

Test Report

Test centre: TÜV Saarland e. V.
Am TÜV 1
66280 Sulzbach

Test object: Airtight multi-leaf damper (class 4), ID no. 255
W x H = 1000 mm x 669 mm, external linkage

Customer: Aerotechnik Siegwart GmbH
Untere Hofwiesen
66299 Friedrichsthal

Scope of 2nd commission: Measurement of the leakage air flow in accordance with DIN EN 1751

Test basis: DIN EN 1751, issue 01.99

Test date: 31-03-2005

Inspected by: Mahren (Graduate Engineer – Dipl. Ing. (FH))

Test report no.: 60404A0216/F airtight multi-leaf damper (class 4)

No. of pages.: 5

1. General information

Aerotechnik Siegwart GmbH, Friedrichsthal commissioned us to inspect the sealing characteristics of an airtight multi-leaf damper (class 4) in accordance with DIN EN 1751. The purpose of the test was to establish whether DIN EN 1751 requirements were met.

2. Description of the inspected system

The description of the inspected damper in accordance with the manufacturer's specifications is included in enclosure 1. The documents presented to us do not contain production tolerances.

3. Test structure and realisation of measurements

The test station structure is illustrated in the enclosure. A diaphragm gas meter was utilised to measure the air volume and a differential pressure measuring instrument (SI) to measure the pressure.

4. Measuring results

Measuring results are listed in table 1 of the report.

The leakage air volumes measured are less than the values specified in DIN EN 1751 (as illustrated in table 1).

The inspection described here was not intended as a type or design acceptance test, endurance test, material test or production inspection, and no requirement for such existed. The measurement results are only valid for the inspected damper.

Table 1

Airtight multi-leaf damper in accordance with DIN EN 1751, class 4

Dimensions W x H [mm x mm]	Blade [unit]	Δp [Pa]	V [m ³ /h]	Free surface [m ²]	Permissible leakage air flow $\left[\frac{m^3}{h \cdot m^2}\right]$	Measured leakage air flow $\left[\frac{m^3}{h \cdot m^2}\right]$
1000 x 669	4	100	0.6891	0.669	5.8	1.03
		250	1.1172	0.669	9.2	1.67
		500	1.2845	0.669	12.8	1.92
		1000	2.1207	0.669	18.0	3.17

Table 2

List of measuring instruments employed:

Ser. no.	Measuring instrument designation	Measurement range	Measurement uncertainty	Calibrated yes/no	Comment
1	Diaphragm gas meter	0 ... 10 m ³ /h	± 1.0 % of measurement value	yes	
2	Micromanometer Manufacturer: SI	0 ... 200 Pa 0 ... 2000 Pa	± 0.5 % of measurement value	yes yes	

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Sulzbach, 02-05-05

Building Services and Conveying Engineering
Assessor:

Signature

Mahren (Graduate Engineer – Dipl. Ing. (FH))

Enclosure

Manufacturer's description
Test structure
Calculation example

TC

Date:

Distributor:

File no.: 60404A0216
5 copies: Aerotechnik Siegart; c/o Mr. Kuhn, Untere Hofwiesen,
66299 Friedrichsthal

Calculation example:

Airtight multi-leaf damper in accordance with DIN EN 1751, class 4

Width	1000 mm
Height	669 mm
Test pressure	1000 Pa
Free surface A	0.669 m ²

Permissible leakage air flow q_{VLBA} in $l \cdot s^{-1} \cdot m^{-2}$ from Fig. C 1 of DIN EN 1751 at a test pressure of 1000 Pa, class 4:

$$q_{VLBA} = 5 \text{ l} \cdot \text{s}^{-1} \cdot \text{m}^{-2}, \text{ equivalent to } 18 \text{ m}^3 \cdot \text{h}^{-1} \cdot \text{m}^{-2}$$

Measurement value: $V = 2.1207 \text{ m}^3/\text{h}$

Leakage air flow:

$$q_{VLBA} = \frac{V[m^3/h]}{A[m^2]} = \frac{2.1207}{0.669} \cdot \frac{m^3}{h \cdot m^2}$$

$$= 3.17 \text{ m}^3 \cdot \text{h}^{-1} \cdot \text{m}^{-2} < 18 \text{ m}^3 \cdot \text{h}^{-1} \cdot \text{m}^{-2}$$