



Closed blade leakage of the damper
DA 1000 mm x 1000 mm

| Requested by: AERGRAMMI S.A.

Requested by AEROGRAMMI S.A.
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Order PO email, 5.11.2013, Patsiouras Georgios

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Assignment **Determination of the closed blade leakage of a damper**

Sample The customer delivered the damper DA-1000 mm x1000 mm. The description of the damper is in appendix 1.

The sample was received 4.11.2013.
Measurements were carried out 13.11.2013.

Test methods Measurements were carried out according to EN 1751:1998 /1/. Air flow rates were measured according to ISO 5167-1:2003 and ISO 5167-2:2003 /2/ using orifice plates with corner tappings.

FINAS Finnish Accreditation Service has accredited our laboratory (T001) to perform measurements according to standards ISO 5167-1:2003 and ISO 5167-2:2003. Other measurements mentioned in this test report do not belong to the field of accreditation.

Results Measurement results are presented in appendix 2.

The results are assessed according to EN 1751:1998 /1/.

Instruments used in the measurements are listed in appendix 3.

The results are only valid for the tested item.

References /1/ EN 1751:1998. Ventilation for buildings - Air terminal devices - Aerodynamic testing of dampers and valves.

/2/ ISO 5167-1:2003. Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full. Part 1: General principles and requirements.

ISO 5167-2:2003. Measurement of fluid flow by means of pressure differential

The test results relate only to the sample tested.

devices inserted in circular cross-section conduits running full. Part 2: Orifice plates.

Espoo, 14.11.2013



Mikko Nyman
Product Manager



Kyösti Ovaska
Senior Expert

APPENDICES
DISTRIBUTION

3	
Customer	Original
Archive	Original

The test results relate only to the sample tested.

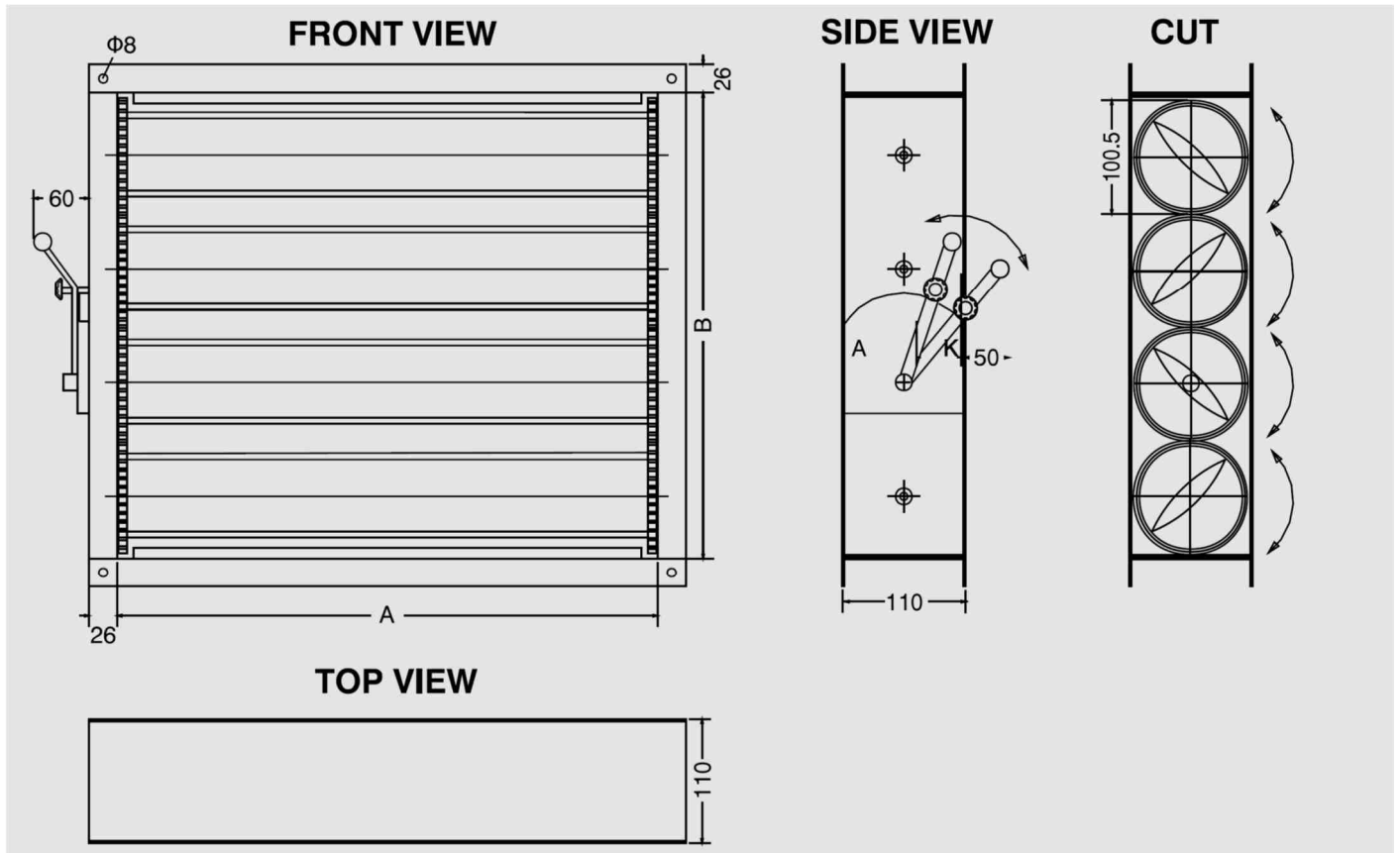
Damper: DA-1000 mm x 1000 mm

Description of the sample

Dimensions

A=1000 mm

B=1000 mm



The test results relate only to the sample tested.

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Damper: DA 1000 mm x 1000 mm

Closed blade leakage of the damper

EN 1751:1998

Direction of air flow: no restriction

Duct cross sectional area: 1,00 m²

Air density 1,20 kg/m³

P _s Pa	q _{VL} dm ³ /s	q _{VLBA} dm ³ /s/m ²	Leakage class
50,8	7,9	7,9	2
128	13,3	13,3	2
250	19,6	19,6	2
521	29,4	29,4	2
742	36,2	36,2	2
1010	43,5	43,5	2
1622	57,6	57,6	2
1970	64,5	64,5	2

Symbols and units

P_s Static test pressure, Pa

q_{VL} Leakage air flow, dm³/s

q_{VLBA} Closed blade leakage air flow per duct cross sectional area, dm³/s/m²

The test results relate only to the sample tested.

Damper: DA 1000 mm x 1000 mm

Closed blade leakage of the damper

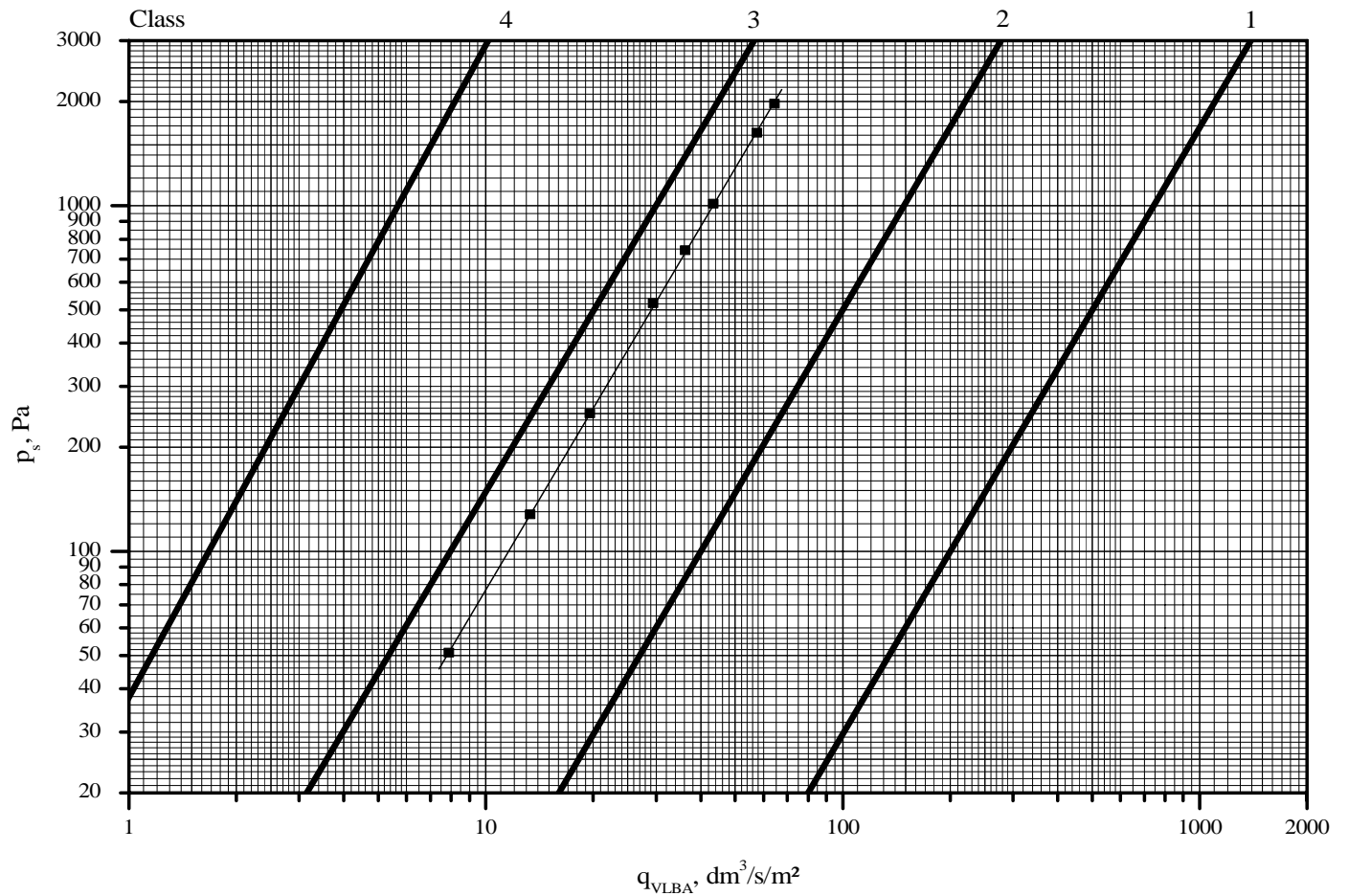
EN 1751:1998

Direction of air flow: no restriction

Duct cross sectional area: 1,00 m²

Air density 1,20 kg/m³

Closed damper fulfils the requirement of leakage class 2 (EN 1751:1998).



Symbols and units

p_s Static test pressure, Pa

q_{VLBA} Closed blade leakage air flow per duct cross sectional area, dm³/s/m²

The test results relate only to the sample tested.

Damper: DA-1000 mm x 1000 mm

Instruments used in the measurements

Orifice plates according to standard ISO 5167:2003

Micromanometer Furness FCO12 No. 0611107, calibrated 15.7.2013

Micromanometer Furness FCO12 No. 88028, calibrated 15.7.2013

Micromanometer Furness FCO12 No. 0611106, calibrated 15.7.2013

PT-100 temperature probes with logger Agilent 34970A No. MY44066372, calibrated 10.7.2013

Barometer Vaisala PTB220BAC2A1 No. W4230002, calibrated 15.7.2013

Hygrometer Vaisala No. W4240027, calibrated 22.11.2012

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