

# Filtration Group application example – Air filtration

## Filtration Group dust collector in the production of nonwovens



Factory Equipment

### Initial situation

Nonwovens made of polyethylene are produced using a special evaporation spunbonding process. In this process PE-HD is mixed with a solvent and heated to high temperatures under high pressure in an autoclave. The solution mixture is then passed through nozzles under extremely precise control and is expanded in an explosive reaction. The solvent evaporates in the process and a three-dimensional network of thin, fibrillated filaments in strand form is deposited by a special depositing device onto a depositing belt, which also serves as a conveyor belt. This produces an isotropic fibre arrangement, which has a positive effect on the tear resistance. A minimum length of the fibrillated filaments of approx. 120 mm also contributes to increased strength values. The fibre layers are consolidated by heat and pressure using calenders of various types. This is followed by further treatments such as an antistatic finish or a printing pre-treatment by corona radiation.

### Solution statement

- Filtration Group has chosen a generously designed round filter unit for this application, which achieves a low filter surface load, so that the very light dust can sediment after cleaning and fall off the filter elements
- 24 conical filter elements with a reduced filter surface and thus larger distances between pleats in combination with the rotary air nozzles used contribute to a perfect cleaning result



### Customer value

- Reliable separation of particles and fibres by the filter material equipped with a PTFE membrane which significantly reduces the contamination of downstream components. This reduces the number of plant shutdowns due to necessary cleaning, thus extending production time and quantity.
- Low maintenance filter system ensures trouble-free continuous operation
- By using the FG Quick-Lock system, Filtration Group enables the customer to change elements quickly and without tools, thus significantly reducing the duration of system downtimes for maintenance. Insertable gratings allow a more comfortable exchange of the filter elements.



### Challenge

Our customer is a global innovation leader in technology-based materials, ingredients and solutions that are changing industry and everyday life. During the production of nonwovens made of polyethylene, dust and fibers are generated during the manufacturing process, which have to be separated from the existing gas atmosphere. The dusts that occur are very light and fine and have a fibre content, which results in high filtration requirements. As the gas present is extremely explosive in combination with oxygen, it must be ensured that no air is introduced into the system.

#### Special features

The painted filter housing with a diameter of 2.4 meters, a height of approximately 5 meters and a total weight of 6.2 tons is the largest dust collector ever delivered by Filtration Group. Due to the special application, the filter elements can only be cleaned with nitrogen.



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