

Laser technology, processes and applications

Beat JÄGGI, Philippe CHAVANNE, Sabato Lasertec SA

Daniel SCHWAB, GFH GmbH

Ultrashort-pulsed (USP) lasers enable high-precision micromachining with minimal thermal impact and outstanding surface quality on a wide range of materials like metals, semiconductors and polymers. In orthopedic and medical device manufacturing, these properties are particularly relevant for functional surface structuring, micro-cutting and the manufacturing of delicate components.

Typical processes include micro-cutting and drilling, surface structuring (ablation) and laser turning, as well as complex processes combining multiple laser processes. However, increasing part complexity and regulatory requirements demand robust machining strategies, reliable process monitoring and scalable production concepts.

This presentation demonstrates how close collaboration between a machine manufacturer and a process development specialist enables the transfer of USP processes into stable industrial production. Together with GFH GmbH, customized high-precision USP laser machines are developed and optimized for specific medical applications. Sabato Lasertec SA contributes over 20 years of expertise in process development and serial manufacturing, ensuring efficient process validation and smooth technology transfer into production environments.

Selected case studies from medical applications illustrate how tailored USP laser solutions improve precision, surface functionality and productivity while meeting the stringent quality standards of medical technology.

beat.jaeggi@sabato.ch

+41 (0)32 343 60 30

www.sabatolasertec.ch