Efficient Filtration Solutions for Baghouses
Nordic Air Filtration is part of the MFR Group, consisting of TDC Filter, Midwesco Filter Resources and Nordic Air Filtration. We manufacture filter bags, cages, pleated bags and cartridges for new equipment installations and replacements - supplying a wide range of industries and all types of baghouse designs.

Each one of our filters is manufactured in the US and in Europe using only documented and certified materials and manufacturing methods.

Based on our wide range of high quality products and 45 years of filtration expertise, we are able to find solutions to your most difficult challenges. Our experienced sales team will understand your needs and develop a customized solution to meet those needs.

In addition, we offer a wide range of value added services including Total Cost of Ownership Savings reports, filter service life testing and more.

**WE SPECIALIZE IN FILTRATION SOLUTIONS FOR**

- CEMENT
- METAL / ALUMINUM
- FOOD & BEVERAGE
- WOOD
- CHEMICAL
- OTHER
- POWDER COATING
- PLASMA / LASER CUTTING
- SAND BLASTING
- TEXTILE

**WE IDENTIFY NEEDS & CHALLENGES**

- Identify challenges
- Used filter analysis to determine optimum filter media for your application
- Free Total Cost of Ownership Savings report
- Airflow Model report

**WE SELECT OPTIMUM SOLUTION**

- Pleated Bags and Cartridges
- ePTFE Membrane and other high efficiency finishes
- Filter Cleaning Accessories

**Optimize Performance of your Baghouse**

by selecting Optimum Filtration Solution
Pleated Bags
- an Alternative to Filter Bags

Filter Bags vs. Pleated Bags

easier installation <
increased durability <
better efficiency <
energy savings <

TOP CAP
- Top loading/clean side removal
- Bottom loading/dirty side removal

FILTER MEDIA
- The pleats equals 2-3 times more filter area compared to filter bags
- Can be equipped with Nordic Air Filtration's wide selection of filter media

OUTSIDE STRAPS
- Glued strap
- WeldTECH™ strap

INNER CORE
- Polypropylene core
- Expanded metal core
- Expanded helix core

BOTTOM CAP
- Integrated molded bottom cap
- Metal bottom cap

For more information on construction options, see page 9.

Free Total Cost of Ownership Savings Report
Under most circumstances, economic benefits can be gained by upgrading a filter bag solution to a pleated bag solution. With our savings report based on your specific baghouse details, you receive a full overview of how much a pleated bag solution can:
> maximize air flow through your baghouse
> reduce energy and maintenance cost
> maximize the life cycle of your filters
> lower your emissions

Testing confirms that spun bonded polyester media allows less than half the emission of felt fabrics
With test parameters using 0.5 micron silica dust, 5:1 air-to-cloth ratio and grain loading of 30 gr/m²/hour, outlet emissions were only .0025 gr/m²/hour. The 16 oz. polyester felt media outlet emissions was over twice as high with emissions of .0060 gr/m²/hour.
Bag Filters vs. Pleated Bags
- Filter Media Comparison

Polyester Felt vs. Spunbond

Polyester Felt is a thermoplastic filter media. Characteristics of felt:
- Depth filtration media
- Low cost
- Multiple treatments and finishes available

Spunbond (SB) Filter Media is a non-woven, 100% synthetic spunbond polyester media. It can significantly increase baghouse operating performance due to its key benefits:
- Surface filtration media
- Higher efficiencies versus conventional felt
- High dust release
- High durability
- Moisture resistant
- Lower operating delta P
- Higher throughput (m³/hour)
- Multiple finishes and treatments are available

SPUNBOND MEDIA VS. POLYESTER FELT ALLOWS:
- 30% more air through existing dust collector
- Smaller overall height on new collector
- Great for restarting old collector
- Can reduce the number of filters needed
- Lower energy cost
- Longer filter life cycle

DEPTH VS. SURFACE FILTRATION
The benefits of surface filtration are:
- Less accumulation of dust
- Less pressure drop
- Longer filter life cycle
Wide Range of High Quality Pleated Bags
- Manufactured by skilled workers in Europe

Specifications & Options
- Brief overview of the different construction options available

### Filter Media

<table>
<thead>
<tr>
<th>Top caps</th>
<th>Top Loader (CPB)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multifit Top Loader (CMF)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Steel Top Loader</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bottom loader (CBLPB)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inner core</td>
<td>Polypropylene</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metal (galvanized or stainless)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bottom caps</td>
<td>Integrated molded bottom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PA6 polyamide (Multifit)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metal (galvanized)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straps</td>
<td>Weldtech™ - Ultrasonic welding minimizes trapping of dust behind strap and is a non-glue solution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glued</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ryton</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Service and Accessories, see page 12-15

- Available options

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Operating/Peak temperature
- 90°C/100°C
- 120°C/140°C
- 160°C/180°C

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- Mounting
  1. Insert adapter in tubesheet.
  2. Adapter ensures perfect fit.
  3. Insert Multifit cartridge in tubesheet.
Filter Media for your Application

Below, you will find our preliminary suggestions for pleated filter media for each industry. However since site-specific issues might dictate a different media solution, we suggest that you draw upon the expertise of your Nordic Air Filtration sales representative to select the optimum media alternative.

### Industry / Dust / Fumes

<table>
<thead>
<tr>
<th>Industry</th>
<th>Dust / Fumes</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundry</td>
<td>Zinc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Powder coating</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plasma / laser cutting</td>
<td>Precoat™ needed</td>
</tr>
<tr>
<td></td>
<td>Sand blasting – sand</td>
<td>Off-line cleaning</td>
</tr>
<tr>
<td></td>
<td>Sand blasting – glass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sand blasting – enamel, steel &amp; aluminum</td>
<td>Moisture resistant</td>
</tr>
<tr>
<td></td>
<td>Grinding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unspecified dust with no smoke</td>
<td></td>
</tr>
</tbody>
</table>

### Industry / Dust / Fumes

<table>
<thead>
<tr>
<th>Industry</th>
<th>Dust / Fumes</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Milk powder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tobacco</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coffee</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cocoa</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paper</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chalk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wood dust</td>
<td></td>
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</tbody>
</table>

### Description

<table>
<thead>
<tr>
<th>Name</th>
<th>Material</th>
<th>Treatment</th>
<th>Weight</th>
<th>Air-perm.</th>
<th>Chemical resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>340</td>
<td>100% PPS High temperature</td>
<td>Synthetic Resin</td>
<td>130</td>
<td>1080</td>
<td>Oil/water: 1.00 160°</td>
</tr>
<tr>
<td>170</td>
<td>100% synthetic</td>
<td>-</td>
<td>170</td>
<td>890</td>
<td>Hydrolysis: 0.50 110°</td>
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<tr>
<td>170ALU</td>
<td>100% synthetic</td>
<td>Conductive</td>
<td>170</td>
<td>855</td>
<td>Acid: 0.50 110°</td>
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<tr>
<td>800</td>
<td>100% synthetic</td>
<td>ePTFE membrane</td>
<td>280</td>
<td>190</td>
<td>Alkali: 0.80 120°</td>
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<tr>
<td>800ALU</td>
<td>100% synthetic</td>
<td>Conductive+ePTFE membrane</td>
<td>300</td>
<td>190</td>
<td>Dust release: 0.80 120°</td>
</tr>
<tr>
<td>806</td>
<td>100% synthetic</td>
<td>-</td>
<td>260</td>
<td>530</td>
<td>**</td>
</tr>
<tr>
<td>806FC</td>
<td>100% synthetic</td>
<td>PTFE</td>
<td>260</td>
<td>470</td>
<td>***</td>
</tr>
<tr>
<td>806ALU</td>
<td>100% synthetic</td>
<td>Conductive</td>
<td>270</td>
<td>490</td>
<td>****</td>
</tr>
<tr>
<td>806ANFC</td>
<td>100% synthetic</td>
<td>Conductive+PTFE</td>
<td>270</td>
<td>480</td>
<td>Excellent</td>
</tr>
<tr>
<td>900</td>
<td>100% synthetic</td>
<td>ePTFE membrane</td>
<td>240</td>
<td>290</td>
<td>Oil/water: 0.54 120°</td>
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<tr>
<td>900ALU</td>
<td>100% synthetic</td>
<td>Conductive+ePTFE membrane</td>
<td>260</td>
<td>230</td>
<td>Hydrolysis: 0.58 120°</td>
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<tr>
<td>909</td>
<td>100% synthetic</td>
<td>-</td>
<td>240</td>
<td>490</td>
<td>Alkali: 0.55 120°</td>
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<tr>
<td>909FC</td>
<td>100% synthetic</td>
<td>PTFE</td>
<td>242</td>
<td>480</td>
<td>Dust release: 0.55 120°</td>
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<tr>
<td>909ALU</td>
<td>100% synthetic</td>
<td>Conductive</td>
<td>241</td>
<td>420</td>
<td>**</td>
</tr>
<tr>
<td>909ANFC</td>
<td>100% synthetic</td>
<td>Conductive+PTFE</td>
<td>243</td>
<td>460</td>
<td>***</td>
</tr>
</tbody>
</table>

PTFE = Media is coated on the outside
ePTFE membrane = Media contains a membrane - the most dust resistant solution available

*Fair **Good ***Very good ****Excellent
**Laboratory Testing & Filter Analysis**

With our strong technical team and our laboratory facilities, we act as a consultant to our customers and advise about the optimum filter solution for specific applications with the aim to obtain lower Total Cost of Ownership.

*In our lab we provide testing such as*
> Media physicals
> Filter life expectancy evaluations
> Reverse engineering
> Failed filter analysis
> Contaminant analysis
> Particle sizing
> Custom testing based on individual requirements

**Free TCO - Total Cost of Ownership Savings Report**

Our savings report based on your specific baghouse details gives you full overview of:
> How you can maximize air flow through your baghouse
> How to reduce energy and maintenance cost
> How to maximize the life cycle of your filters
> How to lower your emissions

**ePTFE MEMBRANE TECHNOLOGY EQUALS INCREASED EFFICIENCY**

High Durability, High Efficiency ePTFE Membrane helps meet EPA requirements (PM2.5, MACT, NESHAP).

*ePTFE Membrane will benefit Total Cost of Ownership as a result of:*
> Reduced emissions (PM10, PM2.5 and Sub-Micron PM)
> Lower operating differential pressure
> Longer effective life cycle of pleated bags
> Aids in recovery from upset conditions such as moisture, boiler tube leaks, etc.
> Provides a chemical barrier to particulate matter
> Full collection efficiency upon start up as a result of high initial efficiency
> Reduced consumption of cleaning air
> Fan energy savings
> Higher throughput capabilities reduce capital costs as a smaller dust collector can match the dust collection demand

**Spunbond efficiency with and without ePTFE membrane**

![Efficiency Graph]

- = Spunbond with ePTFE membrane
- = Spunbond
PREKOTE® INCREASES INITIAL EFFICIENCY AND PROTECTS FILTER DURING START UP
> Creates a highly permeable, protective layer on the surface of the filter media and increases filter performance
> Improves dust cake release
> Ensures longer filter life
> Ideal for applications where moisture and oil are present
> PreKote® is chemically inert, non-toxic and pH neutral.
> Does not contain lime or diatomaceous earth.
> Supplied in 25 lb., 450 lb. super sacks or via bulk truck
> Can be pre-applied to pleated bags and cartridges.

Valves
High quality diaphragm valves:
> Excellent response time
> Aluminium valves, stainless steel bolts and diaphragm in impregnated textile fibers prevent corrosion and prolong life

Header Tanks
Wide range of header tanks including:
> Integrated or threaded valves
> Stainless steel header tanks
> All tanks meet European PED, ATEX, GOST-R requirements

Optimize Filter Performance by using our Accessories
### CASE STUDIES

#### Region: Europe
**Dust type:** Cast iron grinding powder

**Problem**
- The use of 160x5000mm polyester felt filter bags caused problems as dust particles would not release from the felt media.
- The result was pulse cleaning difficulties and rapidly increasing deltaP leading to a too short life cycle of the filter bags.

**Solution**
- Spunbond polyester, which is a surface filtration media, is more efficient for pulse cleaning keeping deltaP low for substantially longer than the felt media.
- Simultaneously, as a consequence of upgrading to pleated bag filters, the filter surface area has increased by 55% equal to an air to cloth ratio of 50 m$^3$/m$^2$/hour (2.7:1).
- More efficient pulse cleaning has resulted in decreased energy costs as well as longer filter life cycle. The solution did not require any reconstruction of the baghouse as Nordic Air Filtration’s Multifit pleated bag cartridge could be used without incurring changes in the baghouse construction - which was crucial to the customer.

#### Region: Africa
**Dust type:** Cement

**Problem**
- The cement silo (cement feeding/packing) was under pressure.
- Dust was exiting from holes.
- The safety valve was permanently open.
- The feeding capacity increased over the last decade. However, the dust removal unit was not modified accordingly resulting in insufficient dust collector capacity. Consequently, the company began receiving complaints from the community about the large amount of dust discharged into the environment.
- The emission proved to be a large problem.

**Solution**
- By replacing the existing filter bags with Multifit Pleated Bags from Nordic Air Filtration the following results were obtained:
  - The Spunbound media optimized filtration efficiency and the larger filtration area solved the silo pressure and ensured better running.
  - The PTFE-coating of the media provides optimal dust release capacity during pulse cleaning which prolongs the life cycle of the cartridges.
  - The unique Multifit-system with adapter rings enables the customer to have on stock just one type/size of cartridge. The adapter system makes it possible to fit a standard sized Multifit filter into a variety of hole diameters simply by choosing the suitable adapter ring.

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### Before

#### TECNICAL FACTS

<table>
<thead>
<tr>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airflow in unit</td>
<td>8400 m$^3$/hour</td>
</tr>
<tr>
<td>Dusttype</td>
<td>Cement</td>
</tr>
<tr>
<td>Collector running hours/year</td>
<td>8765 hours (All year)</td>
</tr>
<tr>
<td>Bag/cartridge name/model</td>
<td>Intensiv Multifit Pleated Bag</td>
</tr>
<tr>
<td>Media/cloth type</td>
<td>Polyester with PTFE coating</td>
</tr>
<tr>
<td>Length</td>
<td>2250</td>
</tr>
<tr>
<td>Number of bags/cartridges</td>
<td>80</td>
</tr>
<tr>
<td>m$^2$ in each bag/cartridge</td>
<td>1.13</td>
</tr>
<tr>
<td>m$^2$ in unit</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Advantages achieved by using Multifit Pleated Bags:
1. **Longer life cycle** as Nordic Air Filtration’s pleated bags are more abrasion resistant than the filter bags used.
2. Less dust discharging and **lower emission**
3. **Better airflow** due to easier cleaning of media (Surface vs Depth Filtration) and larger surface area (pleated media)
4. **Cost savings** as a result of a less energy consuming cleaning cycle with fewer pulses

### After

#### TECNICAL FACTS

<table>
<thead>
<tr>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airflow in unit</td>
<td>8400 m$^3$/hour</td>
</tr>
<tr>
<td>Dusttype</td>
<td>Cast iron grinding powder</td>
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<tr>
<td>Bag/cartridge name/model</td>
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<tr>
<td>Media/cloth type</td>
<td>Polyester with PTFE coating</td>
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<td>Length</td>
<td>1500</td>
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<tr>
<td>Number of bags/cartridges</td>
<td>80</td>
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<tr>
<td>m$^2$ in each bag/cartridge</td>
<td>2.73</td>
</tr>
<tr>
<td>m$^2$ in unit</td>
<td>213</td>
</tr>
</tbody>
</table>

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### Advantages

1. **Longer life cycle of filter**
2. Better airflow and reduced DeltaP due to more efficient pulse cleaning.
3. **Energy savings** on main fan & pulse cleaning.
4. No reconstruction of Baghouse was needed due to the use of Multifit Pleated Bags.
Underperforming pulse jet baghouses are usually the result of high dust loading, inefficient cleaning systems – or a combination of both. Left unchecked, these problems can result in process bottlenecks and increased operating costs. Below are some steps you can take to avoid this from happening. If you need assistance, we have the unique expertise to identify and solve baghouse problems.

**Recommended General Operation parameters:**

- Pressure: 5-6 BAR (May vary depending on material type)
- Frequency (off time): 20 seconds or minimum time to maintain the desired differential pressure
- Duration (on time): 150 milliseconds

- **Hopper**
  Should not be used for storage. Evacuation equipment (rotary valves, screw conveyors, etc.) should be sized to unload hopper before accumulation occurs. Units with slide gates should be left open and equipped with sealed drum adapters.

- **Emission/bleed through**
  Due to emission regulations sometimes enforcing a change of filter media, still more dust collector owners seize this opportunity to upgrade to a more efficient filter media, which helps filter even the smallest particles thereby providing users the potential to recycle more of their valuable product and/or meet the required reduced emissions requirements.

- **Cleaning Air**
  Ensure better cleaning with tanks that are kept free of moisture and debris as they can substantially impact the ability to clean the filters.

- **Choice of media**
  All dust types have specific characteristics and requires different handling. Therefore, it is often not enough to use a plain polyester media. Purchasing an enhanced treated/coated media (for example ePTFE membrane, HO treatment or antistatic surface) often turns out to be profitable as a result of better pulse cleaning.

- **Air flow**
  Several issues can cause reduced air flow in the dust collector. The most common problem is the balance between the cleaning of filters and dust loading into the collector. These factors strongly influence the amount of airflow the system can handle. If you need to handle more m³/hour, more filter area is usually required. Some customers choose to purchase longer bags or a new collector with more bags. Others choose a pleated bag solution which increases the filter area.

- **Pulse Sequence**
  The pulse sequence should be adjusted to ensure that newly cleaned filters do not take in dust from the neighboring filter being pulsed. Staggering the firing order helps reduce cross contamination.

**Please notice:**

Some collectors may operate successfully under less stringent settings, while other collectors may fail under more conservative settings.
Efficient Filtration Solutions for Baghouses

We take the dust out of industry®