



Scientific Visual

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PRESS RELEASE

Scientific Visual unveils inspection technology for sapphire carrots used in watch industry

LAUSANNE, SWITZERLAND – March 3, 2020. Scientific Visual unveils the technology for automated quality control in sapphire carrots grown by Verneuil method.

This fully automated process allows the scanning of carrot-shaped sapphire crystals 22-62 mm in diameter, and accurately map its defects, regardless of type, size, and location, before costly processing into watch covers.

Just like a medical CAT or MRI scan, the process can see inside the unpolished sapphire and locate the defects using tomography techniques.

The patented process developed by Scientific Visual is performed quickly and automatically without the need for pre-processing the carrots. Each carrot section is then classified according to predefined quality thresholds, thereby eliminating the parts with too many defects according to the requirements of each watch brand. This device increases yield and reduces production costs of watch cover production.

The objective statistical data accumulated from scanning, enables producers to get early warning of process drift in the Verneuil furnace. For the first time, Verneuil sapphire growers can get their process under control, deliver consistent products and reduce costs.

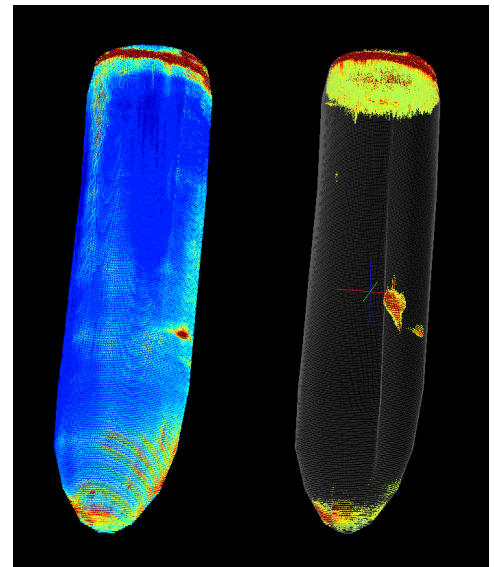


Image: Defect pattern in raw Verneuil-grown carrot \varnothing 34mm, length 220mm. Skin visualization (left) and inside view (right) show the carrot in the same orientation. Colour stands for sapphire defect density: from deep blue (non-defective material) to deep red (highest defectiveness) © Scientific Visual, 2020

Verneuil growth process, also called *flame fusion*, is the method of manufacturing synthetic gemstones. It involves melting a finely powdered ingredients using an oxygen-hydrogen flame, and crystallising the melted droplets into a carrot-like crystal. The process is in wide use for producing initial material for sapphire watch covers.

Scientific Visual <https://scientificvisual.ch/> is a privately held company located in Lausanne, Switzerland. It develops automated inspection systems

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for quality control in industrial crystals (sapphire, ruby, CaF₂, SiC, GaN etc) for watch, semiconductor and smartphone production.

Scientific Visual improves crystal processing by providing objective means to reveal internal defects in crystals at earlier stages than available in the past. This enables production teams to establish objective, observer-independent and traceable quality control that reduces production cost and streamlines the supply chain.

Apart of monetary saving, the technology contributes to development of a more environmentally friendly "Swiss Made" sapphire. It saves energy and reduces part of the annual emission of 200,000 tonnes of CO₂ linked to the production of 20 million sapphire crystals.