

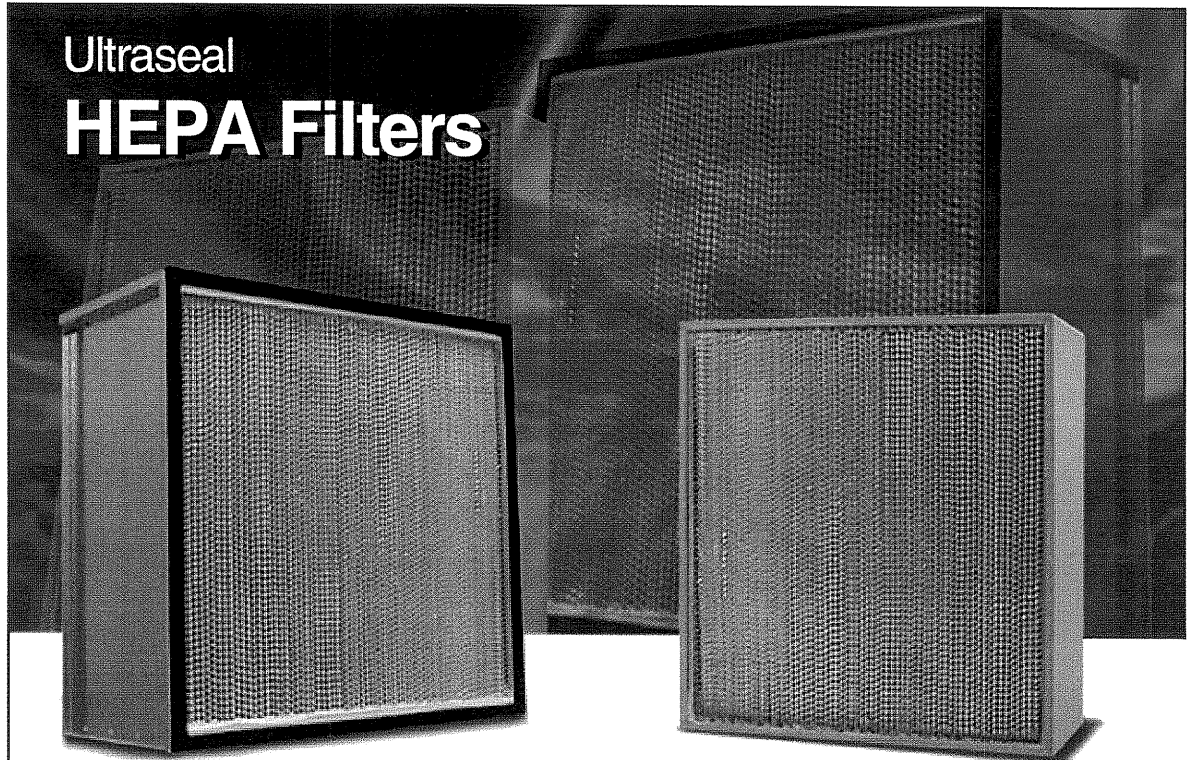
A division of

HealthWay® Products Company, Inc.

Ultraseal HEPA Filters

Certified Efficiencies:

- 99.97%
- 99.99%



Northland Ultraseal HEPA filters are designed to meet the critical filtration requirements where airborne contaminants can cause damage in manufacturing processes or may cause health hazards.

Only materials that meet our stringent quality standards are utilized. All manufacturing steps are closely monitored to insure that every filter will perform as expected.

Ultraseal filters are available in a variety of framing materials, which include particleboard, galvanized steel, aluminum and stainless steel. The gasket type sealing frames are available in double turned flange (DTF), and single header styles in metal, and box and single header styles in wood. These frames are also available in Gel Seal style. They are available in three flow rate capacities to meet varying fan capacities of Standard, Low Resistance and High Capacity.

Ultraseal filters are certified to be a minimum of 99.97% @ 0.3 μ m particles and meet the requirements of IEST RP-CC-001.3, type A filters. Scanned Ultraseal filters are certified to be a minimum of 99.99% @ 0.3 μ m particles and meet the requirements of IEST RP-CC-001.3, type C filters.

Ultraseal filters are constructed to perform at temperatures up to 200°F (93°C), and at 100% relative humidity. High temperature Ultraseal filters are available to operate continuously at temperatures up to 500°F (260°C).

For product information

Call Mike Zurlo

637 - 4372

Northland Filter Systems, International @ 1-800-NFS-HEPA • Fax: 518-664-2607

www.northlandfilter.com

HealthWay Products Company, Inc. (Corporate Office)
6500 Badgley Road • East Syracuse, NY 13057
1-315-463-0240 • www.healthway.com

HealthWay®

Ultraseal HEPA Filters

High Performance Filtration for Critical Air Cleaning Applications

The **NORTHLAND ULTRASEAL HEPA** is designed to meet the critical filtration requirements of a wide range of applications where airborne contaminants can cause damage in manufacturing processes or may cause health hazards.

The filter is completely reliable in operation, easy to install and easy to maintain. It operates at a relatively low pressure drop and removes nearly all hazardous and other undesirable particulate matter from the air.

Thousands of **ULTRASEAL** filters are in successful use today in a wide variety of industrial, commercial and institutional installations where the highest possible degree of cleaning is required.

Some typical applications are:

- Precision Assembly Areas
- Pharmaceutical Plants
- Food and Beverage Processing Plants
- Research Laboratories
- Photographic Plants and Laboratories
- Nuclear Operations
- Computer Ventilation Systems

and many other applications where it is necessary to:

- Provide dust free air
- Remove pathogenic organisms and mold spores
- Remove radioactive or toxic dusts

Filter Efficiency

Over the years many different methods have been used to measure air filter efficiency. Today, the most commonly accepted method of measurement is ASHRAE Standard 52-76. It incorporates two separate test methods:

1. *Arrestance*. Formerly referred to as the increase in filter weight (due to dust collected) against the total amount of dust fed.
2. *Efficiency*. This general test method was previously referred to as area efficiency or as discoloration efficiency. It is now the procedure by which filter performance is determined under ASHRAE Standard 52-76. It measures the filter's ability to remove the staining fraction of atmospheric dust. If the filter removes none of the staining fraction, its ASHRAE efficiency is 0. If the filter removes all of the staining fraction (as with the Ultraseal), **its efficiency is 100%**.

Neither of these procedures is satisfactory for rating the efficiency of the **Ultraseal** filter.

The efficiency of **Ultraseal** filters is determined by measuring the changes in mass concentration of a monodisperse test aerosol of 0.3 micron size (as described in Mil-Std-282) at the air entering and air leaving sides of the filter.

This is the most critical test for the efficiency of an air filter and is the one employed by Northland on all its **Ultraseal** filters.

Visit us on the World Wide Web at: www.northlandfilter.com

Filter Construction

Standard **Ultraseal HEPA** filters are constructed with a wood particle board frame. All wood frames have rabbited joints for secure seal and ridged construction. Frame materials also available are fire retardant wood particle board, plywood, and a variety of metals which include zinc-coated steel, stainless steel and aluminum. Metal frame styles are available with with single inward turned flange, single outward turned flange or double turned flanges. The filter pack consists of a continuous sheet of pleated all glass micro-fiber media. Controlled pleat spacing is maintained by corrugated aluminum separators. The filter pack is secured to the top and bottom of the frame utilizing a two part high density fire retardant urethane adhesive. The adjacent sides are secured using a self extinguishing rubber based adhesive. A closed cell neoprene gasket is supplied standard on one side.

All **Ultraseal** filters constructed with fire retardant wood particle board or metal frames **meet the requirements** of UL-586. The UL label may be affixed to the filter when requested.

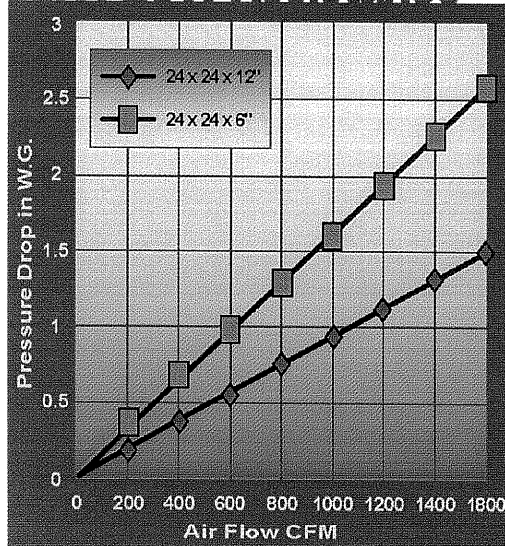
Ultraseal filters are constructed to perform at temperature up to 200°F and at 100% relative humidity.

Prefiltration

It is recommended that, in systems in which the air contains a small number of large particles, prefilters be placed ahead of the **Ultraseal** filter. This can increase the life greatly depending upon the efficiency of the prefilter.

<u>Size</u>	<u>Rated Flow CFM @ 1"W.G.</u>	<u>Approx. Ship Wt. In lbs.</u>
8 x 8 x 5 7/8	55	6
12 x 12 x 5 7/8	145	8
24 x 24 x 5 7/8	625	23
24 x 30 x 5 7/8	800	30
24 x 36 x 5 7/8	950	35
24 x 48 x 5 7/8	1300	46
24 x 60 x 5 7/8	1625	58
24 x 72 x 5 7/8	1950	70
30 x 24 x 5 7/8	800	30
30 x 30 x 5 7/8	1000	38
30 x 36 x 5 7/8	1200	45
30 x 48 x 5 7/8	1675	60
30 x 60 x 5 7/8	2100	75
30 x 72 x 5 7/8	2475	90
36 x 24 x 5 7/8	950	35
36 x 30 x 5 7/8	1200	45
36 x 36 x 5 7/8	1500	54
36 x 48 x 5 7/8	2000	72
36 x 60 x 5 7/8	2500	90
36 x 72 x 5 7/8	3075	108
24 x 12 x 11 1/2	500	25
24 x 24 x 11 1/2	1100	40
24 x 30 x 11 1/2	1375	47

AIR FLOW Resistance



Influence of Prefilter on **ULTRASEAL** Filter Life

Type of Prefilter	Usual Life
None -----	100%
Pleated Panel Filter -----	155%
SUPRAcell 65 -----	230%
SUPRAcell 95 -----	460%

Visit us on the World Wide Web at: www.northlandfilter.com

Typical Values – Standard Tests

<u>Type Filter</u>	<u>Arrestance (Synthetic Dust)</u>	<u>Efficiency (Atmospheric Dust)</u>	<u>PAO Test (0.3 Micron Smoke)</u>
Ultraseal HEPA	100	+	*99.99 min.
Ultraseal HEPA	100	+	**99.97 min.
Bio Medical HEPA	100	99	95
Supracell 95	100	90-95	80-85
Supracell 85	99	80-85	50-60
Supracell 65	96	60-65	20-30
Electronic	100	85-90	60-70
Precipitator			
Automatic Roll Filter	75	Less than 20	2-5
2" Throwaway	75	Less than 20	2-5
2" Washable	75	Less than 20	2-5

+Essentially 100% Test not practical for more accurate reading.

* Leak-free by scan testing (Fed. Std. 209 latest revision)

**Maximum allowable penetration of PAO smoke 0.03.

The PAO Test

The PAO (Polyalphaolefin) test, formally known as the DOP test, is the method by which Northland rates the efficiency of all its **Ultraseal** filters. PAO has been approved by the US Army and the Army Surgeon General as a suitable and safe replacement for DOP (Dioctyl Phthalate) which has been placed on the list of suspected carcinogens.

The PAO is heated to its vapor point and then condensed back to a test aerosol of uniform particles 0.3 microns in diameter. Samples are taken from the air leaving the side of the filter and compared to samples taken from the air entering side to determine the overall percentage of efficiency. The sample is drawn through a chamber. A beam of light shines into the chamber but is prevented by a shield from striking a photomultiplier tube. When the test sample enters the chamber, light is scattered by the smoke particles around the shield and falls on the photomultiplier tube. The electrical impulse is amplified and registered directly on a meter in percent penetration. Accurate readings as low as one thousandth of one percent are attainable.

The test results are marked on each filter and a copy kept on file at the factory.

When requested, the filter may also be scan tested in accordance with Fed. Std. 209. This test differs from the PAO test in that the test aerosol is non-uniform in size and samples are taken in small areas at a time over the entire face of the filter. The purpose of this test is to detect small pinhole leaks and is not a test used to determine efficiency.

Visit us on the World Wide Web at: www.northlandfilter.com