

MultiMode®: from lab to production of biobased textile and technical filament yarns



Given the anticipated rapid increase in demand for textile fibres in the years to come, it is crucial to implement transformative sustainable consumption and production models both in the garment and technical textile industries. In order to make out of biobased fibres a real competitor to established polymers like polyester or nylon, both securing feedstocks and a further development of spinning technologies will be essential. DIENES supports its customers in their work developing cutting-edge fibre products from the first laboratory tests to the modular construction of their production lines. Innovative products like precursor yarns for carbon fibres made from renewable raw materials are produced and improved with DIENES spinning systems.

A reliable development of textile and technical filament yarns demands an efficient, systematic and, in part, self-optimising experimental working system, which must be intelligent in gathering data from the process and flexible in enabling the rearrangement of the process. DIENES's approach to meet such demands is called MultiMode®. In a MultiMode® plant, each process step is represented by a module which can be individually adapted to customer-specific requirements and has its own decentralised control. Thus, DIENES production lines consist of several intelligent modular units which can be easily exchanged and rearranged at any time with a reduced programming effort. Moreover, all production parameters can be permanently visualised and recorded, enabling a complete traceability of the process. The MultiMode® concept has been validated according to GMP guidelines and GAMP standards in the manufacturing of medical products. Thus, MultiMode® is a qualified solution for customers from the pharmaceutical and biomedical sector.

MultiMode® Explorer is the tool for control and visualisation of a MultiMode® line. A completely new graphical user interface was presented by DIENES at the ITMA in Milano. MultiMode® Explorer allows for instance a real-time evaluation of all sensors, recipe management, long-term-monitoring of operation parameters and remote access to the plant for service and operation. Relevant data can be monitored and controlled to improve the production process with the highest degree of precision.