FlowFinder MK-2

Product Presentation by dr. ir. Niek-Jan Bink

The FlowFinder® mk2: the right tool to balance ventilation

ACIN instrumenten bv
Dr Niek-Jan Bink

made to measure
ACIN instrumenten

- Design, Production and Maintenance
- Measuring and Control Instrumentation
- Indoor and Outdoor climate
ACIN instrumenten

Products

- temperature & humidity
- pressure
- air velocity
- air volume
- gasses - CO₂
- data processing
- smoke products
- specialisms
- calibration & service
FlowFinder

- Idea of TNO
- Developed in the eighties
- Well known....
- Reliable
- Accurate
- Difficult to handle

Need for a FlowFinder MK-2
- Ease of use and ease handling
- Higher accuracy
- Larger range
- Modernise
Operating principle:
zero pressure compensation method

the resistance of the measuring instrument is compensated by means of a controlled fan, so the characteristics of the air distribution system are not influenced by the measurement.

Need for a FlowFinder MK-2

• Ease of use and data handling
• Higher accuracy
• Larger range
• Modernize .....
Weight old FlowFinder: 3900 gram + 3200 gram (instrument + battery case)

Weight new FlowFinder 2230 gram, battery pack included
Passive vs Active

Operational Air Flow Rate

Air Flow Quantity vs Pressure Differential

- Constant Fan Power
- Actual Air Flow Quantity
- System Curve
Instrument added to the system

Compensate the increased system resistance
**Specifications FlowFinder® mk2**

- air flow range (supply and exhaust)
  10..550m³/h with zero pressure compensation

- uncertainty air flow (at 20 °C)
  3% of the reading, with a minimum of 3 m³/h

-resolution air flow measurement
  1m³/h, 0.1l/s, 0.1CFM

**FlowFinder MK-2**

- Homogenize flow field around the fan
- Compensate for fundamentally different return flow field
- After-calculation to reduce errors
- Calculate zero-pressure point in case of:
  - low battery
  - very high air flow quantity (>800 m³/hr)
Measurement Results

- Measurements on a swirl diffuser
- High efficient - low resistance - system
- Supply and Return Flow
- Passive VentiFlow
- Active FlowFinder
Relative error in reading for VentiFlow and FlowFinder MK-2 on a swirl diffuser for efficient systems
Relative error in reading for VentiFlow with respect to the passive air flow quantity on a swirl diffuser for efficient systems

<table>
<thead>
<tr>
<th>Air Flow Quantity [m³/hr]</th>
<th>VentiFlow Supply</th>
<th>VentiFlow Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>-50%</td>
<td>-30%</td>
</tr>
<tr>
<td>25</td>
<td>-40%</td>
<td>-20%</td>
</tr>
<tr>
<td>50</td>
<td>-30%</td>
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<tr>
<td>75</td>
<td>-20%</td>
<td>0%</td>
</tr>
<tr>
<td>100</td>
<td>-10%</td>
<td>0%</td>
</tr>
<tr>
<td>125</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>150</td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Summary FlowFinder MK-2

- SD card storage
- Low energy consumption
- Small and easy handling
- Sturdy
- Extended range (0-850 m³/hr)
Future Prospects

- Work on the uncertainty budget
- prEN16211 > very interesting
- Quick measuring method, other improvements