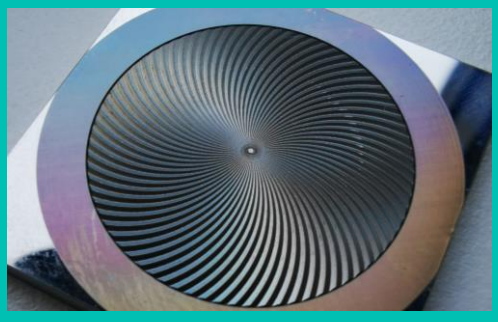
Laser machining

TECprocess

TECprocess presents the first automatic tool changer for USP laser machining

NEXELAN is a compact, polyvalent and evolutive laser platform designed and manufactured by TECprocess for applications such as cutting, engraving, texturing and surface treatment. It integrates our patented RAYVOLVER, an automatic tool changer that combines several focusing optics, metrology tools and other devices in a single setup. Discover our game-changing solution and step into the future of large-scale, accessible and affordable integration of ultra-short pulse (USP) laser systems.



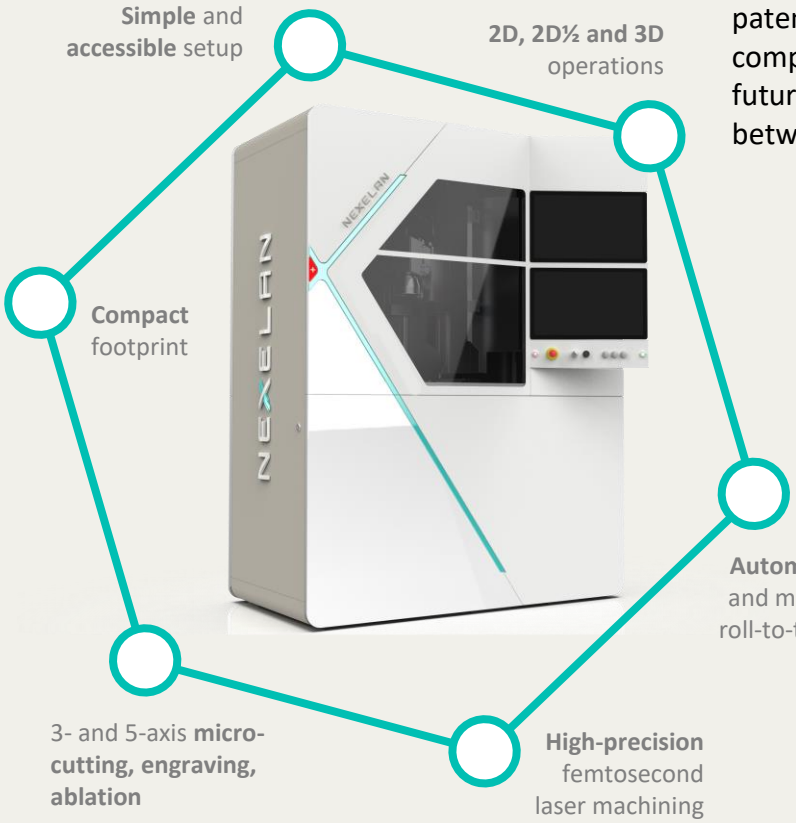
Content

NEXELAN RAYVOLVER

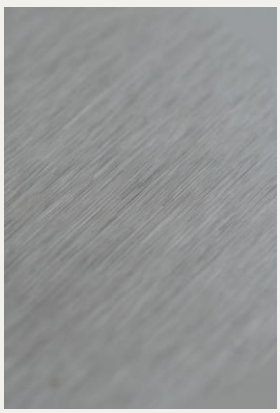
Versatility at its best

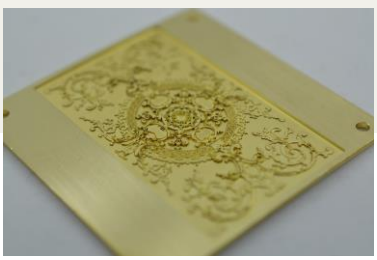
Have you ever imagined the possibility to change tool in a laser machine? TECprocess has taken up the challenge and presents its new NEXELAN pico- and femtosecond laser platform, a compact and versatile machine for 2D and 3D engraving, ablation and cutting.

The solution incorporates an innovative automatic tool changer that allows up to six laser machining and measurement operations to be combined on a single machine. Your production equipment can thus evolve and adapt over time to the changing needs of your customers, offering exclusive added value for all types of geometries and all types of materials and providing a unique competitive advantage to your specific configuration. The patented RAYVOLVER is the reliable and compact way to boost the productivity of your future laser equipment without compromising between quality and complexity.



Automation for single parts and multiple trays handling, roll-to-toll, bar/tube feeding





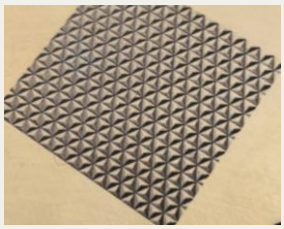
NEXELAN RAYVOLVER

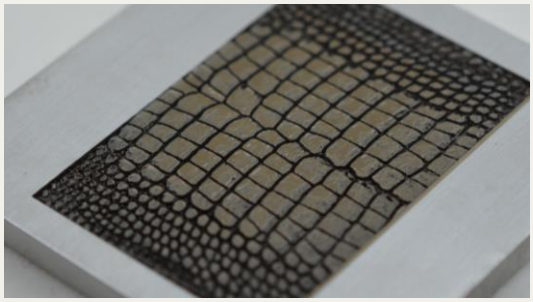
Performance boost

Typical applications of ultra-short pulse laser technology include engraving and cutting for watchmaking and jewelry parts, texturing of micro-molds for miniature optical systems, engraving and cutting of medical devices, including black-marking applications, micro-machining by laser turning, etc.

The up-coming challenge to address increasingly complex demands is combining laser technology, flexible optical setup and metrology on a single platform in order to achieve improved parts of unprecedented quality in the shortest possible time.

Technical Specifications		
Machine dimensions L / W / H	mm	1’650 x 850 x 2’100
Machine weight	kg	1’800
Table size	mm	150 x 210
Strokes X / Y / Z	mm	500 x 400 x 400
Laser sources	-	Multiples sources: nanoseconds, pico/femtoseconds
Wavelengths	nm	IR 1030 / GR 515 / Hybrid 1030+515
Scanheads	-	scanCUBE / excelliSCAN (with or without focus shifter)
Optics	-	Depending on RAYVOLVER configuration



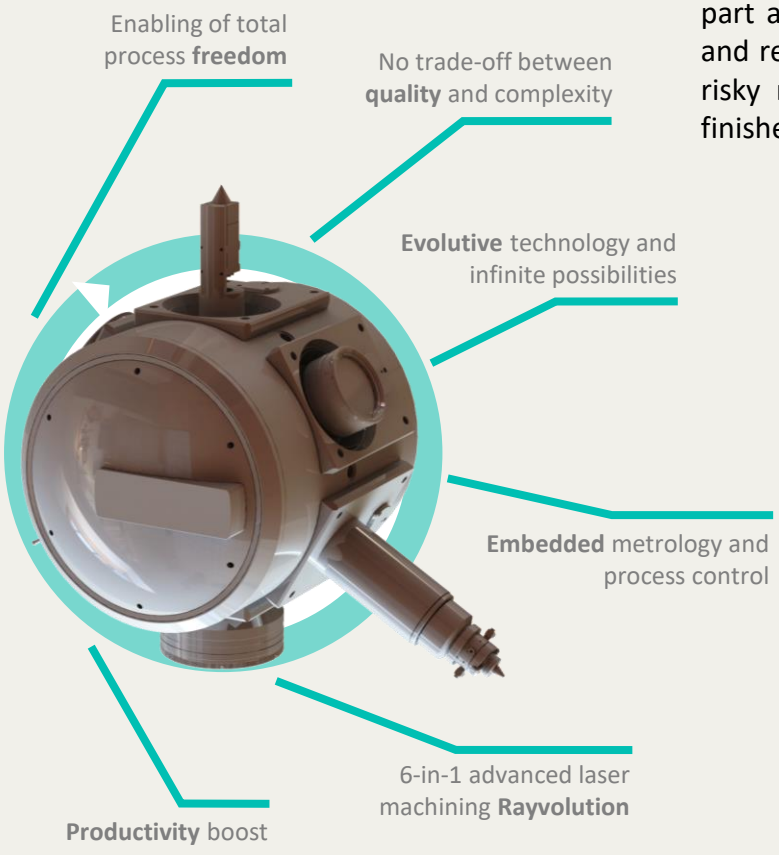


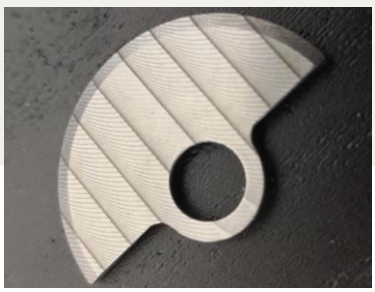
NEXELAN RAYVOLVER

Game-Changing Innovation

The proposed solution is a novel system enabling the combination of several focusing optics, metrology tools and other devices in a single process setup. The patented RAYVOLVER is an automatic tool changer based on a high-repeatability reference clamping mechanism.

It meets both the ambition for optical versatility and the need for integrated metrology by allowing optimization without human intervention and paves the way towards efficient use of the full capabilities of machines equipped with USP laser sources.
This triggers phenomenal productivity benefits by combining it all on the same machine without compromising operation simplicity or part accuracy. Resulting assets like timesaving and reliability are unique by simply eliminating risky repositioning and recalibration of semi-finished and potentially expensive parts.





NEXELAN RAYVOLVER

Quality without compromise

The core component for the laser beam deflection is a scan head. SCANLAB´s compact SCANcube or the high-end excelliSCAN were chosen for process accuracy and dynamic performance reasons. The deflection of the laser beam occurs at the scan mirrors, which are quickly and precisely positioned by galvo motors. They come with a broad choice of coatings, including multi-wavelength coatings to adapt to various laser wavelengths. For 2D applications typically an F-Theta telecentric lens is used at the scan system's exit to focus the laser beam.

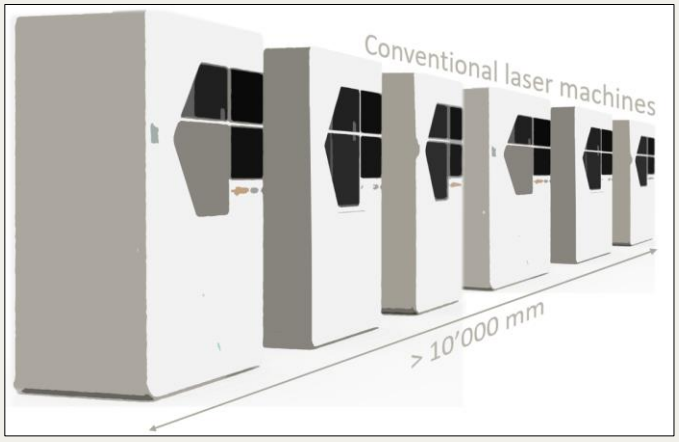
For the optimal execution of different processing tasks, it can be necessary to change between differing focal lengths or laser coatings of the F-Theta lenses. Traditionally this lens change needs to be done manually by a trained operator. Thanks to RAYVOLVER, optimizing this workflow with an automated solution leads to additional productivity and to more flexibility.

NEXELAN RAYVOLVER

6-in-1 machine Solution

The RAYVOLVER, in combination with the outstanding performance of SCANLAB scan-heads, unlocks the full potential of high-quality USP laser processing and allows product designers and production specialists to go beyond the boundaries set by conventional solutions.

The implicit evolutivity of the process, starting from a simple engraving operation up to the full combination of probe-sensing, vision, ablation, cutting, texturing, finishing, quality control, handling, etc. enables total process control over the whole machine life-cycle. Discover the game-changing solution NEXELAN, the future for large-scale, accessible and affordable integration of USP laser systems.



Reshape
your technology

Start your
rayvolution

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