

300 Blower Door QuickGuide

Download the "Blower Door Operation Manual" and the "Residential Pressure & Air Leakage Testing Manual" from Read warnings.



Cloth panel

DM32 gauge

Umbilical cable

Fan

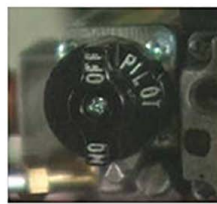
Step 1: Prepare the building

Refer to the Gauge QuickGuide and become completely familiar with its operation before performing a test.

- Fireplaces and stoves must be cold with doors closed (cover ashes).
- Close and lock outside doors and windows so they don't open during the test.
- Open all interior doors leading to conditioned spaces.
- Shut off HVAC, combustion appliances, exhaust fans, dryers, A/C and furnaces. Ensure they will not come on
- Turn gas hot water to Pilot.



Remove or cover ashes.



Turn gas valve to Pilot.



Close all windows and outside doors.

Step 2: Install the system

- Set up the Door Panel.
Refer to your "Door Panel QuickGuide"
- Connect the short red tube to the red port on the gauge.
- Connect the yellow tube between yellow ports marked "Ref B" on fan and gauge. If the fan has a green port ("Input B"), connect the green tube.
- Connect the Ethernet style Speed Control Cable to the fan and gauge.
- Pass the red tube through the Door Panel and toss the end at least 5 feet away from the fan's airstream.
Water in the tube will result in erroneous readings.



- Install the fan blowing outdoors. Secure the Quick Connect Collar to the back of the fan before inserting through the door cloth.

Quick Connect Collar



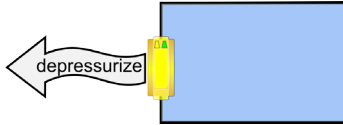
- Cover the fan.
- Refer to "Range Configurations" QuickGuide for assistance on selecting proper fan coverage.
- Connect power cord between fan & a wall outlet.



- Place gauge near fan, or attach gauge to Door Panel.



Step 3: Conduct depressurization test, (CFM@50)

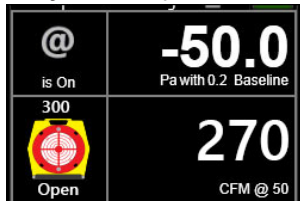


- Gauge [On], tap [Settings] then [Baseline].
- Tap [Capture Baseline]. After 20 seconds on a calm day or 60 seconds on a windy day, tap [End Capture] then [On] to return to the Home screen.
- Uncover fan. Set on Open Range for 300 fan.
- Ensure gauge shows correct Range on Home screen.

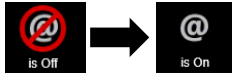


Open

- Disconnect Speed Control Cable, turn knob to zero then adjust until pressure is about 50 Pa.



- Tap [Set Pressure] [50] [Set] [@] to calculate what the flow would be at exactly 50 Pa.



Step 4: Desired results not achieved?

Cannot achieve test pressure at full speed?

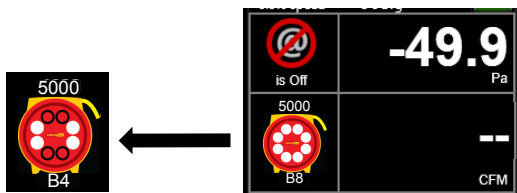
If fan reached 100% speed but could not achieve 50 Pa:

- Ensure that all doors and windows are closed.
- If possible, use Range with larger opening to get more flow and try again.
- Change [Range] on the gauge to match.
- Re-adjust fan speed.

Flow reads "--" at test pressure?

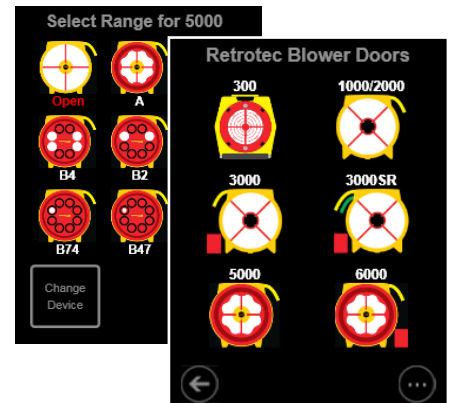
If the test pressure has been reached, but "--" appears, the fan is running too slowly to accurately measure flow.

- Add the next lower Range
- Change [Range] to match



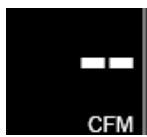
Gauge set up

Make sure the device shown on the Home screen matches your fan. To change device, tap the fan picture, then the [Change Device] key.



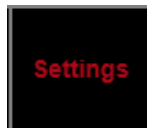
Select your device from the graphics under "Retrotec Blower Door" then select Range.

For 300 fans, start with Open Range.

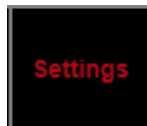


Tap on [Channel B] to change the type of result or units. Refer to gauge and "Residential Pressure & Air Leakage Testing, Appendix A" manuals for guidance.

Time averaging
5 seconds



Tap [Settings] then [Time averaging] to adjust the time averaging. 5 seconds is OK for a calm day. 10 or 30 seconds can be used on windy days.



Tap [Settings] then



Make sure the [Default @ Pressure] is set to 50 Pa.

Default @ Pressure
50 Pa



- Tap to return to the Home screen.


Different Results

Tap the **[Channel B]** key to view a different Result, or tap **[Result to be displayed]** on the **[Settings]** menu.

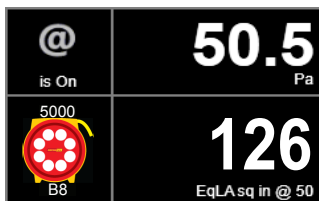
Flow: CFM	Required by many states. Also available in metric units.
Flow/Area: CFM/sq ft Flow normalized by area	Normalized leakage area is used in many standards. All common units are available.
ACH: /h Air changes per hour	Air Changes per hour can be shown directly on the gauge. Enter volume as shown below.
EfLA4/area: sq in/sq ft Normalized EfLA at 4 Pa	Specialized units such as Effective Leakage Area are also available.
Area 1,200 sq ft	When a Result is chosen that requires an area or volume, [Area] or [Volume] will be shown on the Home screen.
Volume 22,000 cu ft	Tap [Area] or [Volume] to change. The area and volume can also be changed from the [Settings] menu.

Show leakage area Result

Equivalent Leakage Area (EqLA) describes the leakage area in terms of one large hole in a flat surface.

Tap the **[Channel B]** key, then , and select "EqLA: sq in"

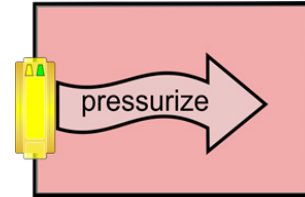
[Channel A] shows the building pressure and **[Channel B]** "EqLA" shows the combined size of all holes in the building.



Leakage area is not a required result, but is a nice way to visualize the size of the hole in the ducts.

Pressurization test

Turn the fan around to blow air into the house.



Tube configuration is the same as the depressurization test.

Adjust fan with gauge

Connect Speed Control Cable to the fan. Solid green Status light indicates gauge is connected.

Tap **[Set Pressure] [50] [Set]** to get gauge to control to a pressure of 50 Pa.



CAUTION: Doors opening during the test will cause fan speed to increase which will create a pressure pulse when that door is re-closed, disturbing dust, soot, and particulates, causing damage. **STOP** the Fan if a door opens.

Tap **[Set Speed] [50] [Set]** to set speed to 50%.



When **[Set Speed]** or **[Set Pressure]** is used, the Jog keys become active on the **Home** screen. Use the **[JogUp] [JogDown]** arrow keys to increase or decrease the target by 5 Pa or 1%.



Tap **[Stop]** to turn the fan off.

Adjust fan speed remotely

Use optional WiFi to control the fan remotely. Refer to "GaugeRemote QuickGuide".



Control fan speed with software

Speed control is handled automatically with FanTestic software, for complete automation.

The screenshot shows the FanTestic software interface for an Air Leakage Test. Key sections include:

- Equipment:** Primary Gauge: DM32 5/16 402058, Primary Fan: Retrotec 1000 5/16 121458
- Building and Customer details:** (Expandable section)
- Set 1: Pressurization set:** Start date: 2015-06-02, Start time: 16:01, Operator location: Inside, Temperature: Initial indoors 66 °F, outdoors 68 °F.
- Induced pressure (Pa) table:**

Induced pressure (Pa)	60	55	50	45	40	35	30	25	20	15	10	8
Test fan (Pa)	150	120	115	110	113	100	91	81	72	60	50	44
- Temperature, Final:** indoors 66 °F, outdoors 68 °F
- Summary Table:**

Total Corrected Flow (CFM)	2609	2229	2223	2217	2138	2205	2132	2039	1960	1819	1709	1619
Error (%)	7.9%	-6.2%	-4.7%	-3.0%	4.7%	1.4%	1.0%	0.2%	0.6%	-3.2%	0.5%	-0.5%
- Calculate Results Table:**

Value	Units	confidence interval
Air flow at STP	2335.8 CFM at 50 Pa	+/-3.5%
Air change rate	14.03 /h at 50 Pa	+/-3.5%
Flow / unit floor area	0.4672 CFM/sq ft at 50 Pa	+/-3.5%
Flow / unit enclosure area	0.16 CFM/sq ft at 50 Pa	+/-3.5%

Field check system monthly

- Perform a Blower Door test on a room and record the EqLA at 50 Pa.
- Install cardboard in upper part of doorway with a 20 x 20 inch hole cut in it.
- Perform a second Blower Door test on the building, record the EqLA at 50 Pa.
- Subtract the first result from the second result and the value should be 400 sq. in. (+/-10%).



Field check gauge weekly

Check for gauge accuracy, blocked, leaking, or pinched tubes weekly, and anytime results are in question.



Check the gauge with the tubes in the Umbilical.

- Set **[Time Average]** to 5 seconds in **[Settings]**.
- Tap **[Channel B]** and select "Pressure: Pa".
- Connect the red tube between the red and yellow ports.

If readings on Channel A and Channel B are within 2% and don't drop noticeably in 5 seconds, the gauge is functioning correctly.

- Remove red tubes and repeat with the yellow tube between the blue and green ports.

Check gauge and tubes regularly to eliminate the most common source of errors.

