Infrastructure Construction Industry

ASPHALT ADDITIVE FROM RECYCLED CELLULOSE FIBER
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ASPHALT ADDITIVE FROM RECYCLED CELLULOSE FIBER

Makron Fibretec lines are designed to produce asphalt additives from recycled cellulose fiber.

Makron offers the technology to produce asphalt additives from recycled cellulose fiber. Our technology makes your production more efficient and delivers a high-quality product. We offer you complete Makron Fibretec production lines according to your volume needs and deliver them with intelligent automation included. We cover every aspect of the project from engineering design to commissioning and staff training. Recycled cellulose fiber is also an ecological and safe material for thermal insulation. Our technology enables you to produce both additives for asphalt and thermal insulation with the same production line. Learn more here.
Makron Fibretec lines are designed to manufacture recycled cellulose fiber additives for asphalt. Our production lines come with all the essential features, including equipment to remove dust and impurities.

We delivered our first recycled cellulose fiber production lines over 30 years ago. And today, we continue to deliver and develop some of the world's most effective asphalt additive manufacturing lines.
EXAMPLES

Here is an excellent example of our asphalt additive production lines.

ASPHALT ADDITIVE PRODUCTION LINE

The Makron Fibretec line was developed to produce asphalt additives, as well as thermal insulation from recycled cellulose. This production line is optimized for 1,000 kg/hour capacity. The cellulose fiber can be processed further into pellets directly from the Makron Fibretec line or packed into various sizes of packages as loose fiber.
FEATURES

COMPLETE PRODUCTION LINES
All stages of production can be covered with one complete line. The machines are designed to function perfectly together.

TWO PRODUCTS FROM ONE LINE
With Makron technology you can actually use one line to manufacture both cellulose fiber additives for asphalt and cellulose fiber thermal insulation.
PROCESS STAGES

Our production lines take care of all the stages in the asphalt additive manufacturing process.

RAW MATERIAL FEEDING

In the first step of asphalt additive production the raw material, cardboard or paper, is fed onto the pre-handling table from where it is moved to the conveyor. The material is fed evenly to the line and the impurities are separated. On small capacity lines, the impurities are separated manually. On large capacity lines, the raw material has already been purified and baled, and the cardboard or paper bales are fed onto the conveyor.

WHAT MAKRON DOES

The Makron pre-handling table is designed for manual sorting of loose paper or cardboard. For larger capacities, Makron delivers automated feeding systems for cardboard or paper bales.

MATERIAL CRUSHING

The raw material is conveyed to the hammer mill or shredder where it is crushed into small pieces for refining. This stage includes a fiber surge bin for intermediate storage. From here the paper pieces are sorted for further processing.

WHAT MAKRON DOES

The Makron Hammer Mill is designed especially for crushing loose paper. Makron also delivers paper shredders for loose or baled paper material.

TECHNICAL DATA

<table>
<thead>
<tr>
<th></th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammer Mill:</td>
<td>45–75 kW</td>
</tr>
<tr>
<td>Shredder:</td>
<td>90 kW</td>
</tr>
</tbody>
</table>
TRASH SEPARATION
After crushing, the material is moved to trash separation where all remaining metal and heavy particles are separated.

WHAT MAKRON DOES
After pre-crushing, metal and heavy particles are removed using a magnet and Makron’s heavy particle separator.

DUST FILTERING
Dust filters remove all the dust from the process. Air and dust is extracted at all stages of the process through the filters.

WHAT MAKRON DOES
Makron delivers a whole dust filtering system designed especially for the process. Our filter units operate continuously and they can be cleaned without stopping production. The system automatically cleans itself by closing one section of the filter tubes at a time.

TECHNICAL DATA
Air flow 8,000–13,500 m³/h
Dimensions approx. 5,000 x 3,500 x 7,000 mm

REFINING
The raw material is refined into fibers by the refiner and then stored in the fiber surge bin.

WHAT MAKRON DOES
We offer the Makron Fine Crusher Hammer Mill for refining.
MATERIAL CONVEYING

Our complete production lines include belt conveyors for paper raw material. After pre-crushing, the material is conveyed by pipe. Our pipelines also include blowers and cyclones.

WHAT MAKRON DOES

Makron delivers special belt conveyors for paper raw material and final product packages. Makron also delivers pipes, cyclones, blowers and air filters for the conveyor system.

GRANULATION

The fiber material can be mixed, for example with bitumen, and granulated. This is an optional stage in the process.

WHAT MAKRON DOES

Makron delivers the granulating line for further asphalt additive processing.
## PACKING
The finished material, recycled cellulose fiber additive for asphalt, can be packed using different packaging technologies depending on your production capacity and needs. Makron's packaging process packs the fiber into paper or plastic bags, and presses all the air out to make the package compact and ready to transport.

### WHAT MAKRON DOES
Makron’s packing systems include surge bins and packing machines, and the cellulose fiber can be packed in either paper or plastic bags. The plastic packages can be made from either plastic bags or plastic foils.

### TECHNICAL DATA

<table>
<thead>
<tr>
<th></th>
<th>Automated packing into plastic bags</th>
<th>Manual packing into plastic or paper sacks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>approx. 2-3 bags/minute</td>
<td>Package dimensions approx. 100 x 50 x 25 cm</td>
</tr>
<tr>
<td><strong>Bag size</strong></td>
<td>approx. 800 x 400 x 325 mm</td>
<td>Diameter of the inlet 130 mm</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>approx. 150 kg/m³</td>
<td>Density approx. 120 kg/m³</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>13–15 kg (adjustable)</td>
<td>Weight 13–15 kg</td>
</tr>
</tbody>
</table>
# TECHNICAL DATA

Technical data of the Makron Fibretec asphalt additive production line

<table>
<thead>
<tr>
<th></th>
<th>Makron Fibretec Asphalt Additive Production Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective capacity</td>
<td>1,000 kg/h</td>
</tr>
<tr>
<td>Required space</td>
<td>~450 m² + ~300 m² for storing the raw material and final product</td>
</tr>
<tr>
<td>Free height of the hall</td>
<td>At least 7 m</td>
</tr>
<tr>
<td>Power supply</td>
<td>400/230 V, 50 Hz; ~544 kW + granulation equipment 115 kW</td>
</tr>
<tr>
<td>Compressed air supply</td>
<td>0.6–0.7 MPa, ~600 l/min</td>
</tr>
<tr>
<td>Water supply</td>
<td>0.2–0.6 MPa (only with optional extinguishing system)</td>
</tr>
<tr>
<td>Operators</td>
<td>4–5 persons per shift</td>
</tr>
<tr>
<td>Auxiliary equipment</td>
<td>1 forklift truck, 1–2 hand pallet trucks</td>
</tr>
</tbody>
</table>
CONTACT

Contact our experts for more information.

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Makron is a complete industry service house for project-based companies. We work as a subcontractor for machinery companies and, in addition, we have strong technologies for the wooden building construction industry. Our core business is providing engineering, production and industrial automation expertise as a single partner. With headquarters in Hollola, Finland, and factories in Finland and Estonia, Makron has a revenue of 25 MEUR, and we employ over 200 professionals. We complete your business with our solid experience. MAKRON – A Promise to Complete.