



**USING THE DG-700 WITH THE
MINNEAPOLIS BLOWER DOOR**

CONDUCTING A ONE-POINT DEPRESSURIZATION TEST

Before the Test

- Install the blower door frame, panel and fan into an exterior doorway. For instructions about how to do this, please see [Chapter 2 of the Minneapolis Blower Door User Manual](#).
- Prepare the building for the blower door test. For instructions about how to do this, please see [Chapter 3 of the Minneapolis Blower Door Manual](#).

Tube Hookup

1. Attach one end of the green tube to the Channel A reference tap. Run the other end of the tubing outside through one of the holes provided in the lower corner of the nylon panel.
2. Attach one end of the red tube to the Channel B input tap. Attach the other end of the red tube to the pressure tap on the blower door fan.



Note: For help with how to connect the tubing to the DG-700, please use the [Tubing Assistant](#) on our website.

Conducting the Test

1. Turn on the DG-700 and place it in the proper mode
Turn on the gauge and press the MODE button twice to put the gauge into the PR/ FL @50 mode. In this specialized test mode Channel A is used to measure building pressure while Channel B is used to display estimated building leakage at a test pressure of 50 Pascals (CFM50). The leakage estimate shown on Channel B is determined by mathematically adjusting the actual air flow from the blower door fan to a test pressure of 50 Pascals, using the real-time Channel A building pressure reading and a Can't Reach 50 factor, which can be found in the [Blower Door Manual](#) on page 9.
2. Measure the baseline building pressure
When conducting a blower door test, we want to measure the change in building pressure caused by air flowing through the blower door fan. In order to measure this change accurately, we need to account for any existing pressures on the building caused by stack, wind and other driving forces. This existing building pressure is called the "baseline building pressure."

The DG-700 has a built-in baseline measurement procedure which allows the user to quickly measure and record the baseline pressure on Channel A, and then display the baseline adjusted pressure. This feature makes it possible to "zero out" the baseline building pressure on Channel A, and display the actual change in building pressure caused by the blower door fan.

With the fan sealed off, begin a baseline building pressure reading from Channel A by pressing the BASELINE button. The word "BASELINE" will begin to flash in the Channel A display indicating that the baseline feature has been initiated. Press START to start the baseline measurement. During a baseline measurement, Channel A will display a long-term average baseline pressure reading while Channel B is used as a timer in seconds to show the elapsed measurement time. When you are satisfied with the baseline measurement, press the ENTER button to accept and enter the baseline reading into the gauge. The Channel A display will now show an ADJ icon to indicate that it is displaying a baseline adjusted building pressure value. Note: Once a baseline measurement has been taken and entered into the gauge (i.e. ADJ appears below the Channel A reading), a new baseline measurement procedure can be initiated by pressing the BASELINE button.

3. Choose a flow ring for the blower door fan

Ring	Flow Range in CFM
Open (no flow ring)	6,100 - 2,435
Ring A	2,800 - 915
Ring B	1,100 - 300
Ring C	330 - 85
Ring D	115 - 30
Ring E	45 - 11

Remove the No-Flow Plate from the blower door fan and install the flow ring which you think best matches the needed fan flow. Installation of flow rings will depend on the tightness level of the building stock being tested. For example, for relatively leaky buildings (greater than 3,000 CFM50), you will want to start the test using the Open Fan configuration (i.e. no flow rings installed). As you test tighter buildings, you will need to install flow rings A or B. Refer to the table for approximate flow ranges of the fan using the various flow rings configurations. Don't worry if you guess wrong and start the test with the incorrect flow ring - you can change the fan configuration during the test procedure.

4. Enter the selected flow ring into the gauge

In order for the DG-700 to properly display fan flow, you need to input the blower door fan model and selected flow ring into the gauge. Check (and adjust if necessary) the selected test Device (i.e. fan) and Configuration (i.e. flow ring) shown in the upper part of the gauge display to match the fan and flow ring used in the test.

5. Press the DEVICE button to change the selected blower door fan.

6. Once the fan is selected, the configuration of the fan can be selected by pressing the CONFIG button. The currently selected flow ring configuration is shown in the Config section of the gauge display.

Config Setting	Flow Ring
Open	No flow ring
A1	Ring A
B2	Ring B
C3	Ring C
D	Ring D
E	Ring E

Also be sure that Channel B is showing the proper air flow units for your test (this should typically be set to CFM). Units can be changed by pressing the UNITS button.

7. Turn on the fan for an initial inspection

Turn on the blower door fan by slowly turning the fan controller clockwise. As the fan speed increases, the building depressurization displayed on Channel A should also increase. As you increase the fan speed, you will be increasing the pressure difference between the building and outside resulting in increased pressure exerted on the aluminum door frame installed in the door opening. If you did not properly install the door frame, the frame may pop out of the doorway at higher building pressures (over 30 Pascals). If this happens, simply reinstall the frame more securely. When installed properly, the frame will easily stay in place during the entire test procedure. Before making measurements, you may want to quickly walk around the building with the fan producing about 30 Pascals of building pressure to check for any problems such as windows or doors blown open or blowing ashes from a fire place or wood stove.

8. Make final adjustments to the blower door fan

- **If Manually Controlling the Fan**
Continue to increase fan speed until the building depressurization shown on Channel A is between –45 and –55 Pascals. Do not waste time adjusting and re-adjusting the fan speed control to achieve a test pressure of exactly -50 Pascals – just get close to the target pressure. As long you are using the PR/ FL @50 mode and the test pressure displayed on Channel A is within 5 Pascals of the -50 Pascal target pressure, any errors introduced by estimating the leakage on Channel B will typically be very small (less than 1%).
- **If Using Cruise Control**
Turn the blower door speed control knob to the “just on” position (i.e. the controller is on but the blower door fan is not turning). Now press the Begin Cruise (Enter) button. The Channel A display will now show the number 50 (your target Cruise pressure). Press the Start Fan (Start) button. The blower door fan will now slowly increase speed until the building depressurization displayed on Channel A is approximately 50 Pascals.

Channel B will now display the One-Point CFM50 leakage estimate. If the leakage estimate is fluctuating more than desired, try changing the Time Averaging setting on the gauge by pressing the TIME AVG button and choosing the 5 or 10 second or Long-term averaging period. Record the CFM50 test reading.

Turn off the fan. If you are using Cruise Control, this is done by pressing the Stop Fan (Clear) button.

Whenever “-----” or “LO” appears on Channel B in the PR/ FL @ 50 mode, the DG-700 can not calculate a reliable leakage estimate. The messages “-----” and “LO” appear on Channel B under the following three conditions

- » “-----” is continuously displayed when the building test pressure from Channel A is below a minimum value of 10 Pascals. Estimating leakage results when the test pressure is below this value may result in unacceptably large errors. If possible, install a larger flow ring or remove the flow rings to generate more fan flow.
- » “LO” is continuously displayed when there is negligible air flow through the test device.
- » “LO” alternates with a flow reading when the air flow reading through the device is unreliable (i.e. you are trying to measure a flow outside of the calibrated range of the test device in its current configuration). If possible, you should change the test device configuration to match the flow rate being measured (e.g. install a flow ring or a smaller flow ring).

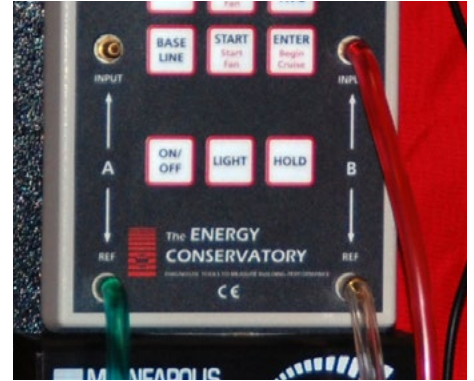
CONDUCTING A ONE-POINT PRESSURIZATION TEST

Before the Test

- Install the blower door frame, panel and fan into an exterior doorway. For instructions about how to do this, please see [Chapter 2 of the Minneapolis Blower Door User Manual](#).
- Prepare the building for the blower door test. For instructions about how to do this, please see [Chapter 3 of the Minneapolis Blower Door Manual](#).

Tube Hookup

1. Attach one end of the green tube to the Channel A reference tap. Run the other end of the tubing outside through one of the holes provided in the lower corner of the nylon panel.
2. Attach one end of the red tube to the Channel B input tap. Attach the other end of the red tube to the pressure tap on the blower door fan.
3. Attach one end of the clear tube to the Channel B reference tap. Run the other end of the tubing outside through one of the holes provided in the lower corner of the nylon panel. The end of the clear tubing should be placed next to the side of the fan, but not in the fan's airstream.



Note: For help with how to connect the tubing to the DG-700, please use the [Tubing Assistant](#) on our website.

Fan Direction



Before conducting the pressurization test, make sure the fan direction is reversed by removing the fan from the nylon panel, and re-inserting it with the exhaust side facing inside the building.

Note: If you have an older blower door fan, it may have a reverse switch. You cannot use the reverse switch to get accurate flow readings, you must turn the fan around.

Conducting the Test

To conduct the pressurization test, follow the same instructions provided in the [depressurization test section](#) of this guide, which starts on page 2.

USING THE DG-700 WITH THE MINNEAPOLIS BLOWER DOOR

Software Information

The Energy Conservatory (TEC) offers a variety of Windows-based programs. These programs can be found and downloaded for free at software.energyconservatory.com.

TEC also offers driver support for the DG-500, DG-700 and DG-1000. The drivers are designed to work with Windows-based computers with the following operating systems:

- Windows 7
- Windows 8
- Windows 8.1
- Windows 10

The drivers are available through Windows Update, and the DG-500 and DG-700 drivers can be downloaded from TEC at software.energyconservatory.com.

TEC also offers mobile apps for Apple and Android devices that can be found in the Apple App Store or the Google Play Store.

Instructional Videos

The Energy Conservatory (TEC) offers a variety of online instructional videos, including

- Minneapolis Blower Door Quick Guide
- Minneapolis Duct Blaster Quick Guide
- Field Calibration Checks for Gauges
- Pressure and Airflow Basics
- Exhaust Fan Flow Meter
- TECLOG3
- TECTITE 4.0
- And many more

Visit www.YouTube.com/EnergyConservatory to see all of TEC's instructional videos.

More Blower Door Guides

All blower door guides are available online at energyconservatory.com/blowerdoorguides

Please refer to the guides listed below for further instructions.

- [Minneapolis Blower Door Overview](#)
- [Using the DG-1000 with the Minneapolis Blower Door](#)
- [Minneapolis Blower Door Manual](#)
- [Test Results and Sample Test Forms](#)



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