CONTINUOUS CLEANING PROCESS AIR & DUST
FILTRATION SYSTEM

Engineered Recycling Systems takes decades of engineering experience and integration expertise to provide turnkey solutions.

We design, service and install world-class recycling and dust control systems. By providing our customers with equipment and system designs that deliver unprecedented levels of quality and craftsmanship, our solutions increase efficiency and cut labor costs.

SIGNIFICANT ADVANTAGES OVER CONVENTIONAL DUST FILTRATION TECHNOLOGY
Continuous Cleaning Modular (CCM™) Filter

The design of the CCM™ Filter completely departs from conventional filter systems. The CCM™ Filter is stationary and can be bolted directly to a wall opening. The incoming air flows from the inside to the outside, leaving the drum through the whole filter surface. This means that the air inside the filter chamber is clean.

Rotating and changing suction nozzles inside of the drum continuously vacuum any dust and waste from the filter media. Little air is required to clean the filter medium as the suction nozzles are efficient. The nozzles are fluidic optimized and touch the filter media, which guarantees high and efficient cleaning.

The CCM™+ Filter features an additional large particle filter in the form of a pre-filter disc that is installed at the air intake side of the CCM™ Filter. Large particles will adhere to the rotating disc while the fine dust passes through it into the drum. A stationary suction nozzle cleans the CCM™+ Filter disc. The suction nozzles inside the CCM™ Filter and the pre-filter disc can be driven by the same motor. The CCM™ Filters are perfectly suitable for energy efficient filtration of large volumes of dust-laden air such as paper, wood, hygiene, make up air, etc.

The CCM™ Filter is a HIGH-EFFICIENCY FILTER with an application in various industrial sectors:
- Corrugated
- Non-woven
- Woodworking
- Paper & cellulose
- Recycling
- Fiberglass
- Hygienic
- Automotive

ADVANTAGES OVER CONVENTIONAL DUST FILTRATION TECHNOLOGY

- NFPA and OSHA guidelines compliant without additional equipment
- Regenerative filter unit = low pressure loss
- Filter functionality visible during operation
- Integrated pre-filter for large material separation (optional)
- Various tried-and-tested filter media with high dust collection efficiency, relatively low resistance and a long service life

TECHNICAL DATA Continuous Cleaning Modular (CCM™) Filter

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter of Filter (Disc) inch (mm)</th>
<th>Fine-filter Surface ft² (m²)</th>
<th>Max. primary Air Volume * cfm (m³/h)</th>
<th>Suction Nozzles Air Volume ** cfm (m³/h)</th>
<th>Suction Pressure *** at the Nozzle PSI (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM 20</td>
<td>79” (2,000 mm)</td>
<td>172 ft² - 345 ft² (16 m² - 32 m²)</td>
<td>80,000 cfm (140,000 m³)</td>
<td>150 cfm - 590 cfm (250 m³/h - 1,000 m³/h)</td>
<td>.58 - .87 (4,000 – 6,000)</td>
</tr>
<tr>
<td>CCM 25</td>
<td>98” (2,500 mm)</td>
<td>226 ft² - 560 ft² (21 m² - 52 m²)</td>
<td>132,000 cfm (224,000 m³)</td>
<td>150 cfm - 710 cfm (250 m³/h - 1,200 m³/h)</td>
<td>.58 - .87 (4,000 – 6,000)</td>
</tr>
<tr>
<td>CCM+ 15</td>
<td>59” (1,500 mm)</td>
<td>65 ft² - 204 ft² (6 m² - 19 m²)</td>
<td>23,500 cfm (40,000 m³)</td>
<td>150 cfm - 470 cfm (250 m³/h - 800 m³/h)</td>
<td>.58 - .87 (4,000 – 6,000)</td>
</tr>
<tr>
<td>CCM+ 20</td>
<td>79” (2,000 mm)</td>
<td>172 ft² - 345 ft² (16 m² - 32 m²)</td>
<td>40,000 cfm (70,000 m³)</td>
<td>150 cfm - 590 cfm (250 m³/h - 1,000 m³/h)</td>
<td>.58 - .87 (4,000 – 6,000)</td>
</tr>
<tr>
<td>CCM+ 25</td>
<td>98” (2,500 mm)</td>
<td>226 ft² - 560 ft² (21 m² - 52 m²)</td>
<td>80,000 cfm (140,000 m³)</td>
<td>150 cfm - 710 cfm (250 m³/h - 1,200 m³/h)</td>
<td>.58 - .87 (4,000 – 6,000)</td>
</tr>
</tbody>
</table>

* Depending on filter media, number of filter sections / filter surface and industry  | ** Depending on number of filter sections  | *** Depending on filter media and industry
Pre-Filter

The pre-filter consists of housing which is separated by a dividing wall in which the rotating filter disc is mounted. The raw gas side is sealed off from the clean air side by a special felt strip around the filter disc. The filter disc is cleaned continuously by negative pressure through a specially-designed, stationary slot nozzle.

The nozzle does not touch the filter screen during cleaning. A gear motor drives the filter screen and nozzle with the belt-drive mounted to the filter disc on the clean gas side.

The pre-filter can be integrated in line before the fine filter. The pre-filter is suited particularly for large volumes of dust-laden air streams which contain high amounts of fibrous materials.

The pre-filter is an energy efficient separation device with an application in various industrial sectors:

- Paper & paper converting
- Hygienic
- Paper & cellulose
- Non-woven
- Automotive
- Fiberglass & carbon fiber

ADVANTAGES OVER PRE-CLEANING FILTERS / CYCLONES

- Can be used independently or in combination with a CCM™ Filter
- Regenerative filter unit
- Minimized pressure loss due to optimal airflow design
- Energy efficient
- No pressure fluctuations in the extraction system due to continuous cleaning
- Space saving installation due to disc shape and compact design
- Optimum flow velocity achieved by exact adaptation to the total air quantity
- No fiber contamination of drive elements
- Easy access due to installation behind the pre-filter screen
- Easy filter media change

Dust Transport & Material Handling Fans

Engineered with efficiency in mind, our dust and material conveying fans drastically increase balanced airflow, which results in more efficient, more functional trim and dust collection systems.

Used for pneumatic conveyance of:

- Paper dust
- Fibers
- Solid particles
- Recycling dust
- Non-woven dust
- Trim
Compacting Power Screw

The separated material is captured by a horizontal screw and discharged through the outlet to the front. Optionally, the supply can be supported by an agitator which prevents solid bridges. Material compaction takes place, depending on the chosen discharge unit, by means of spring leaf or flap with spring tension. The screw is driven by a special helical gear motor. Compaction takes place through the discharge material itself.

The compacting power screw is used as a discharge unit for dust and fibers in combination with separators such as cyclones, dust separators and filter systems. By compacting the material, the unit permits the removal of fine dust and material with short fibers without letting those substances contaminate the surrounding area.

Application in various industrial sectors:
- Paper, cellulose & paper converting
- Hygienic
- Non-woven
- Automotive
- Fiberglass & carbon fiber
- Bulk goods/powder technology
- Chemical

ADVANTAGES
- Dust-free material discharge with compaction ratio of about 5:1
- Robust industrial model
- Continuous operation
- No pressure fluxion in the system
- For adhesive dust provided with integrated stirring unit
- Large material flow capacity

Trim & Fiber Compactor

The particle-loaded air stream enters at the top of the housing through the tangential inlet, flows through the perforated cone, and is discharged through the outlet. The collected material and waste is deposited inside the perforated cone. From there the material is continuously scraped off and compacted by an auger screw.

The pre-compacted material is pressed against a diaphragm at the bottom outlet opening. This continuous process compacts the material and pushes the diaphragm open. The material is discharged into a suitable container or bag. This continuous operation of the units prevents fluctuations in the extraction system.

The separating and compacting units are perfectly suitable for paper residue, edge strips, foil shreds and different shredded plastics. The solid particles are extracted from the production process by suction, separated from the air stream, and deposited in bags, containers or silos.

Application in various industrial sectors:
- Corrugated
- Non-woven
- Woodworking
- Paper & cellulose
- Recycling
- Fiberglass
- Hygienic
- Automotive

ADVANTAGES
- Separator and compactor in one unit
- Continuous operation
- High material and air flow capacity
- Sturdy construction
- Pressure-free discharge
- No fluctuations in the extraction system
- Energy-efficient (optimum time-relay control)
**Cyclone Separator**

The dust-laden air stream enters the separator tangentially at the top, creating a rotating airflow (vortex). By centrifugal force, the dust particles are moved along the outside wall where they are separated and, in a spiral motion, deposited to final collection point.

In the lower part of the housing, the air stream is forced to reverse and flows upwards through the vortex.

The cyclone separators are particularly suitable for the separation of dust with low content of fibers and granules.

**ADVANTAGES**

- High separation efficiency
- Easy separation of fine and finest particles
- Continuous operation
- Robust design
- Can be operated with positive or negative pressure
- Reduction of pressure loss through a pressure regain piece in the top portion
- Exact adaptation to any air volume due to an extensive variety of available sizes

**Cyclones with return air plenum** combine high separation rates with low pressure loss through the use of a pressure regain piece in the head piece. These types of cyclones are used for larger air volumes, and combined with a spiral inlet, can manage very high material loads with the best separation rates.

The cyclone separators operate within an air volume range of 60 CFM to 11,770 CFM (100 to 20,000 m³/h). Their robust design and protective interior lining ensure a long service life and the highest degree of reliability, safety and dependability.

Application in various industrial sectors:

- Corrugated
- Non-woven
- Woodworking
- Paper & cellulose
- Recycling
- Fiberglass
- Hygienic
- Automotive

**Low Profile Separator LPS**

Setting the industry standard for high-efficiency air separation, the ERS Low Profile Separators have some of the highest efficiency percentages in the industry with no minimum input air flow requirements.

**ADVANTAGES**

- No minimum input air flow requirements
- No airlock required
- Can be balanced with a return air fan
- Reduces maintenance costs
- Eliminates down pressure in baler chute

Application in various industrial sectors:

- Paper, cellulose & paper converting
- Packaging
- Non-woven
- Woodworking

**No minimum input air flow required!**
The drawing shows a typical CCM™ Filter installation for vacuum air transfer or scrap system make up air, specifically designed for the paper converting industries.

### DIMENSIONAL DIAGRAM Continuous Cleaning Modular (CCM™) Filter

<table>
<thead>
<tr>
<th>Type without Pre-Filter Disc</th>
<th>Filter Section</th>
<th>A inch (mm)</th>
<th>B inch (mm)</th>
<th>C inch (mm)</th>
<th>Diam. E inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM-4 20/30</td>
<td>2</td>
<td>87” (2,200 mm)</td>
<td>82.5” (2,000 mm)</td>
<td>119” (3,030 mm)</td>
<td>Ø 6.3” (160 mm)</td>
</tr>
<tr>
<td>CCM-4 20/45</td>
<td>3</td>
<td>87” (2,200 mm)</td>
<td>82.5” (2,000 mm)</td>
<td>176” (4,480 mm)</td>
<td>Ø 6.3” (160 mm)</td>
</tr>
<tr>
<td>CCM-4 20/60</td>
<td>4</td>
<td>87” (2,200 mm)</td>
<td>82.5” (2,000 mm)</td>
<td>233” (5,930 mm)</td>
<td>Ø 6.3” (160 mm)</td>
</tr>
<tr>
<td>CCM-4 25/45</td>
<td>3</td>
<td>108” (2,740 mm)</td>
<td>104” (2,640 mm)</td>
<td>176” (4,480 mm)</td>
<td>Ø 6.3” (160 mm)</td>
</tr>
<tr>
<td>CCM-4 25/60</td>
<td>4</td>
<td>108” (2,740 mm)</td>
<td>104” (2,640 mm)</td>
<td>233” (5,930 mm)</td>
<td>Ø 6.3” (160 mm)</td>
</tr>
<tr>
<td>CCM-4 25/75</td>
<td>5</td>
<td>108” (2,740 mm)</td>
<td>104” (2,640 mm)</td>
<td>291” (7,380 mm)</td>
<td>Ø 6.3” (160 mm)</td>
</tr>
</tbody>
</table>

### DIMENSIONAL DIAGRAM Continuous Cleaning Modular (CCM™+) Filter

<table>
<thead>
<tr>
<th>Type without Pre-Filter Disc</th>
<th>Filter Section</th>
<th>A inch (mm)</th>
<th>B inch (mm)</th>
<th>C inch (mm)</th>
<th>Diam. E inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM-4 20/30</td>
<td>2</td>
<td>87” (2,200 mm)</td>
<td>82.5” (2,000 mm)</td>
<td>119” (3,030 mm)</td>
<td>Aperture Ø 10” (254 mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Circle Ø 11.25” (286 mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6xM6 (sealed hole)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ø 6.3” (160 mm)</td>
</tr>
<tr>
<td>CCM-4 20/45</td>
<td>3</td>
<td>87” (2,200 mm)</td>
<td>82.5” (2,000 mm)</td>
<td>196” (4,980 mm)</td>
<td>Aperture Ø 12.5” (318 mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Circle Ø 14” (356 mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8xM6 (sealed hole)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ø 6.3” (160 mm)</td>
</tr>
</tbody>
</table>
To view the ERS CONTINUOUS CLEANING MODULAR FILTER in an animated film, please visit our website or scan this code with your smartphone.
We do more than sell recycling equipment. We design and install the most innovative, turnkey recycling systems in the industry.

Formed in 2006, our founding partners and key employees each have 25+ years of experience across a broad spectrum of recycling industries. Whether you need an individual piece of equipment or a complex system, we can help. With ongoing service and spare parts, we keep your systems operating to control costs, maximizing revenue, and keeping you steps ahead of your competition.

We learn about your objectives, your budget, and your timeline. Whether you need a single piece of equipment or a complex system, we have the services to take you from start to finish. We submit a written proposal with all equipment specifications and terms clearly outlined. On acceptance, we use our expertise and in-house engineering to create an integrated system layout, drawings and installation instructions.

Our team will coordinate with you to oversee a smooth installation and start-up of your system.

The highest quality systems and solutions, with superior customer support.