Lindab Smoke control system

– single compartment –
Duct and fittings, Smoke control dampers

Mounting instruction
Duct and fittings

Content – Duct and fittings

Introduction .................................................................3
Intended use...............................................................3
Transport and delivery ...............................................4
Storage .......................................................................4
Operation ....................................................................4
Applied Documents ..................................................4
Declaration of performance ....................................5
Revision and Maintenance .......................................5
Before mounting .......................................................6
Mounting ....................................................................6
Horizontal suspension .............................................7
Vertical suspension ..................................................8
Compensator ............................................................9
Grilles ......................................................................10
Silencers ...................................................................10

Content – Smoke dampers

Introduction ...............................................................11
Intended use .............................................................11
Transport and delivery ..............................................12
Storage ......................................................................12
Operation ....................................................................12
Applied Documents ................................................12
Declaration of performance ..................................13
Revision and Maintenance ....................................13
Before mounting .......................................................13
Mounting ....................................................................14
Connection ................................................................15
Inspection of the damper ........................................16
**Introduction**

This mounting instruction refers to a circular smoke control system for single compartment tested in two hours at a temperature of 600°C at a positive pressure of +500 Pa and negative pressure of -1500 Pa in horizontal and vertical position (E\text{_{600}} 120 (v_h - h_v) S 1500 single) according to the following standards:

Classification: EN 13501-4  Fire classification of construction products and building elements.

Classification using data from fire resistance tests on components of smoke control systems.

Test Method: EN 1366-9  Fire resistance tests for service installations Single compartment smoke extraction ducts.

Requirements: EN 12101-7  Smoke and heat control systems.

Smoke duct sections

**Intended use**

The system is a part of a smoke and fire protect system and is designed to reach the following targets:

- Extract smoke for 2 hours during the fire
- Reduce temperatures during the fire
- Create an non-smoke layer
- Protect the property

This system represents a part of the smoke and fire protection project and shall be designed by a fire expert.

The products used in system should not be larger than dimension Ø1000.
Transport and delivery
The delivery contains smoke control duct system marked by a CE label on the outside of the duct.

The transport is performed by common transport means. Components that are free loaded should be secured in such a way that any deformation and damage to the components will be eliminated. The transport vehicle must be covered to prevent dust, debris and humidity to damage the components.

Components are delivered without an acceptance at a supplier’s as default. If an acceptance at a supplier’s is required, it is necessary to state this requirement in the order-purchase contract.

A buyer or his/her representative is obliged in terms of good acceptance to on site check these according to the delivery documentation. Visible defects and amount shortages are to be noticed in the transporter’s transport sheet immediately.

Storage
The goods should be stored inside and protected to prevent dust, debris and humidity to damage the goods.

Operation
Before starting the system it is necessary to check the system for damages and that it is consistent to the fire expert design.

The system can be used only in compliance with determined conditions (pressure, temperature etc.).

Applied Documents
This system has been certified together with hangers, flanges, sealing material, silencers, grilles and compensators. All the components shall be used in the same way they were used during the tests. No substitution of any components of the system is possible.

Producers of the system:
Lindab Kft, Állomás út 1/a, 2051 Biatorbágy, Hungary
Lindab s.r.l, Via Verga 82, 10036 Settimo Torinese, Italy
Lindab s.r.o, Na Hůrce 1081/6, 161 00 Praha 6, Czech Republic
Oy Lindab Ab, Kankitie 3, 40320 Jyväskylä, Finland
Oy Lindab Ab, Juvan teollisuukatu 3, 01230 Espoo, Finland
Lindab AS, Saha-Loo tee 4, Iru küla, 74206 Jõelähtme vald, Harjumaa, Estonia
Declaration of performance
The system is CE marked with the declaration of performance Circular smoke control system single compartment with CPR nr. 0370-CPR-2828.

Revision and Maintenance
Following features shall be checked up during a revision of the system at least once a year:

- All parts of the system are to be installed according to this mounting instruction.
- System components must not be damaged in any way; duct work cross-section must not be reduced in any way.
- All connections and flanges are to be tightened and properly connected.
- The system weight is to be evenly distributed over the hangers and not exceeding the maximum weight load for the specific hanger.
- If thermal expansion compensating devices are used, these compensating devices shall be prepared for utmost absorption of eventually system dilatation at their extreme positions.
- There must not be any flammable bodies on the duct work surface and 50 mm away from the system itself.
Before mounting

Before starting the mounting of the system it is necessary to inspect all components to make sure that they are correct according to the project documentation and to make sure they have not been damaged during transport or storage. When handling the products on site it is important to be careful so that they don’t get damaged and their properties change.

Mounting of the system should only be done by trained professionals equipped with the correct protective equipment and tools. The mounting of the system should always be performed according to valid documentation from the manufacturer.

The system should never be used as a supporting part of the building.

In order to achieve a good result, ensure you have:

- A well-organised and protected storage site for ducts and other parts that are to be assembled.
- A properly planned assembly sequence in accordance with the instructions.

Mounting

Preparations:

- Cut ducts at right angles.
- Carefully remove any burrs from cut edges. Installation is easier and the risk of damaging the gasket is reduced if there are no burrs.
- Cut away the needles created from the fold.

Assembly

- Start by inserting the turned-over edge of the fitting into the duct.
- Check that the first lip of the gasket is in contact with the edge of the duct all the way around and sticks straight out so that the lip is not twisted in one direction or the other.
- Push the end of the fitting into the duct. Twisting the fitting slightly aids insertion.
- Secure the fitting in the duct using self-tapping screws Ø4,2×13, or airtight blind rivet made of steel, min Ø4,0×10.
• Fasteners should be positioned 10–15 mm from the end of the duct to prevent damage to the gasket.

• Always position fasteners at the present largest radial gap between fitting and duct. Be sure to achieve an even distribution around the circumference.

• When mounting products that require mastic, such as saddles, to achieve air tightness the mastic Soudal Firecryl must be used.

**Horizontal suspension**

The threaded rods shall be anchored to a massive ceiling by using expanding wall plugs with dimensions corresponding with the threaded rods.

<table>
<thead>
<tr>
<th>Ø nom</th>
<th>Threaded rod when l ≤ 3000 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-800</td>
<td>M8</td>
</tr>
<tr>
<td>900-1000</td>
<td>M10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ø nom</th>
<th>Distance l (mm) when using threaded rod M8</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-800</td>
<td>≤ 3000</td>
</tr>
<tr>
<td>900-1000</td>
<td>≤ 2300</td>
</tr>
</tbody>
</table>
The threaded rod can not be longer than 2 m. Two shorter threaded rods can be joined with a long nut, OSM, secured with two nuts. For suspension of the system suspension rings, UV (1.), DRSN/UVH (2.) or DRSN/UVH (3.), should be used.

**Vertical suspension**

The system shall be suspended with recommended hinge material according to construction conditions and a particular system weight.

The distance between two anchoring points in the wall should not exceed 3000 mm.

- Two wall brackets (1.), CLS
- One channel (2.), RPC 41×21
- Two bolts (3.), minimum M8×35, and four washers (4.)
- Two suspension brackets (5.), WCLGM without rubber, each with four self drilling screws (6.) attached to the duct
Compensator

To balance out the elongation of the smoke control duct and to prevent forces resulting from this, ducts having a length of more than 5 m a compensators, SCNPUSS, must be installed.

The distance between two compensators must not exceed 10 m.

When the compensator is mounted it should be elongated minimum 150 mm.

The two ducts between which the compensator is mounted must be aligned as axial misalignment will prevent or obstruct the elongation of the system.
**Grilles**

Grilles, RGS-4 or RGS-0, can be mounted into the system. It is preferred that they are mounted at the factory.

**Silencers**

The silencers SLUSS2, SLGUSS2 and BSLUSS2 can be used with the system.
Introduction

This mounting instruction refers to a circular smoke control dampers for single compartment tested in two hours at a temperature of 600°C at a positive pressure of +500 Pa and negative pressure of -1500 Pa in installation on a duct penetrating a vertical or horizontal wall with two relay response options: type AA (Automatic Activation) and type MA (Manual Activation). Both motorized version are suitable for a combined use in smoke control and HVAC systems (e.g. reversible system).

The damper is classified as following standards:

\[
\begin{align*}
E_{600} & \quad 120 \ (\nu_{ed}, h_{od} i<->o) \ S \ 1500 \ C_{10000} \ AA \ single \\
E_{600} & \quad 120 \ (\nu_{ed}, h_{od} i<->o) \ S \ 1500 \ C_{10000} \ MA \ single
\end{align*}
\]

<table>
<thead>
<tr>
<th>Classification:</th>
<th>EN 13501-4</th>
<th>Fire classification of construction products and building elements. Classification using data from fire resistance tests on components of smoke control systems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Method:</td>
<td>EN 1366-10</td>
<td>Fire resistance tests for service installations. Single compartment smoke extraction ducts.</td>
</tr>
<tr>
<td>Requirements:</td>
<td>EN 12101-8</td>
<td>Smoke and heat control systems. Smoke duct sections.</td>
</tr>
</tbody>
</table>

Intended use

The damper is a part of a smoke and fire protection system and is designed to reach the following targets:

- Extract smoke for 2 hours during the fire
- Reduce temperatures during the fire
- Opens the blade and remove heat and smoke from a compartment in fire
- Closes the blade to prevent the spread of heat and smoke to a safe compartment
- Create an non-smoke layer
- Protect the property

This damper represents a part of the smoke and fire protection project and shall be designed by a fire expert.

The products used in system should not be larger than dimension Ø 630.
Smoke damper

**Transport and delivery**
The delivery contains smoke control damper marked by a CE label on the outside of the product.

The transport is performed by common transport means. Components that are free loaded should be secured in such a way that any deformation and damage to the components will be eliminated. The transport vehicle must be covered to prevent dust, debris and humidity to damage the components.

Components are delivered without an acceptance at a supplier’s as default. If an acceptance at a supplier’s is required, it is necessary to state this requirement in the order/purchase contract.

A buyer or his/her representative is obliged in terms of good acceptance to on site check these according to the delivery documentation. Visible defects and amount shortages are to be noticed in the transporter’s transport sheet immediately.

**Storage**
The goods should be stored inside and protected to prevent dust, debris and humidity to damage the goods.

**Operation**
All smoke dampers have a electrical actuator. They are designed to be installed indoor in a smoke evacuation and standard HVAC system.

Before starting the system it is necessary to check the system for damages and that it is consistent to the fire expert design.

The system can be used only in compliance with determined conditions (pressure, temperature etc.).

**Applied Documents**
This smoke damper has been certified together with the Lindab smoke evacuation system (see “duct and fittings” section on this manual). The damper shall be used in the same way it was used during the tests. No manipulation or substitution of any components of the damper is possible.

**Producers of the smoke damper:**
MP3 S.r.l., via G. La Pira 9, 35012 Camposampiero (PD), Italy - belongs to the holding Lindab.
**Declaration of performance**

The damper is CE marked with the declaration of performance according to EN12101-8 as a circular smoke control damper single compartment with CPR nr. 1812-CPR-1189.

**Revision and Maintenance**

Following features shall be checked up during a revision of the damper at least once a year:

- All parts are to be installed according to this mounting instruction.
- The damper must not be damaged in any way, the cross-section of the casing, the motor and the covering box of the motor must not be damaged in any way.
- All connections with the smoke evacuation system are to be tightened and properly connected.
- The ducts connected to the damper must be suspended or supported in order to bear the damper’s weight too.
- There must not be any flammable bodies on the damper surface and 50 mm away from the system itself.

**Before mounting**

Before starting the mounting of the damper it is necessary to inspect all components to make sure that they are correct according to the project documentation and to make sure they have not been damaged during transport or storage. When handling the products on site it is important to be careful so that they don’t get damaged and their properties change.

Mounting of the damper should only be done by trained professionals equipped with the correct protective equipment and tools. The mounting of the damper should always be performed according to valid documentation from the manufacturer.

The damper should never be used as a supporting part of the building.

In order to achieve a good result, ensure you have:

- A well-organised and protected storage site for components and other parts that are to be assembled.
- A properly planned assembly sequence in accordance with the instructions.
Mounting
Preparations:

- Cut ducts at right angles.
- Carefully remove any burrs from cut edges. Installation is easier and the risk of damaging the gasket is reduced if there are no burrs.
- Cut away the needles created from the fold.

Assembly

- Start by inserting the turned-over edge of the damper into the duct.
- Check that the first lip of the gasket is in contact with the edge of the duct all the way around and sticks straight out so that the lip is not twisted in one direction or the other.
- Push the end of the damper into the duct. Twisting the damper slightly aids insertion.
- Secure the damper in the duct using self-tapping screws Ø4,2×13.
- Fasteners should be positioned on the duct close the damper (minimum 10-15 mm) to support its weight and to prevent damage to the gasket.
- The damper must be installed on certified and CE marked smoke control system. Note that the damper is a component of the system, please read and follow the mounting instruction of the whole smoke control system itself (page 6).

<table>
<thead>
<tr>
<th>Ø nom</th>
<th>Minimum number of fasteners required to achieve sufficient strength.</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-630</td>
<td>4</td>
</tr>
</tbody>
</table>
Smoke damper

Connection

Power supply .............................................
Power consumption .................................
For wire sizing ........................................
Connection ..............................................
Operative angle ......................................
Torque at rated voltage ............................
Direction of rotation ..............................
Position indication .................................
Running time .......................................... 1
Sound power level ....................................
Protection class .....................................
Protection type ......................................
Ambient temperature range ..................
Ambient moisture ...................................
Mode of operation ...................................
Signalling ............................................
Manual operation ....................................

<table>
<thead>
<tr>
<th>BLE24</th>
<th>BLE230</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC/DC 19.2 28,8 V, AC 198-264 V, 50/60 Hz</td>
<td>AC 198-264 V, 50/60 Hz</td>
</tr>
<tr>
<td>7,5 W</td>
<td>5 W</td>
</tr>
<tr>
<td>9 VA</td>
<td>12 VA</td>
</tr>
<tr>
<td>Cable 1 m, 3×0,75 mm²</td>
<td>Cable 1 m, 3×0,75 mm²</td>
</tr>
<tr>
<td>Max. 90°</td>
<td>Max 105°</td>
</tr>
<tr>
<td>Min. 15 Nm</td>
<td>Min. 15 Nm</td>
</tr>
<tr>
<td>Selected by mounting L/R</td>
<td>Selected by mounting L/R</td>
</tr>
<tr>
<td>Mechanical with pointer</td>
<td>Mechanical with pointer</td>
</tr>
<tr>
<td>&lt;30 s for 90°</td>
<td>&lt;30 s for 90°</td>
</tr>
<tr>
<td>Max. 62 dB (A)</td>
<td>Max. 62 dB (A)</td>
</tr>
<tr>
<td>III Safety extra-low voltage II totally insulated</td>
<td></td>
</tr>
<tr>
<td>IP 54</td>
<td>IP54</td>
</tr>
<tr>
<td>-30 to +50°C</td>
<td>-40 to + 80°C</td>
</tr>
<tr>
<td>95 % RH</td>
<td>95 % RH</td>
</tr>
<tr>
<td>2-wire open-close control. The actuator is overload-proof and can thus remain energised even at the end stops.</td>
<td></td>
</tr>
<tr>
<td>Two microswitches with fixed settings are installed in the actuator for indicating the damper end positions. The position of the damper blade can be read off on a mechanism position indicator.</td>
<td></td>
</tr>
<tr>
<td>The crank handle supplied with the actuator allows it to be operated manually.</td>
<td></td>
</tr>
</tbody>
</table>

Note
• Caution: Main power supply voltage!
• Parallel connection of several actuators possible. Power consumption and switching thresholds must be observed!

Note
• Supply via safety isolation transformer!
• Parallel connection of several actuators possible. Power consumption and switching thresholds must be observed!
Smoke damper

**Inspection of the damper**

Each damper should be inspected after installation and every 12 months.

The damper is part of the SHEVS. Therefore the system must be checked as specified in its operational and maintenance according to the national requirements.
Good Thinking

At Lindab, good thinking is a philosophy that guides us in everything we do. We have made it our mission to create a healthy indoor climate – and to simplify the construction of sustainable buildings. We do that by designing innovative products and solutions that are easy to use, as well as offering efficient availability and logistics. We are also working on ways to reduce our impact on our environment and climate. We do that by developing methods to produce our solutions using a minimum of energy and natural resources, and by reducing negative effects on the environment.

We use steel in our products. It’s one of few materials that can be recycled an infinite number of times without losing any of its properties. That means less carbon emissions in nature and less energy wasted.

We simplify construction