

Reduce the risk
of infection
Air filtration for
the swine industry

Halt the spread of viruses Protect your business



EU pork producers lose an estimated

€1.5bn

each year to PRRSv¹



You've put too much time, effort and money into your livestock operation to have it devastated by disease.

CONTROLLING PATHOGENS - THE KEY TO SUCCESS

Bio-security is a crucial part of running a successful swine farm. The businesses that best control the spread of pathogens enjoy higher yields, lower cost per pig, and healthier livestock. While the farms that suffer an outbreak face devastation that can take years to recover from.

Unfortunately, this is a situation that many farms face every day, with viruses such as Porcine Reproductive and Respiratory Syndrome Virus (PRRSv) costing the industry billions of Euros each year.



While installing a ventilation system may seem a significant investment, this can be easily outweighed by the cost of even a single outbreak.

AIR FILTRATION: PROVEN DEFENSE

With so much at stake, pig farmers across the world have turned to air filtration to protect their livestock from viruses, bacteria and other contaminants.

Air filtration has long been used to control pathogens in hospitals and cleanrooms — and they are now well-established as a crucial tool for swine farms too.

Air filters trap pathogens before they have a chance to pose a risk to your herds – ensuring that only clean and healthy air is allowed to enter your barn.

No single solution can guarantee 100% protection against infection. Biosecurity is the result of a number of actions to reduce risk. But air filtration is now one of the most important defenses you have available to protect your swine business.



Farms with air filtration systems are **eight times less likely** to suffer an outbreak than those without.

Scott Dee, Jean Paul Cano, et al²



Air filters **significantly reduced** the incidence of PRRSv infections in herds.

University of Minnesota³

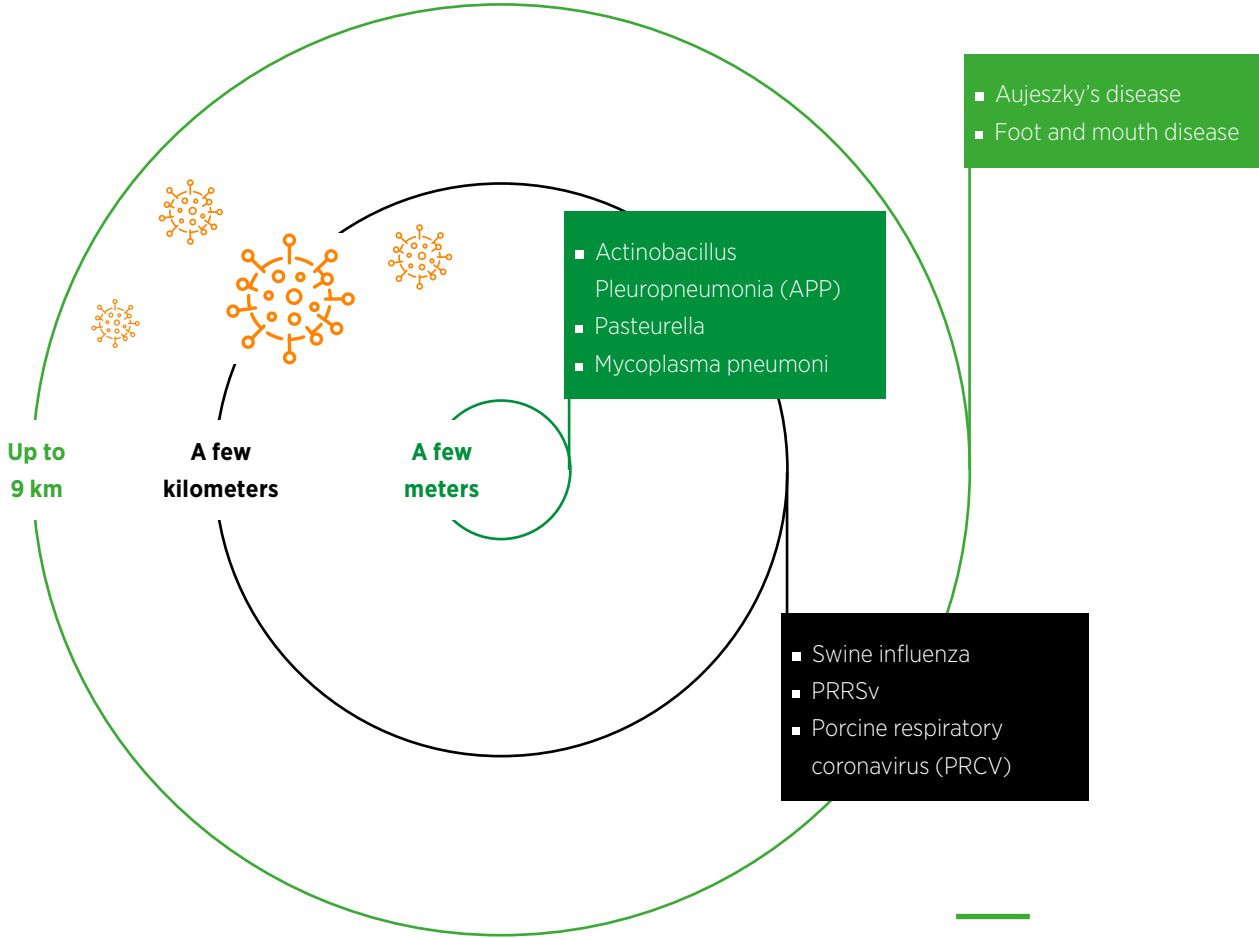
1 Projects to tackle costly pig virus – The Vet Times, October 2020
2 pubmed.ncbi.nlm.nih.gov/22754642/
3 www.sciencedirect.com/science/article/pii/S0021850220301129

Danger in the air

The threat is never far away

A WIDESPREAD PROBLEM

The risk of pathogens is greater if you operate in an area with a high density of other farms. But even if your farm is relatively isolated, the risk remains — with some viruses travelling large distances attached to dust particles or aerosol droplets. That means even the best biosecurity programs can be defeated by an infection source many kilometers away — unless you have a way to capture those airborne pathogens before they enter your barns,



Left: The distances traveled by some of the most common and dangerous pathogens to pig livestock.



The high mutation rate of viruses such as PRRSv makes a consistently effective vaccination program difficult. That's why filtration is so important to any bio-security program.

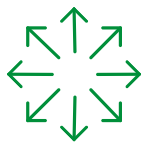
PRRSV — A PARTICULARLY DIFFICULT ADVERSARY

There are many pathogens that swine farmers must contend with, but PRRSv is a particularly nasty and challenging virus.



Highly infectious

A tiny amount of virus can spread rapidly and infect an entire herd.



Easily transmissible

PRRSv spreads through every transmission method possible (including milk, feces, urine, saliva, semen, blood and aerosol).



Resilient

PRRSv survives for long periods – even in cold, wet conditions.



Persistent

PRRSv can last up to 200 days in some pigs, with the animal continuing to shed the virus over the time period.



Mutates easily

PRRSv mutates quickly and easily making effective – and commercially viable – vaccination difficult.

Boost livestock health Improve product quality



Many countries have regulatory standards that farms must have an environmental plan in place. This is likely to include measures to optimize the use of water and energy, and to control noise, particles, dust and odors. Air filters can help you meet local regulations and stay compliant.

IMPROVE OVERALL HEALTH AND QUALITY

A supply air filtration system can also bring a number of benefits beyond virus protection. Improving the health and safety of team members working in the barn environment and improving

product quality and overall animal health – particularly important in breeding facilities due to the longer life span of sows. Whether directly or as part of a wider ventilation system, air filters can help:



Reduce the ambient dust and particulate levels in your barns



Contribute to better lung health of your animals



Create a cleaner, safer and more pleasant place to work



Prevent heat stress and control moisture levels

Your perfect solution

Choosing the right air filters for your farm

A MICROSCOPIC BALANCING ACT

Although the viruses that pose a threat to your livestock can be as small as 0.002 µm in diameter (as is the case with porcine coronavirus), they are usually carried on aerosols and particles that are actually much larger. So choosing an air filter that's most appropriate for your swine farm is not quite as simple as just selecting the product with the highest filtration efficiency – especially as overspecifying a filter can choke the air flow and raise the energy consumption of your entire ventilation system (see panel – right).

THINGS TO REMEMBER

- Buy from a Eurovent-certified supplier whose products have been independently verified to perform as promised.
- Select filters with a low pressure drop to minimize the energy consumption of your ventilation system.
- Look for product features that save installation and disposal time, such as handles and quick-change frames. Any minute saved on each filter can add up when replacing an entire bank of filters.
- Ensure that filter frames and/or housings are in good condition with no air bypass. A leaky frame means the filters will be unable to do their job and protect the barn environment.
- Always change your filters on time. At best an overloaded filter can compromise the pressure drop. At worst it could fail and contaminate the downstream air flow.

GET HELP FROM THE EXPERTS

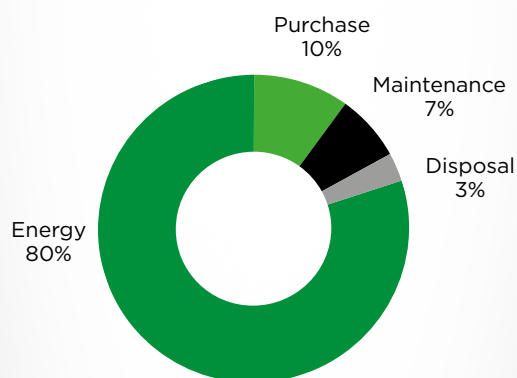
Our experts can help you design an air filtration system that will ensure safety, while maximizing the air flow and energy efficiency of the system.

ENERGY - A SIGNIFICANT COST

A filter consumes energy by creating a resistance to the air flow that it encounters. This pressure drop means that the ventilation fan has to work harder to move the required volume of air.

The effort required is directly related to the energy consumed by the fan motor. Put simply, if the pressure drop over the filter is lowered, the fan works less hard and therefore consumes less energy. And this can be a significant amount.

Energy typically accounts for around 80% of a filter's life cycle cost, with the purchase price just 10%. So, a cheaper filter with a higher energy demand may well end up costing much more in the long run.



Typical life cycle costs of an air filter

The filtration experts

MANN+HUMMEL

TWENTY SIX

With every second that ticks by, another 26 filters roll off the MANN+HUMMEL production lines. And that is part of what makes us a world leader in filtration.

But it is our commitment to quality and innovation too. Of the more than 20,000 people we employ worldwide, over 1,000 work in our R&D department. That means we are at the front when it comes to finding new ways to improve air quality or deliver it more efficiently – which can be seen in the more than 3,000 patents that we have registered.

And when it comes to delivering excellent service, we are always close at hand, with more than 80 locations across the world.

MANN+HUMMEL has been a filtration specialist for nearly 80 years.
Leadership in Filtration is what drives us.

QUALITY YOU CAN DEPEND UPON

Eurovent Certification is an independently-operated scheme that's designed to give you the confidence that the filter you select performs as you expect.

As a founding member of the scheme, our filters are randomly selected by Eurovent and their performance is verified according to our claims. Only those manufacturers meeting their claims are awarded certification. You can be sure that what we say has been validated by an independent body.



MANN+HUMMEL participates in the ECC program for Air Filters.

Check ongoing validity of certificate:
www.eurovent-certification.com
or www.certiflash.com



When it comes to protecting health,
you need a partner you can trust.

VIRUS-FREE AIR WITH A CLEANROOM PEDIGREE

From a filtration perspective, the most challenging contaminants to capture are those that are microscopic in size, but also present a risk to animal or human health. That's because both the difficulty and the risk of failure are high.

For more than 60 years, our filters have been in service in cleanrooms and operating rooms around the world – protecting people and the wider environment from some of the most dangerous viruses, substances and other contaminants known to man. So you can trust us to protect your livestock, your team and your business.



Air filters

For outstanding performance

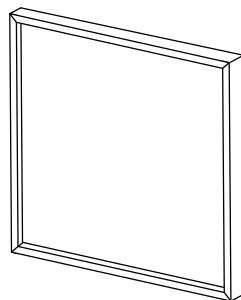
AT HOME ON THE FARM

For decades, MANN+HUMMEL has been pioneering ways to help farmers extract maximum value from their operations. Our filters are used in agriculture machinery of all shapes and sizes — helping equipment to run efficiently, safely and cleanly.

This expertise means we understand what you as a farmer need from an air filter. We understand the unique circumstances in which you operate and the challenges that you face. We've used this know-how to select the most suitable filters from our range to deliver the best cost-benefit for your swine business.

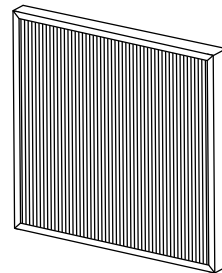


Above: Agricultural machinery relies on robust, high performance filter systems. So too do clean, virus-free environments.



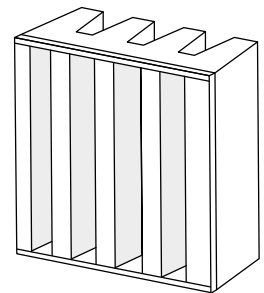
Filter Frame

Holds everything securely in place, and makes filter change quick and easy.



Prefilter

Catches the larger particulates that can clog (and shorten the life of) the final filter.



Final Filter

Captures viruses and other pathogens that pose a threat to your animals.

TYPICAL FILTER CONFIGURATION

Three elements make up the typical filter system for supply air to swine farms. All are designed to work together to achieve one aim: safe air quality at the best possible value across the filter's life.



AIRPANEL SELECT FZL

Coarse 80%

- Self-stable, synthetic filter medium
- Easy assembly and handling
- Several frame types available
- Maintenance-friendly

Airpanel Select FZL captures larger particulate to protect the higher efficiency filters downstream. Its pleated, synthetic filter media is robust to cope with the demands of handling and installation. And its pleats are separated by hotmelt spacers to ensure stability and an even dust loading across the entire filter surface – providing you with a longer service life and lower costs.



AIRSQUARE SELECT / FLANGE

ePM10 75% / ePM1 55%

- Large filter area and low installation depth
- Stable compact design
- Hotmelt separators ensure even air flow
- Lightweight

Low weight, high strength and a large filter area set Airsquare Select apart from the competition. This is thanks to a mini-pleated, microglass media that's designed to ensure no fiber loss (particularly important in a food chain application). And a robust, hollow-profile plastic frame that is fully incinerable for simple, environmentally-friendly disposal. The Airsquare Select Flange version features a collar for use in front-access systems.

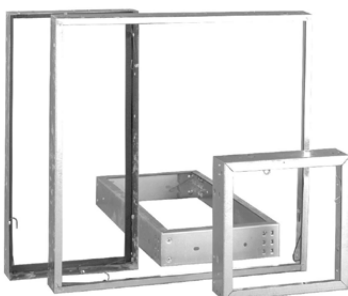


AIRCUBE SELECT 4V

ePM1 55% / ePM1 80%

- Mini-pleat technology
- Top cost-benefit ratio
- Extra large filter area
- Low weight

Aircube Select 4V is all about packing more performance into less space. Its high efficiency media is pleated into mats, which are then installed into a rigid and robust plastic frame in four V-shaped configurations. This delivers extremely high dust holding capacity, long life and a high burst resistance. An integrated handle makes it easier to install, remove, and move around large barns.



AIRHANDLING

- Allows quick and easy filter replacement
- Stable, compact design
- Compatible with a wide range of air filters
- Available in sizes to fit any aperture

Airhandling frames ensure the proper installation and performance of your air filters. Available in front, rear and side-withdrawal formats, our frames save time and effort on each filter change, which is especially important when tackling a bank of filters in a swine barn. Airhandling frames are manufactured from galvanized or stainless steel, and feature an optional gasket to eliminate air bypass.



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