



*Spectrum*



A leading name in the world of Air Filter and Air Filtration Systems, Spectrum deals with a complete range of technology intensive and customer specific Product and Services. Our products cover entire EN and other equivalent range of specification.

At Spectrum we see technology as central to our ethos. Our technical tie-up with Filtrair b.v., Netherlands for the manufacture of high quality intake-air filter ensures that we have access to the latest European technology. Filtrair maintains a dominating presence in 65 countries worldwide.

Apart from offering you high quality filtration products we have developed and perfected a Total Filter Management (TFM) program. The program is presently under implementation at several of our customer sites, who have benefited from better air quality and reduced operating costs.

The Spectrum-Filtrair linkage brings Europe's best and latest air filtration products and practices to your doorstep. One example of this is the new 'ASHRAE 52.2 - 1999 test rig that has been set up in cooperation with Filtrair at our Calcutta works.

With a commitment to customer services; the strength and resource to support the most challenging Air Filtration requirement; we are positioned to serve you, now and in the future.



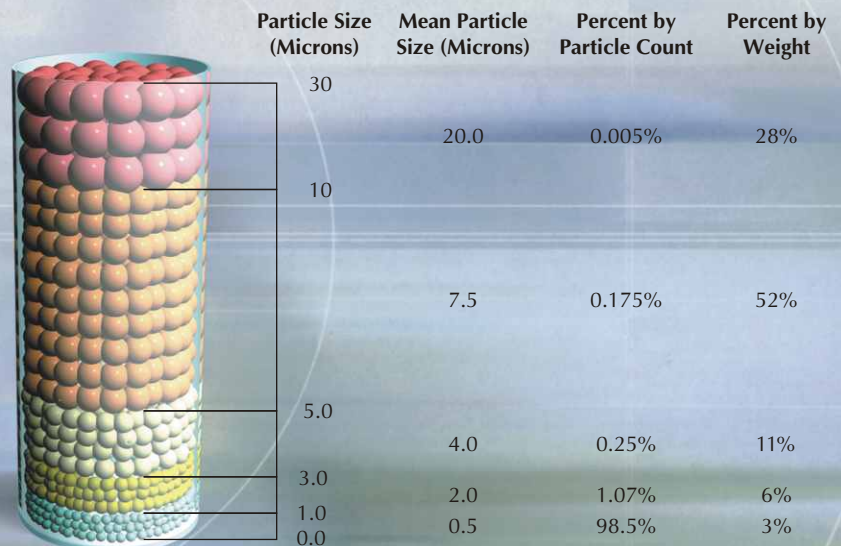
## APPLICATION AREAS

- Fertilizer Plants
- Gas Turbine and Compressor Intake
- Pharmaceutical and Food Processing Units
- Manmade Fiber Manufacturing Units
- Spray Painting Booths
- Petrochemicals
- Optical and Electronic Plants
- Public Building, Hotels and Hospitals
- Clean Room and Medical Facilities
- Utility and Co-generation Plants

## IMPORTANT TECHNICAL INFORMATION

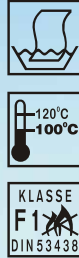
| Filter classification according to<br>EN 779 / 1822  |   |   |           |                |           |          |           |           |           |  |        |        |        |        |      |
|--|---|---|-----------|----------------|-----------|----------|-----------|-----------|-----------|--|--------|--------|--------|--------|------|
| DIN 24185  | Average synthetic dust weight arrestance in %     | Average atmospheric dust spot efficiency in % | EN 779    |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 1   | Am < 65   | –   | G 1       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 2   | 65 Am < 80  | –   | G 2       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 3   | 80 Am < 90  | –   | G 3       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 4   | 90 Am   | –   | G 4       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 5   | –   | 40 Em < 60                                    | F 5       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 6   | –   | 60 Em < 80                                    | F 6       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 7   | –   | 80 Em < 90                                    | F 7       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 8   | –   | 90 Em < 95                                    | F 8       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 9   | –   | 95 Em   | F 9       |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 10  | Norm test of HEPA AIR FILTER according to EN 1822 |   | H 10      |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 11  |   |   | H 11      |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 12  |   |   | H 12      |                |           |          |           |           |           |  |        |        |        |        |      |
| EU 13  |   |   | H 13      |                |           |          |           |           |           |  |        |        |        |        |      |
| <b>Final Pressure Drop –</b><br>For classification Purposes only the filtration performance is measured up to a final pressure drop of : <ul style="list-style-type: none"> <li>– 250 Pa for group G Filters</li> <li>– 450 Pa for group F Filters.</li> </ul>   |   |   |           |                |           |          |           |           |           |  |        |        |        |        |      |
| Synthetic dust weight composition according to EN 779 or ASHRAE-Standard 52.1  |   |   |           |                |           |          |           |           |           |  |        |        |        |        |      |
| SAE STD J726 Test Dust, Fine <span style="float: right;">72 %</span>   |   |   |           |                |           |          |           |           |           |  |        |        |        |        |      |
| <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Particle sizes</th> <th style="text-align: left;">0 – 5 m</th> <th style="text-align: left;">5 – 10 m</th> <th style="text-align: left;">10 – 20 m</th> <th style="text-align: left;">20 – 40 m</th> <th style="text-align: left;">40 – 80 m</th> </tr> </thead> <tbody> <tr> <td></td> <td>28.0 %</td> <td>13.0 %</td> <td>11.5 %</td> <td>13.0 %</td> <td>.5 %</td> </tr> </tbody> </table> |   |   |           | Particle sizes | 0 – 5 m   | 5 – 10 m | 10 – 20 m | 20 – 40 m | 40 – 80 m |  | 28.0 % | 13.0 % | 11.5 % | 13.0 % | .5 % |
| Particle sizes   | 0 – 5 m   | 5 – 10 m                                      | 10 – 20 m | 20 – 40 m      | 40 – 80 m |          |           |           |           |  |        |        |        |        |      |
|  | 28.0 %  | 13.0 %  | 11.5 %    | 13.0 %         | .5 %      |          |           |           |           |  |        |        |        |        |      |
| Powdered Carbon (Carbon Black) <span style="float: right;">23 %</span>   |   |   |           |                |           |          |           |           |           |  |        |        |        |        |      |
| Milled Cotton Linters <span style="float: right;">5 %</span>   |   |   |           |                |           |          |           |           |           |  |        |        |        |        |      |

### Particle Size Distribution in the Atmosphere



Source : NAFA guide to air filtration

## PANEL FILTERS



### Spectra-Prefilters – Regenerable

The 'Spectra-Pre' range of cleanable pre filters are suitable for use in HVAC systems, Air handling units and as a pre filter to higher efficiency filters. The filter comprises a high quality synthetic filter media from Filtrair, housed in a galvanized steel or aluminum frame. The 'Spectra-Pre' range offers dependable filtration at economical cost.

## PADS AND ROLLS



### Spectra Pads / Rolls

A wide range of Synthetic filter pads are available for use in air conditioning & ventilation systems, air handling units & as pre filters in multi-stage filtration systems. The High quality Synthetic fibre-based filtermats are manufactured at Filtrair, Netherlands. The filter media is made from selected high performance un-breakable fibers in progressive density multi-layering technique. This ensures very high dust holding capacity at low pressure drop.



### Spectra-Net Washable Prefilters

A lightweight filter for use in HVAC systems and Air handling units. The filter is constructed from a lightweight non-woven web sandwiched between multiple layers of woven mesh. The pleat pack is housed in a galvanized steel/aluminum frame.



### Auto Roll Replacement Filter

The SRM-94 glass fiber Auto Roll Filter comes with a choice of spool to fit Auto Roll Units of all makes including AAF. The media has a scrim backing. Adhesive gel impregnation ensures that the media has high dust holding capacity.



Washable



Not Washable



Temperature resistance –  
Longer periods 100 °C  
Surge 120 °C



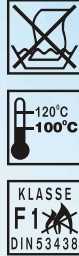
Classification according  
to DIN 53 438

| Type                             | Spectra-Pre        |                    |                    | Spectra Net        | Spectra Pads / Rolls |                    | Auto Roll Media    |
|----------------------------------|--------------------|--------------------|--------------------|--------------------|----------------------|--------------------|--------------------|
|                                  | Filtrair C-15-150  | Filtrair VNF 290   | Filtrair VP 500    | HDPE Panel         | Filtrair C-15-500    | Filtrair C-3-300   | SRM-94             |
| Classification (as per EN 779)   | G2                 | G3                 | G4                 | G2                 | G4                   | F5                 | G3                 |
| Av. Arrestance *                 | 76%                | 86%                | 92%                | 75%                | 94%                  | 97%                | 80-85%             |
| Av. Efficiency (dust spot) *     | –                  | –                  | –                  | –                  | –                    | 51%                | –                  |
| Initial Pressure Drop (Pa) *     | 15                 | 24                 | 51                 | 20                 | 31                   | 15                 | 45                 |
| Final Pressure Drop at test (Pa) | 250                | 250                | 250                | 120                | 250                  | 450                | 250                |
| Media Depth (mm)                 | 12                 | 20                 | 20                 | 5                  | 20                   | 20                 | 50                 |
| Dust Holding Capacity (grams)    | 500/m <sup>2</sup> | 620/m <sup>2</sup> | 460/m <sup>2</sup> | 120/m <sup>2</sup> | 570/m <sup>2</sup>   | 330/m <sup>2</sup> | 520/m <sup>2</sup> |

\* at rated flow

Detailed size and specification available on request  
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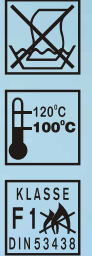
## DIFFUSION MEDIA



### Filtrair CC-600G Ceiling Filter

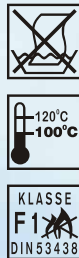
The Filtrair CC-600G is a fine air filter media specifically designed (full depth adhesive impregnated) for use as final filtration and diffusion media in spray booths of auto assembly plants. It is used with confidence at auto assembly plants worldwide and in India. It ensures zero paint damaging particles and uniform air distribution in the spray booth.

## POCKET FILTERS



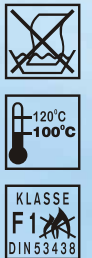
### Filtrair FP Welded Synthetic Pocket

The Filtrair FP pockets are made from high grade synthetic filter media. The pockets are welded at edges into a rigid, aerodynamic shape. Rigid pockets ensures that the dust cake is not disturbed during fan shut down, therefore there is no loss of pressure drop and efficiency when the fan starts up again. No stitching, no glue and no fibre break-off ensures extremely high burst strength and integrity. Special spot welded spacers ensure full media utilization.



### Filtrair PU Header Welded Pocket

These are the top range of Filtrair pocket filters. Made from selected high performance fibers in a progressive density multi-layering technique to ensure high dust loading with optimal lowest pressure drop. The PU front header and welded pockets are assembled to form one single leak-proof filter unit. The PU header ensures that the filter can be fully incinerated.



### Spectra Microfine

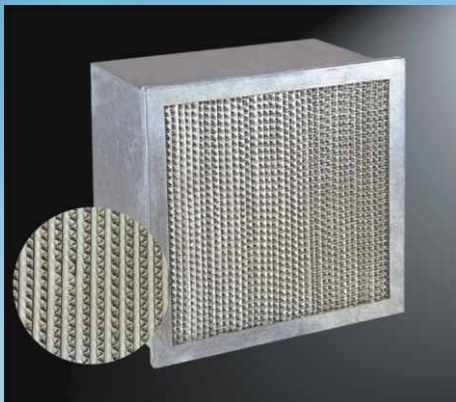
The Spectra Microfine range of synthetic pocket filters offer high efficiency air cleaning capabilities for many diverse applications including hospitals, pharmaceutical and man made fiber plants. The graded density meltblown media allows for maximum filtration performance and extended filter life. The media is protected on the air leaving side by a high strength spun bonded scrim backing.

| Type                             | Diffusion Media    | FP-Pocket Filter |                |                | PU Header Pocket |              |              | Spectra Microfine |          |          |
|----------------------------------|--------------------|------------------|----------------|----------------|------------------|--------------|--------------|-------------------|----------|----------|
|                                  | Filtrair CC-600G   | Filtrair FP-40   | Filtrair FP-50 | Filtrair FP-60 | Filtrair PPL     | Filtrair PTL | Filtrair PML | SMF-85            | SMF-95   | SMF-99   |
| Classification (as per EN 779)   | F5                 | G4               | F5             | F6             | G4               | F6           | F7           | F7                | F8       | F9       |
| Av. Arrestance *                 | 98%                | 93%              | 96%            | 98%            | 92%              | 99%          | >99%         | >99%              | >99%     | >99%     |
| Av. Efficiency (dust spot) *     | 55%                | –                | 52%            | 61%            | –                | 63%          | 88%          | 80-85%            | 90-95%   | >95%     |
| Initial Pressure Drop (Pa) *     | 25                 | 34               | 38             | 60             | 36               | 61           | 123          | 90                | 95       | 125      |
| Final Pressure Drop at test (Pa) | 450                | 250              | 450            | 450            | 250              | 450          | 450          | 350               | 350      | 350      |
| Media Depth (mm)                 | 20                 | 600              | 600            | 600            | 600              | 600          | 600          | 600               | 600      | 600      |
| Dust Holding Capacity (grams)    | 430/m <sup>2</sup> | 1925/unit        | 1210/unit      | 1250/unit      | 2600/unit        | 3000/unit    | 440/unit     | 390/unit          | 300/unit | 320/unit |

\* at rated flow

Detailed size and specification available on request  
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## COMPACT FILTERS



### Spectra Cell

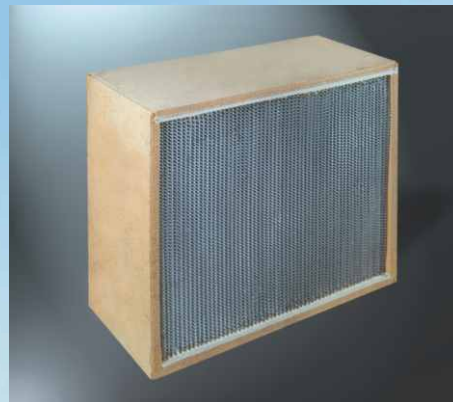
The spectra cell is a ruggedly constructed, heavy duty, high efficiency filter. It is designed for use in the rotating machinery intake. A special dual layer, graded density media ensures extremely high dust holding capacity & therefore lower operating pressure loss. The high efficiency and moisture resistance of the filter keeps the inside of the rotors clean, protects against moisture and salt. Its reliable construction makes it a popular choice for the Gas Turbine industry.



### Spectra Cell V

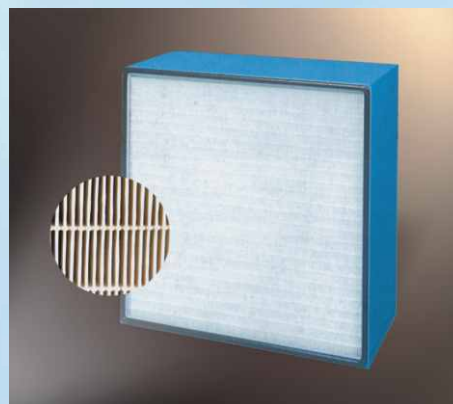
The spectra cell features a fire retardant, water resistant glass fiber media housed in a sturdy polystyrene frame. The pleats are separated with thermoplastic (hotmelt) separators. A very high ratio of media to filter face area ensure that the filter is capable to handle very high air flow volume at relatively low pressure drop.

## HEPA FILTERS



### Spectra Guard

The Spectra-Guard HEPA filter is designed for use in hospitals, pharmaceutical, electronic & man made fibre manufacturing plants. The filter features a high efficiency pleated microglass paper that is pleated to form compact media pack. Special safety edge aluminum separators ensure that the media pack is not damaged during transit. Filters are scanned for leak-free construction.



### Spectra Mini

Mini-pleat HEPA filters and Disposable ceiling modules are used in clean room applications and laminar flow equipment requiring high purity air. A hotmelt adhesive bead is applied to the microglass media to maintain critical pleat spacing for minimum resistance. A wide range of size and flow configuration are available.

|                                  | Spectra Cell | Spectra Cell V | Spectra Guard | Spectra Mini-pleat |
|----------------------------------|--------------|----------------|---------------|--------------------|
| Type                             | XL-90        | SPL-98         | SG-300        | SM                 |
| Classification (as per EN 779)   | F8           | F9             | H13           | H13                |
| Av. Arrestance *                 | >99%         | >99%           | -             | -                  |
| Av. Efficiency (dust spot) *     | 93%          | 98%            | 99.97%**      | 99.997%**          |
| Initial Pressure Drop (Pa) *     | 220          | 150            | 180           | 100                |
| Final Pressure Drop at test (Pa) | 600          | 450            | 700           | 700                |
| Media Depth (mm)                 | 300          | 300            | -             | -                  |
| Dust Holding Capacity (grams)    | 3000/unit    | 2200/unit      | -             | -                  |

\* at rated flow

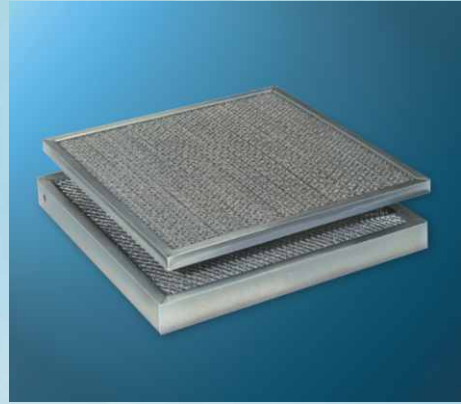
\*\* Particulate Efficiency down to 0.3 μm

Detailed size and specification available on request  
Spectrum Filtration Private Limited



### Universal Holding Frame

The heavy duty galvanized steel universal holding frame is modular in construction and is provided with pre punched mounting holes and gaskets for fast and easy installation at site. A choice of holding clips is available to accommodate different types of filters.



### Spectra High Temperature

The Spectra HT is designed for application in drying oven for automotive industry. The filter is constructed from a special grade of lint free microfine glass fiber media to withstand temperature upto 300°C.



### Spectra GT Pulse

Ruggedly constructed to withstand extreme operating conditions, the Spectra-GT range of pulse jet cartridge is available to fit almost all pulse jet installations.



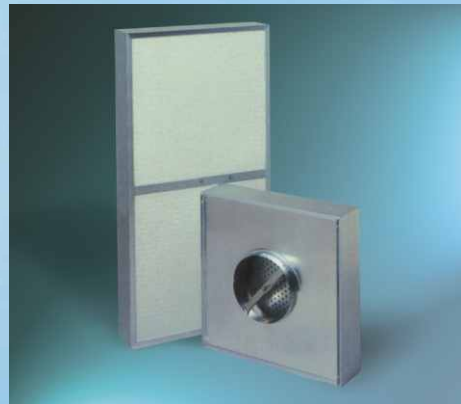
### Auto Roll Filter Unit

The Auto Roll filter unit is a motorized roll filter that incorporates an auto renewable media filter. The Auto Roll filter is available in a variety of size to suit different air flow requirement.



### Auto Viscous Filter

The self cleaning viscous filter utilizes a rotating endless metal screen as the filtering media and an oil reservoir at the base of the filter unit to periodically clean the filter. Suitable for high dust concentration area and engine air intake.



### Fan Filter Module

Final filter in ceiling air outlets or systems. For clean room up to Class 1000 in accordance with Fed. Std. 209 E. These units are assembled with its own filter, booster (220/440V) fan and motor.

*Detailed size and specification available on request*  
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## OUR NEW ASHRAE 52.2 TEST FACILITY

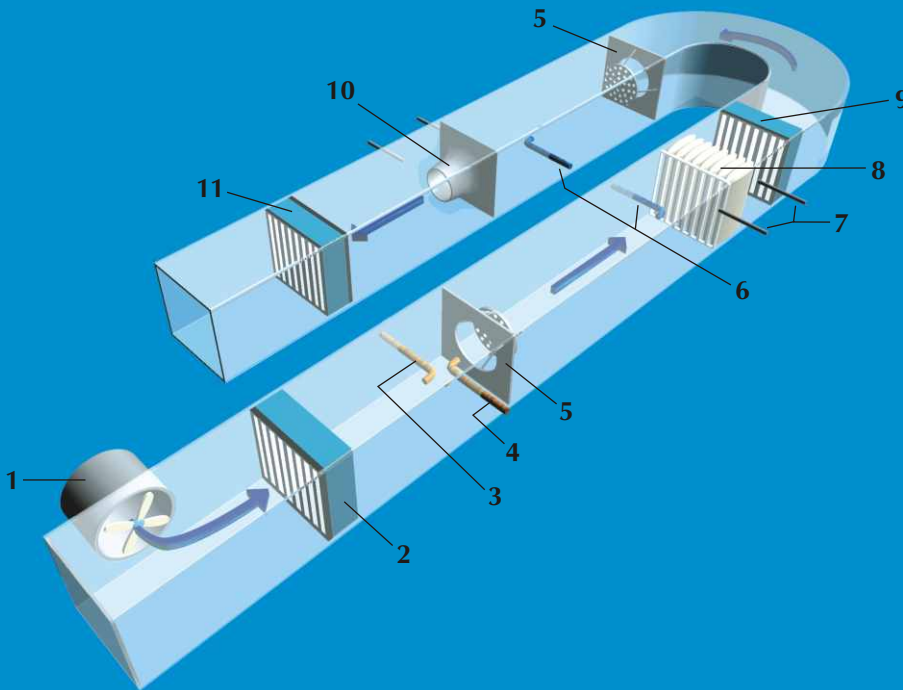
The ASHRAE 52.2 - 1999 test method which uses a particle counter and a defined solid aerosol to determine efficiency of a filter is the latest air filter test standard to be published by the "American Society for Heating, Refrigerating and Air-conditioning Engineers" (ASHRAE).

We have set up an Ashrae 52.2 Test Rig at our new manufacturing and test facility with the objective of answering a very commonly asked question "What is the efficiency of the filter in terms of particle size".

The old Ashrae 52.1 test standard measures the efficiency of a filter using a cumbersome dust spot sampler and opacity meter. The efficiency results were based on the air filter's ability to reduce the staining potential of atmospheric dust. The test procedure did not measure "Particle Size efficiency".

To answer this often asked question about "Particle Size Efficiency" we have set up an ASHRAE 52.2 test rig. We acknowledge the immense support received from Mr. Erik Kuiper - Director Technical at Filtrair b.v., Netherlands in building this test rig. Mr. Kuiper is also a member of the ASHRAE committee that wrote this standard.

### ASHRAE 52.2 TEST RIG



- 1 Blower
- 2 Pre Cleaner HEPA
- 3 Aerosol Injector
- 4 Dust Feeder
- 5 Diffusion Plate
- 6 Particle Sampling Probe
- 7 Differential Pressure Tap
- 8 Test Filter
- 9 Final Filter
- 10 Flow Measuring Nozzle
- 11 Post Cleaner HEPA



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