



Vari+Plus® AG

High Efficiency, High Capacity, Mini-Pleated PRRS and Mhyo Containment Air Filter.



- **Significantly Reduces the Aerosol Transmission of PRRS Virus and Mhyo Bacteria**
- **Log 6 Removal Performance/ MERV 15**
- **100% Synthetic Media Resistant to Moist, Corrosive Environments**
- **Delivers More Airflow Than Competitor Products**

For more information on the Vari+Plus AG filter, contact Technical Services at 1-866-247-4827.



Vari+Plus[®] AG

High Efficiency, High Capacity, Mini-Pleated PRRS and Mhyo Containment Air Filter. Significantly reduces aerosol transmission of the PRRS and Mhyo virus.



Introduction

What is porcine reproductive and respiratory syndrome (PRRS)? PRRS is an animal RNA virus that affects the reproductive system in breeding stock and causes respiratory illness in young pigs. Mycoplasma hyopneumoniae (Mhyo) is a type of bacteria known to cause the disease Porcine Enzootic Pneumonia, a much studied contagious and chronic disease affecting pigs. PRRS and Mhyo outbreaks often cause abortions, stillbirths, mummies, and feeble born or thumping piglets. PRRS and Mhyo have been wide spread diseases since the early 90's and have an estimated annual economic impact of \$560 Million to the U.S. swine industry. The risk of indirect spread of PRRS virus can be reduced with a comprehensive bio-security program that includes an air filtration program, as documented by the multiple trials conducted by the University of Minnesota Swine Disease Eradication Center.

The Airguard[®] Solution

Airguard has developed the Vari+Plus[®] AG filter, a Log 6/MERV 15 V-bank, high-efficiency air filter that can be used as a vital component of a comprehensive bio-security program to limit the spread of PRRS and Mhyo. The V-shaped design delivers greater media area providing a much lower initial pressure drop when compared to conventional box-style filters. Vari+Plus AG delivers excellent performance in environments where high air flow capacity and low resistance are important and in both low and high risk applications.



The Vari+Plus AG filter is designed to the stringent requirements of the swine industry. To reduce the possibility of airborne contaminants bypassing the filter and entering the animal air space, the media packs of the filter are sealed around the perimeter edges.

The Vari+Plus AG media offers the lowest pressure drop currently available for filters of this type. The low pressure drop reduces the number of filters which are required to control the disease and maintain the proper number of air changes per hour required for the facility. Low pressure drop also reduces on-going waste and maintenance costs (disposal and labor) by reducing the number of filter change outs required.

Applications

Common ventilation systems used in swine facilities are designed to maintain an acceptable fresh air supply level and sized to control the inside temperature. High capacity wall mount fans coupled with low pressure exhaust fans are used to ventilate the barn pit and provide temperature control in the warmer months.



A typical ventilation system in a swine facility does not include air filtration. In order to combat today's rising incidences of airborne PRRS and Mhyo virus, the swine industry has recognized an increased need to retrofit facilities with efficient, high performance filtration purposely designed to trap the airborne virus and its contaminants and reduce the virus from entering and spreading throughout a facility.



Supplying Critical Bio-secure Clean Air Solutions for More Than 50 Years

The key installation component in minimizing economic impact of the PRRS and Mhyo viruses and maximizing system performance is the selection of the air filter. The best possible relation between filtration efficiency and lowest possible resistance to air flow is the main factor to consider when selecting the air filter. A low resistance to air flow reduces the number of filters needed which, in turn, minimizes a need for costly building extensions and additional filter housings. Low resistance results in lower energy consumption/costs and less labor and waste. The Airguard Vari+Plus AG filter meets and exceeds these performance parameters.

High-Efficiency Retrofit

To achieve a high-efficiency solution in



preventing the spread of PRRS and Mhyo, the attic air inlet of the facility should be retrofitted with filter housings capable of

utilizing one or more high-efficiency final filter units and pre-filters. The ideal configuration is the Vari+Plus AG Log 6/MERV 15 final filter preceded by an Airguard DP® 40 MERV 8 pre-filter. The pre-filter will protect the more efficient, higher priced final filter from larger size particulate which could quickly load the Vari+Plus AG filter. Use of a pre-filter can significantly extend the service life of the Vari+Plus AG filter.

For more information on the Vari+Plus AG filter, contact Technical Services at 1-866-247-4827.

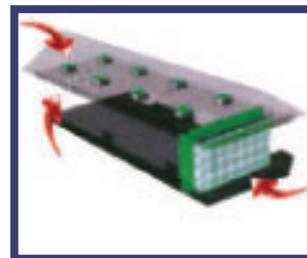


When the high capacity filter bank is closed and sealed due to colder temperatures, the ceiling inlet retrofit solution provides the necessary air supply to the barn area reducing the risk for PRRS and Mhyo

transmission. In cases where the number of air inlets is insufficient, openings can be added to the retrofit option. In a ceiling inlet system the typical number of filters required is three-to-four times less than that of a high-capacity filter bank.

In warmer temperatures, filters in the high-capacity air intake are combined with ceiling inlet filters.

The photos below represent two installation options, attic air inlet or single wall filter bank. Most building end walls will require a three wall filter bank extension to accommodate the needed number of filters. The building extension dimensions are determined by the required number of filters.



Facility Images used by permission of Kent Unke Biosecure Air Inc.



Vari+Plus® AG

High Efficiency, High Capacity, Mini-Pleated PRRS and Mhyo Containment Air Filter. Reduces aerosol transmission of the PRRS and Mhyo virus.



	Control	Electrostatic
PRRSV	28 of 65 (+)	0 of 13 (+)
Mhyo*	17 of 39 (+)	0 of 13 (+)
p value		p<0.00001

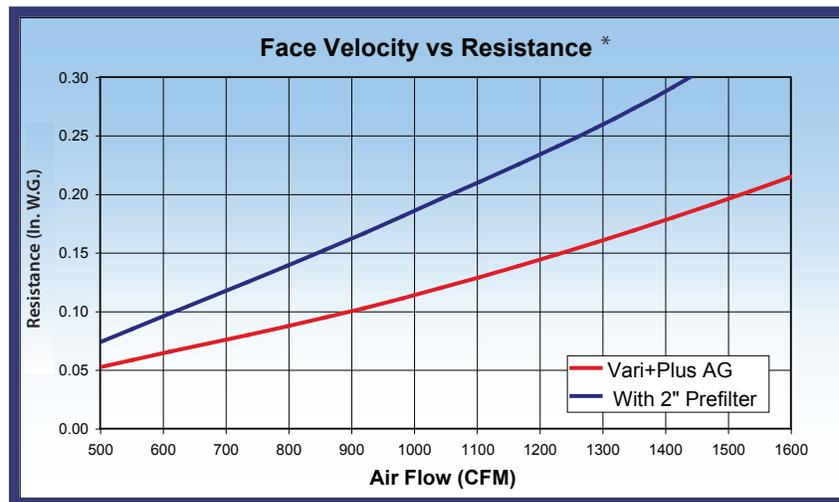
* Mycoplasma Hyopneumoniae

MODEL NUMBER	NOMINAL SIZE (HxWxD) INCHES	ACTUAL SIZE (HxWxD) INCHES	AIRFLOW @ 0.10" W.G. INITIAL RESISTANCE (CFM)	AIRFLOW @ 0.20" W.G. INITIAL RESISTANCE (CFM)	Reduction Performance
VPP-S-9804-H	24x24x12	23-3/8 x 23-3/8 x 11-1/2	905	1525	Log 6/MERV 15
VPP-S-9815-H	20x24x12	19-3/8 x 23-3/8 x 11-1/2	750	1270	Log 6/MERV 15

NOTES

1. Removal performance validated for Log 6 reduction of aerosol PRRSV and Mhyo
2. Continuous Operating Temperature 180°F (82°C)
3. Class 2 filter for flammability per U.L. Standard 900
4. MERV 15 in accordance with ASHRAE Standard 52.2-2007, Tested at 492 FPM, Filter size 24x24x12
5. MERV-A 15-A in accordance with ASHRAE Standard 52.2-2007 Appendix J, Tested at 492 FPM, filter size 24x24x12

Log 6/MERV 15 Pathogen Barrier	Airflow with pre-filter installed at pressure expressed in inches w.g.				
	0.10	0.15	0.20	0.25	0.30
24" x 24" w/ 2" Pre-Filter	625	850	1060	1250	1440
20" x 24" w/ 2" Pre-Filter	520	710	880	1040	1200



* Data based on 24x24 face size

A-VARI+PLUSAG-1210



www.airguard.com



Distributed by:



CLARCOR Air Filtration Products
 100 River Ridge Circle • Jeffersonville, IN 47130
 Customer Care Team: 1-866-247-4827 • Fax: 1-800-784-3458
 Email: mailbag@airguard.com • www.airguard.com

© 2010 CLARCOR Air Filtration Products.
 CLARCOR Air Filtration Products has a policy of continuous product research and development and reserves the right to change design and specifications without notice.
 Terms and Conditions of Sale can be accessed in the "LOGIN" section at www.airguard.com