



”The more we **simplify**  
– the more you **save**”

**TÜV** have tested five duct systems  
and documented the advantages  
of the different solutions



## About TÜV

TÜV (Technischer Überwachungsverein) Rheinland is a leading supplier of technical services to businesses the world over. TÜV use their ingenuity, expertise and strong global network to contribute towards the continued development of products, services and systems. They are impartial consultants and advise, examine and document products for businesses on a daily basis.

TÜV's promise is 'Precisely Right'. Regardless of what TÜV do, they do it precisely and correctly. This is why we have chosen them to document the advantages of five different duct systems regarding, amongst other things, installation and tightness.

# We know the advantages of Lindab Safe® Click. **That is why we asked TÜV to test and document our duct system solutions.**

## **Lindab Safe Click – a simplified and improved duct system solution**

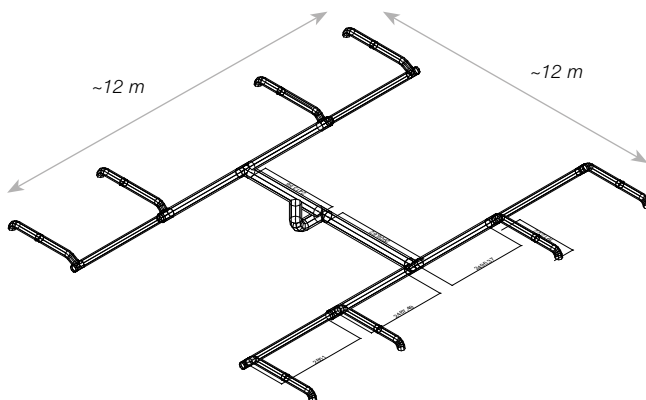
At Lindab we work continuously to simplify and prepare our solutions. One of the results is Lindab Safe Click. The duct system based on our renowned, tested and documented system, Lindab Safe.

Lindab Safe Click provides a significant number of advantages, concerning both installation (including time and ergonomics) and tightness, and thereby operation and economy.

## **TÜV document the advantages of the various systems**

TÜV have tested and documented the advantages of the various systems. They have monitored the installations and tested five duct systems from Lindab, and compared the results taking into consideration costs, tightness and installation.

Their test results enable you to gain a quick overview of the documented advantages of choosing Lindab Safe Click.



All the duct systems were installed in the ceiling in accordance as per this diagram. The system can be regarded as a typical sub-system in a ventilation system for offices or hotels.



### **Lindab Safe Click**

Lindab's new, innovative duct system that clicks together, only requiring a minimum of screws.



### **Safe**

Circular spirally folded ducts and fittings with factory-fitted double-lipped sealing strips. The joints are secured by screws.



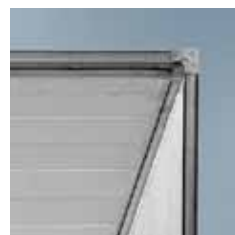
### **Vent system with tape**

Circular spirally folded ducts and fittings. The joints are secured by screws and are sealed using PVC tape post-installation.



### **Vent system with mastic**

Circular spirally folded ducts and fittings. The joints are secured by screws and are sealed using mastic post-installation.



### **Rectangular**

Rectangular ducts and fittings with flanged joints. The joints are fitted with a tightening band.

TÜV acts as guarantor for the impartial testing and documentation of Lindab Safe® Click.

## Refer to the diagram, and let the results speak for themselves.

### Thorough and well-documented tests

TÜV acts as guarantor for the tests, which are impartial, thorough and well-documented – down to the last detail. For the purpose of the tests the five duct systems were assembled in the ceiling using the same basic sketch, and for the installation all the steps were carried out once more, enabling all the systems to be compared in exactly the same manner.

All the leakage test measurements of the duct systems were carried out in accordance with EN 12237 (circular) and EN 1507 (rectangular). You can download the TÜV report in its entirety at [www.lindab.com/click](http://www.lindab.com/click).

System	Installation time (hours)*	Installation time index	Component price € **	Component price index
Lindab Safe Click (index 100)	3:55	100	1467,26	100
Safe	4:25	113	1467,26	100
Vent with tape	6:05	155	1390,82	95
Vent system with mastic	6:25	164	1409,12	96
Rectangular	8:55	228	1684,83	115

\* Total installation time using 2 fitters.

\*\* Based on German prices in August 2008. The prices include suspension, tape, mastic and screws.

\*\*\* Includes hourly rates for fitters in Germany in August 2008.



Total price € ***	Total price index	Pressure (Pa)	Measured leakage (l/s)	Achieved tightness class
1858,93	100	400	0,71	D
		-750	0,85	D
1908,93	103	400	0,8	D
		-750	0,94	D
1999,15	108	400	7,63	B
		-750	11,46	B
2050,79	110	400	7,18	B
		-750	8,42	B
2576,50	139	400	7,25	B
		-750	9	C



*The main conclusions arrived at by TÜV were that when choosing Lindab Safe Click you will achieve a shorter installation time, lower costs and better tightness in the chosen ventilation solution. This entails lower operational costs.*

# How can you use TÜV's figures?

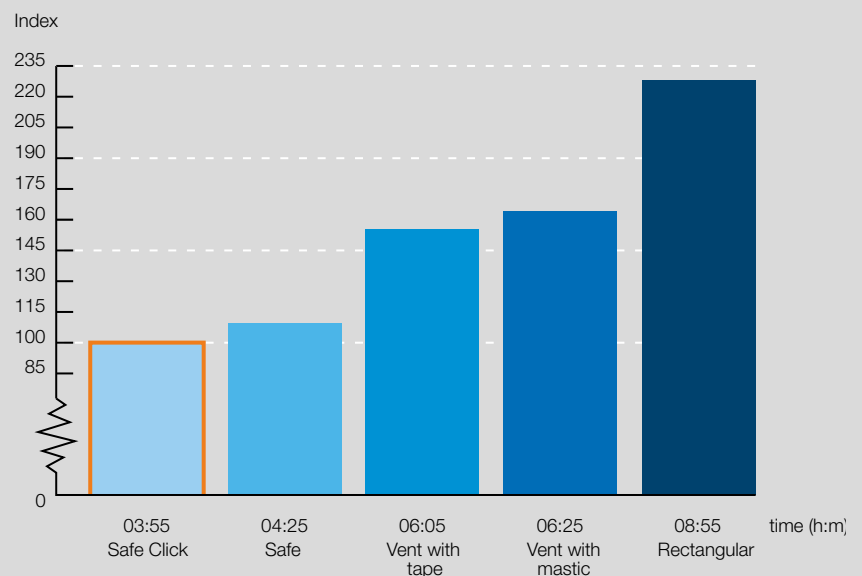
It rather depends on whether you are designing, purchasing or installing. **Let's make a few comments about the individual results.**

## Advantages when installing

Lindab Safe Click has a significant number of advantages concerning installation. It gets easier to create a leak proof solution as the duct system is easy and quick to assemble and install – all it needs is a simple click. The working conditions are improved for the fitter who himself saves time thanks to the easy installation.

- Easy to join
- Easy to install, especially where space is limited
- Better ergonomics
- Easier to assemble and adjust
- Compatible with both Lindab's other systems and other systems available on the market

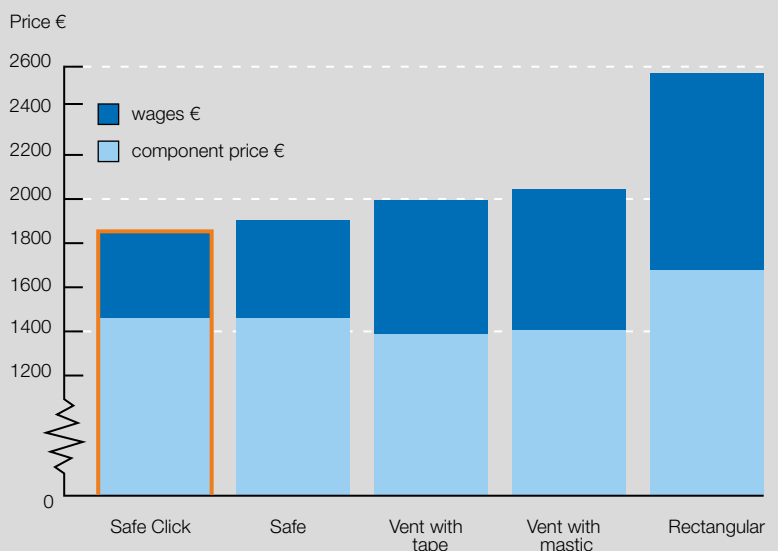
## Installation time



## Component prices and wages

When you choose Lindab Safe Click, you'll be lowering your costs. Component prices are just about the same, but you'll save time on the installation. Which means lower total costs.

## Total costs



## Conclusion: You get a better solution

You achieve a better solution when you choose Lindab Safe Click. TÜV emphasize that the duct system supplied with prefabricated leak proofing systems from the supplier has the advantage over systems that require leak proofing on site, which is more difficult to achieve.

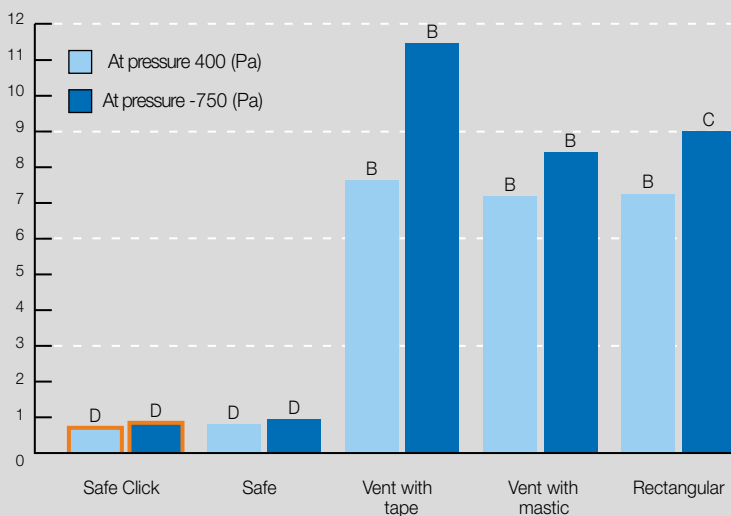
Lindab Safe Click allows you to minimise the risk of incorrect installation which is paramount to the quality of the solution. In this way you will be able to achieve better tightness of the duct system and a reduced energy consumption. This is of consequence for both the environment and the economy in the long term.

TÜV's conclusion is that Lindab Safe Click distinguishes itself by a faster installation, better tightness and lower total costs compared to other systems on the market. Lindab Safe Click, on that basis, is the most advantageous duct system.



## Tightness

Target leakage l/s



### Better tightness

The systems' tightness was tested using Lindab's Leakage Tester. A tight solution means a reduced energy consumption.

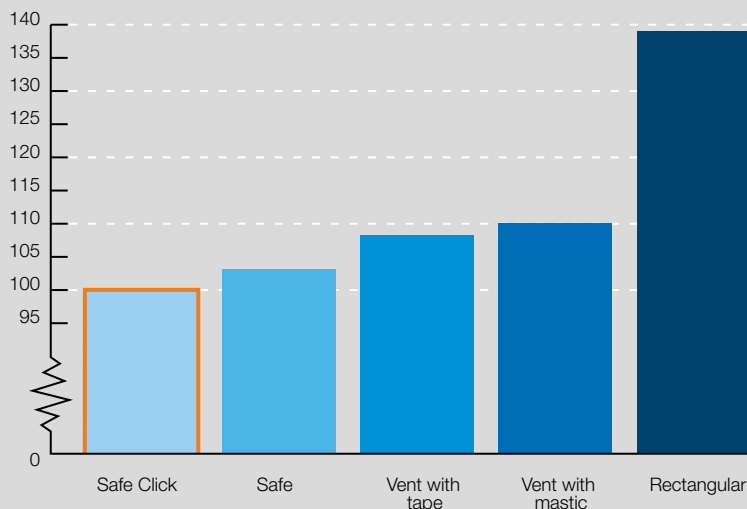
The results show that Lindab Safe and Lindab Safe Click obtained the best results and were classified in Tightness Class D for measurements taken at both 400 Pa and -750 Pa. This is far better than the other duct systems, classified as Tightness Class B (C).

### Operational advantages

- A minimum number of holes from screws or rivets in the duct system and consequently a tighter system – with resulting lower operational costs
- Few sharp points from screws or rivets in the ducts.
- The ducts are easier to clean and the risk of bacterial growth is consequently lower. Providing better hygiene

## Total costs (index)

Total price index



### Lower total costs

The purchase price alone of the Lindab Safe Click components is approximately 5% higher than the price of the circular duct system Vent sealed with tape, the solution is approximately 8% cheaper when taking the total price into consideration.

The speed of installation ensures that you can keep the total costs at a lower level than would have been the case for the other duct systems.

Lindab is an international group which develops, manufactures and markets sheet metal products and system solutions in the Ventilation and Profile business areas.

The Profile business area focuses on the construction industry, offering an extensive range of construction components and complete steel building kits for both residential and commercial properties.

The Ventilation business area focuses on the ventilation industry, offering everything from ventilation components to complete indoor climate solutions.

The Lindab group has 5 000 employees in 31 countries.