

Lindab **Smoke control system**

- single compartment -
Duct and fittings, Smoke control dampers

Mounting instruction





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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_{600} 120 ($v_e - h_o$) 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 $\text{Ø}1000$.



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.

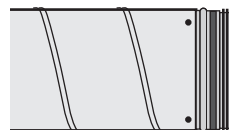
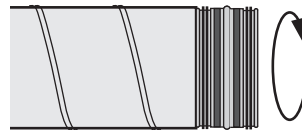
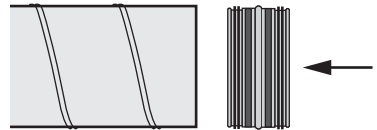
Mounting

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 $\varnothing 4,2 \times 13$, or airtight blind rivet made of steel, min $\varnothing 4,0 \times 10$.

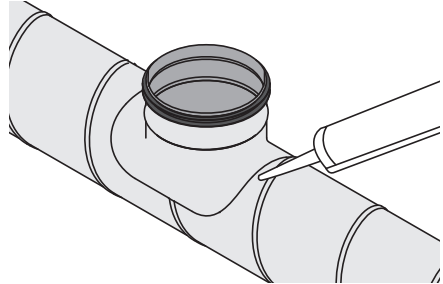


Duct and fittings

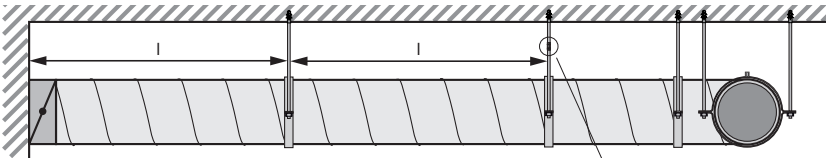


- Fasteners should be positioned 10–15 mm from the end of the duct to prevent damage to the gasket.
- Always position fasteners at the present largest radial gap between fitting and duct. Be sure to achieve an even distribution around the circumference.
- When mounting products that requires mastic, such as saddles, to achieve air tightness the mastic Soudal Firecryl must be used.

\varnothing nom	Minimum number of fasteners required to achieve sufficient strength.
63–630	4
710–1000	6



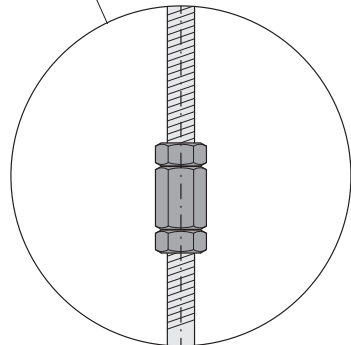
Horizontal suspension



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

\varnothing nom	Threaded rod when $l \leq 3000$ mm
63-800	M8
900-1000	M10

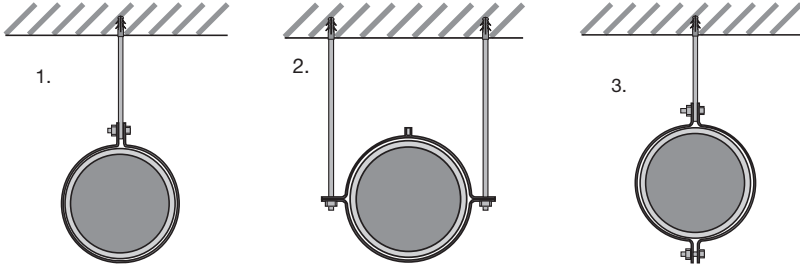
\varnothing nom	Distance l (mm) when using threaded rod M8
63-800	≤ 3000
900-1000	≤ 2300



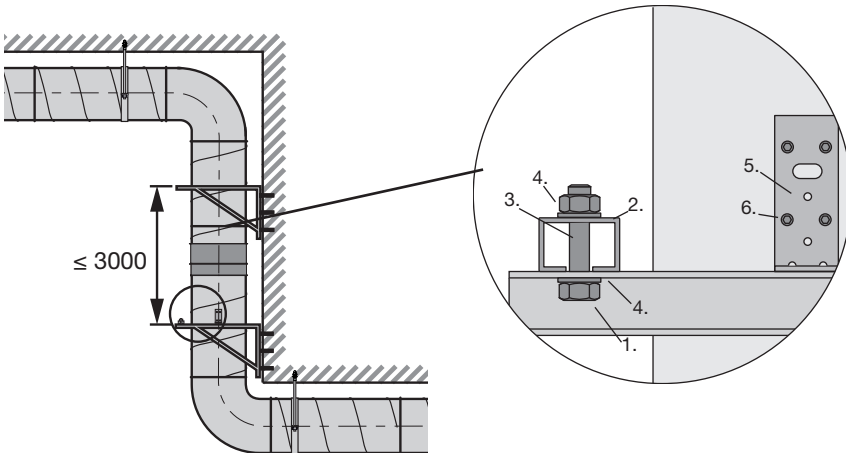
Duct and fittings



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.



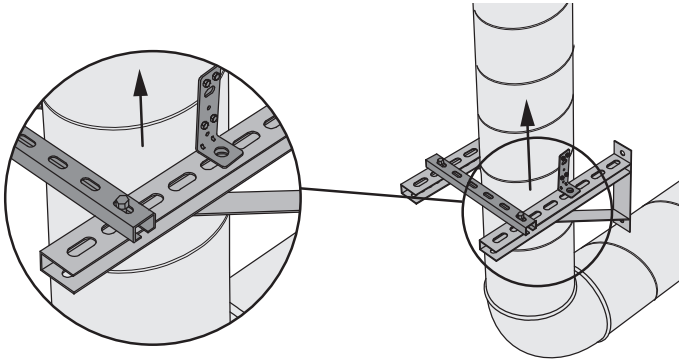
Vertical suspension



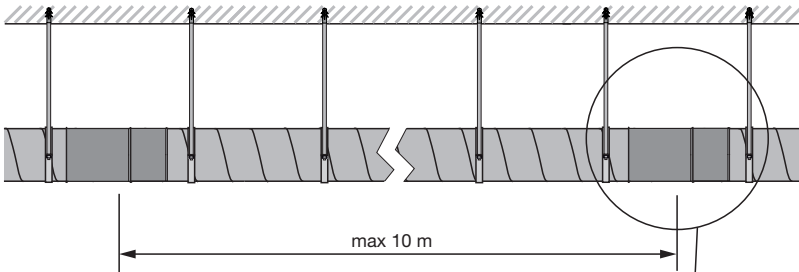
The system shall be suspended with recommended hinge material according to construction conditions and a particular system weight.

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

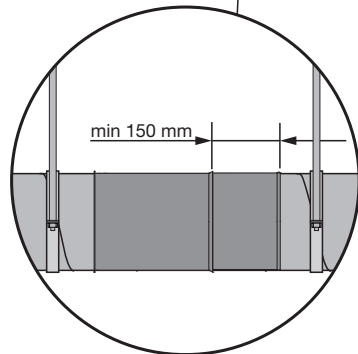


To balance out the elongation of the smoke control duct and to prevent forces resulting from this, ducts having a length of more than 5 m a compensators, SCNPUSS, must be installed.

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.

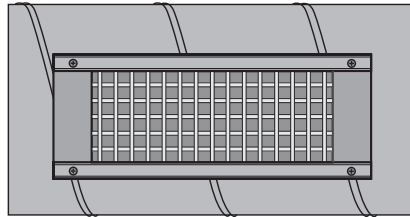


Duct and fittings



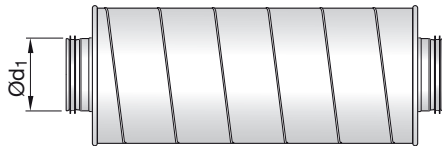
Grilles

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,SLGPUSS2 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:

$E_{600} 120 (v_{ed}, h_{od} i \leftrightarrow o) S 1500 C_{10000}$ AA single

$E_{600} 120 (v_{ed}, h_{od} i \leftrightarrow o) S 1500 C_{10000}$ MA single

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 1366-10	Fire resistance tests for service installations. Single compartment smoke extraction ducts.
Requirements:	EN 12101-8	Smoke and heat control systems. Smoke duct sections.

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 a 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 $\varnothing 630$.



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 an 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.

Smoke damper



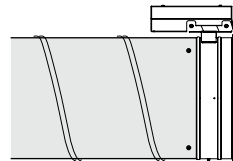
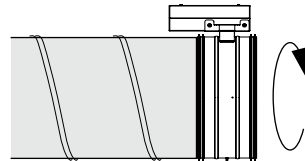
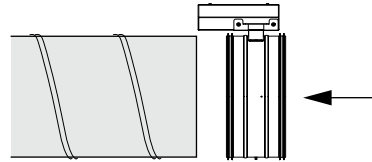
Mounting

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 $\varnothing 4,2 \times 13$.
- Fasteners should be positioned on the duct close the damper (minimum 10-15 mm) to support itself 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).



\varnothing nom	Minimum number of fasteners required to achieve sufficient strength.
63-630	4

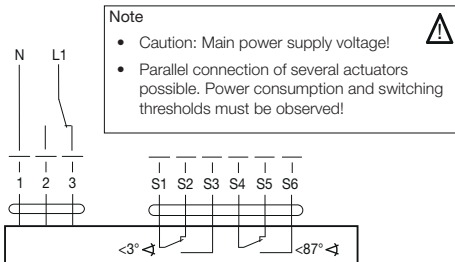
Smoke damper



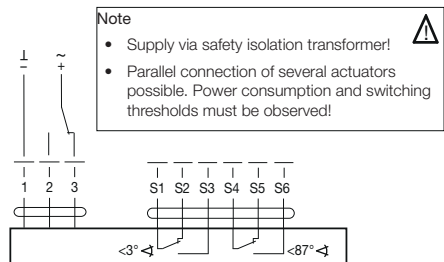
Connection



	BLE24	BLE230
Power supply.....	AC/DC 19.2 28,8 V, 50/60 Hz	AC 198-264 V, 50/60 Hz
Power consumption	7,5 W	5 W
For wire sizing	9 VA	12 VA
Connection	Cable 1 m, 3x0,75 mm ²	Cable 1 m, 3x0,75 mm ²
Operative angle	Max. 90°	Max 105°
Torque at rated voltage.....	Min. 15 Nm	Min. 15 Nm
Direction of rotation.....	Selected by mounting L/R	Selected by mounting L/R
Position indication.....	Mechanical with pointer	Mechanical with pointer
Running time	<30 s for 90°	<30 s for 90°
Sound power level.....	Max. 62 dB (A)	Max. 62 dB (A)
Protection class.....	III Safety extra-low voltage II totally insulated	
Protection type	IP 54	IP54
Ambient temperature range	-30 to +50°C	-40 to + 80°C
Ambient moisture	95 % RH	95 % RH
Mode of operation.....	2-wire open-close control. The actuator is overload-proof and can thus remain energised even at the end stops.	
Signalling	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.	
Manual operation	The crank handle supplied with the actuator allows it to be operated manually.	



BLE230



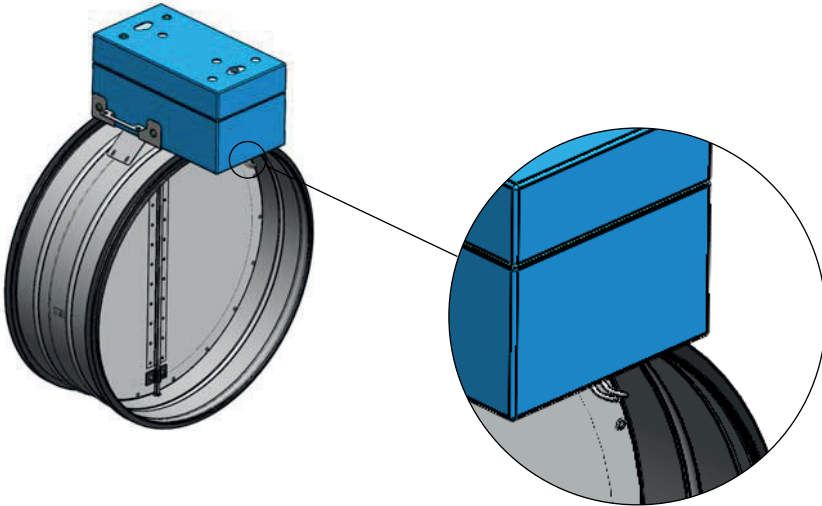
BLE24

Smoke damper



Electric cables and system

For Manual Activation version (MA), the electric cables and system must have at least 30 minutes circuit integrity.



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

Conformity assessment by installer

This is only a conformity assessment that installer approves and thereafter gives to the contact from the supplier of the documents. This signature only shows that the installer received the installation manual and that the he or she followed it gradually.

Company name	
Phone	
Email	
Project	
Date	

I hereby confirm that I received the installation manual from supplier and followed it gradually.

Date

Signature





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