BELGIAN BUILDING RESEARCH INSTITUTE
INSTITUTION RECOGNISED BY APPLICATION OF THE DECREE-LAW OF 30 JANUARY 1947

All tests in this report are executed according to the ISO 9001 certified Quality management system of the BBRI

Test Centre	B-1342 Limelette, avenue P. Holoffe 21	Tel.: +32 (0)2 655 77 11
Offices	B-1932 Sint-Stevens-Woluwe, Lozenberg 7	Tel.: +32 (0)2 716 42 11
Head Office	B-1000 Bruxelles, rue du Lombard 42	Tel.: +32 (0)2 502 66 90

TEST REPORT

Laboratory **Air Quality and Ventilation**	**O/References**	DE 633X188 VE 267/2/EN/EXT Page 1/5

Date of order of the extension	16-12-2013	**Samples registration**	N-2013-27-027
		Date of reception of samples	24-06-2013
Date of issue of the report	09-07-2013	**Date of the test**	09-07-2013
Test carried out	Measurement of the casing leakage of a damper or valve		
References	NBN EN 1751:1999 Ventilation for buildings - Air terminal devices - Aerodynamic testing of dampers and valves		

This test report contains 5 pages and may only be reproduced in its entirety.
Each page of the report has been stamped (in red) by the laboratory and initialed by the head of laboratory.
The results and findings are only valid for the tested samples.

☐ *No sample*
☐ *Sample(s) subjected to destructive test*
☒ *Sample(s) to be removed from our laboratories 30 calendar days after sending of the report,* save in the case of a further written request.

C.S.T.C. W.T.C.B. VE

In charge of the tests
Philippe Voordecker

Head of laboratory
Christophe Delmotte, Ir.

Test procedure

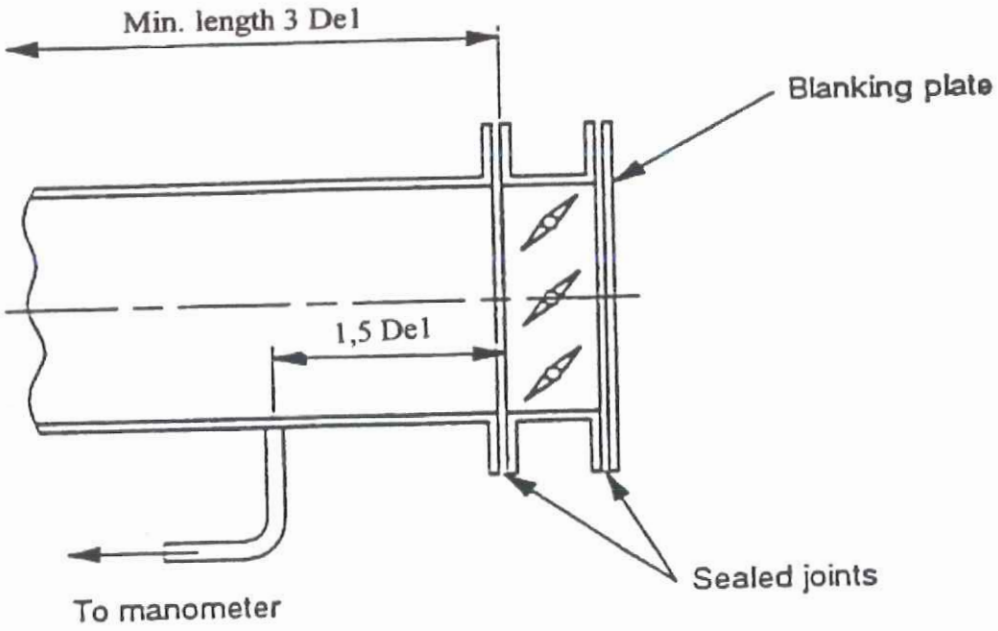
The determination of the casing leakage of a damper or valve is carried out according to NBN EN 1751:1999 «Ventilation for buildings - Air terminal devices - Aerodynamic testing of dampers and valves».

The test installation comprises the following:
- an adjustable air supply incorporating an air flow rate measuring device;
- a pressure measuring device;
- an airtight test duct which supports the damper or valve subjet to the test;
- a blanking plate for the damper or valve.

The test is carried out by subjecting the casing of the damper or valve to a pressure of 2000 Pa. The pressure is then lowered in stages. The air flow rate is recorded at each of the pressure stages.

If temperature and barometric pressure are different from the standard conditions (20 °C and 101325 Pa), the measured airflows are corrected accordingly.

Normalized values are determined through a linear regression.



Principle of test installation according to NBN EN 1751:1999

Description of the sample
Iris damper with a nominal diameter of 100 mm (IRIS-100)

Measuring devices:	Calibration:	Organization:
Platon GTLK	22/05/1989	Platon
Airflow TA460-P	18/06/2013	TSI Airflow
Testo 720 n°5	28/10/2012	CSTC-WTCB
Halstrup BA 1000	1/10/2012	Dimed

Measurement conditions:			**Reference casing area:**		
Air temperature	22.5	°C	Perimeter of the damper	0.314	m
Barometric pressure	101300	Pa	Reference area	0.314	m²

Measured values

Static pressure p_s (Pa)	Leakage air flow $q_{vL\ meas}$ (l/s)
2016	0.08
1804	0.07
1595	0.07
1396	0.06
1215	0.06
1015	0.05
799	0.05
634	0.04
386	0.03
220	0.02

Corrected values

Case leakage air flow q_{vLCA} (l/s.m²)
0.25
0.23
0.22
0.20
0.19
0.16
0.14
0.12
0.09
0.06

Normalized values

Classification of case leakage: Class C

Static pressure (Pa)	Leakage air flow (l/s)
250	0.02
500	0.03
1000	0.05
1500	0.07
2000	0.08

Flow rate / pressure characteristic

$q = C\ \Delta p^n$ (l/s)

$C =$ 0.0006 (l/s. Pa^n)

$n =$ 0.6463 (-)

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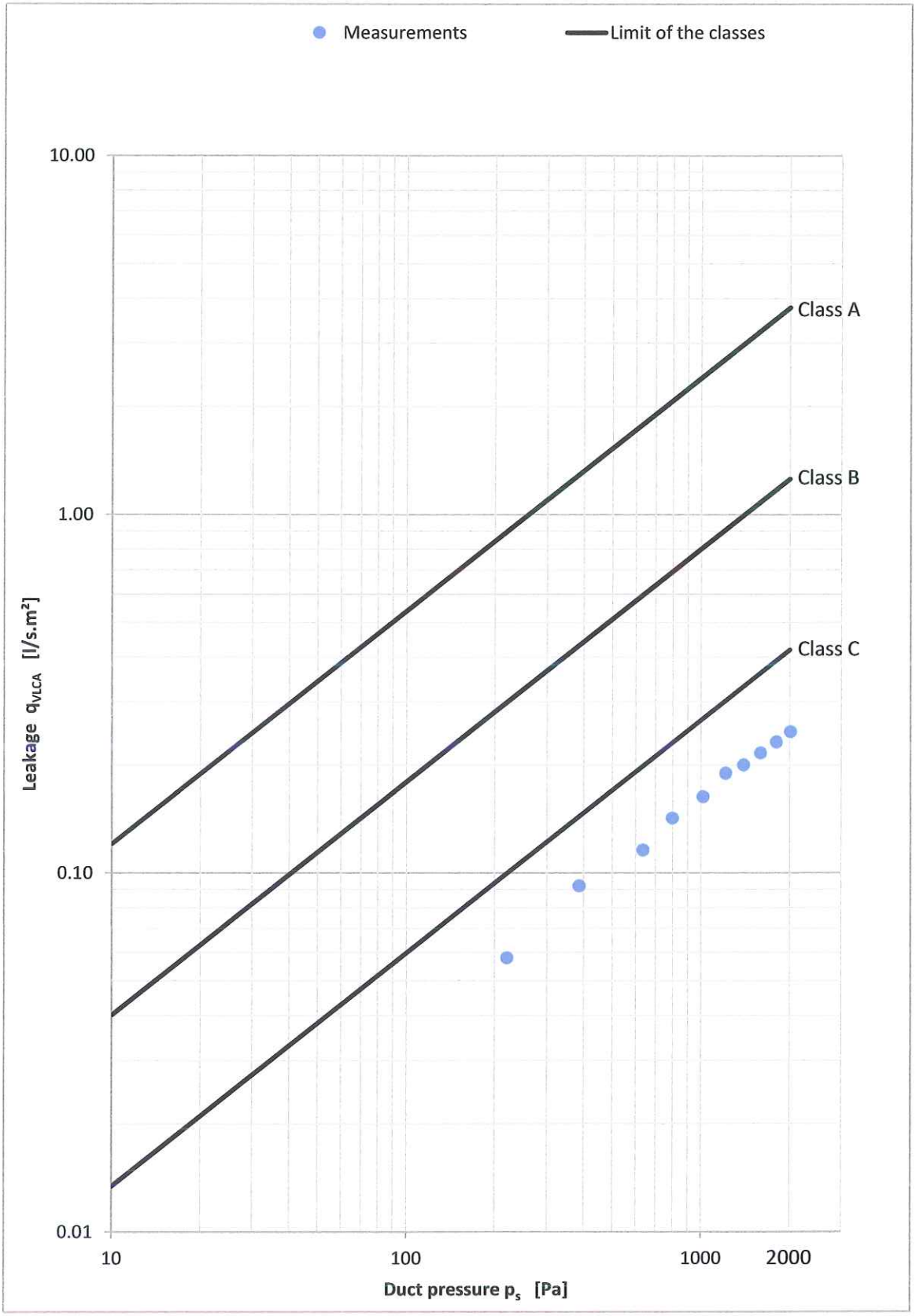
Measurements
Limit of the classes
10.00
1.00
0.10
0.01
Class A
Class B
Class C
Leakage q_{VLCA} [l/s.m²]
10
100
1000
2000
Duct pressure p_s [Pa]