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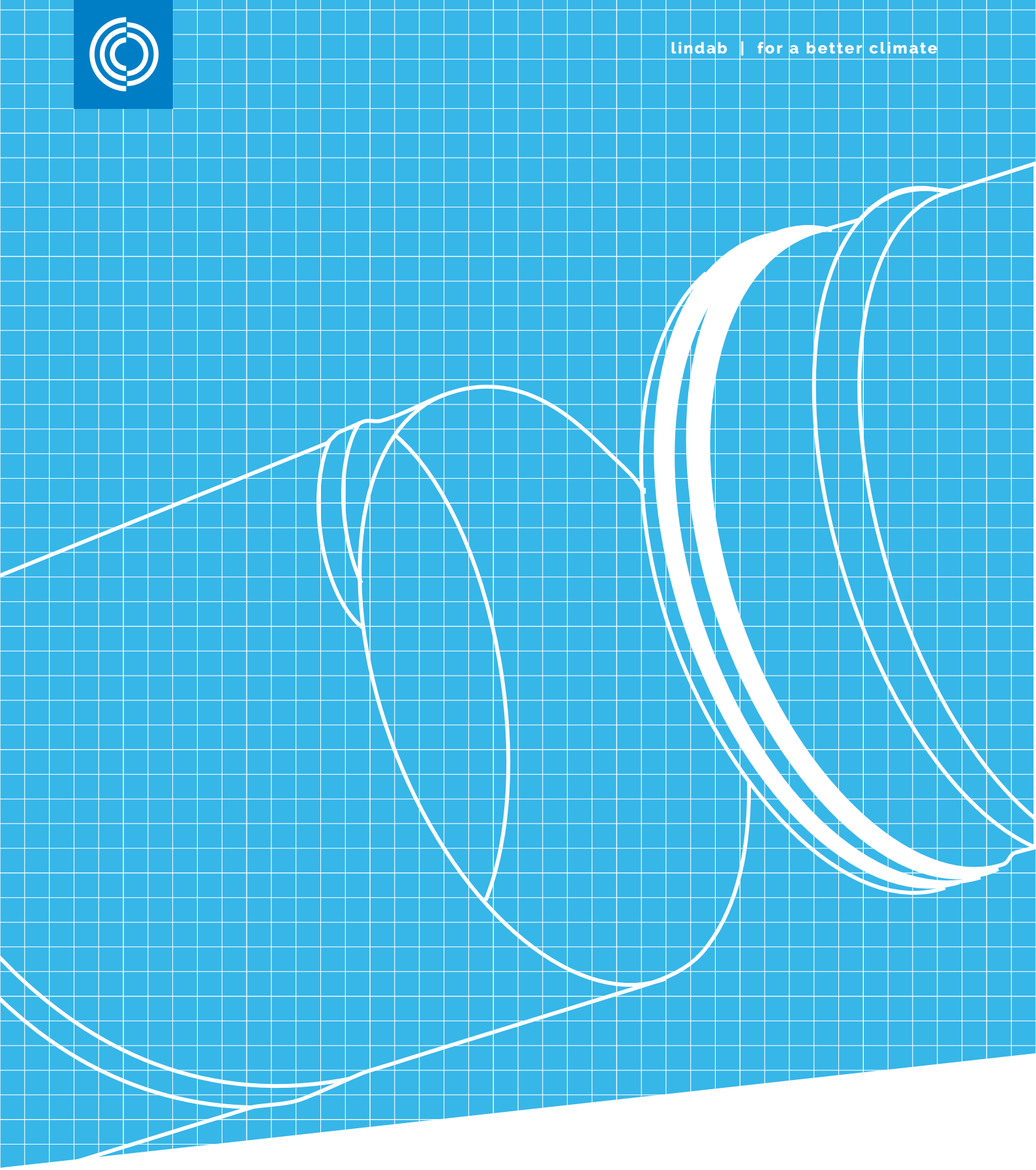

Lindab **Fire Rated Duct System(E)**

Mounting instruction

Lindab®

Fire rated Duct System(E)

Content

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Fire Rated Duct System(E)

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 extent.

Fire rated Duct System(E)

Introduction to Lindab Fire Rated Duct System(E)

This instruction applies to the circular duct system Lindab safe, up to Ø1000.

If the system is mounted according to this instruction it fulfills:

- **Thightness class D (ATC2)**

The system is tested according to standard EN 12237, and Eurovent certified in pressure from -750 to +2000 Pa.

- **Resistance to fire classification up to E90 (v_e-h_o i → o).**

The system is tested according to EN 1366-1 and classified according to EN 13501-3. The classification means that the uninsulated duct system can withstand an internal fire (**i → o**) for 90 minutes for both vertical ($\mathbf{v_e}$) and horizontal ($\mathbf{h_o}$)installations.

- **Reaction to fire classification A2 - s1, d0**

The classification means that the uninsulated duct system is produced of material that are limited combustible (A2), which create a small amount of smoke (s1) and with no drops (d0), according to EN 13501-1.

Duct system / products covered by Lindab Fire Rated Duct System

- Ducts and fittings made of galvanized steel, AluminiumZink or MagnesiumZink in dimensions ≤ Ød 1000 mm in Lindab standard plate thickness or thicker.
- Attenuators (except flexible attenuators) and dampers.
- In the case of vertical duct systems, each joint placed within 2000 mm from the ceiling / floor penetrations shall be provided with sealant BSKTUBE.

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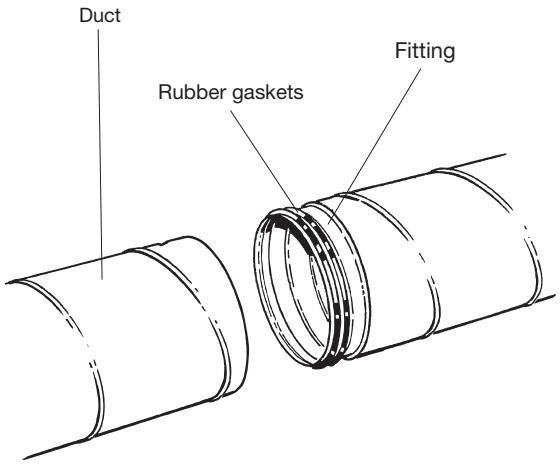
Fire Rated Duct System(E)

Overview

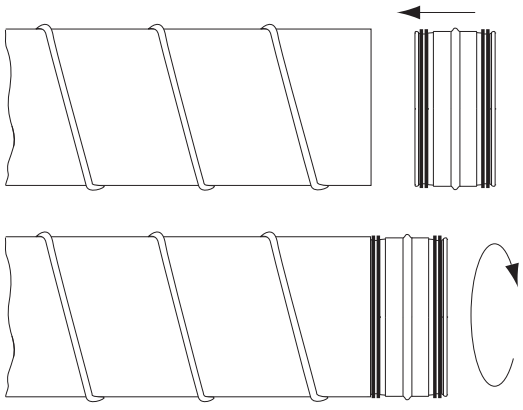


Assembly preparations for Lindab Fire Rated Duct System

- Store the products well protected from wind and weather.
- Check the products for damage and use only undamaged products..
- Prepare the mounting session well to be able to carry out the mounting instructions correctly.

Assembly of Lindab Fire Rated Duct System

- Cut ducts at right angles. Carefully remove any burrs from cut edges to make installation easier and reduce the risk of damaging the rubber gasket. Cut away the needles created from the fold.
- Insert the fitting´s turned-over edge into the duct.
- Check that the rubber 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.
- Push the rest of the fitting into the duct. Twisting the fitting slightly aids insertion. Carefully tapping the surface of the duct with your hand makes assembly easier.



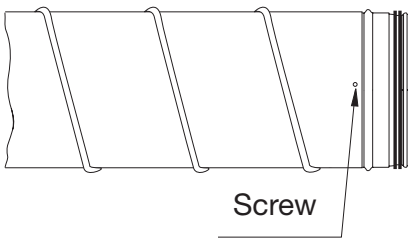
Fire rated Duct System(E)

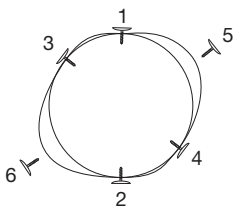
- Secure the fitting in the duct using self-tapping screws. Use the correct sizes and quantities, see table 1.
- The following types of screws are used: U42, U42K, U52.

Table 1. Recommended sizes of screws

Ød [mm]	Minimal number of screws to achive sufficient strenght	Screws	
		Diameter [mm]	Length [mm]
63-112	2	4,2	9,5
125-224	3	4,2	9,5
250-630	4	4,2	13
710-1000	6	4,2	13

- Fasteners should be positioned 10–15 mm from the duct's end 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.





- If you are reinstalling a product, always seal any old holes left from screws as the holes otherwise can cause air leakage and unnessecary noise.

Fire Rated Duct System(E)

Suspensions and fastenings

The products in table 2 can be used for assembly depending on what kind of mounting that is used.

Table 2. Suspension types

Suspension type	Ød [mm]	Horizontal mounting		Vertical mounting
		From ceiling	On deck/ floor	On wall
UV25	80-630	✓	-	-
UV30	63-1000	✓	-	-
UVH25	80-630	✓	-	-
UVH30	63-1000	✓	-	-
UVB	80-630	✓	✓	✓
DH	63-1000	-	✓	✓
MDH	315-1000	✓	✓	✓
RK	100-1000	✓	✓	✓
RK2	630-1000	✓	✓	✓

✓ = usable in the specified dimensions

Horizontal suspension distance

Products:

- Threaded rod OSB60, in dimensions M8 or M10
- EB, in dimensions M8 or M10 (together with UV30)
- Duct holders UV25, UVH25, UV30, UVH30, UVB, MDH, DH, RK, RK2

To fulfill E60 requirements on a suspension, for a horizontal mounted duct system, the tensile stress must not exceed 9N/mm².

Fire rated Duct System(E)

Tables 3, 4 and 5 shows the maximum suspension distance for uninsulated duct systems in standard sheet metal thicknesses to ensure this is met.

Note! If thicker sheet metal is used, the weight will increse which will affect the suspension distance.

Table 3. Suspension distance from the ceiling E60

	Suspension distance [m]											
Dimension Ød [mm]	UV25+ OSB60 M8	UV25+ OSB60 M10	UVH25+ OSB60 M8	UV30+ OSB60 M8	UV30+ OSB60 M10	UVH30+ OSB60 M8	UVH30+ OSB60 M10	UV25+ MDH	UVH25+ MDH	UV30+ MDH	UVH30+ MDH	UVB
63	-	-	-	3,0	3,0	3,0	3,0	-	-	-	-	-
80	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
100	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
112	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
125	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
140	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
150	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
160	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
180	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
200	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
224	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
250	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
280	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
300	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
315	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
355	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
400	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
450	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
500	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
560	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
600	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
630	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0	2,4
710	-	-	-	3,0	3,0	3,0	3,0	-	-	3,0	3,0	-
800	-	-	-	2,5	3,0	3,0	3,0	-	-	2,6	2,6	-
900	-	-	-	2,2	3,0	3,0	3,0	-	-	2,4	2,4	-
1000	-	-	-	2,0	2,9	3,0	3,0	-	-	2,1	2,1	-

Table 4. Suspension distance from the ceiling E90

	Suspension distance [m]							
Dimension Ød [mm]	UV25+ OSB60 M8	UV25+ OSB60 M10	UVH25+ OSB60 M8	UV30+ OSB60 M8	UV30+ OSB60 M10	UVH30+ OSB60 M8	UVH30+ OSB60 M10	UVB
63	-	-	-	3,0	3,0	3,0	3,0	-
80	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
100	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
112	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
125	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
140	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
150	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
160	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
180	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
200	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
224	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
250	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
280	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
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315	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
355	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
400	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
450	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
500	2,3	3,0	3,0	2,3	3,0	3,0	3,0	3,0
560	2,1	3,0	3,0	2,1	3,0	3,0	3,0	3,0
600	2,0	3,0	3,0	2,0	3,0	3,0	3,0	3,0
630	1,9	3,0	3,0	1,9	3,0	3,0	3,0	2,4
710	-	-	-	1,4	2,3	2,9	3,0	-
800	-	-	-	1,3	2,0	2,6	3,0	-
900	-	-	-	1,0	1,6	2,1	3,0	-
1000	-	-	-	0,9	1,5	1,9	-	

Fire Rated Duct System(E)

Table 5. Mounting distance standing on deck / floor E60

	Mounting distance [m]							
Dimension Ød [mm]	UV25+ MDH	UV25+ MDH	UV30+ MDH	UVH30+ MDH	UVB	DH	RK	RK2
63	-	-	-	-	-	3,0	-	-
80	3,0	3,0	3,0	3,0	3,0	3,0	-	-
100	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
112	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
125	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
140	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
150	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
160	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
180	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
200	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
224	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
250	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
280	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
300	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
315	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
355	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
400	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
450	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
500	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
560	3,0	3,0	3,0	3,0	3,0	3,0	3,0	-
600	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
630	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
710	-	-	3,0	3,0	-	3,0	3,0	3,0
800	-	-	3,0	3,0	-	3,0	3,0	3,0
900	-	-	3,0	3,0	-	3,0	3,0	3,0
1000	-	-	3,0	3,0	-	3,0	3,0	3,0

Fire rated Duct System(E)

Vertical suspension distance up to E90

Products

- Duct holders RK, RK2, MDH, UV25, UV30, UVH25, UVH30, UVB, DH

To meet the requirement according to the standard EN 1366-1, the distance between supporting structures / joints must not exceed 5000 mm and be no longer than 8x the diameter of the duct to be attached. Table 6 shows the maximum attachment distance between supporting structure / joints.

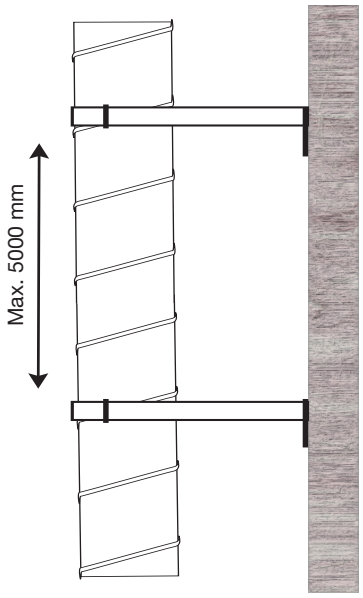
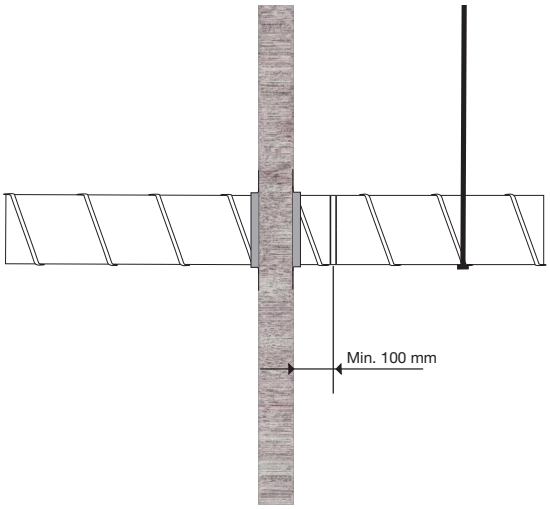


Table 6. Max. attachment distance

Ød [mm]	Distance max [mm]
80	0,64
100	0,80
125	1,00
160	1,28
200	1,60
250	2,00
315	2,52
355	2,84
400	3,20
450	3,60
500	4,00
630	5,00
710	5,00
800	5,00
1000	5,00

Distance from wall, deck or ceiling to nearest duct joint



Distance from wall, deck or ceiling penetration to first duct joint must not be less than 100 mm.

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Fire Rated Duct System(E)

Duct penetration through a wall/deck

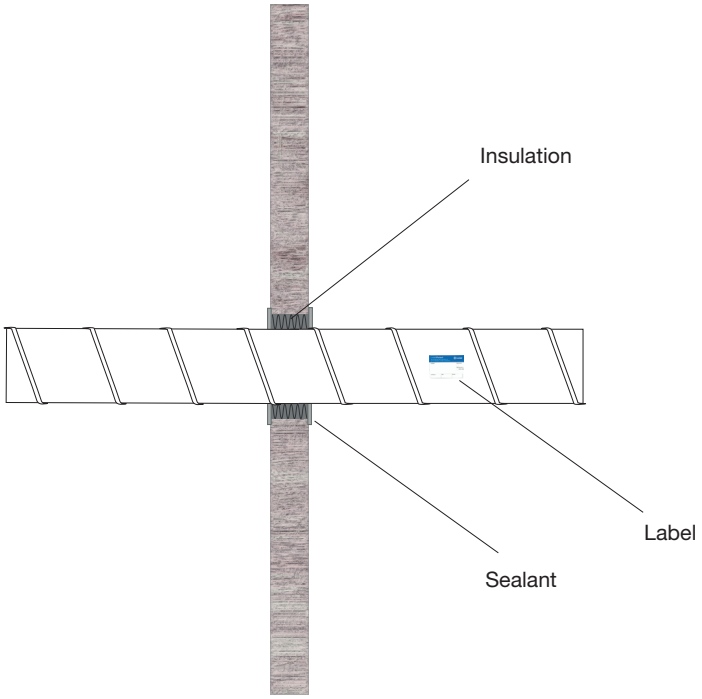
Applies to duct penetrations through lightweight walls, solid walls and concrete decks (floor partitions).

The penetration is mounted so that it is symmetrical, this means that it is insulated, sealed and reinforced in the same way on both sides of the wall/deck.

Products

- Flange FL / FLE60 / VLGUH
- Angle brackets VINKE60
- Screws U42 Ø4,2 x 13 or equivalent
- Mineral wool insulation A2 - s1, d0, density min 66 kg/m³
- Sealant BSKTUBE

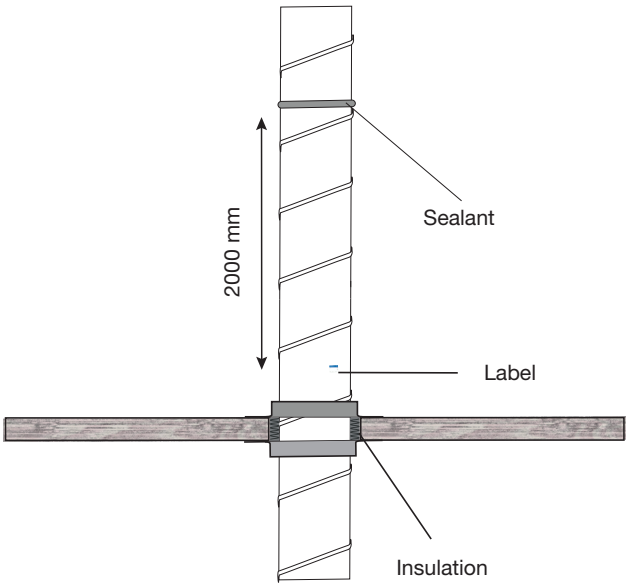
Horizontal ducts



1. Place the duct in the hole of the wall / concrete deck. The gap between the wall / concrete deck and the duct must not exceed 25 mm.
2. Insulate with mineral wool in the gap between the wall / concrete deck and the duct.
3. Apply sealant BSKTUBE in the gap between the wall / concrete deck and the duct.
   The sealant must have a thickness of at least 2 mm.
4. Mark the duct, next to the penetration, with a BSKTUBE_label.
   The label is used as a quality assurance and documentation that the penetration has been carried out in the correct way.

Fire rated Duct System(E)

Vertical ducts



On all joints within 2000 mm from penetration, vertical ducts must be sealed with sealant BSKTUBE.

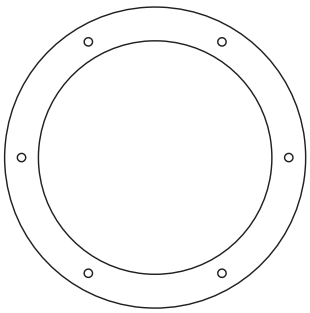
Note! On horizontal ducts, there is no need for additional sealing of joints

Completion and fixing of penetration

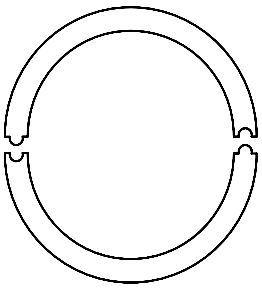
The penetration is carried out on both sides of the wall / floor seperation.

At the penetration endings, the following products can be used:

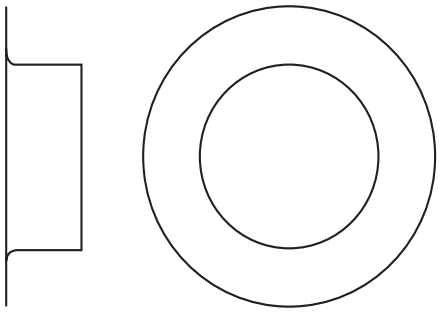
Flange type FL, FLE60 or take off type VLGUH



FL



FLE60



VLGUH

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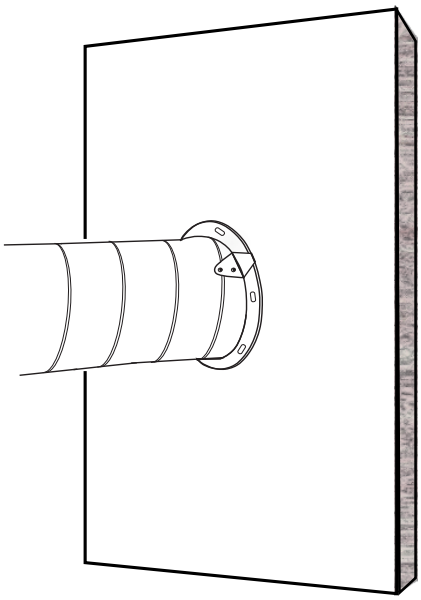
Fire Rated Duct System(E)

Mounting of flange FL

Ø80 - Ø1000

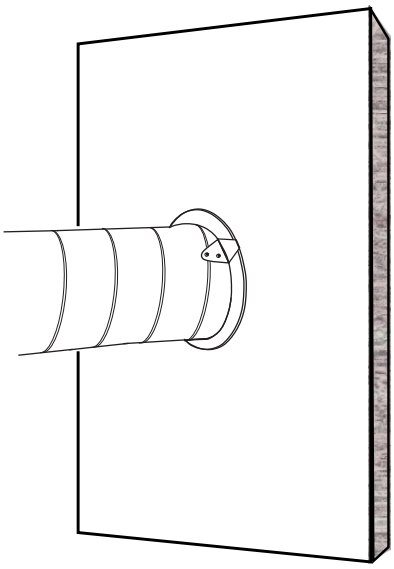


1. Press the flange up against the wall / deck and attach it to the duct using brackets type VINKE60.
2. Screw the brackets in place with 2 pcs of screws with sharp or reduced drill tip.The brackets are evenly distributed around the circumference
3. The number of VINKE60 for the different dimensions are shown in table 7.

Note! The flanges FL must be mounted on the duct before installing the duct through the wall / deck.

Mounting of flange FLE60

Ø80 - Ø1000

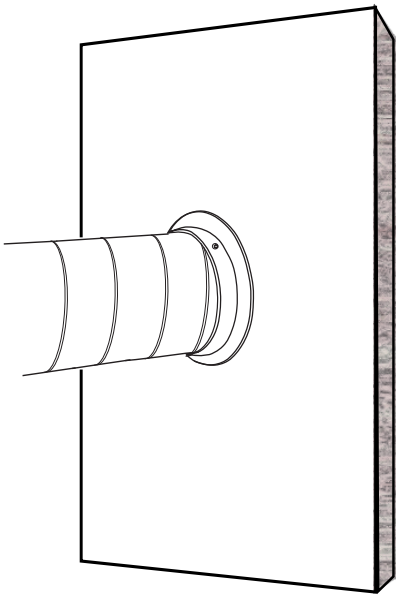


1. Mount the 2-pieces around the duct.
2. Press the flange up against the wall / deck and attach it to the duct using brackets type VINKE60.
3. Screw the brackets in place with 2 pcs of screws with sharp or reduced drill tip. The number of VINKE60 for the different dimensions are shown in table 7.

Fire rated Duct System(E)

Mounting of take off VLGUH

Ø80 - Ø500



1. Mount the VLGUH around the duct.
2. Fix the VLGUH to the duct using screws. The number of screws needed is shown in table 7.

There are no requirements for attaching VLGUH to wall / deck construction.

Note! VLGUH must be mounted on the duct before installing the duct through the wall / deck.

Table 7. Overview of assemby of FL, FLE60 and VLGUH

Dimension Ød [mm]	Min. number of VINKE60 [pcs.]		Min. number of screws [pcs.]
	FL	FLE	VLGUH
80	2	2	4
100	2	2	4
125	2	2	4
160	2	2	4
200	2	2	4
250	3	4	6
315	3	4	6
355	3	4	6
400	3	4	6
450	3	4	6
500	3	4	6
560	4	4	-
630	4	4	-
710	4	4	-
800	4	4	-
1000	4	4	-

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Most of us spend the majority of our time indoors. Indoor climate is crucial to how we feel, how productive we are and if we stay healthy.

We at Lindab have therefore made it our most important objective to contribute to an indoor climate that improves people's lives. We do this by developing energy-efficient ventilation solutions and durable building products. We also aim to contribute to a better climate for our planet by working in a way that is sustainable for both people and the environment.

Lindab | For a better climate

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