

Clean air in schools

**Genau
mein
Klima.**

KAMPMANN

School ventilation or air purification?

We will assist you in answering the relevant questions. From the selection of the right technology to meet your requirements, eligibility for funding, to complete technical details. Naturally including installation.



Preface:

Where does the problem lie?

What the building service sector has been calling for for decades is finally gaining momentum: installing ventilation technology into schools for a clean, safe and performance-enhancing atmosphere in which to learn. Decentralised ventilation units are now very much in demand, boosted by funding programmes such as the one recently launched by the Federal Office of Economics and Export Control (BAFA), including „the installation of stationary air handling units“ into existing buildings.

The Kampmann WZA is just such a unit. It replaces polluted room air with fresh outside air. The integral CO₂ sensor in the unit measures the fresh air requirement. This is crucial to reduce any possible viruses and also promote pupils' ability to concentrate. Too high a CO₂ content in room air gives rise to what is referred to as “muggy air”.

But mobile or stationary air purifiers also have their place when there is a need to act rapidly. It is therefore essential to weigh up which solution is required and within what time frame it can be achieved.

This leaflet takes you through the differences between a genuine school ventilation system and air purifiers, and presents our solutions: the WZA decentralised ventilation unit and the KA-520 air purifier.

Glossary

The standardised understanding of key terms is crucial for the selection of the correct technology and for targeted discussions in public. We hope to clarify some terms here.

Stationary AHU system

“AHU” stands for air handling unit. An air handling unit is a technical piece of equipment that specifically produces an air exchange. In doing so, the outside air is often treated before it is supplied into the building or room. One option is to filter the outside air to remove pollen or dust. The extracted air is treated just as frequently before it is discharged out of the building. Often heat recovery takes place so that any heat from the room air is not lost unused.

The qualifier “stationary” is used in the specification for the German federal funding programme for AHU systems in schools. It is intended to delimit the air handling units eligible for funding from mobile air purifiers, which are not eligible for funding. We do not tend to speak about mobile air handling units, which would be their logical counterparts. An air handling unit is generally stationary. The qualifier is therefore totally unnecessary and tends to cause confusion.

CO₂

Carbon dioxide is a colourless gas that we exhale and which has no smell. We become tired and find it hard to concentrate when there is a high CO₂ content in the air. Air handling systems reduce CO₂. However, air purifiers do not, which is why a CO₂ traffic light indicator can also be used, which emits a warning when ventilation is required.

Ventilation

In ventilation, there is an exchange of air, that is to say that room air is replaced by fresh outside air. That works really well with ventilation through windows when the wide-open windows are positioned opposite each other, the temperature difference between the room air and outside air produces negative pressure, and there is a minimum level of wind. Otherwise, the air exchange is generally insufficient to regularly reduce viral and CO₂ loads.

We refer to mechanical or machine ventilation when the removal of the room air and supply of fresh outside air, the air exchange as it were, is specifically provided by fans. The air exchange, or more specifically the volume of air removed and supplied, can be measured and controlled.

Air purifiers and air filters

An air purifier draws in room air, purifies it and discharges it back into the room. No fresh outside air is supplied, nor is room air discharged from the room. Purifying the room air has the aim of removing any suspended particles contained in it. These might be viruses, but could equally be bacteria, dust or pollen.

The type of air purification can vary. An air filter is used most frequently through which the room air drawn in passes. In doing so, the majority of the suspended particles remain in the filter and viruses, for example, die off very quickly. The terms air purifier and air filter are often used interchangeably. However, in reality, the air filter is essentially a component of an air purifier.

I would like ...

... to ventilate

Polluted room is replaced by fresh outside air

... to filter

Suspended particles are removed from the room air without the supply of fresh air

Viral reduction by the replacement of polluted air by outside air

Viral reduction by filtration of the room air

The sustainable total solution to combat viruses and poor air

The rapidly installed solution to combat viruses



Additional functions:
> CO₂ reduction
> humidity recovery
> heat and/or cold recovery

Ventilation through the windows is unnecessary and makes no sense. Fully automatic and sustainable air exchange

Ventilation through the windows continues to be necessary to reduce CO₂. Use of a CO₂ traffic light indicator makes sense

Structural work: two core drill holes for air intake/air discharge in each classroom, otherwise plug & play

The decentralised WZA ventilation unit

Stationary air handling unit for clean air and a healthy and performanceenhancing indoor climate in schools

Air exchange for virus-free air and a good indoor climate

The WZA decentralised ventilation unit draws off polluted room air and replaces it with fresh outside air. This creates a virus-free learning atmosphere and a sustainable indoor climate, thanks to heat and/or cold recovery.

No opportunity for “muggy air” to develop

The major benefit of a genuine school ventilation system: fresh outside air. It helps to reduce viral load, but does not reduce CO₂. This is important for pupils' ability to concentrate. The WZA is also equipped with humidity recovery, which prevents dry air and dry mucous membranes in the mouth and nose in winter. Children are therefore more resistant to external influences, including viruses.

Ease of installation

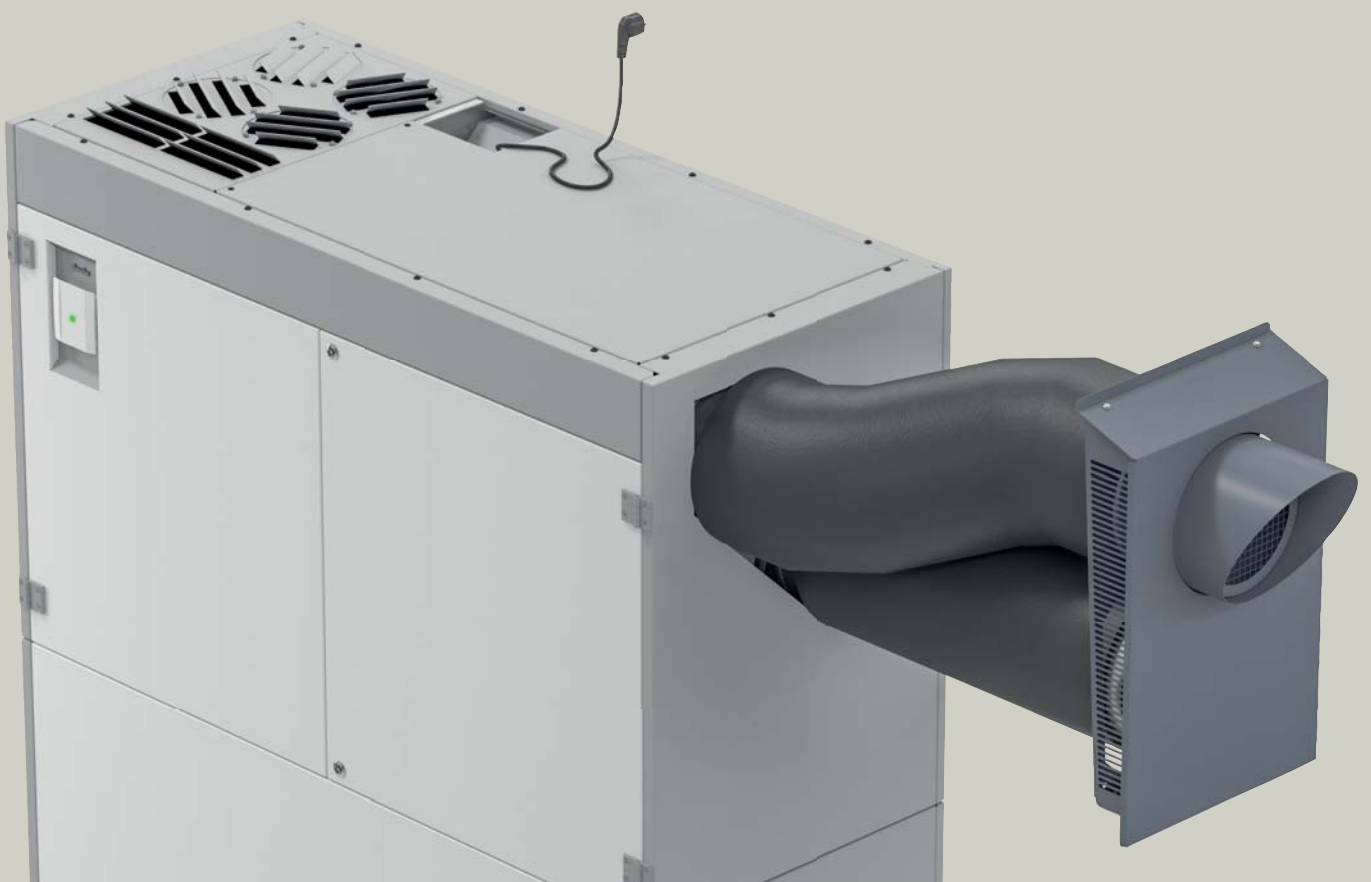
Two core drill holes through the external façade of each classroom are needed to draw in fresh air and discharge polluted air. But as our WZA is also totally plug-in, any work involved is minimal. All air deflections with shut-off dampers are factory-wired. Pleasing side-effect of humidity recovery: no condensate.

Intuitive operation

The illuminated one-button operation enables the user to operate the four operating modes plus standby easily and intuitively: Automatic, Purge ventilation, Continuous ventilation and Quiet ventilation. The unit can be individually adapted to the respective usage at any time.

Quiet operation

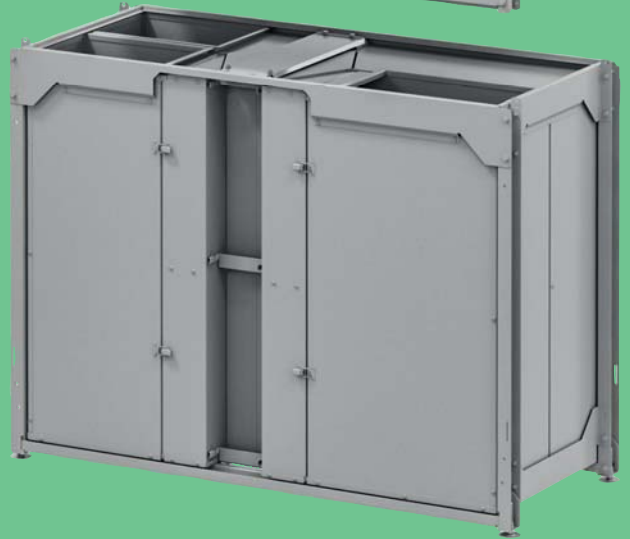
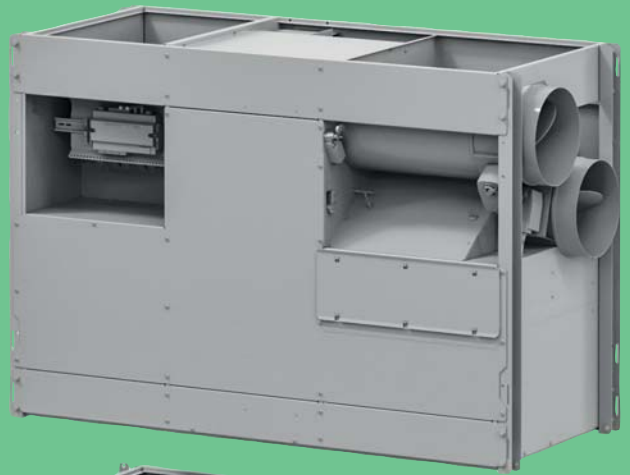
Sophisticated insulation dampers in the housing ensure low sound levels, guaranteeing quiet operation. An air volume of 800 m³/h, which approximately corresponds to a fully occupied classroom with 30 pupils, generates a sound power level of 47 dB(A): the unique selling point (USP) of the unit on the market.



Simple installation into existing buildings

Delivery in two cubes + casing

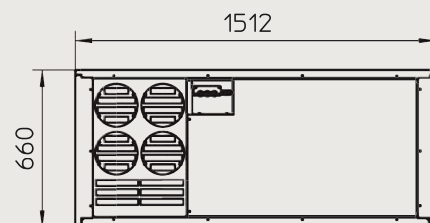
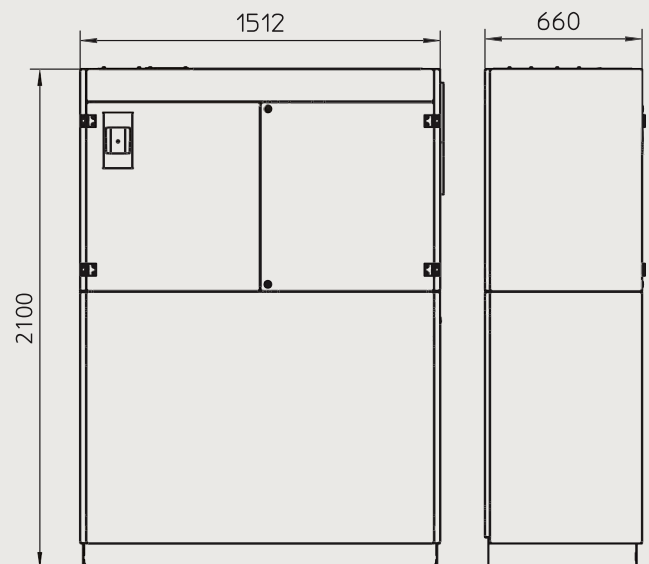
Well thought-out design and perfect logistics for use in existing buildings. The WZA is delivered as two units and the casing is fitted separately. Everything is compact and easy to install.



Installation bonus – no condensate

No condensate is produced, thanks to the use of an enthalpy heat exchanger. This means that there is no need to connect the system to the building's water pipework and also no condensate pump needing regular cleaning.

The WZA is designed specifically for new installations in existing buildings.



Technical details

Enthalpy heat exchanger

- > recovery of room air humidity and heat from the extract air/exhaust air
- > no drying of mucous membranes, thanks to sufficiently moist room air
- > frost-proof operation is guaranteed to an outside temperature of $-10\text{ }^{\circ}\text{C}$

Radial fan

- > EC continuously variable EC single-phase radial fans
- > excellent efficiency through the use of GreenTech EC technology
- > quiet operation thanks to optimised airflow guidance with pre-guide grille

Maintenance

- > maintenance can generally be performed by a trained caretaker
- > supply and extract air filters can simply be removed through large service hatches and replaced
- > the fan can easily be removed by a “drawer” for maintenance purposes
- > no condensate is produced in the unit, therefore there is no need to maintain the condensate pump

Housing

- > housing made of galvanised sheet steel, powdercoated
- > accident-proof, robust and therefore scarcely susceptible to vandalism
- > the range includes various colours, enabling the unit to be individually adapted to the respective interior design



Operating mode ¹⁾	Air flow volume	Temperature degree of change ²⁾	Humidity degree of change ³⁾	Electrical Power consumption	Sound power level	Sound pressure level ⁴⁾
	m ³ /h	%	%	W	dB(A)	dB(A)
Automatic ventilation	Control continuously according to CO ₂ level					
Power ventilation	1000	70	49	312	51	39
Continuous ventilation	800	73	53	176	47	35
Resting ventilation	400	82	69	56	34	22

¹⁾ Duration and values of the operating modes can be subsequently parameterized individually

²⁾ according to DIN EN 308, moisture recovery not included

³⁾ at T_{AUL} = 5 °C, 70 % rel. Hum.; T_{ABL} = 25 °C, 50 % rel. Hum.

⁴⁾ The sound pressure level was calculated with an assumed room attenuation of 12 dB(A). This corresponds to the center of the room, a room volume of 200 m³ and a reverberation time of 0.5 s (according to VDI 2081).

Air purifier KA-520

Mobile or stationary air filtration unit with an H14-HEPA filter for use in schools

Room air filtration

Equipped with a high-grade HEPA class H14 filter, the air purifier draws in the room air and filters out 99.995 % of suspended particles contained in it. This also includes all mutations of the SARS-CoV-2 virus.

Filtering + CO₂ traffic light indicator

Air purifiers only handle the actual air in the room. We therefore recommend the use of the appropriate number of adequately sized air purifiers and a CO₂ traffic light indicator to show when ventilation through the window is needed.

Filter replacement

Based on an average 8-hour school day, the filter needs to be changed approximately every 100 operational days. The filters can be removed very easily, packaged in a plastic bag and disposed of with normal or commercial waste. Spare filters are available in the online shop (www.KA-520.de).

Suspended particles

The built-in HEPA H14 filter removes viruses as well as allergens, bacteria, pollen, mould spores, mildew, household dust, industrial waste gases, household vapours, cleaning agents, car exhaust fumes, animal scales and smoke.

Two operating stages

Operating stage I is generally recommended for continuous and low-noise operation. Operating stage II ensures rapid air purification, for instance during breaks.

Certified effectiveness

The effectiveness of the KA-520 air purifier for “particulate and microbiological reduction in the room air” was confirmed by the HYBETA Hygiene Laboratory. It is hygiene-certified to VDI 6022.

It may make sense to position multiple units working at a low operating mode depending on the size of the classroom and the requirements governing noise levels.

fitted with a
HEPA H14 filter,
it filters out
99.995 %
of viruses

Find more information on air purifiers in our shop under ka-520.de/en
We would be glad to assist you by phone, live chat or e-mail.

KA-520 XL PRO

We have further developed our XL size to a Pro version specifically for noise-sensitive applications, such as in classrooms.
The result: over 10 dB(A) sound reduction.

- > room sizes up to approx. 50 m²
- > air throughput up to 720 m³/h
- > mobile or stationary use with optional wall bracket



ka-520.de/en/





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