

## Functional Test of Ventilation and Air-Conditioning Systems

An airtight building envelope is an important prerequisite for implementing up-to-date energy designs in new buildings as well as during building projects in existing buildings. In order to guarantee hygienic indoor air, fresh air supply through controlled room ventilation is the most sensible solution.

### Minneapolis Micro Leakage Meter

**Airtightness testing of ventilation duct systems according to German and European Industrial Standard DIN EN 12599**

The Minneapolis Micro Leakage Meter (MLM) Measuring System has been developed by the manufacturer The Energy Conservatory in close cooperation with BlowerDoor GmbH in order to guarantee the functionality of ventilation systems by conducting airtightness tests of the duct system. With a measuring range of 0.17 to 78.5 m<sup>3</sup>/h, the MLM is also suitable for testing building components as well as small and highly airtight clean rooms.



The airtightness of the ventilation ducts installed is an important requirement for the functionality and efficiency of ventilation systems. Leakages in the ductwork impede the targeted distribution of air in the building. Consequently, the high level of air quality planned is not achieved. Leaky ventilation ducts impair the efficiency of ventilation systems, in particular of those with heat recovery.

### Minneapolis FlowBlaster

**Testing and adjusting supply and exhaust air valves**

With a measuring range of 17 to 500 m<sup>3</sup>/h, the Minneapolis FlowBlaster has been especially designed for testing ventilation systems during residential and commercial construction. In combination with the measuring fan BlowerDoor MiniFan, it allows the precise measurement of the air flow at supply and exhaust air valves.



# Minneapolis Micro Leakage Meter

The Minneapolis Micro Leakage Meter allows you to reliably detect and locate leakages in the ductwork of ventilation systems and to eliminate them during the quality assurance process.

## The measuring principle

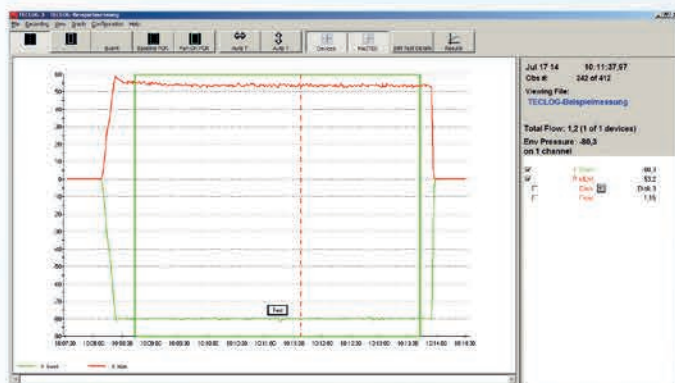
The ventilation systems are tested by ventilation strands. When testing the supply air ducts, the MLM is, for example, connected to the supply air valve. All other valves and the supply air duct at the central unit are closed with rubber bladders.

Using the Minneapolis DuctBlaster fan and the pressure gauge DG-700 (included in the BlowerDoor Mini-Fan Measuring System) negative (testing exhaust air ducts) or positive (testing supply air ducts) pressure is created. The measuring results are documented in the test report.

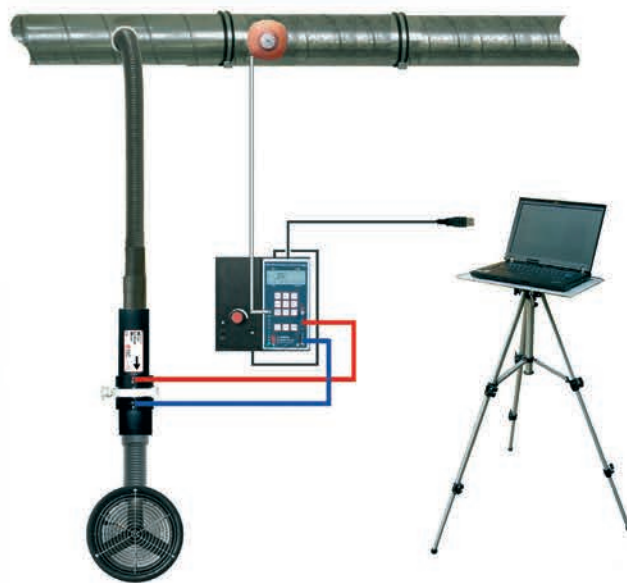
## Special measurements

For the airtightness tests of ventilation ducts, the Micro Leakage Meter is used together with the DuctBlaster fan, the DG-700 pressure gauge, and a speed controller. With the respective additional equipment, you can also conduct airtightness measurements with very low air flows:

- Airtightness measurements of highly airtight rooms (e.g. clean rooms)
- Measurements of joint permeability of windows and building components



The measuring data recorded for the entire measuring period is included in the test protocol.



## Package contents

### Minneapolis Micro Leakage Meter:

Transport bag with MLM flow meter including 4 discs in a padded bag, calibration certificate (4 discs of 5 measuring points each), measuring software TECLOG3 including test report, 2 hoses connecting plates for DuctBlaster fan, connecting hoses of 1 m and 3 m, 4 hose clamps, 5 connecting pieces for ventilation systems, sample roll of Duct Mask, set of rubber bladders, 1 capillary tube, tube set (red and blue of 3 m each, transparent of 10 m), reference guide

**Guarantee period:** 4 years from date of purchase

## Package variations

### A1 – Airtightness testing of ventilation systems

No BlowerDoor Measuring System available

**Package contents:**  
MLM including accessories (see above), DuctBlaster including rings 1–4 and calibration certificate, speed controller, DG-700 with calibration certificate, reference guide, transport bag

### A2 – Airtightness testing of ventilation systems

BlowerDoor Measuring System MiniFan available

**Package contents:**  
MLM including accessories (see above)

### B1 – Airtightness testing of ventilation systems, airtightness testing of small buildings

No BlowerDoor Measuring System available

**Package contents:**  
MLM including accessories (see above), Measuring System BlowerDoor MiniFan (see data sheet for BlowerDoor MiniFan)

### B2 – Airtightness testing of ventilation systems, airtightness testing of buildings

BlowerDoor Measuring System Standard available

**Package contents:**  
MLM including accessories (see above), DuctBlaster including rings 1–4 and calibration certificate, fan cap, speed controller, Blower Door panel (standard size), reference guide, transport bag

## Minneapolis FlowBlaster

Measuring the supply and exhaust air flow at the respective valves provides information as to whether the requirements have been implemented as designed. If the air flows measured at the valves deviate from the requirements, the ventilation system can be adjusted.



### The measuring principle

The fact that placing any kind of measuring device on air inlets or outlets changes the pressure ratios at the valve, makes measuring air flows at supply and exhaust air valves difficult. The changed pressure ratios consequently also occur in the duct system and influence the measuring results.

The FlowBlaster capture hood patented in 2014 guarantees highly accurate measurements of the air flow by achieving the flow alignment necessary for high accuracy. Any losses in pressure are compensated by the precise speed regulation of the BlowerDoor MiniFan.

With the TECLOG3 software or the iTEC-700 app you can record the values measured at supply and exhaust air valves manually or via a wireless connection (optional).

### Package contents

#### Minneapolis FlowBlaster:

FlowBlaster transport bag, FlowBlaster fan attachment, flexible connecting trim, capture hood of 40×40 cm, handles for BlowerDoor Duct-Blaster fan including mounting material, holding device for speed controller, jack cable (3 m), silicone tube set (blue/red/transparent), reference guide

**Guarantee period:** 4 years from date of purchase

## Minneapolis BlowerDoor MiniFan

**BlowerDoor Measuring Systems are universally applicable: With a measuring range of 5 to 2,300 m³/h, our compact BlowerDoor MiniFan System is perfect for use in individual apartments or very airtight or smaller buildings.**

With the DG-700 high precision pressure gauge and the TECTITE Express software included in the package, you can conduct highly accurate automated BlowerDoor tests in accordance with European Standard EN 13829 via a laptop computer. When performing quality assurance tests, the BlowerDoor fan is directly controlled from the DG-700 pressure gauge and a one-point test (without a laptop) is conducted at 50 Pascal to detect leakages. BlowerDoor WiFi (optional) additionally allows you to conduct one-point measurements via an app on your smart phone or tablet.



**4-year warranty**

on all  
entire Minneapolis  
BlowerDoor  
Measurement  
Systems!

**For further information**

consult the data sheet for the Minneapolis BlowerDoor MiniFan.

## Technical Data

### Minneapolis

#### Micro Leakage Meter

Measuring range:	Pressure differential:	Measuring accuracy:
2.15 – 57.4 m³/h	250 Pa	With disc 1 or 2: ± 5 % or ± 0.37 m³/h of the measured value (the higher value is valid)
2.15 – 69.7 m³/h	160 Pa	With disc 1 or 2: ± 5 % or ± 0.37 m³/h of the measured value (the higher value is valid)
0.17 – 78.5 m³/h	80 Pa	With disc 1 or 2 (measuring range of 2.15 – 78.5 m³/h): ± 5 % or ± 0.37 m³/h of the measured value (the higher value is valid)
		With disc 3 (measuring range of 0.65 – 3.23 m³/h): ± 5 % or ± 0.09 m³/h of the measured value (the higher value is valid)
		With disc 4 (measuring range of ≤ 0.83 m³/h): ± 0.04 m³/h

**Dimensions:** L 300 mm, Ø 140 mm

**Weight:** approx. 800 g

#### Software TECLOG MLM

(Version TECLOG3 in English, reference guide in English)

**System requirements:** WIN XP and up, Excel 2007 and up

### Minneapolis

#### FlowBlaster

<b>Measuring range:</b>	fan ring 2: 135 – 500 m³/h, fan ring 3: 17 – 200 m³/h
<b>Measuring accuracy:</b>	± 5 % or ± 3.4 m³/h of the measured value (the higher value is valid)
<b>Dimensions:</b>	hood approx. 40 × 40 cm (inner dimensions), height without DuctBlaster fan (MiniFan) approx. 60 cm, height with DuctBlaster fan (MiniFan) approx. 75 cm
<b>Weight:</b>	FlowBlaster including DG-700 and DuctBlaster fan approx. 4.9 kg
<b>Operating temperature:</b>	0 – 50 °C
<b>Storage temperature:</b>	-10 – 65 °C

### Minneapolis

#### BlowerDoor Minifan

For more information on the Minneapolis BlowerDoor MiniFan, consult the respective data sheet.



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