

Advanced software solutions for laser micromachining: Enabling different approaches for hole drilling & cutting

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Laser machining solutions are in high demand across various industries. However, defining an efficient processing algorithm remains a challenge, as it requires precise coordination of the laser, positioning tools, and algorithm management.

An easy-to-use solution that reduces algorithm preparation time and enables users to better utilize their equipment's capabilities will be outlined. The approach can be summarised as "Complex, not complicated" - sophisticated laser processes are handled while keeping the user interface straightforward. The software presented combines the laser, stages, and scanner performance, offering pulse-by-pulse control even for complex structures and shapes. Additionally, optimized sorting algorithms enhance trajectory planning, improving process efficiency. Various combined stage and scanner controls are provided and supported, improving marking-on-the-fly functionality. Furthermore, the processing of 3D structures using a 5-axis positioning system is possible with the DMC solution.

In this presentation, we will introduce approaches that facilitate advanced cutting and drilling techniques, widely applied in industries such as medical, automotive, and aerospace.