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Spiro SA

## Test of circular duct system

(3 appendices)

### Test object

Circular duct system type Spiro Systems.

### Test procedure

The test was carried out on 11 January 2007 on an assembled duct system at Lindab Ventilation AB in Grevie in accordance with test method SS EN 12237.

Present were Ola Berg, Lindab, together with Bertil Andréasson and Anders Flyckt of the Technical Research Institute of Sweden (SP).

A variable speed-controlled fan and airflow meter tubes were connected to the duct system. The static pressure was measured with a meter tube in the hose.

### Measurement equipment

- Micromanometer, Furness Pocket Manometer FC010, Swedish National Testing and Research Institute's inv.no. 201638, calibrated 01-11-2006
- Micromanometer, Swema Man, Swedish National Testing and Research Institute's inv.no. 202719, calibrated 06-09-2006
- Airflow meter tube, spray nozzle 10 mm, Swedish National Testing and Research Institute's inv.no. 201602, calibrated 20-11-2006
- Thermometer, Comark, Swedish National Testing and Research Institute's inv.no. 201312

### Result - air tightness test

The measured/calculated values for pressure and leakage factors are shown in annexes 1-2.

The recorded values have been adjusted to an air density of  $1.2 \text{ kg/m}^3$ . The measurements were made at an air pressure of 990 mbar and an air density of  $1.15\text{-}1.20 \text{ kg/m}^3$ .

The tested circular system (annex 3) had a total connection area (A) of  $42.7 \text{ m}^2$  and total joint length of 34.1 m. Manufactured by Lindab s.r.o Prague and assembled by Lindab Ventilation AB. The duct system was erected on pallets for the test. The duct system was designed for 2000 Pa positive and negative pressure and tightness class D.

No deformations were remaining after the test.

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The system fulfils the requirements of SS EN 12237.

### Materials specifications

Thickness of material: 0.5-0.9 mm

Type of packing: GASK

Packing material: EPDM-rubber

Jointing method: nipple


### Measurement uncertainty

Measurement uncertainty in determining flow was assessed at  $\pm 5\%$  of the value in question. Measurement uncertainty for static pressure was assessed at  $\pm 1$  Pa. Measurement uncertainty for temperature was assessed at  $\pm 0.5$  °C.

### Traceability

All instruments used have traceability to a national measurement location or equivalent international organisation.

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Geron Johansson  
Technical Manager



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### Appendices



## Appendix 1

**Circular duct system Spiro System**

<b>Static positive pressure Pa</b>	<b>Measured leakage factor l/sm<sup>2</sup></b>	<b>Requirements as per class B l/sm<sup>2</sup></b>	<b>Requirements as per class C l/sm<sup>2</sup></b>	<b>Requirements as per class D l/sm<sup>2</sup></b>
110	0.00	0.19	0.06	0.02
220	0.01	0.30	0.10	0.03
390	0.01	0.43	0.14	0.05
1020	0.03	0.81	0.27	0.09
1530	0.04	1.06	0.35	0.12
2000	0.05	1.26	0.42	0.14

<b>Static negative Pressure Pa</b>	<b>Measured leakage factor l/sm<sup>2</sup></b>	<b>Requirements as per class B l/sm<sup>2</sup></b>	<b>Requirements as per class C l/sm<sup>2</sup></b>	<b>Requirements as per class D l/sm<sup>2</sup></b>
100	0.00	0.18	0.06	0.02
200	0.01	0.28	0.09	0.03
400	0.01	0.44	0.15	0.05
1040	0.03	0.82	0.27	0.09
1500	0.04	1.04	0.35	0.12
2020	0.04	1.27	0.42	0.14



Appendix 2

**Circular duct system Spiro System**

