



Lindab **Circular Silencers**

Installation instruction



Circular Silencers

Installation

Important

In order to fulfil the requirements for air-tightness class D, the silencers must be installed according to this instruction.

Joining systems (general characteristics)

Lindab Safe	Lindab Safe Click
Is joined with screws or blind rivets.	Is joined with snapping heels, below called notches. Is based on Lindab Safe.
Spans all dimensions.	Spans only a restricted number of dimensions. See table 2. For the other dimensions use Lindab Safe.
	<p>Lindab Safe Click can be complementary joined with screws or blind rivets. This may be done in order to:</p> <ul style="list-style-type: none"> • achieve a stronger joint • prevent a joint from twisting • join a Click product with a non-Click product • join a Click product with a non-Click product to create an openable joint.

Preparations for assembly

- Check that ducts and fittings to be used in the system are labelled as shown above.
- Store ducts and fittings in a well-ordered and weatherproof storage area to minimize the risk of damage. Do not use ducts or fittings that have been damaged in such a way that they jeopardise the air tightness or structural strength of the system.

Lindab Safe	Lindab Safe Click
<ul style="list-style-type: none"> • 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. Also cut away the two needles created from the fold. 	<ul style="list-style-type: none"> • Cut ducts at right angles. This is an uncompromisable demand for Lindab Safe Click. Carefully remove any burrs from cut edges. Installation is easier and the risk of damaging the gasket is reduced if there are no burrs. Also cut away the two needles created from the fold.
	<ul style="list-style-type: none"> • If a duct is cut – make notches around its circumference. See table 1 and 2.
<ul style="list-style-type: none"> • Carefully seal any holes left by measurements, removed screws, blind rivets, etc. 	<ul style="list-style-type: none"> • Carefully seal any holes left by measurements etc.

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Table 1. Size and location of notches






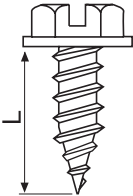
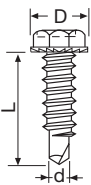
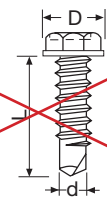


	Click Pliers		
	40.1	60.1	
			
Ø [mm]	Hmin [mm]	Hmin [mm]	L [mm]
80–224	2,0	–	30,5–32,5
250–315	–	2,5	50,5–52,5

Table 2. Number of fasteners and notches

Lindab Safe		Lindab Safe Click	
		40.1	60.1
			
Ø [mm]	Minimum number of fasteners required to achieve sufficient strength.		
63	2	–	–
80–112	2	2	–
125–160	3	4	–
180–224	3	4	–
250–315	4	–	4
355–630	4	–	–
710–1250	6	–	–
1400–1600	10	–	–
Depending on the means of suspension, a larger number of fasteners than this may be required to achieve sufficient structural strength of a duct system.		Depending on the means of suspension, a larger number of notches than stated above may be required to achieve sufficient structural strength of a duct system. A large number of notches makes it more difficult to assemble the parts.	

Circular Silencers

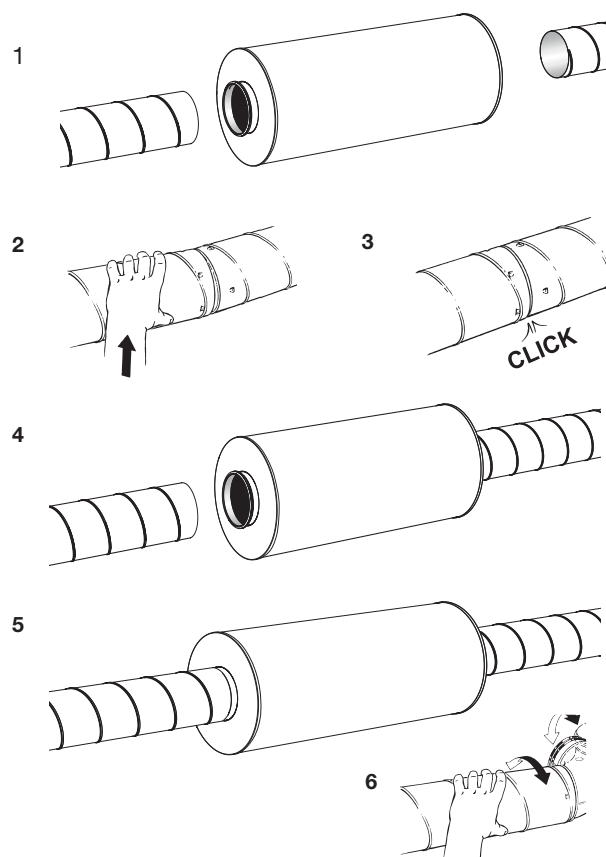
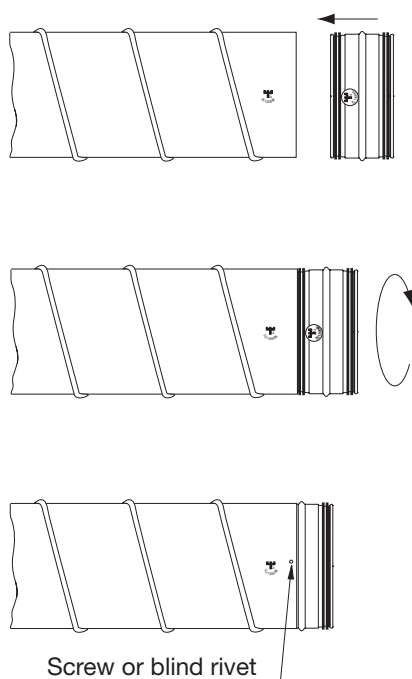
Table 3. Allowed and banned screws and blind rivets

	Allowed screws/rivets by Lindab	Banned screws/rivets by Lindab
	Screw with sharp tip <ul style="list-style-type: none"> • Very tight • Strong since it forms a collar in the thin sheet metal 	
	Screw with reduced drill tip <ul style="list-style-type: none"> • Very tight • Strong since it only drills off a small part of the thin sheet metal 	
		Screw with drill tip <ul style="list-style-type: none"> • Not tight • Weak since it drills off a big part of the thin sheet metal
	Pressure-tight blind rivet <ul style="list-style-type: none"> • Very tight • Strong • Very laborious to install 	
		Blind rivet <ul style="list-style-type: none"> • Not tight if the inner splint falls out • Strong • Laborious to install

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Assembly

Lindab Safe	Lindab Safe Click
1 Insert the fitting's turned-over edge into the duct.	1 Insert the fitting's turned-over edge into the silencer duct.
2 Check that the gasket's first lip is in contact with the duct's edge all the way around and points straight out so that the lip is not twisted in any direction.	2 Check that the gasket's first lip is in contact with the silencer duct's edge all the way around and points straight out so that the lip is not twisted in any direction.
3 Push the rest of the fitting into the duct. Twisting the fitting slightly aids insertion.	3 Push the first part of the fitting into the silencer to just before the notches. Twisting the fitting, slightly aids insertion.
4 Secure the fitting in the duct using self-tapping screws or airtight blind rivets. NOTE! Use only the types allowed by Lindab when going for tightness class C or D. See table 3.	4 Push the rest of the fitting into the silencer and over the notches. Bend the fitting or duct back and forward slightly in order not to pass all notches at the same time aids insertion.
5 Fasteners should be positioned 10–15 mm from the duct's end to prevent damage to the gasket.	5 The fitting is secured to the silencer when the fitting's end has snapped behind all the notches.
6 Always position fasteners at the present largest radial gap between fitting and duct. Be sure to achieve an even distribution around the circumference.	6 After assembly it's possible to rotate the fitting.



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Hints!

Turning and bending the fitting slightly as you insert it into the duct aids assembly and removal.

If ducts and fittings are round, assembly is much easier. Lindab has placed high demands on roundness during the design and production stages, but large heavy fittings in particular have a tendency to be slightly oval because of their weight. These often become round when suspended, which is why you should use the brackets to make the components round and in this way simplify assembly.

Carefully tapping the surface of the duct with your hand normally makes assembly a lot easier, as it reduces the friction between duct and fitting, and the fitting tries to move to the right side if there are burrs and irregularities.

When cutting, be sure to remove burrs properly. Also cut away the two needles created from the fold.

For larger dimensions, Lindab has moved the gasket away from the edge, which makes assembly much easier.

If you have to reinstall a product, take care to seal old holes from screws or blind rivets which can cause leaks and noise.

Products with special seals

Some fittings, such as the collar saddle PSU, T-pieces TSTCU, TSTU and take-offs ILRU, ILU, ILF, have one more connection than Lindab Safe or Lindab Safe Click. This connection must be sealed so that they definitely meet the requirements for air-tightness class C or D. Sealing material used must be durable and permanently elastic.

Products without Click

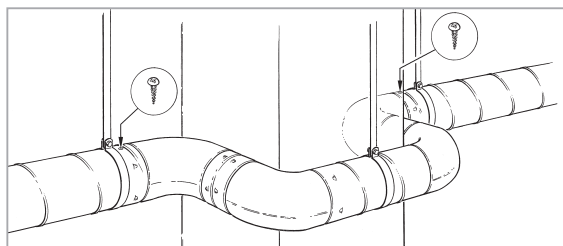
Some fittings, such as the slide-in female coupling SMFU, the end caps EPF and ESU and of course the cleaning covers EPFH, ESHU, KCU and KCIVU, do not have any Click function in order to make them easier to remove.

Use of products other than Lindab Safe or Lindab Safe Click

Products that do not formally fulfil the requirements for air tightness class C or D may only be used to a small extent. If such items are used, they must be carefully checked with regard to seal design and strength. They must be sealed so that they definitely meet the requirements for air-tightness class C or D. Sealing material used must be durable and permanently elastic.

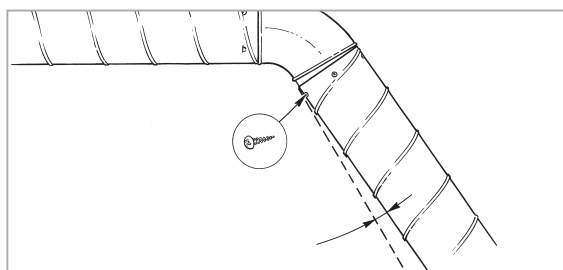
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The joint must be locked



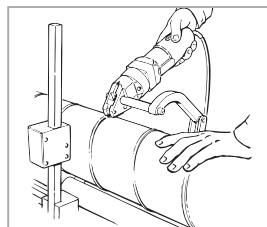
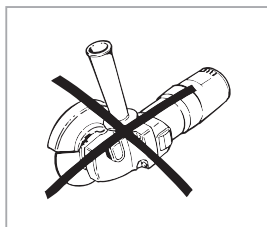
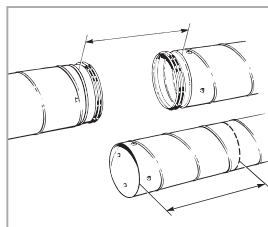
In situations where the mounting must be locked, e.g. when a bend is mounted to a duct and it twists downwards the floor. Mount the first hanger and mount the bend, then lock the joint with a screw or blind rivet.

Corners out of angle and curved walls



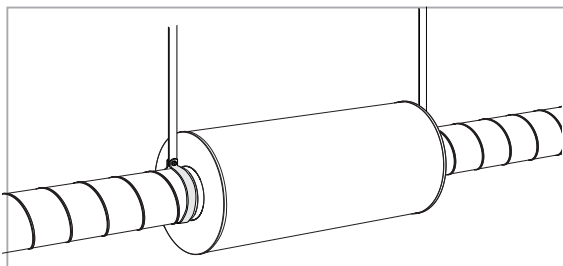
Mount the next piece of duct at an angle, but make sure that the rubber sealant is not visible. Put screws or blind rivets where the notches have not clicked in position.

Cutting duct with the SR Cutter

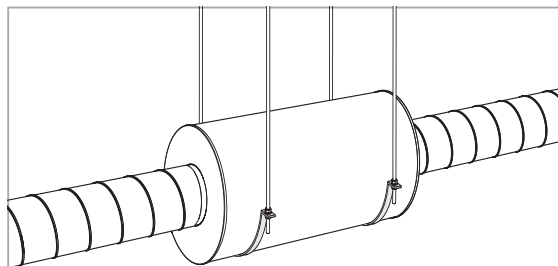


Suspension

Suspension hanging of small and light silencers



Suspension hanging of large and heavy silencers



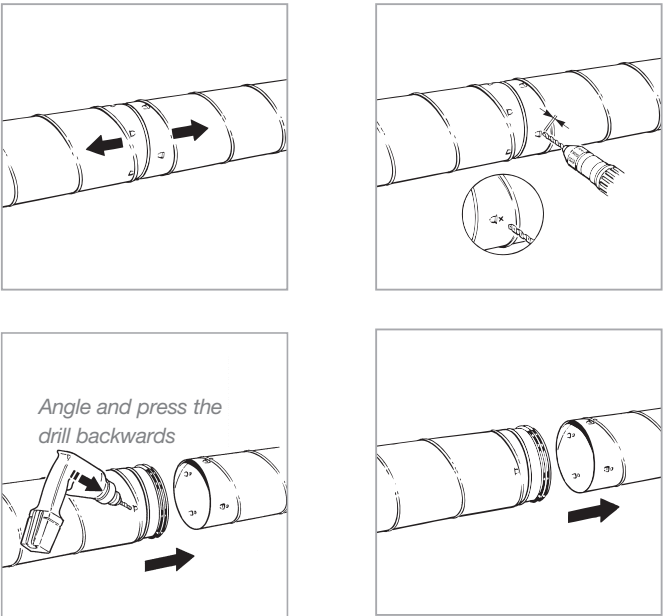
Depending on size and weight the suspension of the circular ducts/silencer should be strengthened by means of hangers to prevent it from falling down. Mount the hangers in a straight line and as close to every joint as possible. Fix with an extra screw when needed for extra stability.

Circular Silencers

Dismantling

To separate joined products.	
Lindab Safe	Lindab Safe Click
<p>Solution:</p> <ol style="list-style-type: none">1. Unscrew the screws or drill away the blind rivets.2. Twist the product loose.3. The fitting will now have leaking holes but can be reused if these holes are carefully sealed off with mastic or tape.	<p>Solution:</p> <ol style="list-style-type: none">1. Drill a 5 mm hole in the duct 4 mm behind the notch with the drill angled backward and turn in the same moment the drill back so the fitting and duct are separated somewhat from each other. With the right technique the fitting remains undamaged and can be reused.3. Repeat if necessary at more notches.4. Twist the product loose.5. Cut away the drilled through duct end.

Lindab Safe Click



Maintenance

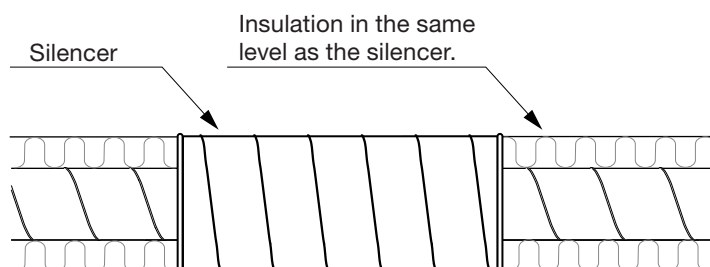
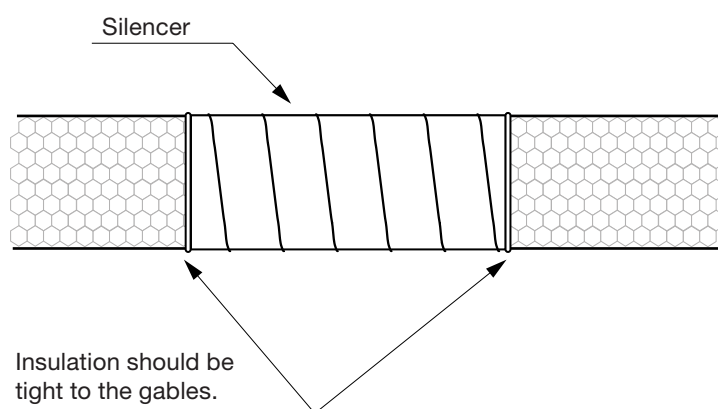
The silencers normally don't require any maintenance. If nessessary, the silencer can be cleaned with a soft nylon brush or vacuum cleaner.

Circular Silencers

Mounting

When insulating the ducts with fire insulation the following should be fulfilled (according to the Swedish type approval).

- a) the insulation must close tightly to the ends
- b) the insulation must be in level with the silencer



Circular Silencers

Eurovent certification

Lindab's circular duct system with rubber gasket connections Lindab Safe and Lindab Safe Click is certified to strength and leakage in tightness class D according to the Eurovent Certified Performance program for circular metallic ducts systems (DUCT-MC 17.11.002).



Lindab products that are Eurovent certified have the Eurovent logotype in the footer of the technical documentation.
Note: Most Lindab Safe and Lindab Safe Click and the most commonly used product in a ventilation system are essentially better than class D, however some products are according to EN 15727 not class D as a single product. These products are stated in the documentation as Class C and can be used in D class systems to a limited extension.

Type approval according to Swedish regulations

Fire classes

Valid only in Sweden for products produced in Sweden.

Silencer	Insulation thickness nominal mm	Diameter nominal mm400	Length	Fire classes
SLCU BSLCU	50	≤400	1200	EI 30, E 120
SLCU BSLCU SLCBU	100	≤800	1500	EI 60, E 120
SLGU SLBGU SPGPU	100	≤800	1000	EI 15, E 60
SLGU	150	≤250	1000	EI 30, E 60
LRCFU	-	100-400	1000	EI 30, E 60

Alternative fire engineering classes with protection distance.

To make use of the silencer's alternative to fire classes:

- the protective distance must be embodied according to the table below
- the silencer's surface must not be changed, e.g. by paint coating.

Silencer	Insulation thickness nominal mm	Diameter nominal mm	Alternative to fire classes according to BBR 5:6213	Protective distance at the radiation intensity of	
				2,5 kW/m ² (evacuation person) mm	10 kW/m ² (fittings mtrl.) (combust. mtrl.) mm
SLCU BSLCU	50	≤400	EI 120	50	50
SLCU BSLCU SLCBU	100	≤800	EI 120	50	50
SLGU SLBGU SLGPU	100	≤800	EI 30	50	50
		≤400	EI60	500	
		>400-800		500	
SLGU	150	≤400	EI 60	50	50
		>400-800		500	
LRCFU	-	100-400	EI 60	50	50

Circular Silencers

Air tightness

The Lindab Safe and the Lindab Safe Click duct system are type-approved, as per certificate no. 1105 issued by Kiwa Sverige AB and are subject to continuous production checks.

This means that the requirements for air tightness class D are met if ducts and fittings of the systems are used and if assembly is performed as per these instructions.

The products covered by the type approval are either specified on the delivery note or are supplied with the following labelling. Labelling can comprise a sticker or an embossing on the sheet metal.



NOTE! The assembly methods described herein only cope with the forces from the “Static pressure limits” defined in EN 12237. Forces from other sources, e.g. gravity or wind, have to be dealt with using other means, e.g. suspensions or supports.

NOTE! If the system shall be tested for air tightness, this shall be done **before integration and insulation** so that there is an opportunity for inspection and taking action. Any complaints regarding air tightness will **only** be dealt with provided the system is fully accessible for inspection.



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