

Challenges with glass and carbon nonwovens

At present, when one hears the word nonwovens, protective masks immediately come to mind. However, medical nonwovens are not the only sector that is on the upswing. Technical nonwovens such as carbon and glass nonwovens are becoming increasingly important. With its Qualiscan QMS quality measurement system for determining important parameters such as basis weight, density, and layer thickness, Mahlo supports manufacturers of technical textiles in efficient production. Carbon and glass pose very special challenges - which Mahlo naturally accepts.

Fibreglass

The construction sector in particular is increasingly using products made of fiberglass due to their high strength and resistance. Fiberglass mats as insulation material, for example, have the advantage that they do not rot. But also rotors for wind power plants or preregs belong to the wide range of nonwoven glass products.



Fig. 1: Fiberglass is also used in wind turbines.

Carbon nonwoven

Because of its high strength, carbon is also valued in industry. In addition, the carbon fiber is very light compared to glass or steel. These properties make carbon a popular material for sports equipment, vehicles or aerospace components.



Fig. 2: Carbon: Important material in automotive construction

Challenge for manufacturers

However, in the production of nonwovens made of glass and carbon, some special features must be taken into account. The biggest adversary, but almost unavoidable in a production hall, is dust. Dust particles of glass fiber are very hard and have an abrasive effect on mechanical components. Therefore, it is essential to avoid penetration of the rod into the measuring system. Otherwise, there is a risk of increased wear on the measuring bridge, which significantly reduces the service life and reliability of the measuring system.

Solution: Air purge with fan



Mahlo has an effective solution to this problem: The measuring bridge is completely flushed with air. The overpressure that is created in this way prevents dust from penetrating. Since in this case a lot of air volume but only little pressure is required, a fan is best suited for air supply.

Challenge with Carbon Fibres

Carbon fiber dust does not affect the mechanics, but is problematic for electronic components due to its high conductivity. Dust deposits can quickly cause a short circuit, which destroys the affected component and thus causes the system to fail.

Solution: Encapsulation of the electronics

Whereas the problem used to be solved as with glass, Mahlo now relies on a new concept: encapsulation of the electronics in the measuring bridge. All sensitive components are housed in a dust-tight enclosure in the side section of the measuring bridge and are thus protected. Thus, the producer does not need any purge air for the measuring bridge and thus no fan is required. The measuring sensor is purged with compressed air, which has previously been appropriately cleaned of oil and water.



Fig. 3: Overpressure encapsulation

Further Questions? Ask our expert!



Fig. 4: Matthias Wulbeck

Matthias Wulbeck, our product manager for QCS will be happy to help you. Just talk to us!

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