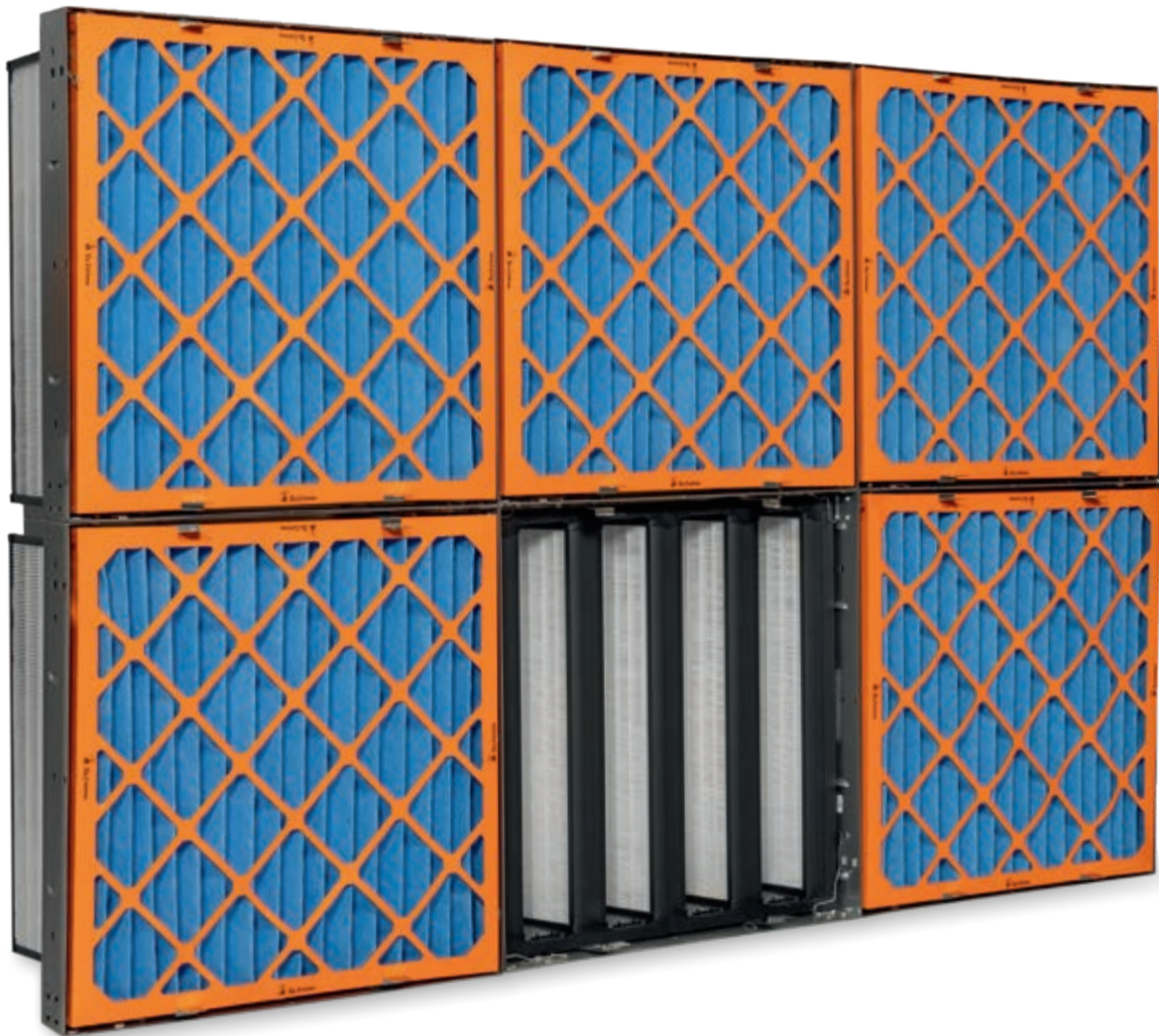




Big Dutchman®



Fresh air filtration

An important component of biosecurity
in pig and poultry production

Fresh air filtration

Preventing airborne aerosol particles with adhering pathogens from entering livestock houses

Helping you maintain healthy stock is important to Big Dutchman. Our experts have therefore developed fresh air filters which reduce the risk that airborne pathogens, such as the PRRS virus, and other airborne aerosols, such as the

influenza virus or mycoplasma, can enter the building. These mechanical filters are either installed in front of individual air inlets (decentralised fresh air distribution) or as a filter bank (central fresh air distribution).

Let our experts advise you to find the best solution for your individual situation. The importance of biosecurity is increasingly recognised!

Structure and functional principle

The filter system developed by Big Dutchman consists of a pre-filter and a main filter.

The pre-filter is a "Coarse 80 %" filter, i.e. a coarse dust filter designed to separate large particles ($\geq 10 \mu\text{m}$) from the air, with an efficiency of at least 80 per cent. Its

main task is removing insects and coarse dust particles as well as protecting the downstream, more costly, main filter.

The main filter, of the ePM1 85 % filter class, is a fine dust filter. It separates ultrafine particles from the air, with a minimum efficiency of 85 per cent. These

particles are between $0.3 \mu\text{m}$ and $1.0 \mu\text{m}$ in size and can have viruses and bacteria adhering to them.

To ensure that only filtered air enters the house, a balanced-pressure or negative-pressure ventilation system should be used.



Pre-filter



Main filter with a depth of 292 mm



Main filter with a depth of 400 mm for higher filtering capacities

FAF 1500 filter unit for decentralised fresh air distribution

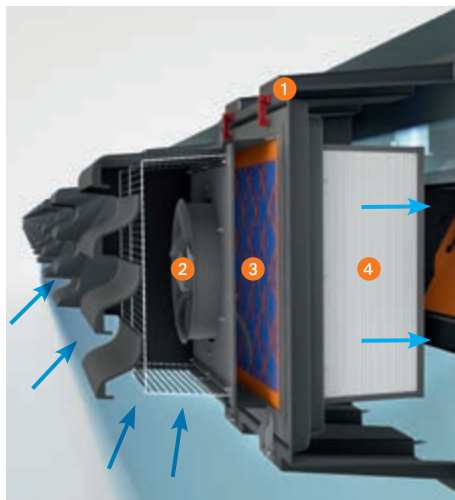
The FAF 1500 filter unit was developed specifically for use in combination with the wall inlets of the Big Dutchman CL 1200 series. The maximum air flow rate of FAF 1500 ($1750 \text{ m}^3/\text{h}$ at 0 Pa) corresponds to the air flow rate of the inlets. The filter unit can easily be retrofitted for existing wall inlets. FAF 1500 consists of the following main parts:

- 1 a plastic housing,
- 2 an energy-saving EC fan which can be controlled between 0 V and 10 V,
- 3 a "Coarse 80 %" pre-filter in accordance with ISO 16890, made from synthetic material,
- 4 a main filter of the ePM1 85 % class in accordance with ISO 16890, made from glass-fibre material and evaluated at energy efficiency class A according to the Eurovent energy efficiency classification.

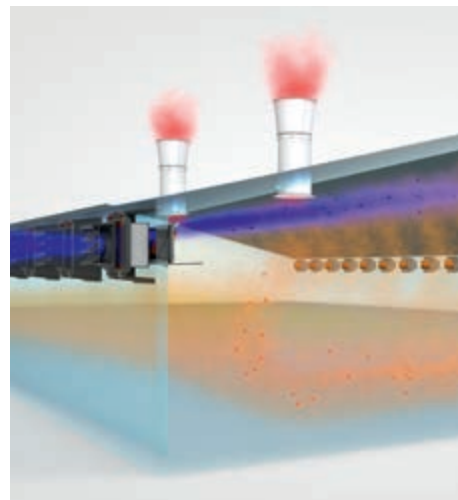
Depending on its contamination, the pre-

filter should be replaced every six to twelve months, and the main filter every three years.

In addition to the standard filters, Big Dutchman can also supply other filter classes upon request.



Decentralised FAF 1500 filter unit



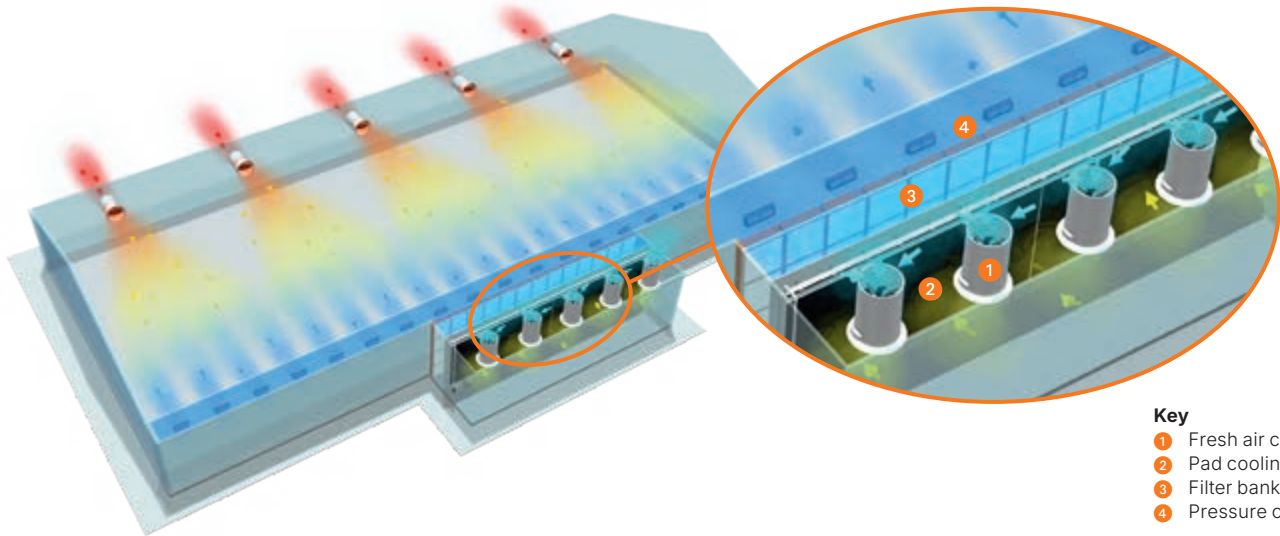
Flow of the incoming air

Central fresh air distribution with a filter frame system

If the fresh air enters the building centrally, it is first pushed into an upstream pressure corridor by fresh air chimneys. It can also be cooled in this corridor, if necessary. From here, the fresh air streams through the filter bank. The cleaned air then flows into the animal area through ceiling inlets, F.A.C. fresh air distributors or wall inlets. Big Dutchman also offers solutions for tunnel ventilation systems. The filter bank is installed in front of the fresh air inlets for

this application. Alternatively, the air can be pushed through the filter bank and into an ante-chamber, from where it flows into the attic and then through ceiling inlets into the compartments. This is a common principle in pig houses. The filter frame system is made from galvanised material and has four quick clamping brackets for the main filters. The pre-filters are attached to the main filters using clips. No tools are required for the

installation process. The practical snap-in system significantly reduces maintenance when replacing the pre-filters and main filters since removal and installation are completed quickly. The system is modular, i.e. the size of the required filter banks is very flexible and can be adjusted for houses of any size. The pre-filter can be exchanged even while the house is occupied.



Example of a cross ventilation system with central fresh air distribution



Flexible filter frame system and pad cooling



Quick clamping brackets for the main filters and clips for the pre-filters

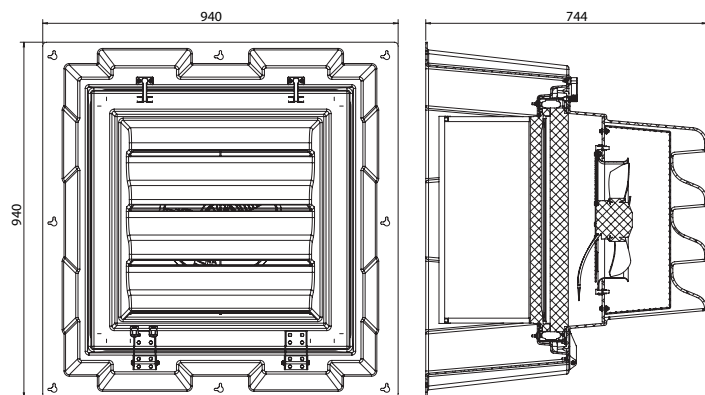
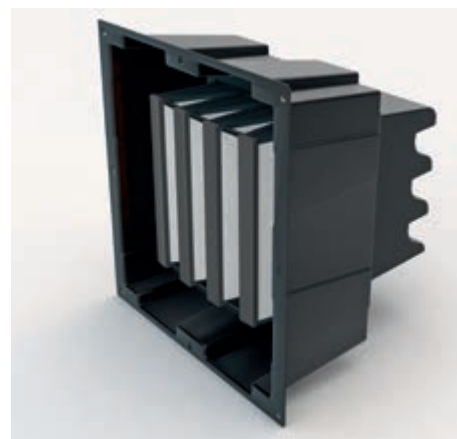
Advantages of fresh air filtration

- ✓ the introduction of viruses via the fresh air is reduced very efficiently, improving animal health;
- ✓ pig herds that are free from the PRRS virus perform better biologically;
- ✓ fewer secondary infections reduce the use of medication;
- ✓ different options are available, depending on the type of fresh air distribution (decentralised or central);
- ✓ simultaneous cooling of fresh air is possible if required;
- ✓ the main filter has energy efficiency class A and maintains it for its entire service life;
- ✓ the filter cartridges for pre-filter and main filter are easy to exchange;
- ✓ low maintenance requirements.

Technical specifications and dimensions of FAF 1500

Type		FAF 1500
Air flow rate*	m ³ /h	1750
Fresh air distribution		decentralised
Positive pressure ventilation		yes
Cooling system		no
Dimensions (L x W x H)	mm	744 x 940 x 940

* The indicated air flow rates were determined with clean filters and fully opened fresh air inlets.



Air flow rate*

Positive pressure Pa	Fan speed (m ³ /h)		
	100 %	80 %	60 %
0	1750	1650	1200
+10	1650	1550	1050
+20	1600	1500	1000



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