

# TwinPerf

dynamic protection for banknotes



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Fully integrated into the note and hence invisible



The first motif becomes clearly visible when the note is held against a light source



The second motif appears when the note is tilted backwards



Note held in vertical position



Note held in tilted position

## High-precision micro-perforation provides distinctive security

A good and high-quality security feature for effective forgery protection is characterised by the fact that it is difficult to counterfeit and quick and easy to identify – for the layman as well as for experts. TwinPerf fulfils this requirement in a unique way. The combination of micro-perforations with different geometries generates distinctive flip images. This makes it possible to spot whether banknotes are genuine simply with the naked eye.

## Innovative OVD facilitating secure and quick checks

TwinPerf is based upon the Microperf element which is already deployed successfully today by central banks around the world on paper and polymer banknotes. In the case of TwinPerf, however, the circular openings are combined with elliptical forms. Depending upon the particular angle at which the banknote is seen, two different patterns become visible to the viewer. TwinPerf consequently works as an immaterial optically variable device: while the perforations remain invisible to the naked eye, the actual motif becomes clearly apparent when held against a light source. By simply tilting the banknote backwards from the vertical, the second image becomes visible.

## Perfect counterfeit protection thanks to special laser process

TwinPerf offers perfect protection against counterfeiting attempts. The micro-perforation makes it fundamentally impossible to produce a xerographic copy. A specially developed laser process is used to create these perforations, which are only 90 microns wide. Openings created by mechanical processes are at least 4 times larger. In addition, neither mechanical methods nor conventional laser technologies are capable of generating the degree of precision required for the tilt effect achieved with round and elliptical forms.

## Unmatched price - performance ratio with unbeatable ecological benefits

The outstanding feature of TwinPerf is the fact that it can be comprehensively integrated into the banknote at minimum cost impact. Laser technology is used to remove material from the substrate. This then facilitates a residue-free recycling process. TwinPerf does not involve the use of any consumable. This results in significant cost advantages, both for small print runs as well as and in particular for large print runs. TwinPerf consequently offers a high degree of security, combined with optimum ecological and economic factors.

## Permanent functionality for tough day-to-day use

TwinPerf is long-lasting, and absolutely resistant to external factors. The internal mechanical strength of the substrate is not undermined in any way by the micro-perforation. This means the security element is also able to withstand the highest stress of day-to-day usage. At the same time, the security effect is sustained throughout the banknote's entire lifecycle.

## Flexible application on all materials and banknote designs

From a design perspective, TwinPerf is also easy to integrate. A 16 x 45 point matrix offers a wide scope when it comes to designing motifs. It is inherent to the nature of the process that TwinPerf can also be applied to existing banknote designs as well as to all known substrates such as paper, polymer and composite substrates. As a result, security upgrades can now be realised with ease at any time. TwinPerf can be combined with offset printing, screen printing, intaglio printing and other technologies (holograms, metallised films). This presents a practically unlimited range of options for effective protection against banknote forgery.

All perforations are fully visible



Only elliptical perforations are visible

All perforations are fully visible



Only elliptical perforations are visible



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**By choosing Orell Füssli Security Printing Ltd you benefit in numerous ways**

Decades of experience and competence in printing banknotes

Comprehensive support and advice, from the first draft to delivery of the banknotes

Cutting-edge production technology and highly skilled personnel secure consistently high quality

A choice of paper or polymer substrate – we supply whichever you prefer

All banknotes produced by Orell Füssli Security Printing Ltd are printed in Switzerland

Very personalised customer care is our philosophy

Orell Füssli's history began in Zurich in 1519. The company first produced paper securities in 1827. In 1911, Orell Füssli began working with the Swiss National Bank on the design and production of banknotes. This marked the beginning of the company's long experience as a printer devoted to quality and security. Orell Füssli Security Printing Ltd is a member of the Orell Füssli Group, which is based in Zurich and listed on the SWX Swiss Exchange stock market.