FILCOM Application example – Factory Equipment

FG dust filter elements in laser cutting process

Factory Equipment

Initial situation

Laser technology has become common practice in numerous industrial manufacturing areas as well as other sectors such as medical technology and research and development. Separating and joining processes, surface processing, markings and modern production methods such as additive manufacturing benefit significantly from the diverse advantages that the use of laser technologies brings. SCHURTER is a leading company as an innovator, producer and supplier of components for the protection of devices, as well as switches and EMC products. The company develops and produces input systems in close collaboration with its customers. In addition, services are offered in the electrical industry in the area of circuit board assembly. The Solutions division accompanies complete solutions from project planning to the production of end products.

Solution statement

- In its application, Schurter GmbH uses cylindrical dust filter elements of type 852 908 with a cellulose/polyester carrier with polypropylene meltblown material (Ti 19/2 material).
- The filter material Ti 19/2 is an optimized composite material for cleanable, pleated dust filter elements. A thin and fine-pored meltblown microfiber layer enables maximum separation with low air resistance.
- Thanks to the innovative use of fold spacing through camming, the filter cartridges have a very long service life. The folds are perfectly distributed by the cams of the filter material and are very easy to clean with very low differential pressures.

Customer value

- The elements capture the system's laser dust from the ambient air. The smaller the resulting laser dust particles are, the longer it takes for them to be completely separated from the ambient air.
- For this reason, it is particularly important to capture and extract the pollutant directly at its source.
- The elements are exposed to air containing dust from the outside and the cleaned air flow emerges upwards. The retained dust is cleaned off by a compressed air pulse using a rotating air nozzle.

Challenge

Our customer SCHURTER GmbH uses star-pleated dust filter elements from Filtration Group Industrial for the extraction on three laser cutting machines, which also generate the vacuum. Depending on the specific laser technology, laser cutting produces airborne pollutants commonly referred to as laser smoke, laser dust, or laser vapor. These emissions are made up of particles of various sizes and compositions and can have a variety of effects on the human organism, production equipment and the quality of the products manufactured.

Approximately 100 m² of various transfer adhesives and decorative front films for input systems are laser cut every day. The dust filter elements used serve as a carrier for the cleaning medium (stone dust) to clean the laser smoke gas before it is released into the environment.

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