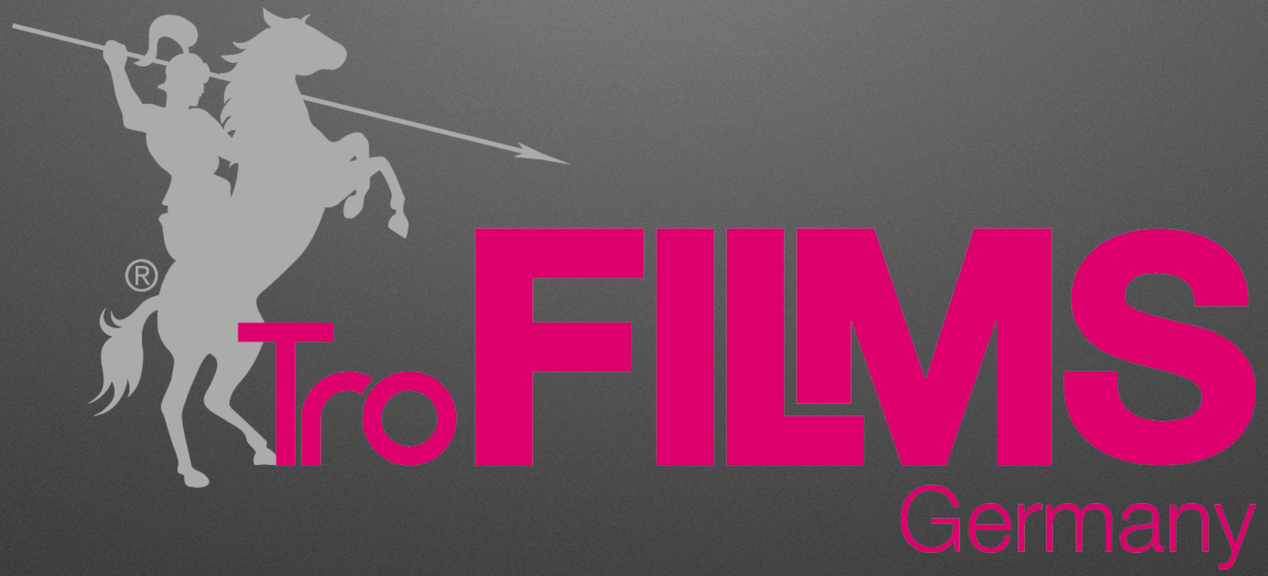
TroFILMS
Germany

Digital finishing - feasibility study
Part 1: Scodix

Feasibility study for digital coating and transfer film finishing of TroFilms' laminating films using Scodix print finishing systems

Introduction

Who is TroFilms?

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- TroFilms GmbH produces lamination films for the graphic industry since 2012
- The company coats PP or PET films in different variants and for different requirements
- Company headquarters and production is located in Georgensgmünd/ Bavaria
- The products of the company are used worldwide

Why did TroFilms initiate this study?

- In the first part of this wide-ranging study, the coatability and metal film transfer on TroFilms films in the Scodix system is investigated.
- Further tests with other systems and additional films will follow in the coming months. This is necessary because the various manufacturers of digital finishing machines work with their own or bought-in coating materials. These sometimes show significant differences. The chemical structure is comparable, but there are differences in rheology, wetting behavior, adhesion behavior, coating height and also in the type of curing (LED or conventional UV).

Objective

- The study is intended to become a real "tool" that users of Scodix technology and later other digital finishing systems will be able to use to adapt any changes to the parameters of the machine configurations and job quantities in advance.
- The goal must be to guarantee the status quo of TroFilms products' postpress processability in a reproducible manner.
- If necessary, our surfaces must be adapted to the conditions and, if necessary, in the case of films that do not work perfectly, a clear reference must be made in our technical data sheets until the respective film surface is adapted.

Explanation of the test

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- It was printed on Profisilk from Igepa in a grammage of 170 g/m². The printing was done in 5/5 colors on a HEIDELBERG Speedmaster XL.
- A silk matt primer produced by WEILBURGER Graphics (coating number 350188) was applied inline.
- Subsequently, film lamination was carried out at 40 m/min on a Paperplast machine with a temperature of 110 °C.
- The double-sided lamination was carried out in a thermal process.
- The digital finishing was realized on a Scodix Ultra 202.

Tested films

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TroPROTECT-X

TroLEATHER

TroTemptationX

TroWood

TroPureLine

TroROUGH

Lamination

- All film types were run with the same machine settings.
- For each type of film, a complete production run was performed, i.e. the second side was laminated immediately after the first.
- No film flags were visible at the tear-off edge, nor was any film curling visible at the gripper.
- Flatness and adhesion are perfect.

Scodix

- Finishing started 24 hours after the lamination process.
- First, the digital film transfer was produced, the silver foil is a high-gloss foil and was manufactured and delivered by Kurz.
- All types of laminating film were processed one after the other with different motifs per type of laminating film.
- Directly afterwards the coating was also applied with different motifs.

Test results

1. TroPURELINE

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TroPureLine

1. TroPURELINE

1. TroPURELINE

- TroPURELINE was produced first.
- The silver foil was applied with the volume control Foil40 (relief varnish). Edge sharpness and gloss are excellent, the surface of the silver is completely closed, the structure of the laminating film is not visible in the silver.
- The coating was also applied with Foil40, the edge sharpness and gloss are also excellent. The coating surfaces are closed with all coating applications, but there is a visible linen structure, which becomes more noticeable with low coating application in the subject. This does not disturb the overall impression.

2. TroWOOD

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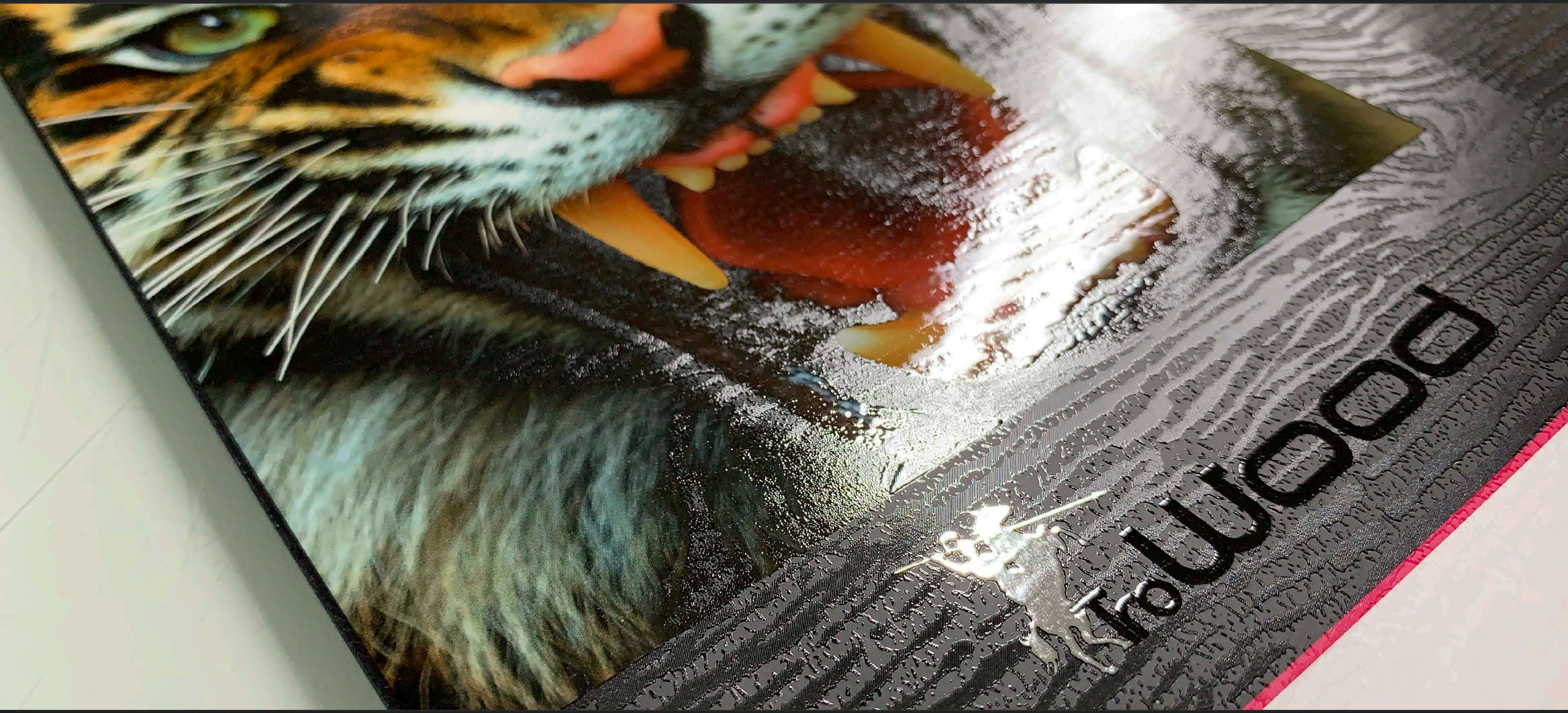
TroWOOD

2. TroWOOD



2. TroWOOD

- TroWOOD was produced second.
- The silver foil was applied with the quantity setting Foil50 (relief varnish). The higher application quantity was chosen to better cover the coarser wood structure. Edge sharpness and gloss are excellent. The surface of the silver is completely closed, the structure of the lamination film is easily visible in the silver.
- Foil50 was also used for coating, the edge sharpness and gloss are also excellent. The coating surfaces are closed in all areas, but there is a clearly visible wood structure, which becomes more conspicuous in the subject with low coating. This does not disturb the overall impression.

3. TroLEATHER

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TroLEATHER

3. TroLEATHER

3. TroLEATHER

- TroLEATHER was manufactured as the third.
- The silver foil was applied with the quantity setting Foil40 (relief varnish). Edge sharpness and gloss are excellent, the surface of the silver is completely closed. The structure of the lamination film is easily visible in the silver.
- The coating was also done with Foil40, the edge sharpness and gloss are also excellent. The coating surfaces are closed in all areas, but there is a slightly visible leather structure, which becomes more conspicuous in the subject with a low coating application. This does not disturb the overall impression.

4. TroROUGH

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TroROUGH

4. TroROUGH

4. TroROUGH

- TroROUGH was manufactured as the fourth.
- The silver foil was applied with the quantity setting Foil40 (relief varnish). Edge sharpness and gloss are excellent, the surface of the silver is completely closed, the structure of the lamination film is easily visible in the silver.
- The coating was also done with Foil40, the edge sharpness and gloss are also excellent. The coating surfaces are closed in all areas, but there is a slightly visible grain structure, which becomes more noticeable in the subject with low coating. This does not disturb the overall impression.
- After coating, the silver showed a slight graying, which is somewhat reminiscent of chafing. This is however a heat reaction.

5. TroPROTECT-X

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TroPROTECT-X

5. TroPROTECT-X

5. TroPROTECT-X

- TroPROTECT-X was produced as the fifth.
- The silver foil was applied with the quantity setting Foil40 (relief varnish). Edge sharpness and gloss are excellent, the surface of the silver is completely closed, the surface is absolutely smooth and excellent.
- The coating was also done with Foil40. The edge sharpness and gloss are also excellent. The coating surfaces are closed in all areas, even the finest differences in the coatings are beautifully represented.
- The silver showed a slight graying after the coating, which reminds a little bit of chafing. This is however a heat reaction.

6. TroTEMPTATION-X

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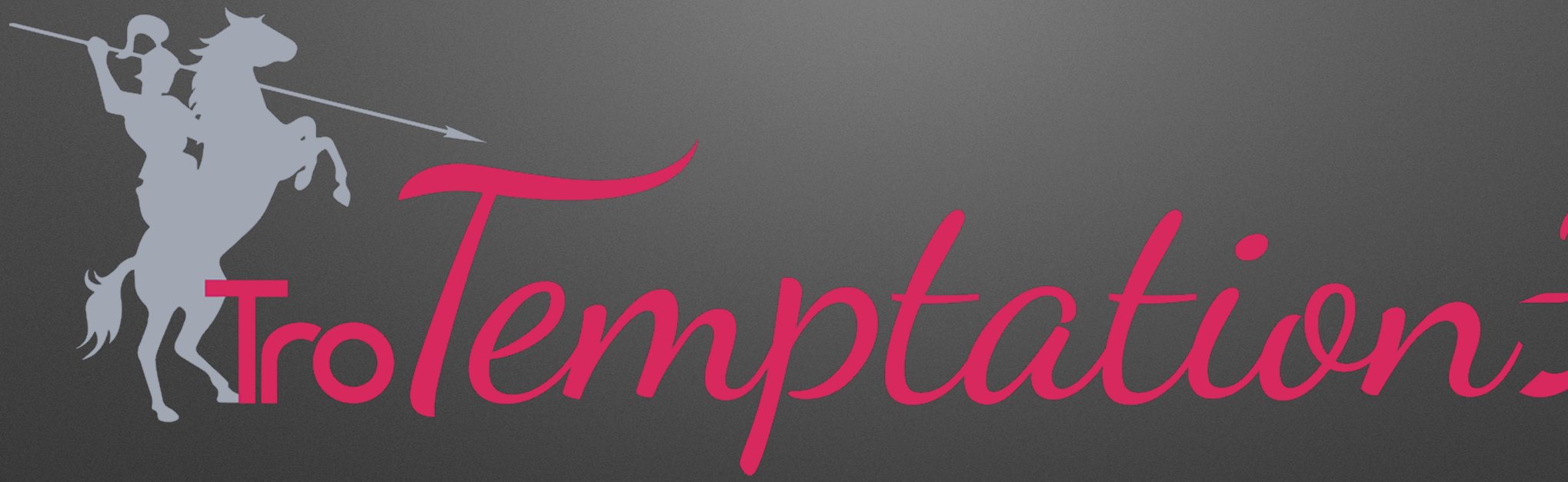

6. TroTEMPTATION-X

6. TroTEMPTATION-X

- TroTEMPTATION-X was manufactured as the sixth.
- The silver foil was applied with the quantity setting Foil40 (relief varnish). Edge sharpness and gloss are excellent, the surface of the silver is completely closed. The surface is absolutely smooth and excellent.
- The coating was also done with Foil40. The edge sharpness and gloss are also excellent. The coating surfaces are closed in all areas, even the finest differences in the coatings are beautifully represented.
- The silver showed a slight graying after the coating, which reminds a little bit of chafing. With fine reliefs even a peeling of the silver was observed. This is a heat reaction.

Physical assessment

Physical assessment:

- On all films, the wetting, gloss and adhesion of the coating is one hundred percent guaranteed.
- The only film that shows a difference in gloss of the coating is the TroROUGH type. However, this is due to the rough surface, so it has a physical reason (topography of the film surface).

Summary

Resümee:

- All tested products are highly compatible with Scodix technology.
- There are neither adhesion nor wetting problems. Even the finest details are reproduced true to data.
- The same machine settings were used throughout. The production speed was comparable to working on unlaminated or normal matt laminated sheets.
- Only the amount of varnish was adjusted to the substrate (the surface of the laminating film) as required.

Resümee:

- However, the time between the first (foil application) and second (coating) machine passes is crucial. If the second step comes too quickly after the first, the previously applied silver will be damaged.
- If the machine (especially the LED unit) becomes too hot after long production cycles, there is also a risk of damaging the silver. However, these are process engineering problems that can also occur with conventionally laminated, coated or uncoated sheets.
- **There are currently no changes or improvements necessary to the tested lamination films from TroFilms!**

Partners and Acknowledgements

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- **Layout and data preparation:**

  Alexander Dort
  Am Altzberg 28
  66540 Neunkirchen-Hangard
  www.alexanderdort.com

  Many thanks dear Alex for the effort,
  the superb layout and the great realization.

Partners and Acknowledgements

- **Print:**

  Druckhaus Waiblingen
  Remstal-Bote GmbH
  Albrecht-Villinger-Straße 10
  71332 Waiblingen
  www.dhw.de

  Dear team of DHW,

  as always perfectly printed
  and everything produced uncomplicated and fast.

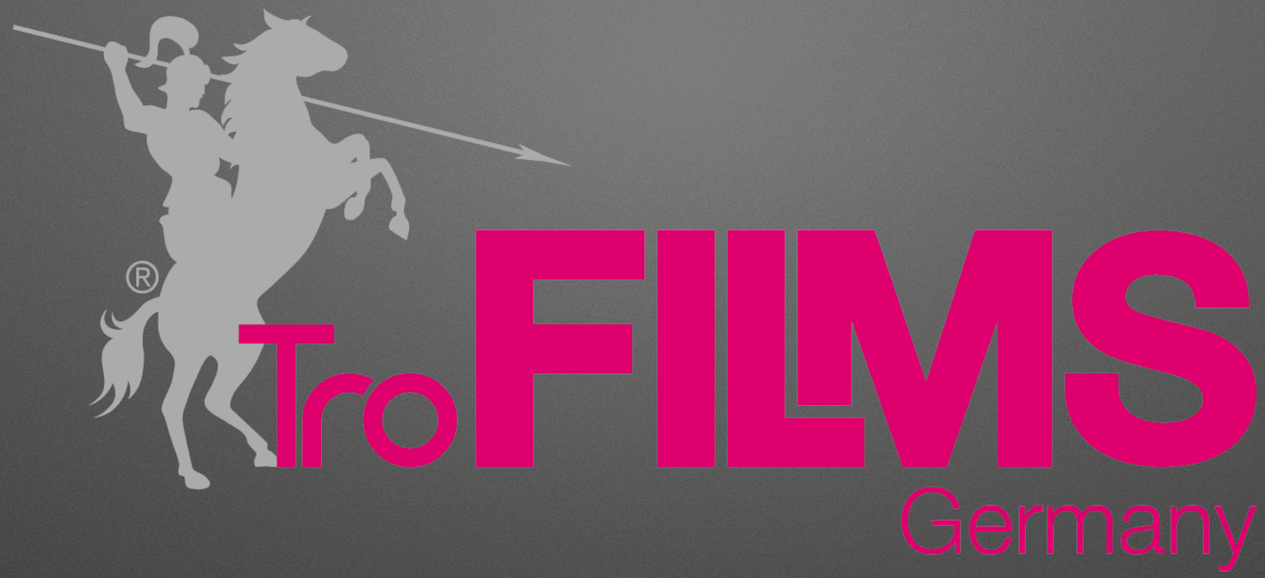
Partners and Acknowledgements

- **Finishing (lamination and digital coating):**

  LamiFaktur GmbH
  Papierveredelung und Dokumentenschutz
  Eulerstraße 11
  48155 Münster
  www.lamifaktur.de

  Dear Mr. Altevolmer and Mrs. Blanke,

  a heartfelt thank you for your hospitality and the great cooperation. The job was prepared by you in a great way and executed excellently by your employees. Their know-how has really helped us to move forward.



Many thanks for your attention!

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