PI Ceramic: New Production Line for Multilayer Tape Technology Halves Time Needed for Sample Production and Increases Flexibility in the Manufacturing of Piezoceramics

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PI Ceramic, the German specialist for piezoceramic components, has introduced a new, fully automated production line for multilayer technology to accelerate sample production for development projects. The system’s flexible design makes small-scale series economically viable****. This is particularly significant for high-tech markets such as Japan, where high-precision p****iezoceramic components are vital for cutting-edge applications in robotics, automotive sensors, and medical devices.

Seven-Digit Investment Pays Off for Customers

Tape technology plays a central role in the manufacture of piezoceramic components, in particular PICMA multilayer bending actuators and PICMA multilayer linear actuators. In addition to the existing large-scale production line, PI Ceramic has therefore invested around one million euros in the development and installation of a new production line for multilayer components composed of single tapes laminated together. Going forward, customers around the world will benefit from a flexible system design that facilitates economically viable production of small-scale series and prototypes and, furthermore, just about halves the time needed for the manufacture of samples for system development to a few weeks. In addition to this, the production line provides end-to-end traceability of the intermediate products. This is indispensable when the products are used in medical technology, for example.

Three manufacturing stations seamlessly mesh with each other

The system consists of three stations: The sheet cutter cuts the molded ceramic tapes precisely to the individual tape sizes required. The screen printer prints the individual tapes with inner electrode paste using the screenprinting method and then dried along a drying line. The third unit, the stacker, separates the ceramic tape from its carrier tape before stacking and pressing it. A standardized cartridge system ensures efficient handling of the tapes between the stations.



Caption: View of a cleanroom at PI Ceramic with a production line for multilayer tape technology. Photo: PI Ceramic

Strategic Investment

“With the combination of the existing line for large-scale series production and the new one for small-scale series, PI Ceramic has the world’s most modern and flexible portfolio of machines for the production of piezoceramic multilayer actuators," says Dr. Patrick Pertsch, Managing Director of PI Ceramic, emphasizing the importance of the investment. He goes on to say that this technology forms the basis for reinforcing and expanding the position of the PI Group as global market leader for piezo-based nanopositioning technology and strengthens PI Ceramic’s standing as reliable quality supplier of customized piezoceramic multilayer components.

The investment is a further milestone in PI Ceramic’s growth strategy, which had already necessitated the construction of a new building at the PI Ceramic site in the German city of Lederhose, providing additional floorspace totaling 7,500 square meters in fall 2022.

PI Ceramic in Brief

Redefining the limits of what can be measured and moved, together with our customers: As a worldwide partner with over thirty years of expertise, PI Ceramic develops and manufactures piezoceramic components and subsystems for applications in the areas of medical technology, industrial ultrasonic sensors, and precision dosing. At the site in Lederhose (Germany), 100 out of currently more than 400 employees are engineers. PI Ceramic is part of the PI Group, the innovation and market leader in high-precision positioning technology.

In Japan, PI Ceramic is represented by the parent company PI Group which has its own local production facility for precision granite with the company Precision Granite W Co. Ltd. (PGW), headquartered in the Gifu Prefecture.