Printing form preparation:

Films using FilmGate software:
EPSON Stylus pro 9800

Meshes:
SEFAR AG: PET 1500 (54-64, 120-34)
NBC MESHTEC: Alpha-L (200-24)
ASADA MESH: BS Stainless Steel (200-19)

Coating:
KISSEL & WOLF GmbH: Azocol Poly-Plus-S

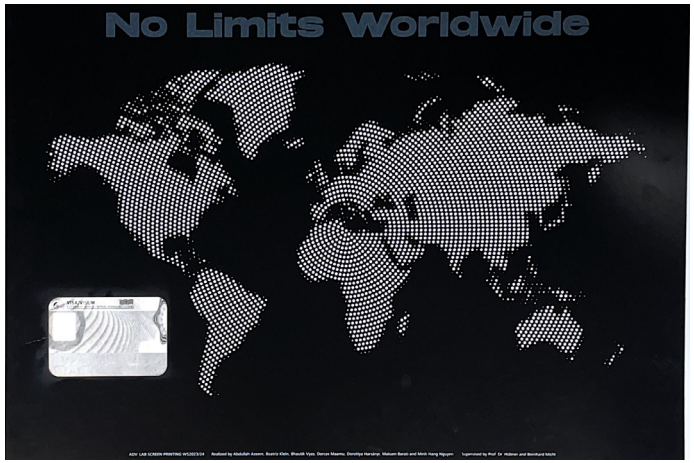
Printing:

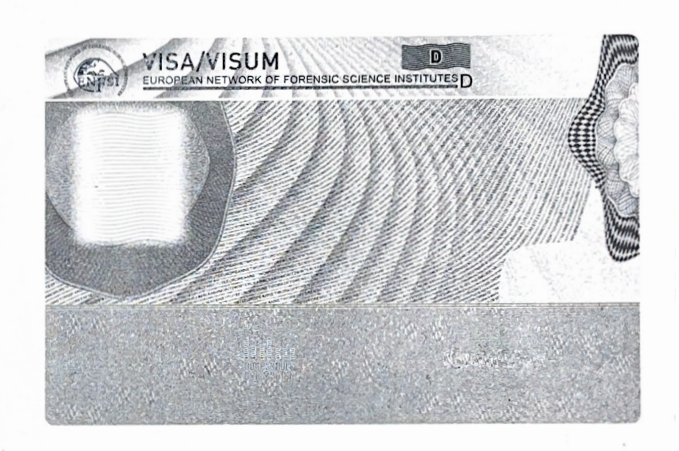
Press:
THIEME: 1010S semi-automatic press

Inks, Optical Brightener:
MARABU GmbH & Co KG

Special Pigment:
MERCK KGaA

HOCHSCHULE
DER MEDIEN





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Fine line security printing

Print Media Technology

Advanced Lab Screen Printing
Hochschule der Medien, Stuttgart
Winter Semester 2023/2024

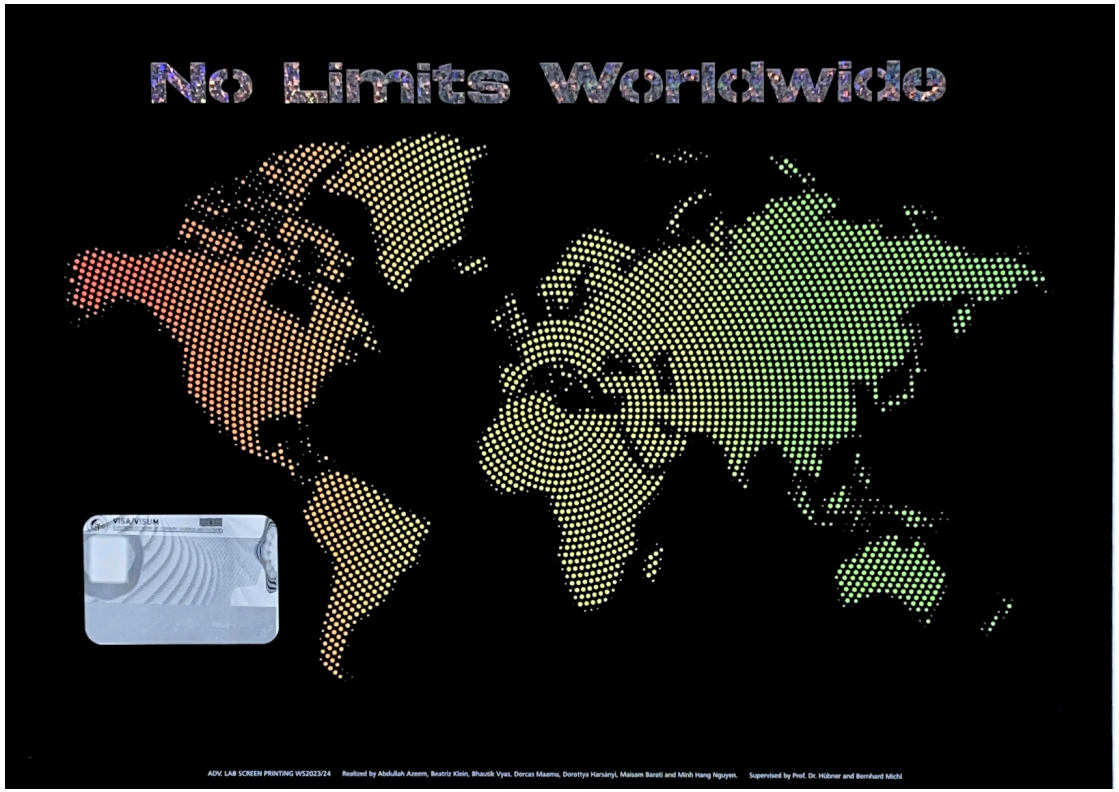
Ink used for map dots:
Dots: MaraGloss GO
Fluorescent Green, Yellow, Orange, Pink
Background: MaraStar SR - Opaque Black

Ink used for heading:
Special colour changing ink made of mixture
Merck Colorstream® Arctic fire + Marabu TPRS

Ink used for bottom text:
MaraStar SR - White

Introduction:
The objective of this advanced laboratory experiment was to assess the efficacy of a stainless steel fine mesh in contrast to a PET mesh when employed for printing fine lines in the context of security printing.

Testing:
This laboratory experiment evaluated various mesh parameters, including mesh count and material composition, with a focus on comparing PET to stainless steel. Our analysis included assessments of roughness, mesh tension, mesh opening and EOM (Emulsion Over Mesh).



World map:
We began our poster creation with the use of different meshes and colours, using a striking opaque black as a background. Using cleverly chosen combinations of white, orange and a soft iris-style colour gradient, we created three distinct variations. To enhance the visual appeal, we finished the process with a UV varnish with optical brighteners, intensifying the colours and adding a luminous touch for a truly sophisticated result.

Realisation:
A comprehensive series of tests was conducted to ascertain the optimal coating and exposure parameters for the printing forms. In this pursuit, both conventional emulsion layers and capillary films were tested for stencil production. Following a thorough examination, it was observed that the capillary film exhibited poor adhesion to the stainless steel substrate. Consequently, the decision was made to exclusively proceed with screens coated with emulsion.

The ink used for the fine lines:
UV curing ink - black UVCD

Fine line print:
The fine lines were not directly printed onto the poster; instead, it was printed on a separate cardboard and subsequently affixed to the main poster from the rear. Two variants of fine lines prints were attached from the backside: one using a stainless steel mesh with a mesh count of 200-19, and the other utilizing a PET mesh with a mesh count of 200-24.

Optical brighteners:
Optical brighteners, or fluorescent whitening agents, are essential additives in screen printing. These compounds absorb ultraviolet light and emit visible light, enhancing the brightness and color vibrancy of printed materials. Incorporated into inks or coatings, they play a pivotal role in achieving visually appealing and vibrant prints.