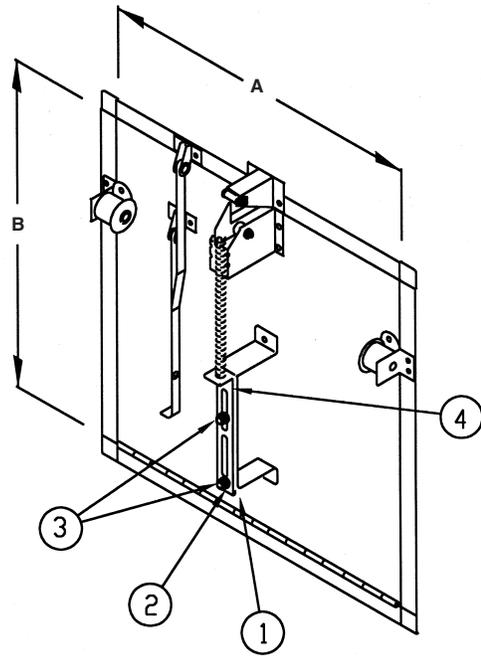
- Determine the maximum pressure the ductwork is designed to handle.
- Refer to the Airflow vs. Pressure chart above.
- Select an appropriate door size (standard 18" x 18"). Determine the volume of air the door will relieve at the maximum design pressure.
- Divide step 1 by step 5 to determine the number of doors required.
- Select a setpoint ranging from 3" to 10". The setpoint is usually near the maximum ductwork design in inches w.g. You may consider a safety factor of .5" w.g. when determining the setpoint. The setpoint is set at the factory.
- Ruskin suggests relieving approximately 80% of the total system volume. Use similar steps listed above with the Ruskin airflow vs. pressure chart to determine what an individual door is capable of relieving.

Important Application Note:

Door will open (without warning) when duct pressure exceeds rated door pressure. To avoid injury locate door above or away from occupied or traffic areas.



PRD18



NRD18

ADJUSTMENT INSTRUCTIONS

1. Mark a reference mark on the door face along the butt end of the adjustment arm.
2. Remove the Tek screw from the adjustment arm.
3. Loosen the two nuts holding the adjustment arm in place. **Caution:** Adjustment arm is under spring pressure.
4. Move the adjustment arm up to increase the opening pressure or down to decrease the opening pressure. A slight movement either way can change the pressure setting.
5. Retighten the nuts and (if possible) subject the PRD18 to flow and pressure. Measure pressure with manometer or suitable gauge.
6. If readjustment is required follow steps 2 thru 5 until the desired pressure is achieved.
7. Once the opening pressure is correct, secure the adjustment arm with the Tek screw.
8. Fill in the old Tek screw hole with Silicone caulk, duct sealant, screw or rivet.

NOTES

1. PRD18 and NRD18 doors are factory set to the customer's specifications and the setting is marked on the door.
2. The door must be installed vertically and level for proper operation.
3. Doors factory set for 4" W.G. and under may not be adjusted above 5" W.G. Doors factory set for 4" W.G. through 8" W.G. should not be adjusted above 8" W.G.
4. Ruskin Co. can not be held responsible for damage to duct work because of mis-adjustment in the field.

RUSKIN®

3900 Dr. Greaves Rd.
Kansas City, MO 64030
(816) 761-7476
FAX (816) 765-8955
www.ruskin.com