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IQ Structures Extends Range of Interactive Features for Banknotes

Whilst travel restrictions, due to the pandemic, have prevented many face-to-face sales activities in the holography industry, many companies have continued their research programmes behind closed doors. One such company is IQ Structures, which has continued to innovate its range of eye-catching optically variable features.

IQ Structures is actually the largest of three subsidiaries of the IQS Group in the Czech Republic, which specialises in lithography techniques, 3D nano-printing and industrial replication of nanostructured materials.

IQS Nanoptiqs focuses on micro- and nano-structured optics for applications in LED lighting, sensors, and automotive lighting. IQS Nano develops lithographic and 3D nano printing technologies for use in 3D hierarchical architecture metamaterials and medical applications, as well as for anti-counterfeiting and micro/nanostructured optics.

IQ Structures, meanwhile, develops and produces security features for banknotes and high security documents which combine nano-scale precision with advanced aesthetics to create optical elements that are technically complex but easy to view and authenticate.

Sophisticated algorithms are used for creating the 3D surfaces and the company's technologies allow it to record and build structures with a precision of several nanometres. The mastering technologies include electron beam lithography, UV lithography, laser interferometry, ion etching and 3D nano printing.

The optical features can be implemented in any foil construction and are suitable for paper, polymer and hybrid banknotes as stripes, patches or threads. The graphic themes and elements in the banknote's design can be used to create coordinated visually attractive, diffractive patterns as well as strong overt colourless (achromatic) features that on their own, or combined with its diffractive features, allow easy and unambiguous visual authentication.

Covert as well as forensic elements can also be incorporated.

Of those achromatic features, IQ Structures now offers four distinct products that it describes as colourless and interactive.

White ID

First is White ID – the effect of which is a non-chromatic, bas-relief with high resolution details. It does not change its appearance when tilted or rotated and appears to have a depth of approximately 1mm. It is easily authenticated by its unique visual and 3D appearance – even though it is flat to the human touch.

Using the 3D scanning approach or modelling, any person or object can be reproduced.

Veritech Adds PicoMaster 100 to Its Infrastructure

Shriram Veritech Solutions was founded in 1992 and is a part of the Shriram Group of companies, one of the largest industrial houses in India. Over the years, Shriram Veritech has built a range of products over the years including holograms, labels and stamping foils to decorate and protect products. And now the company has added a PicoMaster 100 Laser Writer from 4PICO Litho to its list of equipment to further strengthen its creative capabilities.

4PICO Litho has been a specialist in laser lithography equipment since 2004, starting with the development and production of mastering equipment for the optical media industry. Based on experience gained in this industry, 4PICO Litho developed the PicoMaster range to fill the gap between costly e-beam systems and low-resolution mask aligners (see HN May 2021). To date, the experts in the company's multidisciplinary team have installed over 70 mastering systems worldwide.

The PicoMaster 100 is a direct laser writer for up to 4" x 4" substrates. Its table-top system has a versatile UV laser direct writer with precision components and its tools are characterised by providing the highest degree of freedom to create microstructures as small as 300nm in photosensitive layers.

The compact maskless lithography system requires minimum cleanroom space. The massive base frame supported by isolation mounts filter out ground frequencies to ensure minimum vibrations in the system.