

Business Trip – India

Best in Class

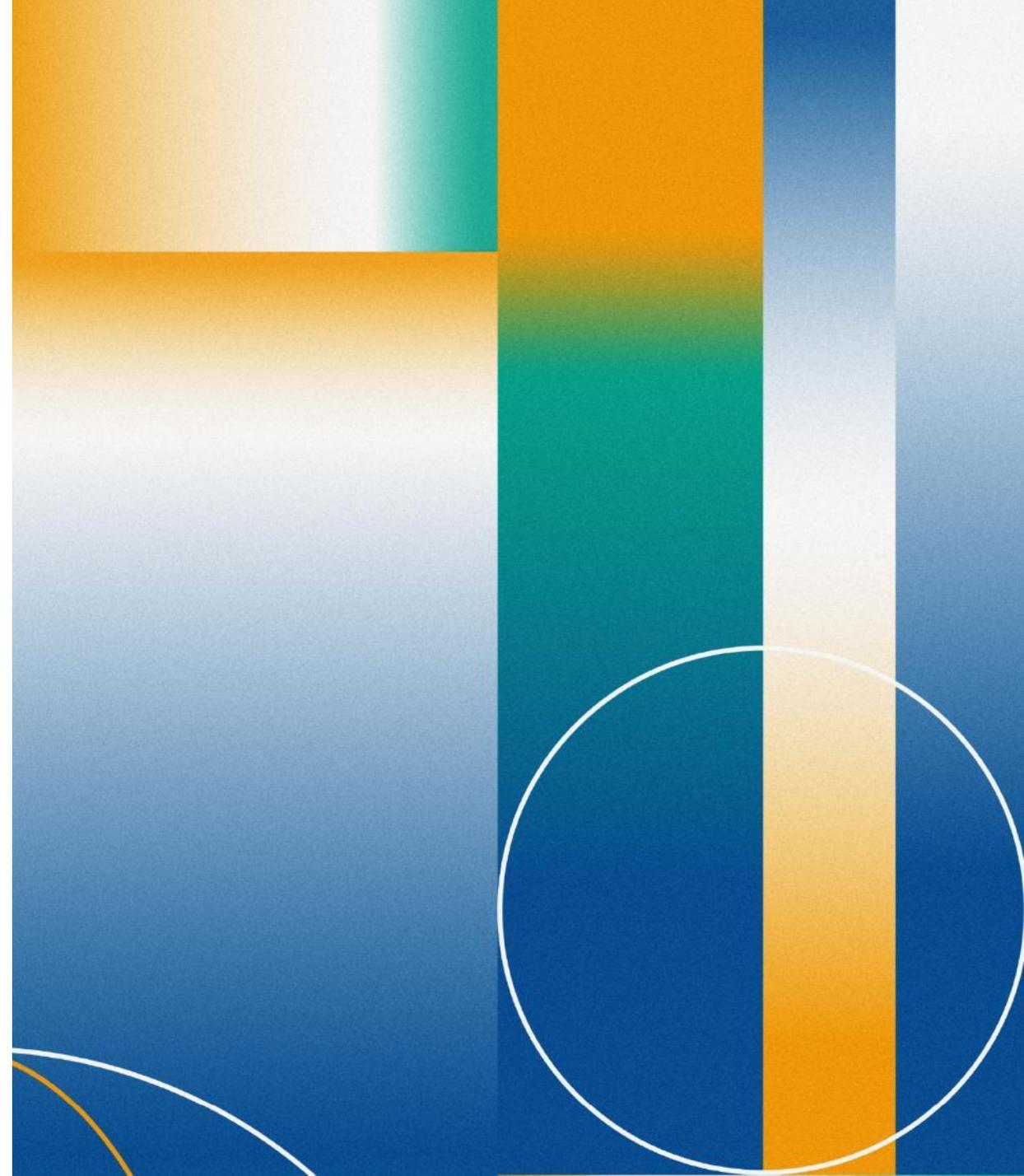
Operational Excellence

Business trip India:

Process workflow of the new Securi X technology from “drop international trading ag” for high precision plate making at Orell Füssli, Switzerland

The consulting & printing offering of Switzerland’s banknote & security printer Orell Füssli Ltd.

Julian Becher, Head of Design & Prepress
December, 2025



01

Orell Füssli: Our Story – Vision - Mission

02

Our service offering focused on advisory services - Operational Excellence

→ methodology

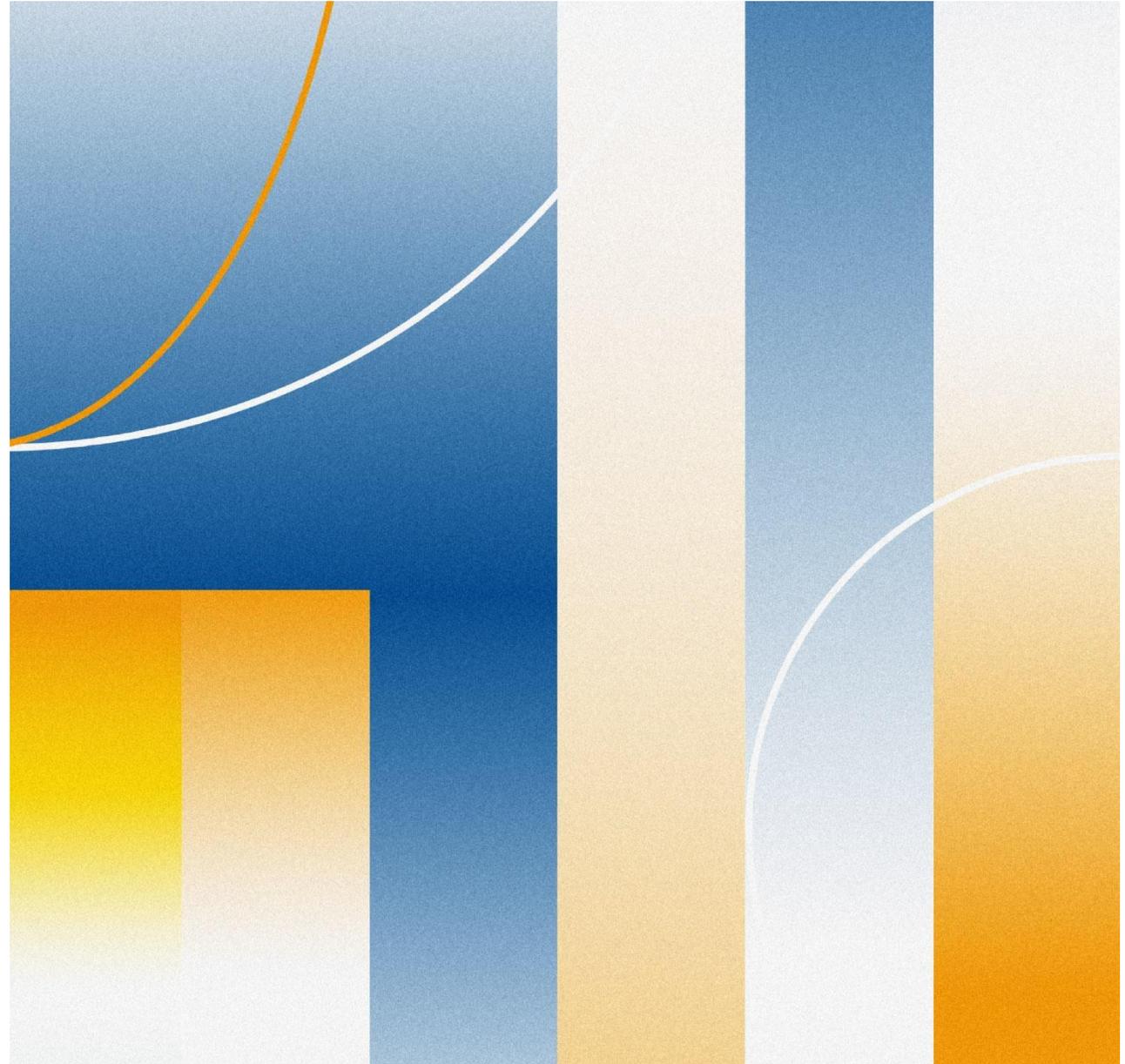
03

Experience/ Best practice solution @ OFS

→ Our Expertise – Securi X Technology

04

Plant Tour @ customer followed by Discussions





01 Orell Füssli: Our Story

Security Printing

orell füssli

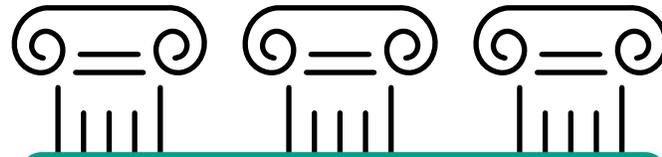
orell füssli
security printing

ZEISER
CREATING IDENTITY

procivis
AN ORELL FÜSSLI COMPANY

OrellFüssli
Thalia AG

orell füssli
verlag



SECURITY



EDUCATION

Topline growth

Digitalization

Profitability

Advancing the art of security since 1519



Founding year
1519



600
employees



Security
technology and products



33%
shares held by SNB



Listed on the
SIX Stock Exchange



Identification documents
and systems

Vision & Mission



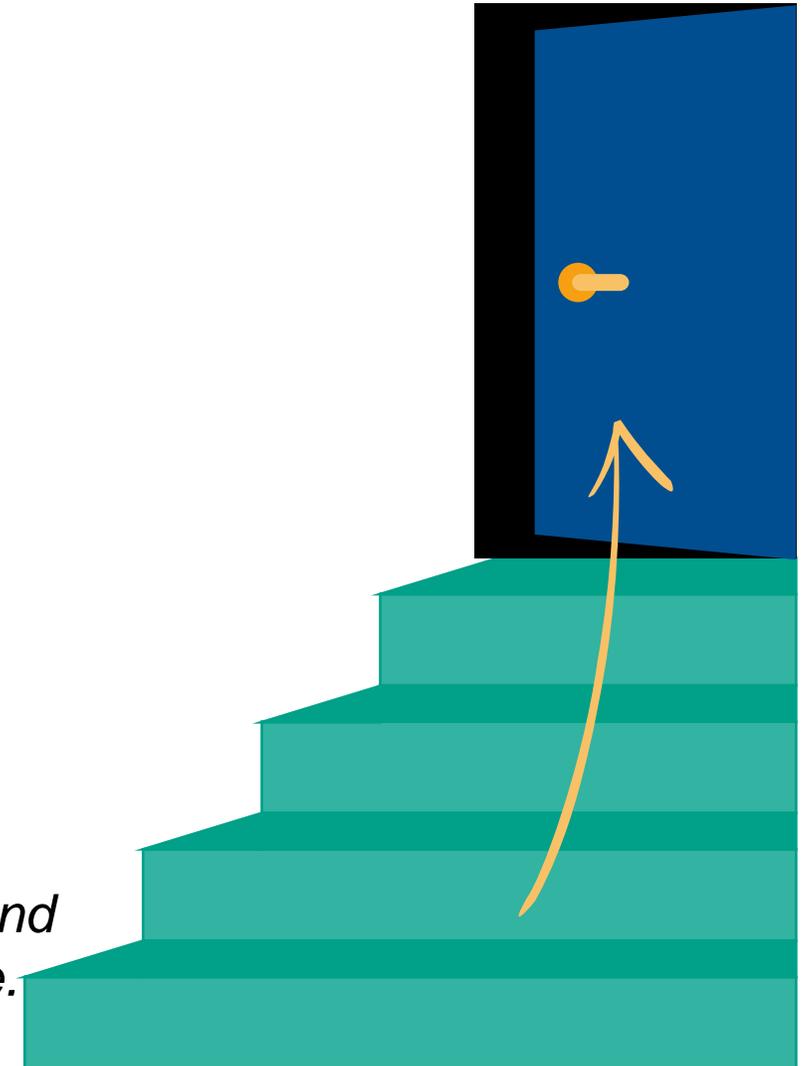
VISION

Defining the future of security printing.

MISSION

*We guide you through every step
of security document creation.*

*Together, we generate cutting-edge banknotes and
security documents that are admired worldwide.*





02 Independent Advisory Services:
Our Expertise - methodology

Operational Excellence Best Practice and Continuous Improvement Programme Methodology Overview



Challenge

The customer required OFS to provide an independent external review of existing banknote print works processes, benchmarked against OFS practices and procedures.



Approach

OFS performed a systematic review of each production stage of this Asian printer. In order to achieve these deliverables, OFS identified a number of prerequisites for successful project delivery within the given scope.



Deliverables/ outcome

Systematic review of each production stage of this Asian printer, recommendations to further enhance output quality and spoil management

Our service offering focused on advisory services



Operational Excellence

- Productivity optimization, quality benchmarking & staff training
- Trustee Services: Supplier Management
- Projection Planning: Plant Automation
- On-site benchmarking review



Sustainability

- Currency Life Cycle Assessment (LCA)
- New plate making technologies to reduce chemistry and longer life time



Independent Project Management

- New Series
- Commemoratives
- Currency upgrades
- New substrate print and design parameters

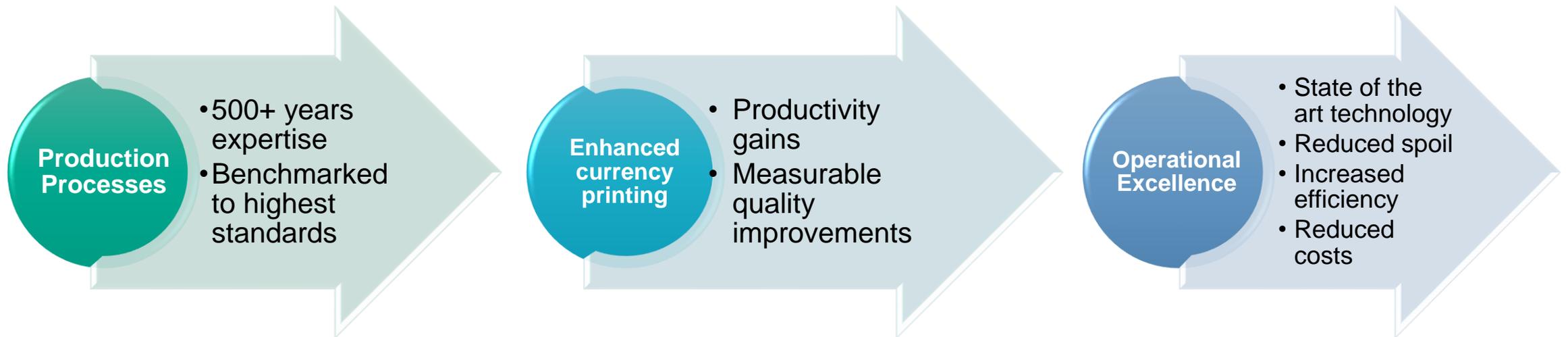


Technology transfer of the latest best practice experience

- State of the art equipment
- Latest pre-press technologies
- Assistance with printing of banknotes, highly secure documents and identification systems

Operational excellence Best Practice and Continuous Improvement Programme Methodology Overview

Deliverable: production optimization of a banknote print works through the implementation of dedicated modules



Operational Excellence

→ A holistic approach towards production optimization



Productivity Optimization and Quality Benchmarking

OFS have developed processes and know-how to enhance currency printing productivity and quality, benchmarked to the highest standards, constituting both a unique body of knowledge as well as a high waterline, generating benefits in the form of reduced spoil, increased banknote quality, higher levels of efficiency and reduced costs.

Future Proofing a Print Works

This know-how is based on OFS' experience in projecting its manufacturing process, technology, safety and automation into the future to adapt to 21st Century demands. OFS can conduct independent audits covering:

- Existing production facilities with recommendations on upgrade programs based on OFS knowledge of latest technologies as installed in Zurich
- Recommendations on process flow efficiency and safety through the installation of automation solutions in selected production areas

Operational Excellence: Case Study

Eight Review Areas and Review Scopes Drawn Up in Production

Organisational context

- Organisational setup at the printer
- Organisational context of the project
- General production goals and challenges
- Evolution of the organisation in the last 5 years to enable the reviewers to understand trends
- Impact of current banknote series compared to previous series

Goals and Incentives

- Target breakdown by job and process
- Incentives
- Qualitative and quantitative KPI's
- Shopfloor management
- Involvement in continuous improvement

Materials & current series impact

- Supplier Management
- Procurement
- Change Management (new materials etc.)
- New technologies or materials in use (current series)

Job preparation and review

- Setup initial print parameters
- Good for printability
- Internal knowledge transfer
- Skill management
- Knowledge management

Production & logistics procedures

- Process analysis
- In-line inspection systems
- Main drivers / processes for spoilage rates

Quality planning

- Quality planning and control process (Incoming materials check, In-process-control, Final inspection)
- Statistical quality assurance Reporting and responsibilities

Deviation management

- Systematic analysis of deviations
- Achieving improvements from deviations
- Catalogue of defects

Finishing

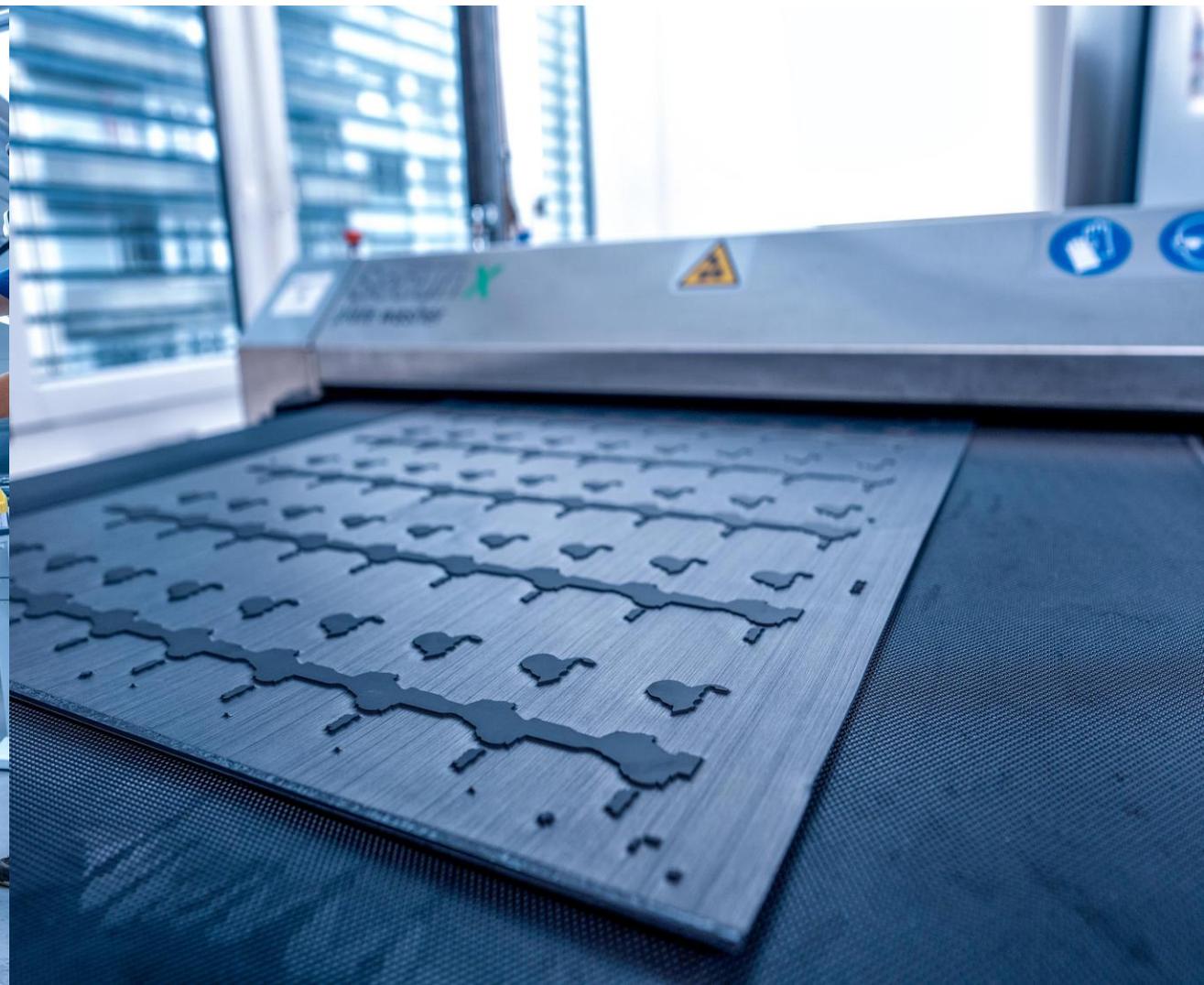
- Job and model preparation
- Model optimization
- Sorting mode policy
- Sampling
- Data analysis and feedback to production
- Serial number handling



03 Operational Excellence - Best Practices

Securi X Technology

Operational Excellence Pillar - Best Practice and Continuous Improvement for Prepress and Security Printing



Background: What is Securi X - Engraver?

Securi X Engraver technology covers the production of printing plates for four printing process steps with a single machine. The Laser technology is used to produce the following plates:

- Offset plates (SuperSimultan & SpeedMaster)
- Stencils (SuperOrlof & MiniOrlof)
- Imprint plates (SuperNumerota & Speedprotect & letterpress)
- Varnish plates (Speedprotect & NotaProtect)



Process steps:

1. Engraving: The raw material is engraved directly in three dimensions using digital technology.
2. Washing out: The engraved plate material is washed out with water and brushes.
3. Disposal: Neither the ablated dust nor the rinse water requires special disposal.

Background: What is Securi X – Simultan ?

Securi X Simultan technology covers the production of printing plates for three printing process steps with a single machine. The specially developed optics enable multiplexable printing plate production. The exposure technology is used for the production of the following printing plates:

- Wet offset plates (SuperSimultan & SpeedMaster)
- Rotary screens (NotaScreen – Spark/ OVMI)
- Flat screens, like for:
(Sakurai & semi-automatic screen-printing machine / proofing)



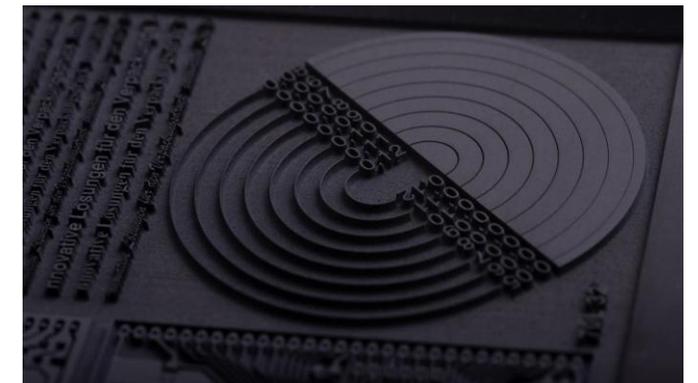
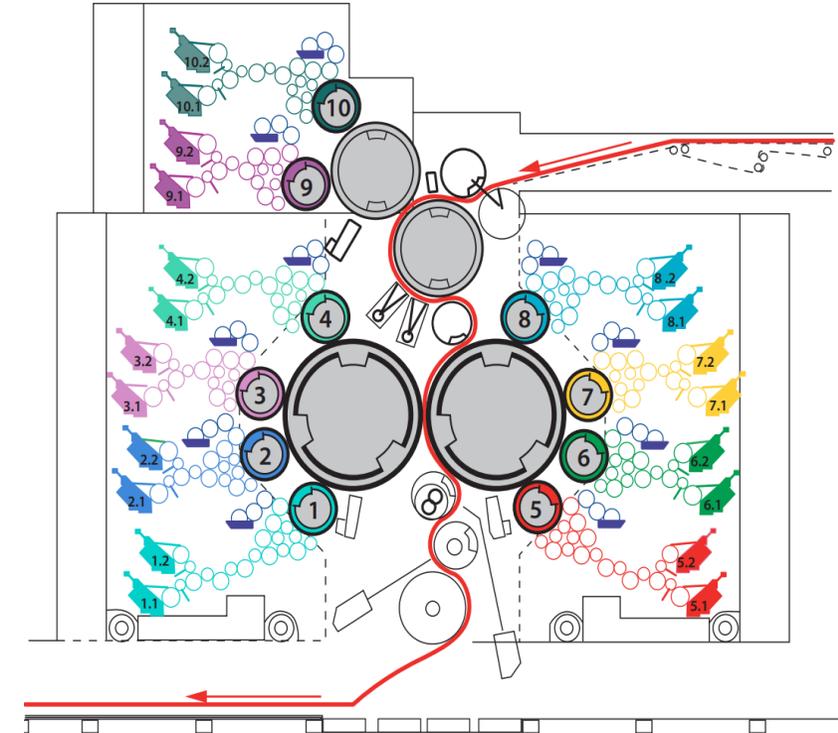
Process steps:

1. Exposure
2. Development

The respective printing plate is exposed to a specific wavelength
After development, the exposed printing plate is washed out with a SecuriX washer

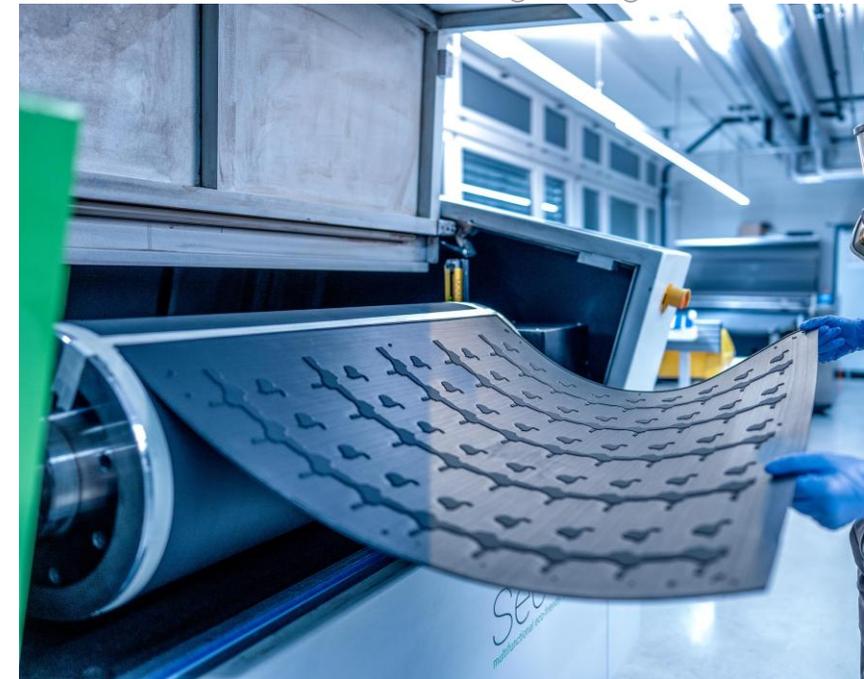
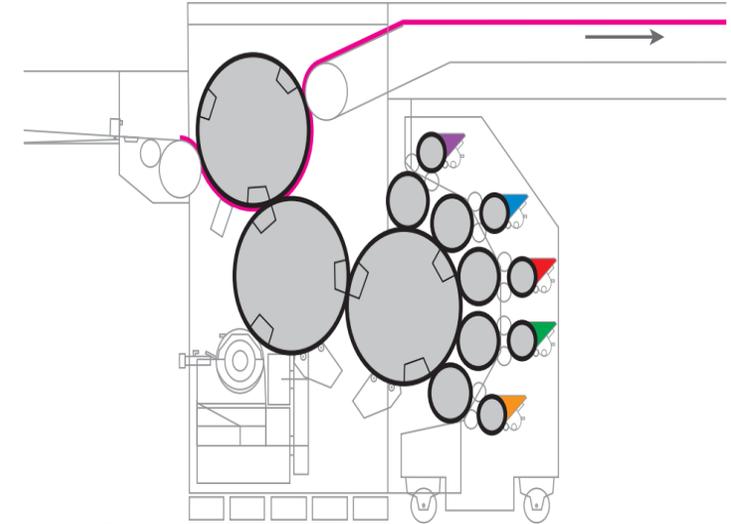
Super Simultan IV (Securi X Engraver)

- There are two different raw materials that differ as follows:
 - NBR (conventional colors – inking unit 1-8)
 - EPDM (UV colors – inking unit 9-10)
- Advantages of Securi X:
 - (+) Dry/wet plate combination, max. flexibility
 - (+) improved rainbow printing
 - (+) Printing behavior of fine line modulations significantly better with security inks including UV-inks
 - (+) life time of plates in production



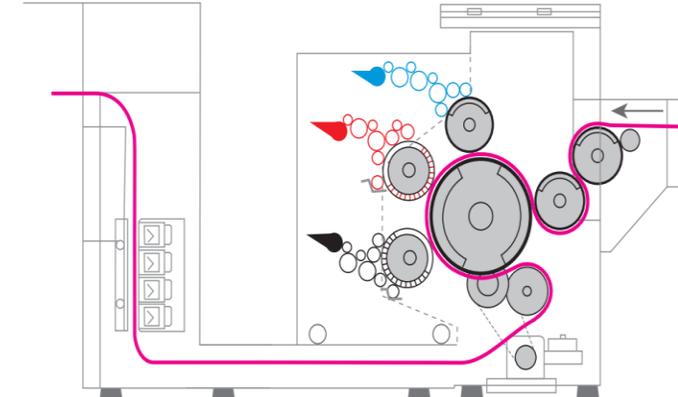
5-Colour Super Orlof Intaglio – Securi X Engraver

- There are two different raw materials that differ as follows:
 - NBR
 - EPDM
- Advantages of Securi X:
 - (+) Improved separation of IRA/IRT color separation due to specific customized laser / plate adaption
 - (+) improved printing quality
 - (+) huge improvement of the life time of plates
 - (+) reduction in ink consumption
 - (+) optimized ink transfer



Super Numerota/ NumeroProtect – Securi X Engraver

- The following raw material is available for this purpose
- EPDM (UV inks)
- Advantages of Securi X:
 - (+) Improved printing behavior, uniform appearance, especially when intaglio is overprinted with a UV patch
 - (+) Printing behavior of fine line modulations
 - (+) Overruns per plate
 - (+) Improved set up times, due to long living time



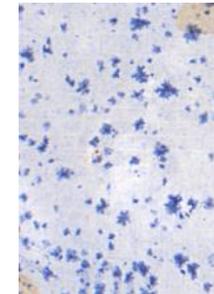
Nota Protect – Securi X Engraver

➤ Es gibt zwei verschiedene Rohmaterialien die sich wie folgt unterscheiden:

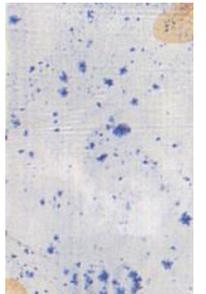
- NBR
- EPDM

➤ Advantages of Securi X:

- (+) No fluctuations in quality, as the material does not exhibit any swelling behavior
- (+) improved living time of the plates
- (+) significantly improved varnish transfer to cover the surface
- (+) Improved ink transfer – significantly improved ink test
- (+) Less ink abrasion in the BPS machine



a. Nyloprint plates



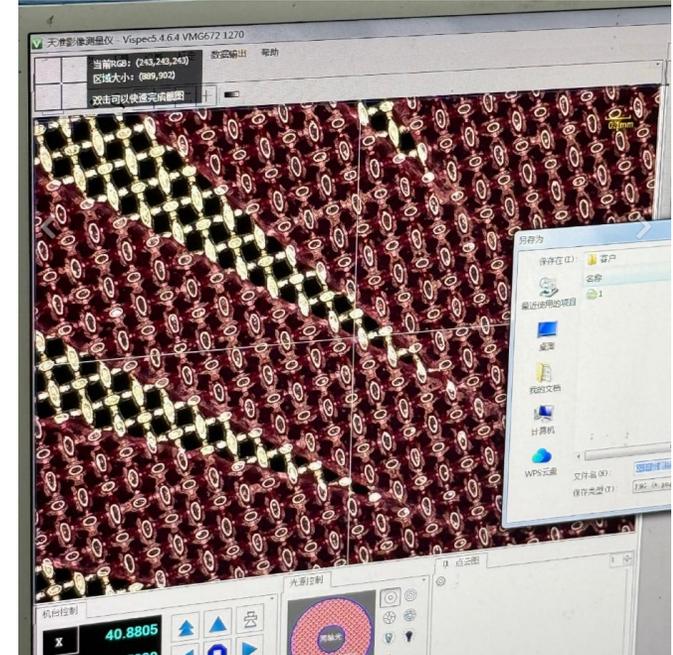
b. Securi X plates

Pelican quality surface sealing test:



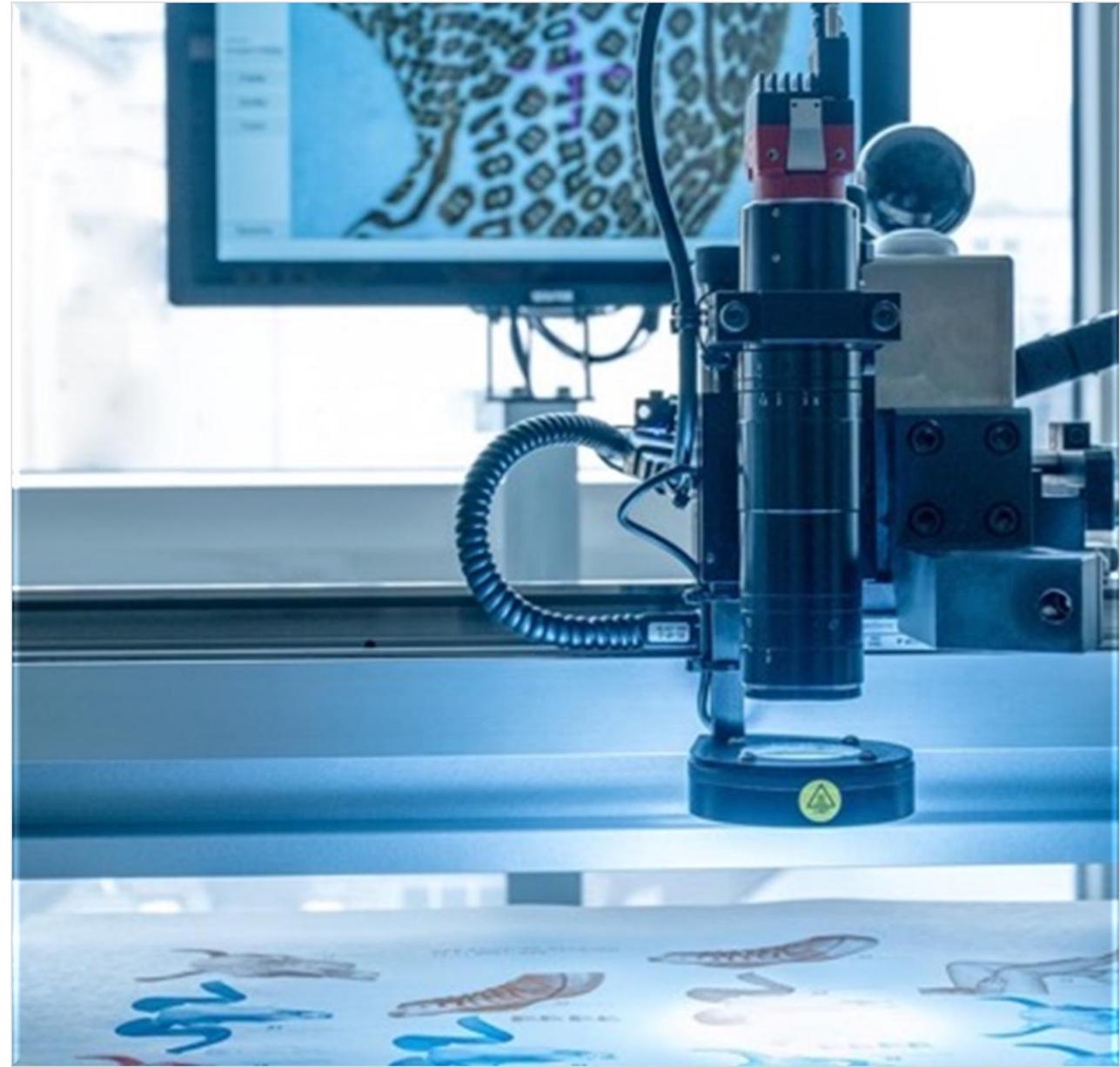
Nota Screen – Sexuri X Simultan

- There are three different print formats that can be combined as follows:
 - A.) Rotary screens & B.) Flat screens
 - Wet-offset plates
- Advantages of Securi X:
 - (+) Digital printing plate production provides a consistent exposure image
 - (+) improvement of the life time
 - (+) optimized edge sharpness
 - (+) simplification and streamlining of the production workflow



Summary + follow up

- OFS is more than just a banknote printer
- We have a unique experience and track record of complex projects
- Customized Support: A team of experts that guides you through every step, considering your unique requirements and goals.
- Review & Calibrate session at Client Print Works
- Should you need any further information, please do not hesitate to contact me
- I look forward to discussing this with you in person





04 Plant Tour followed by Discussions

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