



The Added Value of
AAF's High Quality
HEPA & ULPA
Filters



B E T T E R A I R I S O U R B U S I N E S S ®



Quality Products, Manufacturing, Assurance

Quality Products

Since pioneering and introducing the first AstroCel HEPA filter, AAF has continued to find better ways to ensure its products stay at the forefront of the industry and meet the clean air quality requirements of its customers. Through ongoing, farsighted and imaginative research the AAF R&D team has lead the way in meeting these requirements for manufacturing, testing and quality assurance.

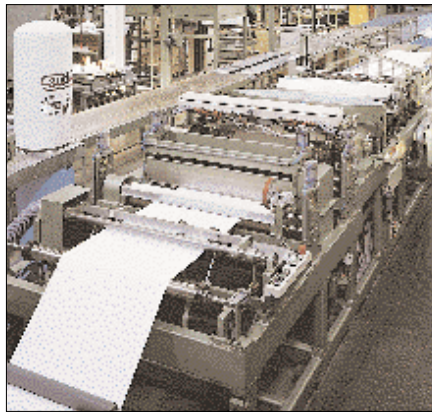
Today, the AAF HEPA and ULPA filter line, which includes renowned products such as AstroCel I, AstroCel II, AstroCel TM, AstroCel III and AstroPak, are used in all areas in which ultra high levels of air cleanliness is required. Typical areas of application include:

- hospital operating theatres and laboratories
- biomedical research laboratories
- pharmaceutical, microelectronic and food processing plants
- nuclear power stations
- photo, film and optical fibre facilities
- precision instrumentation manufacturing plants

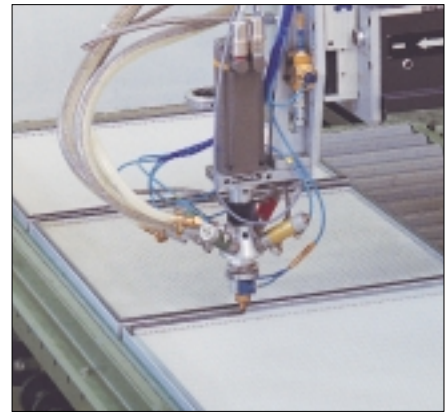
Quality Manufacturing

Supporting the efforts and commitment of the development of high quality HEPA and ULPA filters is the all important manufacturing process. To ensure continual product duplication and consistent quality, shipment after shipment, all AAF AstroCel and AstroPak filters are produced on highly sophisticated, computer controlled equipment.

During the first phase the media pack is made by folding the glass fibre media into pleats or mini-pleats, depending on the type of filter, with separators added to maintain equidistant spacing between pleats and ensure an optimal airflow into and through the filter. Finally, the media pack is sealed inside a custom-built casing and a gasket installed to ensure leakfree installation.



Automatic pleating technology



One-piece gasket application

Quality Assurance

"The management of AAF-International is committed to supplying quality products in a timely manner, at a competitive price and with customer performance built in. Customer satisfaction is the number one priority and product quality cannot and will not be compromised." This statement by AAF management clearly understripes the Company's commitment to quality.

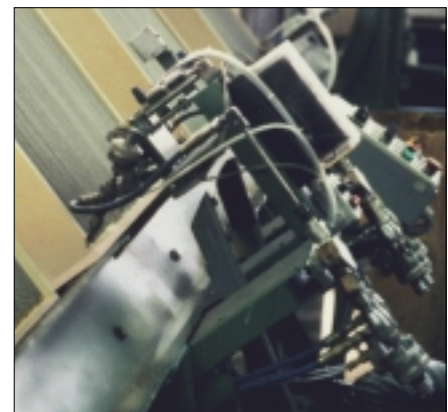
AAF's manufacturing department is supported by specialist quality assurance teams to ensure that all filters meet their performance specifications and are shipped in optimum condition. Control processes have been established that meet international standards of design, manufacture and supply.

At AAF the emphasis is on the prevention of quality problems before they occur rather than on curing problems after they have occurred. This 'prevention' control approach covers three important areas:

- Working with suppliers to ensure that all incoming raw materials are free from defects and in accordance to specifications
- Monitoring production processes to ensure consistent quality manufacturing
- Controlling inventory, order processing, purchasing and packaging to ensure consistent high quality, shipment after shipment.



NC saw cutting cell sides



Automatic glueing AstroCel I

ance and Testing

Quality Testing

An extensive range of tests and control measures are carried out during every phase of a filter's production: from the individual components it is made of to the correct functioning of the final product. Filters can be subjected to the following tests:

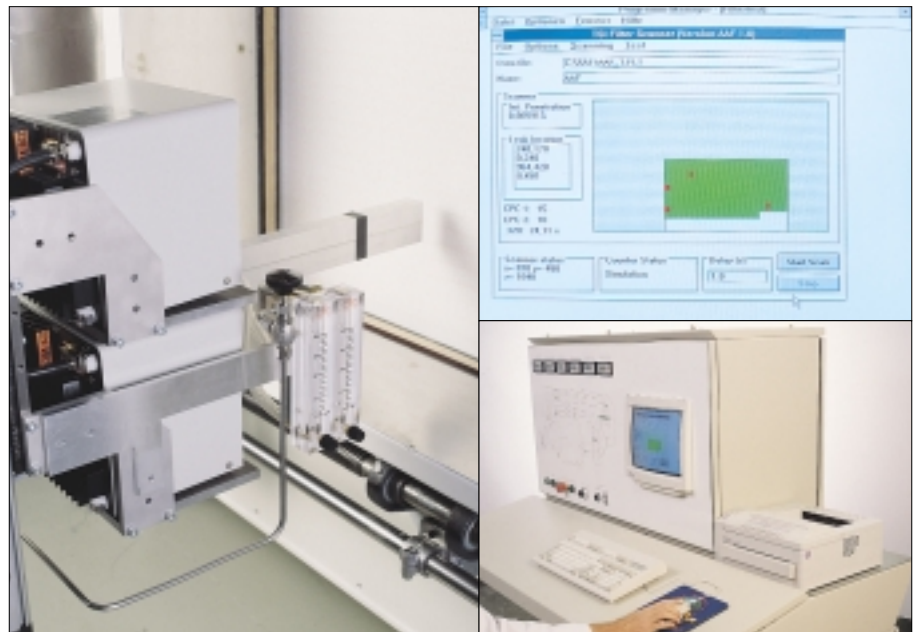
- Overall efficiency testing
- Leak testing and scanning
- Air distribution testing
- External reference testing and certification
- Pressure drop determination

AAF HEPA and ULPA filters can be efficiency tested in accordance with the following test methods:

- DIN 24.184 external reference test and BIA certification
- Laser spectrometry efficiency testing on 0.3 μm or 0.12 μm particles in accordance with IES-RP-CC-007.1
- integral overall efficiency and automatic scanning using Condensation Nucleus Counter in accordance with draft EN1822.

To ensure complete functional reliability filters can be leak tested and scanned according to the following methods:

- Ölfaden test according to DIN 24.184
- Scan test in compliance with IES RP-CC-001.3 using CNC equipment
- Scan test in accordance with draft EN1822



CNC scan testing in compliance with draft EN1822 (draft DIN 24.183)

In addition, an air distribution test can be carried out to ensure a uniform and laminar distribution of air through the filter. Only if a filter measures up to AAF's stringent quality assurance and testing procedures will it be released for shipping. Whatever the test method, results are always specified on a label attached to the filter and a record kept on file for reference.

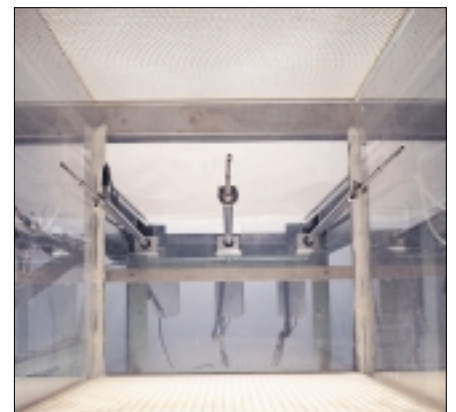
Testing of standard filters in compliance with draft EN1822 will become effective as soon as the standard has been adopted.



Laser spectrometer efficiency testing control unit



Leak test and pinhole repair (DIN 24.184)



Air distribution test

HEPA & ULPA Filters

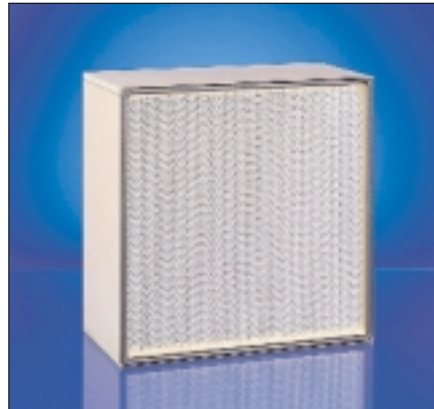
AstroCel I

- Classification H13 in accordance with draft EN1822
- DIN 24.184 external reference test and BIA certified
- For further details see specification sheet RA-2-701



AstroCel I HC

- Designed for high air volumes up to 3000 m³/h.
- Saves space or reduces pressure drop
- Classification H13 in accordance with draft EN1822
- DIN 24.184 external reference test and BIA certified
- For further details see specification sheet RA-2-721



AstroCel III (MDF)

- Non-shedding construction
- Fully incinerable
- Designed for air volumes up to 3400 m³/h
- Classification H12 in accordance with draft EN1822
- For further details see specification sheet RA-2-139



AstroPak

- Non-shedding construction
- Recessed pack; easy handling
- Classification H13 in accordance with draft EN1822
- DIN 24.184 external reference test and BIA certified
- Fully incinerable
- For further details see specification sheet RA-2-535



HEPA & ULPA Filters

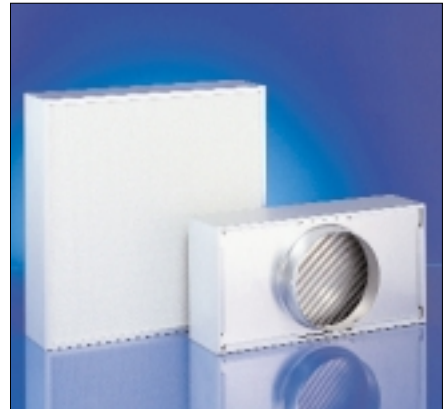
AstroCel II

- Dedicated cleanroom filters
- Filter classification H14 - U17 in accordance with draft EN1822
- Lightweight and easy to install
- Wet and dry seal execution
- For further details see specification sheet RA-2-702, RA-2-732 and RA-2-742



AstroCel TM

- Classification H14 - U17 in accordance with draft EN1822
- Lightweight and easy to install
- Hermetically sealed hood construction
- Wet and dry seal execution
- For further details see specification sheet RA-2-703



AstroCel III 4000

- Classification H12 in accordance with draft EN1822
- Compact size saves space
- Reduced energy costs
- Designed for high air volumes up to 4000 m³/h.
- For further details see specification sheet RA-2-129



Dihedral

- Classification H13 in accordance with draft EN1822
- For further details see specification sheet RA-2-166



Packing & Distribution

All HEPA and ULPA filters are cleaned and subjected to a final visual check before being packed in custom-built boxes. Packing takes place under controlled cleanroom conditions to prevent product contamination.

With more than 7000 m² warehousing space, AAF is able to store products in every feasible configuration and respond quickly to customer demand. A world-wide network of sales offices, agents and distributors ensures global availability of products, global market coverage and a first class service to customers.



Packing under cleanroom conditions



Warehouse: large revolving stock

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Page 1: picture of Operating Theatre courtesy of TNO Delft, picture of Photo Lab courtesy of TU Eindhoven



AAF has a policy of continuous product research and improvement and reserves the right to change design and specifications without notice.