

Airtightness Measurements of Large Buildings

Minneapolis BlowerDoor MultipleFan

The Measuring System BlowerDoor MultipleFan consists of three BlowerDoor fans and two digital DG-700 pressure gauges and was developed for airtightness measurements of buildings with an envelope area of approximately 7,000 to 36,000 m² or an internal volume of up to 440,000 m³.

The MultipleFan System has been designed as a modular system and thus not only allows you to measure large industrial and office buildings, but with one or two BlowerDoor fans can also be used in single-family homes or apartment buildings.



With the BlowerDoor MultipleFan System (three fans) plus the TECLOG software, you can conduct and record airtightness measurements with a flow rate of approximately 21,600 m³/h. The pressure gauges and speed controllers form a compact unit close to the measuring equipment. The fans are centrally computer-controlled from your laptop via a serial data cable or the optional WiFi-Link. To measure airtightness of large residential or commercial buildings, several MultipleFan Systems can easily be combined if necessary.

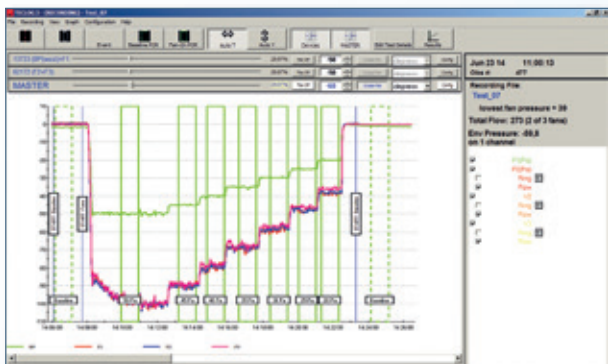
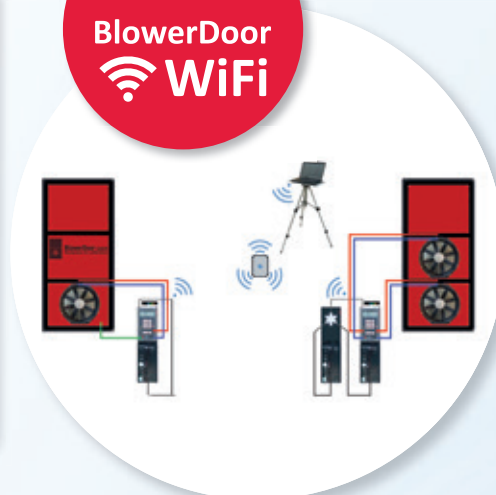


	* Verifiable Internal Volume
$n_{50} = 3.0 \text{ h}^{-1}$	7,200 m ³
$n_{50} = 1.5 \text{ h}^{-1}$	14,400 m ³
$n_{50} = 0.6 \text{ h}^{-1}$	36,000 m ³

	Verifiable Envelope Area	Max. Internal Volume (based on Envelope Area)
$q_{50} = 4.5 \text{ m}^3/\text{m}^2\text{h}$	4,800 m ²	22,500 m ³ A/V ca. 0.21 m ² /m ³
$q_{50} = 2.5 \text{ m}^3/\text{m}^2\text{h}$	8,640 m ²	52,800 m ³ A/V ca. 0.16 m ² /m ³
$q_{50} = 0.6 \text{ m}^3/\text{m}^2\text{h}$	36,000 m ²	440,000 m ³ A/V ca. 0.08 m ² /m ³

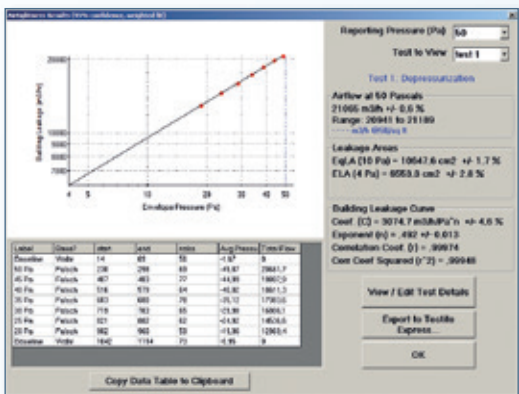
BlowerDoor measurement according to European Standard EN 13829

Airtightness measurements of large buildings with several BlowerDoor fans are conducted using the TECLOG MultipleFan software. The Master Fan Control function controls all BlowerDoor fans simultaneously and centrally from one single laptop. A new feature is the control of the BlowerDoor fans via WiFi-Link (optional): Your laptop can easily be put at any suitable place in the building up to 100 m from your measuring device.



The POR function allows you to record defined measuring periods automatically

The fan speed is computer controlled. The flow rates are displayed on the monitor in real-time. With the POR (period of record) function, the desired measuring periods are recorded at the push of a button. The user easily observes any deviations due to wind or open doors and can quickly react to disturbances in the measuring process.



Leakage curve with air-flow results

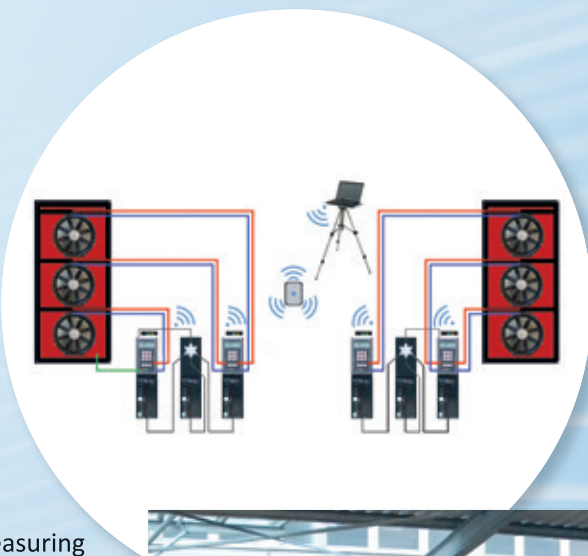
The total air-flow rate is obtained automatically, and, together with the measurement graph, can be accessed at all times by one click of the mouse. The measuring results have to be analyzed quickly in order to enable on-site decisions as to whether the tests are accurate and the results meet the requirements. Following the measurement, the data is read into TECTITE Express 4.1 to create the test report. It includes queries and evaluations according to EN 13829. Additional features, as for example for recording several building pressure differentials of different sides of the building as well as for analyzing the pressure distribution within the building complete the new version of the TECLOG software.



Modular set-up for universal application

Minneapolis BlowerDoor Measuring Systems are modular and ideally suitable for measuring large industrial and office buildings: You may combine any number of BlowerDoor fans and pressure gauges individually according to your needs and requirements. By calibrating measuring fans and pressure gauges separately, we maintain the excellent accuracy of our BlowerDoor measuring technology even when combining several system components.

The BlowerDoor Measuring Systems are installed in one or several door openings depending on the conditions on site. In large buildings with a complex floor plan, distributing the Measuring Systems in the building allows for constant pressure distribution.



4-year warranty
on all
entire Minneapolis
BlowerDoor
Measurement
Systems!



Overview of the most important functions

- Clear and compact test set-up
- Optional BlowerDoor WiFi
- Simultaneous control of all BlowerDoor fans from one single laptop
- Automatic recording of measuring periods
- Real-time display of the air-flow rate allows you to analyze the measuring results on site
- Recording several building pressure differentials helps with measuring very large buildings with complex floor plans
- MultipleFan with three fans allows you to distribute the fans (2+1) in different door openings to achieve constant pressure distribution in very large buildings
- Data and comments are recorded in one file
- Automatic shutdown when limit pressure is reached

Technical Data

Minneapolis BlowerDoor MultipleFan

Capacity:	19 m ³ /h–7,200 m ³ /h (total capacity of three fans is approx. 21,600 m ³ /h) at a pressure differential of 50 Pa
Power supply:	220–240 V, 50 Hz, nominal output <600 W per fan, max. power consumption 3.7 A per fan
Measuring accuracy:	With open fan, rings A–C (flow rate approx. 80–7,200 m ³ /h) ±4 % of the mean. With rings D–E (flow rate approx. 19–80 m ³ /h) ±5 % of the mean or ±1.7 m ³ /h (the higher value is valid)
Dimensions and weight (per fan):	∅ approx. 610 mm, approx. 15 kg
Dimensions and weight (per controller):	L 410 × W 115 × D 90 mm, approx. 2 kg
Mounting frame standard size:	Dimensions from W 0.71–1.14 m to L 1.32–2.43 m, incl. lower and middle cross bars, weight approx. 7 kg, special dimensions on request
Panel standard size:	BlowerDoor panel with one, two and three openings

Digital pressure gauge DG-700

With 2 pressure channels and cruise control function

Measuring range: -1,250–+1,250 Pa

Display resolution: 0.1 Pa

Accuracy: ±1% of reading or ±0.15 Pa (the higher value is valid)

Auto-zeroing: At the start, and every 10 seconds

Differential pressure display: Separate display of the two differential pressure channels

Flow rate display: Compatible with Minneapolis BlowerDoor fans model 4 (BlowerDoor Standard), model 3, DuctBlaster

Units: m³/h, l/s

Averaging: 1 second, 5 seconds, 10 seconds, or long-term mean

Operating temperature: 0–50°C

LCD Display: Large, easy-to-read display: L 80 × W 30 mm incl. display illumination

Batteries: 6 AA (optional power supply)

Operating time: Approx. 100 hours

Weight: Approx. 470 g

Dimensions: L 195 × W 102 × D 32 mm

Output: Serial data output (RS232), mini-USB

Cruise control function: Automatic speed control of BlowerDoor fan for one-point test without a laptop (0/25/50/75 Pa)

Laptop-controlled functions: Automated/semi-automated/manual BlowerDoor measurement (Test Standard EN 13829)

WiFi-Link

Dimensions: L 70 × W 48 × D 25 mm

Weight: 57 g

Radio Protocol: IEEE 802.11b compatible

RF Output Power (Typical): +18 dBm

RF Operating Frequency: 2.4–2.497 GHz

Supported Data Rates: 11/5.5/2/1 Mbps (802.11b)

Operating Temperature: 0–50°C

Certifications and Compliance: WiFi, FCC, IC, ETSI, RoHS, CE

Power Source: Connection to the Digital Gauge DG-700 (+6–+12 V DC at 250 mA Nominal)

Battery Life of DG-700 when connected with WiFi-Link: 20–30 hours continuous depending on digital gauge

Wireless connection modes: Access point or router-supported

Software TECTITE Express

(Version 4.1 and reference guide available in EN/DE/FR) Automated/semi-automated/manual BlowerDoor test optional with WiFi, incl. Test Report (Test Standard EN 13829)

System requirements: WIN XP or up

Software TECLOG MultipleFan

(Version TECLOG3 in EN, reference guide available in EN/DE/FR) BlowerDoor measurement with multiple fans optional with WiFi

System requirements: WIN XP or up

Shipment includes

Minneapolis BlowerDoor MultipleFan: 2 Measurement Systems Minneapolis BlowerDoor Standard / 1 BlowerDoor fan / Accessory bag incl. fan cover, speed controller, BlowerDoor panel (standard size) with 2 openings, BlowerDoor panel (standard size) with 3 openings, software TECLOG MultipleFan, communication jack, COM-Port-Box (4 ports) incl. 2 serial data cables (RS232/2 m), tube set, reference guide / Additional upper cross bar / Mounting strut short and long / Serial data cable on cable drum (2 x RS232/50 m) / 2 laptop racks / Attachment: measurement device holder / Sealing box
All DG-700 and BlowerDoor measuring fans come with their calibration certificate (DG-700 24 measuring points, BlowerDoor fan 6 measuring points).
Instruction included.

WiFi BlowerDoor MultipleFan WiFi (optional): See BlowerDoor MultipleFan, plus 2 WiFi-Links and Router

Guarantee period: 4 years from purchase date



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