

FAQ and Answers

How do I arrange the layout for the pipe dimensions?

Pipe dimensions depend on the length of the pipes, the number of pillows and the number of bends in the pipe. All elements cause resistance for the airflow. To achieve a proper rate of necessary air exchange (for dry air input) a resistance calculation with a specialized software should always be required. elnic is pleased to provide further support in pipe dimensioning based on your individual project data.

Why are main pipe dimensions for elnic systems smaller than from competitive suppliers?

All eluft and eluft ECO systems contain frequency controlled fans. Conventional fans with only digital (on/off) operation bring either 0% or 100% throughput into the piping system. To track those masses of air volume the pipe dimensions have to be designed accordingly. This might bring the requirement for pipes with dimensions of 50 and more percent of diameter according to the pipes used for elnic systems.

Is dehumidification really necessary?

Standard central European climate conditions show notable differences in humidity and air temperature. Those values might also change within a short timeframe. Those changes have an impact on the dew point, which might be located on surfaces inside the pillows. Once the dew point is reached a certain amount of condensation water might appear inside the pillow. If this water is not dried by dehumidified air, it will remain in the pillow and create algae. In central European winter times or in areas with general low humidity the control system can reduce the operation of the dehumidifier. In order to achieve a proper drying effect under high humidity, the throughput of dehumidified air should reach approximately 2 full air cycles per day in the system.

When can I expect an amortization of the additional cost for the ECO series in comparison with the basic eluft series?

In addition to the price difference between the eluft ECO and basic eluft system, the cost for the return pipes have to be considered in the amortization calculation. Based on the experience with recent projects, the amortization period is approximately 3 to 6 years. For systems with an expected lifecycle of more than 20 years the ECO systems will bring a great benefit to the clients. elnic gladly assists you in those calculations.

What is your standard product warranty?

Our standard product warranty is 12 months on moving parts and there is a 24 month "Bring in" warranty. In case some part breaks down, we can try and solve this over the phone to find out exactly what is broken and what would need to be replaced. elnic is then able to send you a spare part, you would not need to bring in the whole machine. In case a part needs to be repaired, again, the part should be sent to us and elnic can have it repaired and would then send it back to you. Most parts are easy to remove and replace.

What is the expected life of the casing, the moving parts, the air machine as a whole?

Most casings are made of stainless steel. It is very sturdy and does not ever need to be replaced. It needs to be cleaned every now and then. The fans have a MTBF of approx. 40,000 operating hours. As we have 2 fans inside one air machine, which alternate every 9 hours, this means each fan should "live" for 80,000 hours, being more than 9 years if running constantly. As for the dehumidifier: these have a MTBF of approx. 30-40,000 operating hours, being about 4-4.5 years. The air machine should hold for 25 years if maintained regularly.

Will there be condensation formed from the heating element and if so, is this captured and then drained?

There is no condensation if the air machine is placed outdoors. The warm humid air exits through the exhaust on the side of the air machine. Should the air machine be placed indoors, the warm humid air should be lead to the outside according to our instructions. There is no condensate tub.

For the elnic eluft ECO versions the condensate must be lead to the outside using a small tube. The condensate is pumped out of the eluft in the form of water. For installation indoors the necessary drainage needs to be provided.

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Is there a documented/scheduled maintenance schedule for these air handling units that lists parts that need replacing over the life of the system?

elnic can send a maintenance protocol which shows what needs to be checked. It is very important to change the air filter at least every six months.

How do I calculate which size of eluft machine I need for my project?

In order to be able to calculate **what size of eluft** air machine your project needs, please follow these instructions:

- Note:
- This is only valid for the standard eluft machines, not for the eco versions. The latter need less fresh air. In this case please contact us for recommendations.
 - Our eluft air machines are frequency-regulated and not based on an ON/OFF system, which needs much more power due to the high initial current. The air supply of our system is continuous. Please keep this in mind.
 - The maximum air flow rate of an eluft machine is given for safety reasons and thus much higher than the actual provision of dry air.

1. Take the **total volume** of the ETFE cushions.

If you do not know the volume (m³) of the cushions, you can use a rule of thumb:

Divide the total surface (length x width) by two, e.g. if you have 500m², you have approx. 250m³ (please note this is only an estimate as the total volume also depends on the height of the cushion).

2. In order to avoid humidity inside the cushions, with the help of valves in the cushions, the air is renewed completely twice a day.

For our example, this gives us this formula: $(2 \times 250\text{m}^3)/24\text{hrs} = \underline{20.83\text{m}^3/\text{h}}$ (= flow rate).

3. Add a natural **leakage** of 5-10%.

Leakage is due mainly from the untight piping system and cushions.

In our example that would be $250\text{m}^3 \times 0.1 = \underline{25.00\text{m}^3/\text{h}}$ air loss.

$$\rightarrow \Sigma 20.83\text{m}^3 + 25.00\text{m}^3/\text{h} = \underline{45.83\text{m}^3/\text{h}}$$

4. Compare your values to our list of eluft machines:

- a. dry air flow rate: 45.83m³/h
- b. application for roof/façade volume: 250m³

**RESULT: you need an eluft 150
as this machine can provide up to 80m³ dry air per hour
and the total volume lies underneath the maximum of 300m³.**

Specifications	eluft Basic	eluft 150	eluft 400	eluft 600	eluft 900	eluft 1400	eluft Mobile
dry air flow rate [m ³ /h]	80	80	190	275	400	800	190
max. air flow as emergency function [m ³ /h]	120	300	800	1200	1800	2800	190
application for roof/facade volume [m ³]	<50	< 300	< 800	< 1400	< 2000	< 3700	<300