PRINTING TECHNOLOGY & INNOVATION DAYS
FOR FLEXIBLE PACKAGING

PRINTING TOOLS AT ITS BEST

Zafer Akdeniz

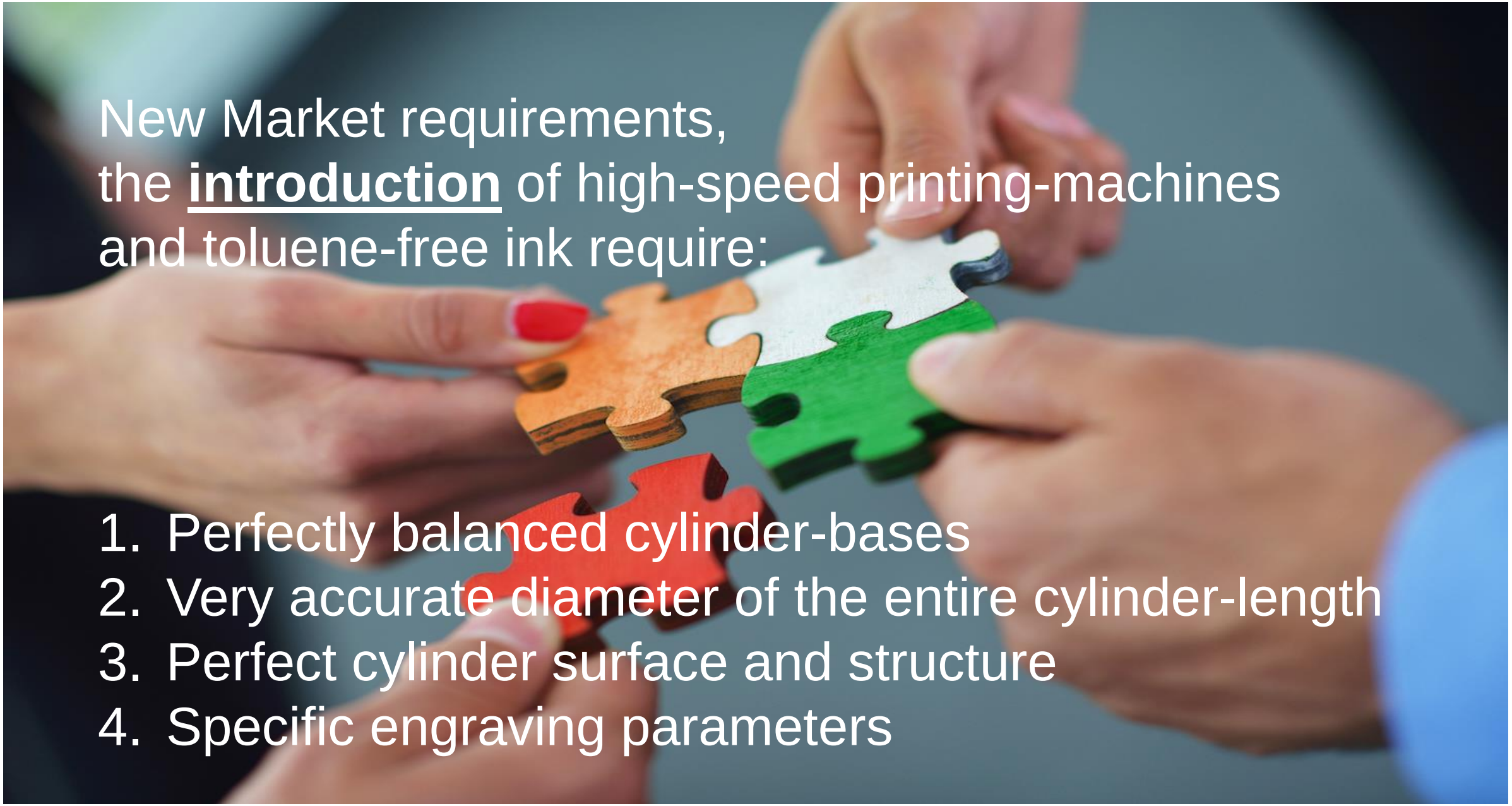
Plant Manager
Janoschka Izmir

There are challenges in the Market…

Optimize, optimize, optimize…

Introduction of High-Speed Machines in Rotogravure…

Introduction of Toluene-free inks...



New Market requirements,
the **introduction** of high-speed printing-machines
and toluene-free ink require:

1. Perfectly balanced cylinder-bases
2. Very accurate diameter of the entire cylinder-length
3. Perfect cylinder surface and structure
4. Specific engraving parameters

1. **Perfectly balanced cylinder-bases**
2. Very accurate diameter of the entire cylinder-length
3. Perfect cylinder surface and structure
4. Specific engraving parameters

High Quality Steel Bases

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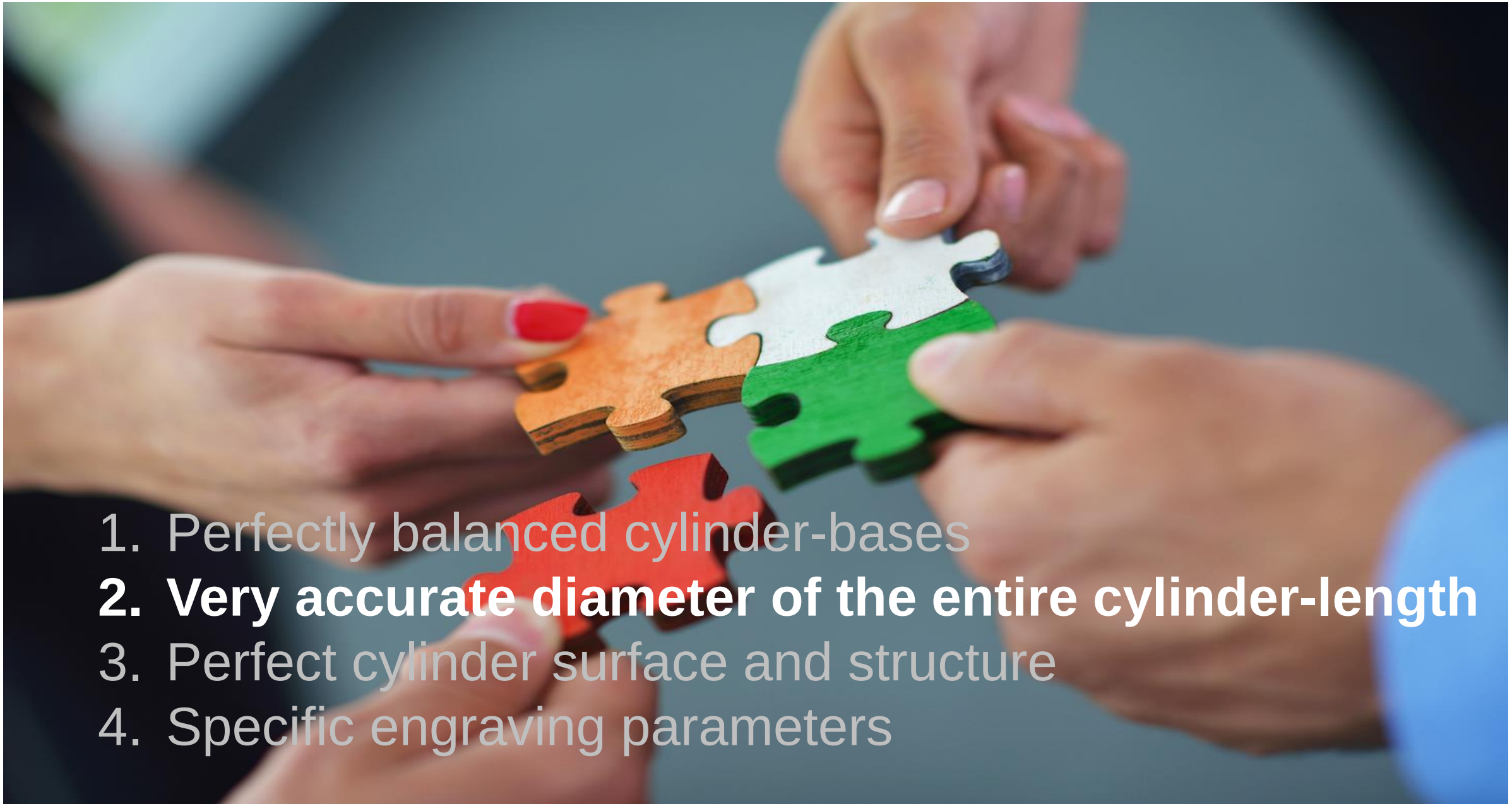
- Respect cylinder drawing and technical specifications
- Use of best grade materials
- Finishing the inside of the tube or cylinder
- Anti-Vibration turning-tool for inside grinding
- Respect the requested wall-thickness
- Precise turning and finishing of the steel bases
- High Precision Balancing with according technical specification

High Quality Steel Bases

- Best runout control with special devices
- Precise Balancing below technical specification on both sides



1. Perfectly balanced cylinder-bases
2. **Very accurate diameter of the entire cylinder-length**
3. Perfect cylinder surface and structure
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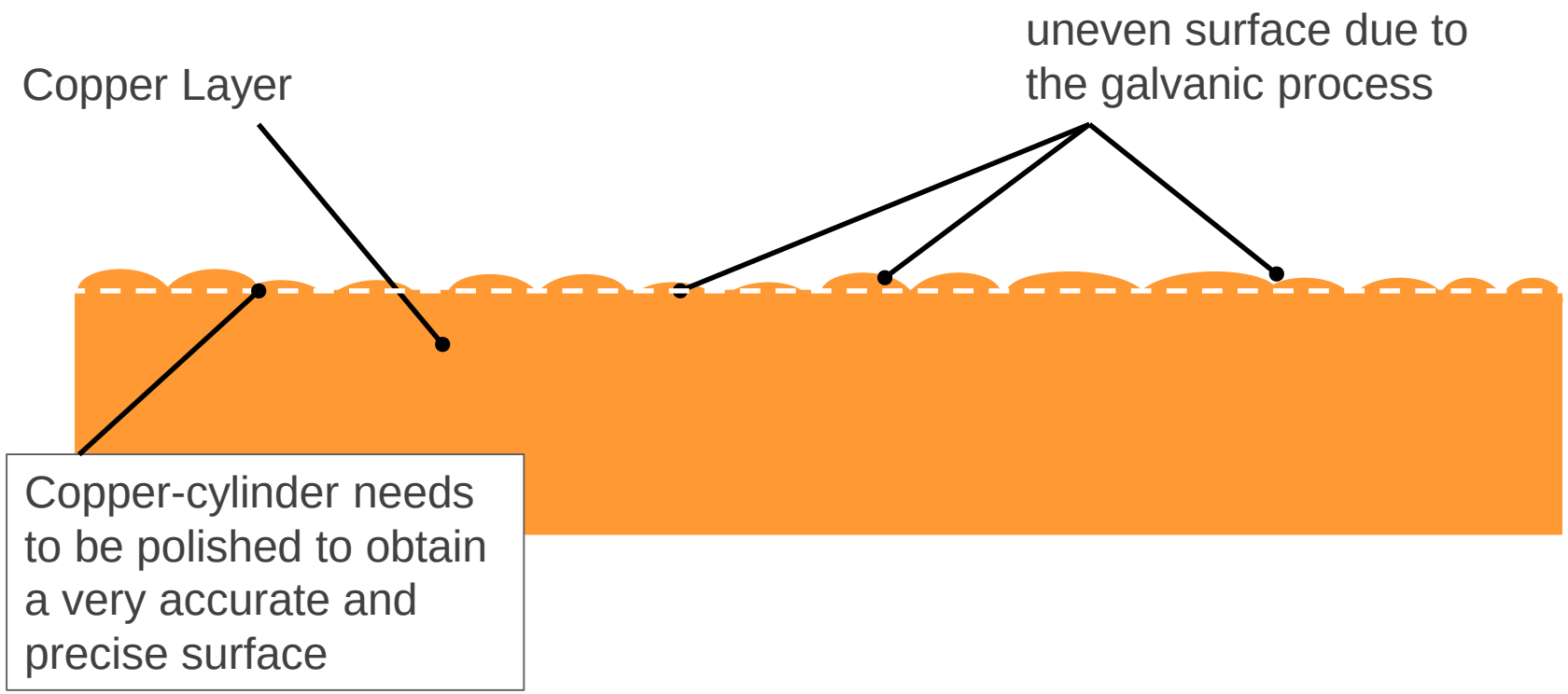
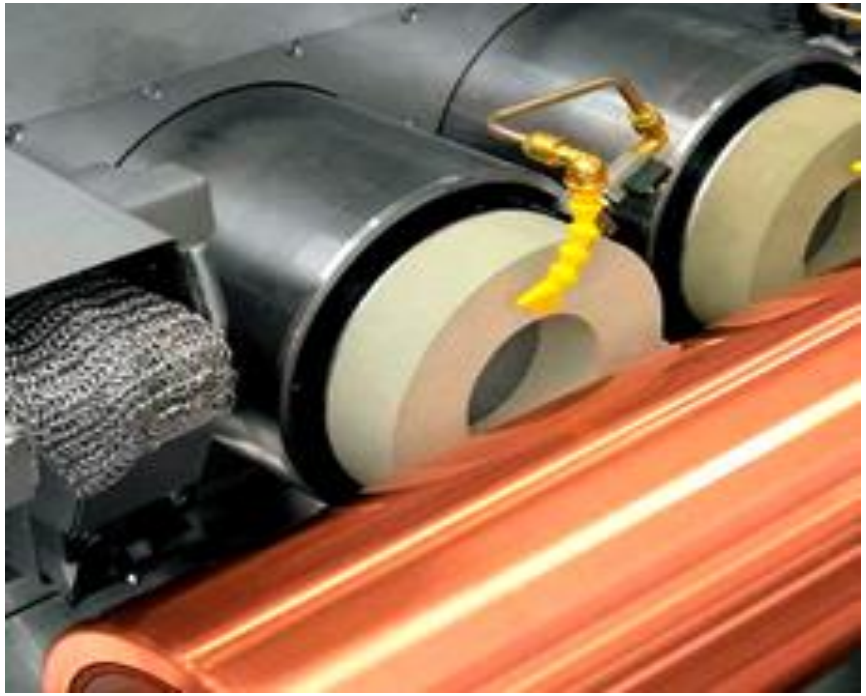
Cylinder surface after copper-plating



Perfect surface polishing



Polishmaster – Finishmaster (Finishstar) - CFM

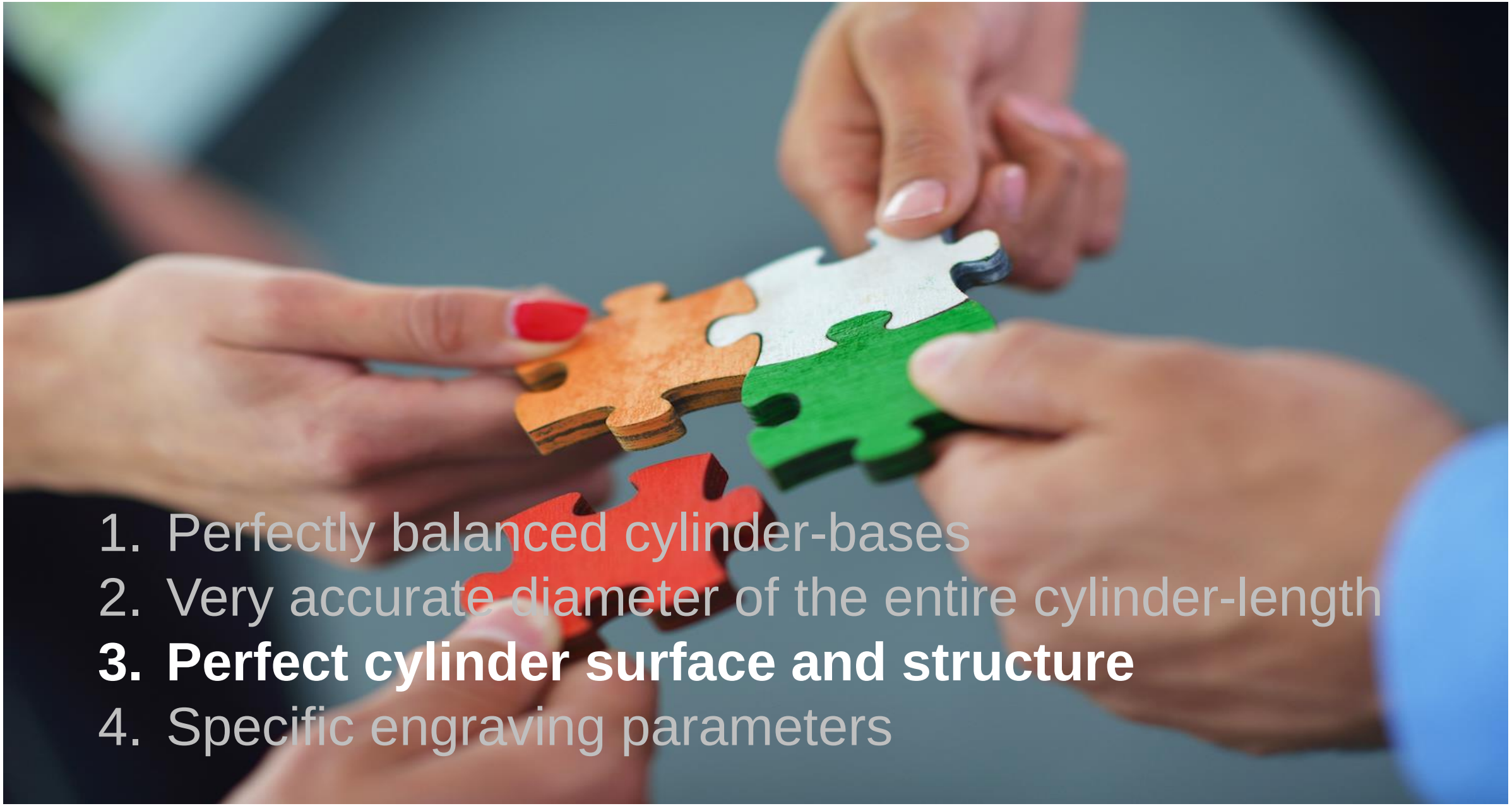
Cylinder surface after polishing

Polishing and Finishing

Modern printing-machines reach high production speeds
Therefore the diameter and of the cylinder needs to be extremely accurate.

➔ And this over the full length of a cylinder

➔ **any irregularity** cause problems with web-tension, register problems and printing defects and as a result cause customer claims !



1. Perfectly balanced cylinder-bases
2. Very accurate diameter of the entire cylinder-length
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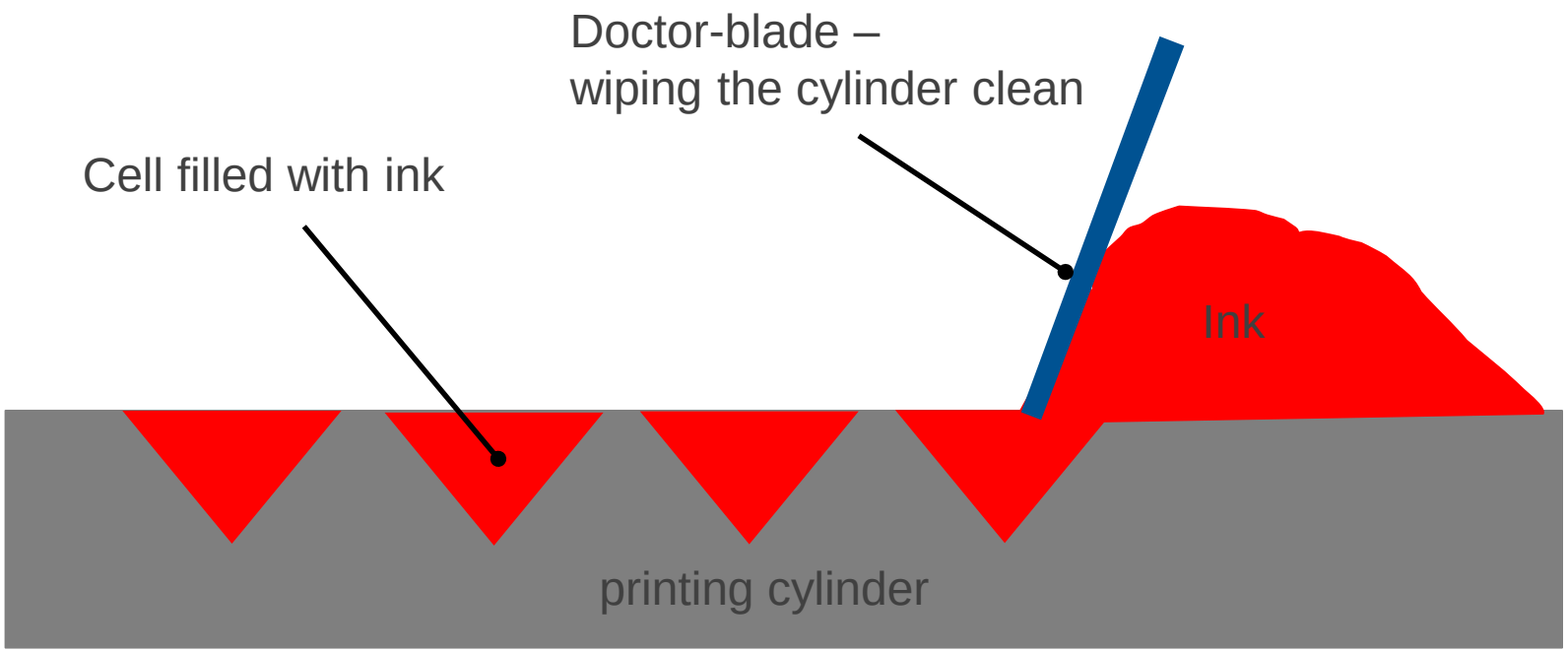
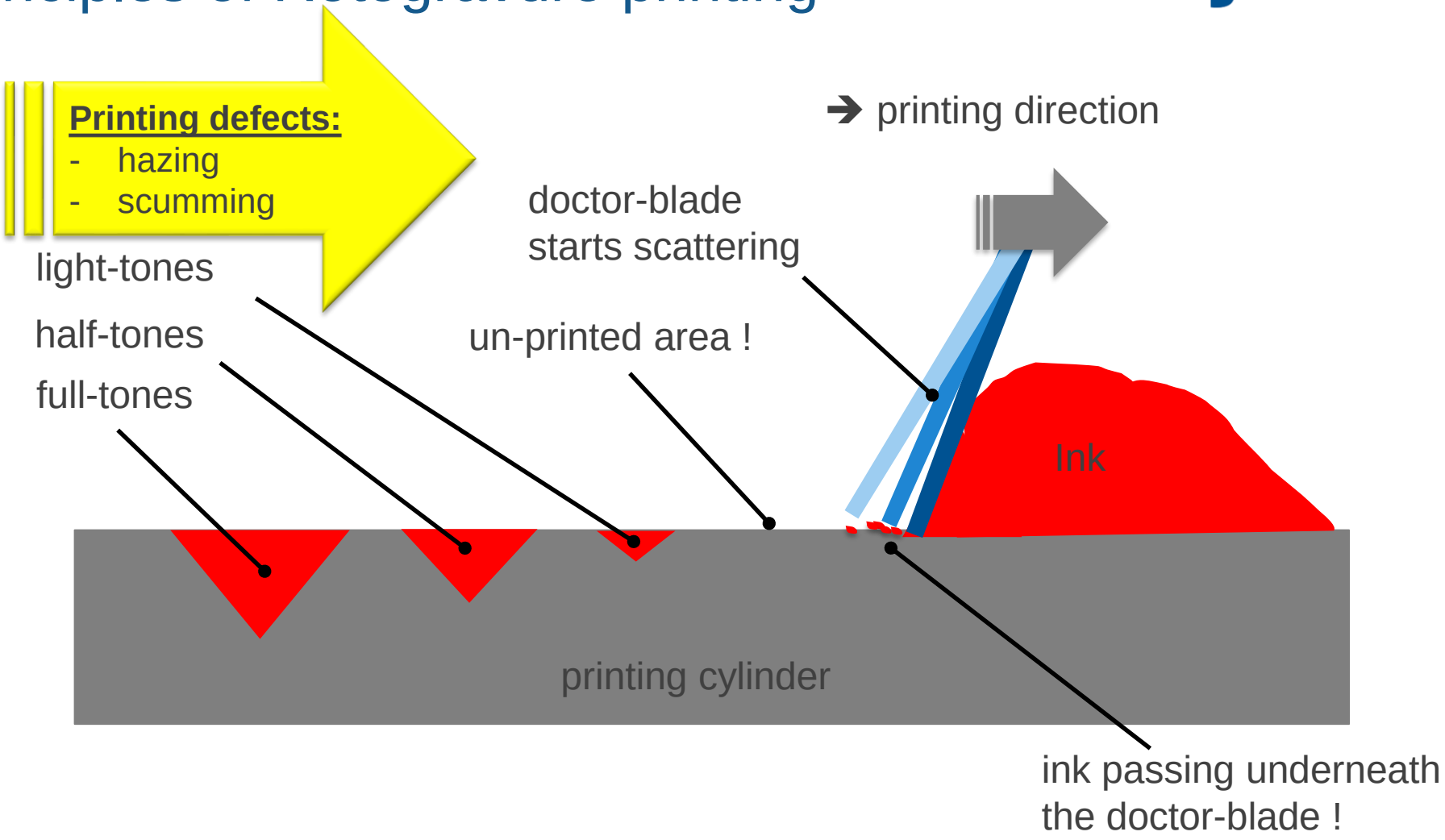
The principles of Rotogravure printing



The principles of Rotogravure printing



Lubrication: cylinder – doctor-blade

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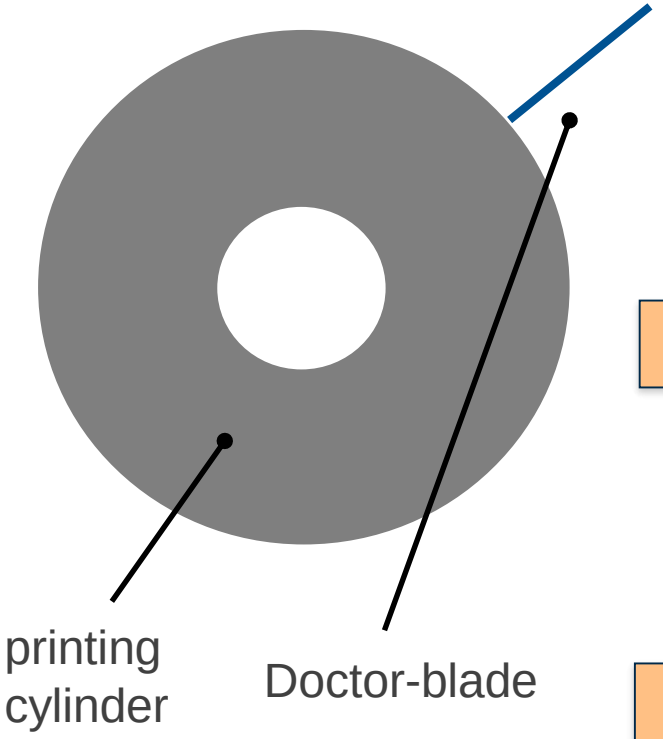
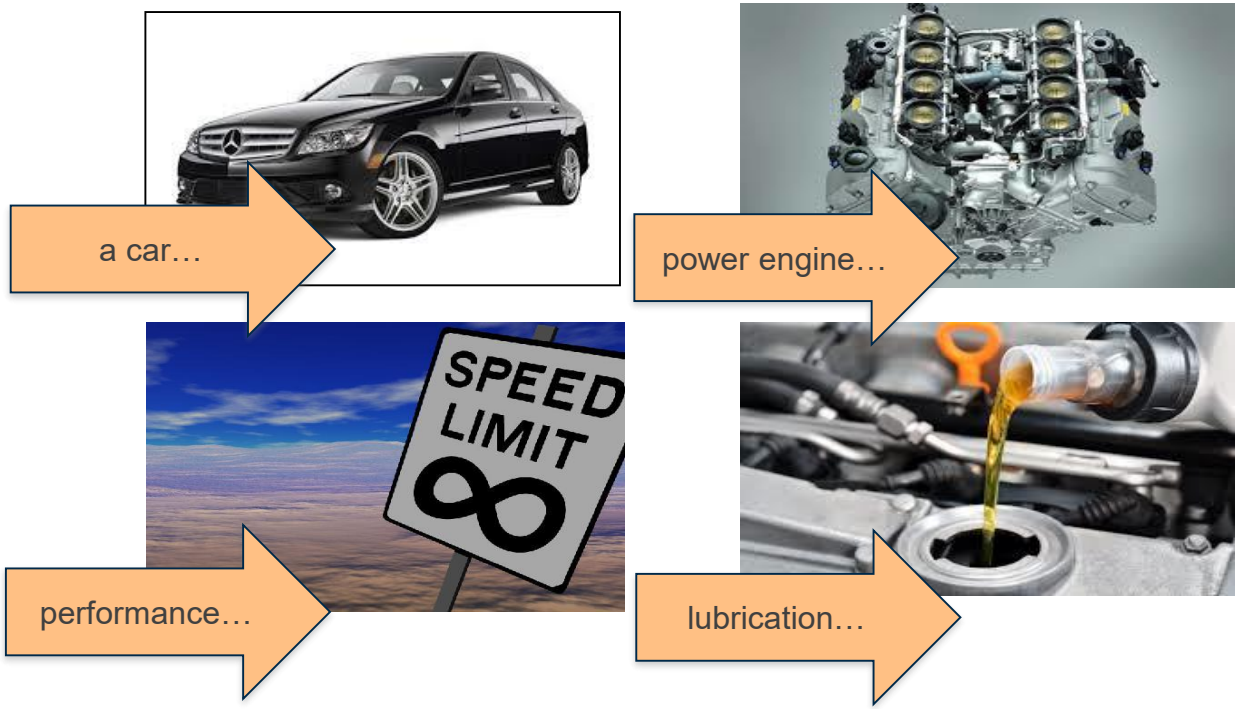
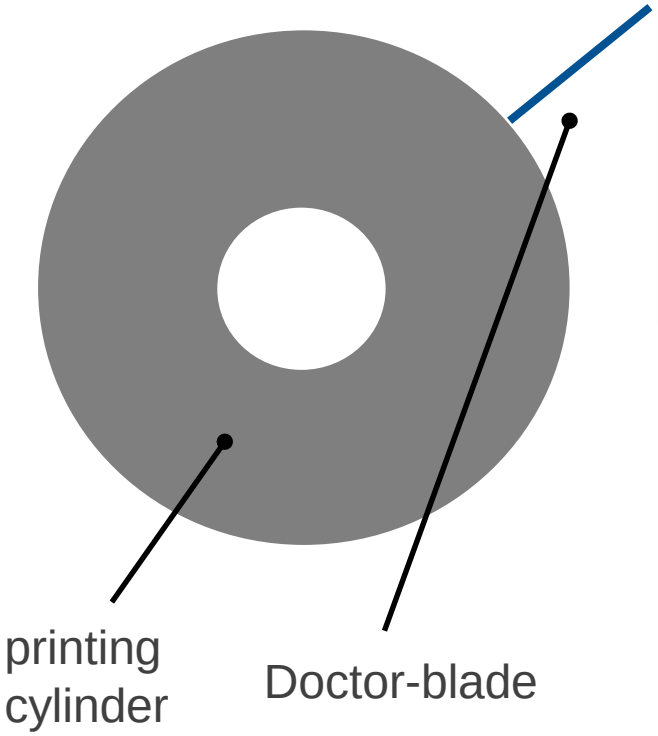


Metal on metal is a resistant, but not a preferred combination of materials.



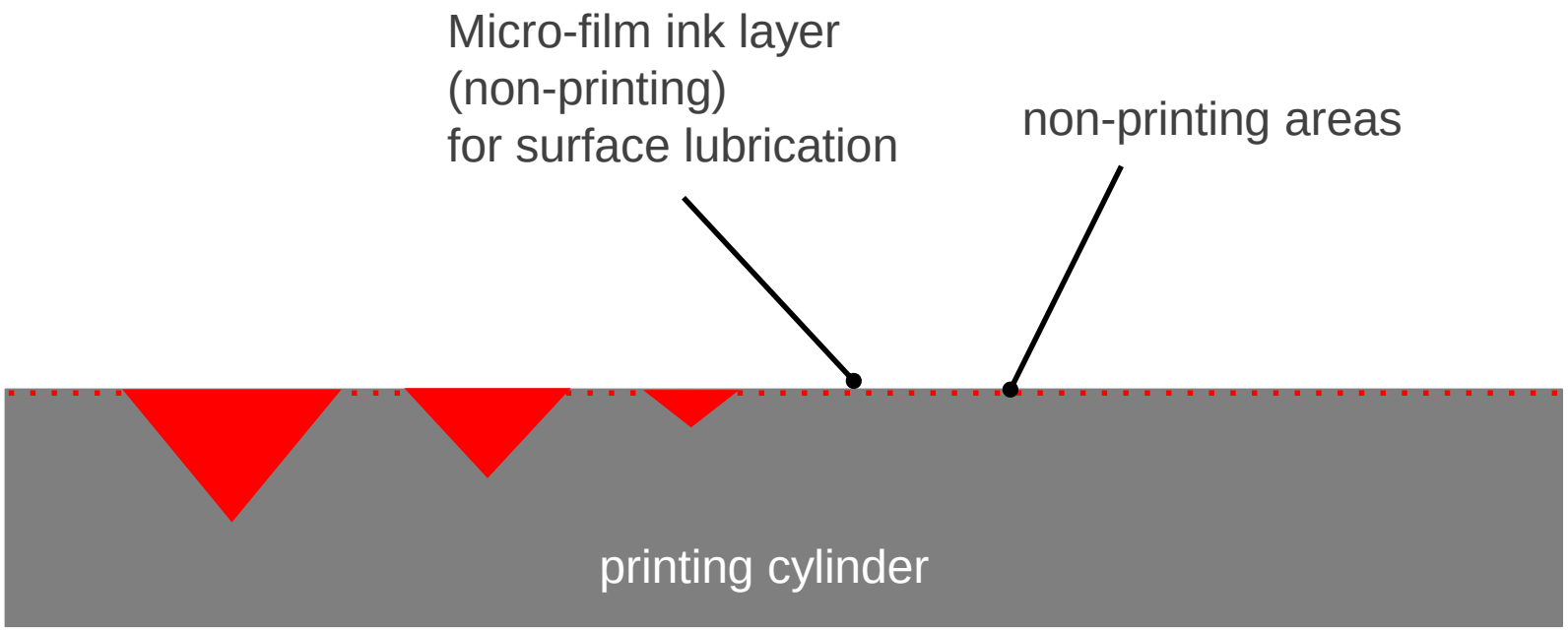
Lubrication: cylinder – doctor-blade



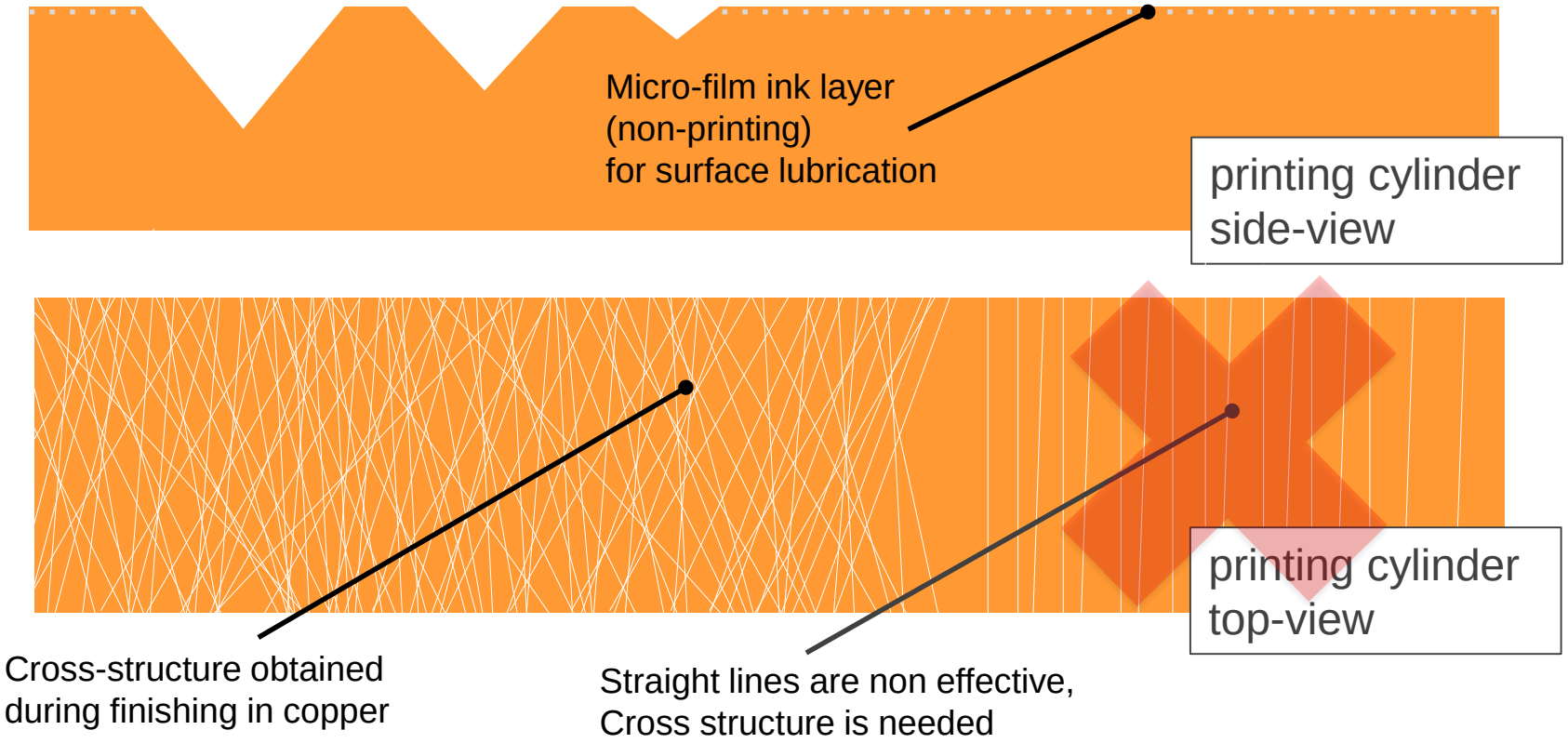
Metal on metal is a resistant, but not a preferred combination of materials.

Lubrication is needed to improve correlation between the 2 materials

Lubrication: cylinder – doctor-blade



Lubrication and cylinder-surface



Surface Structure

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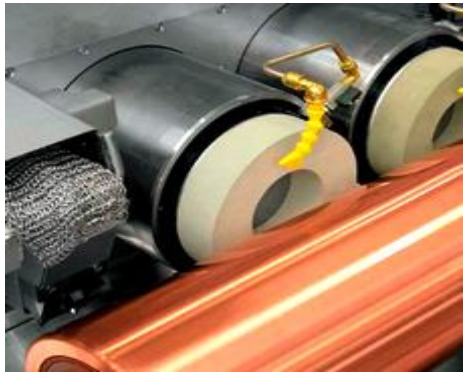
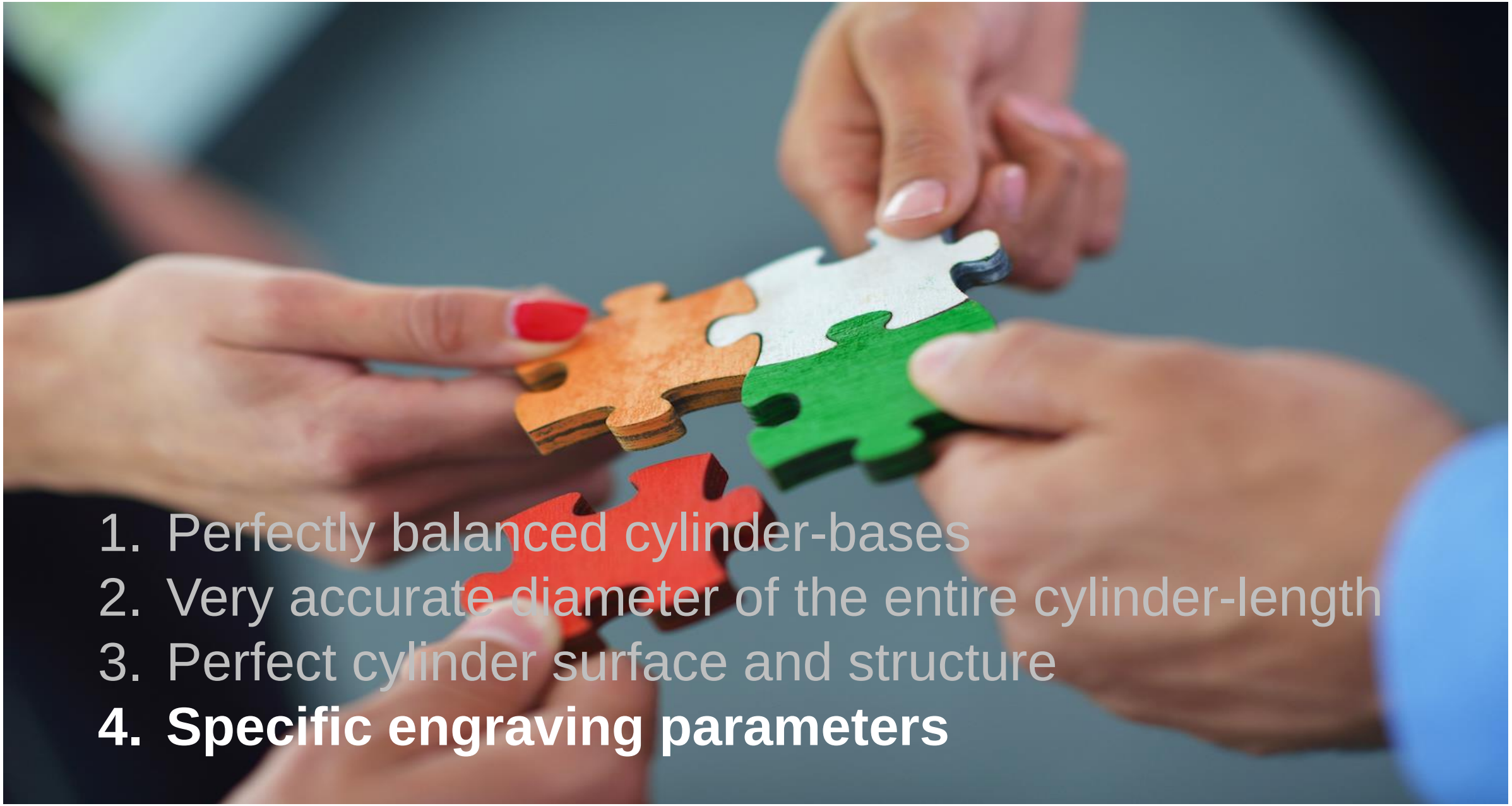
Surface finishing has to be done in copper, After polishing and before engraving.

The structure and the **“Roughness”** needs to be adjusted according to the Printers specifications, taking into consideration:

- ✓ Inks
- ✓ Doctor-blade
- ✓ Substrate
- ✓ Machine setting
- ✓ Printing speed
- ✓ … /





1. Perfectly balanced cylinder-bases
2. Very accurate diameter of the entire cylinder-length
3. Perfect cylinder surface and structure
4. **Specific engraving parameters**

The different engraving technologies

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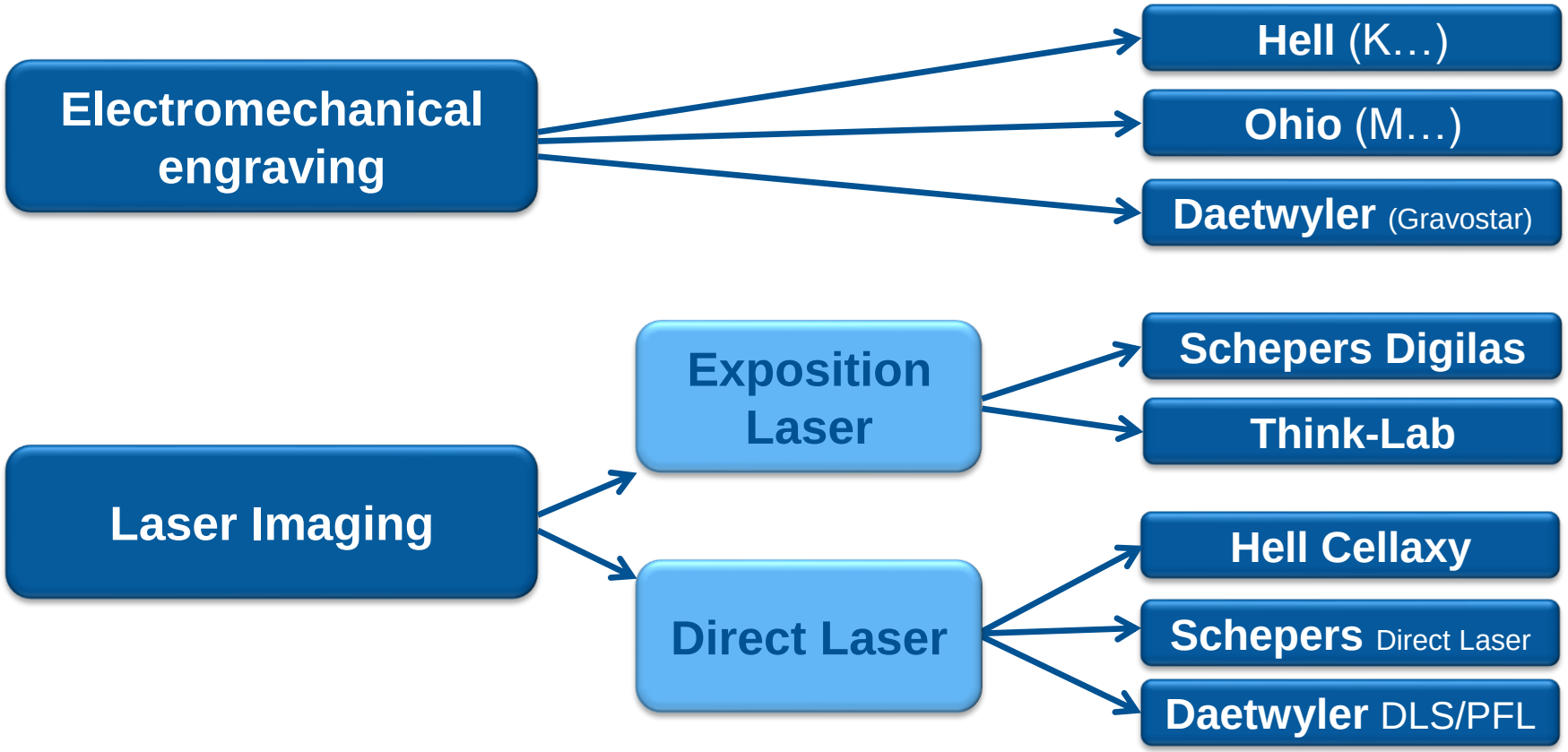
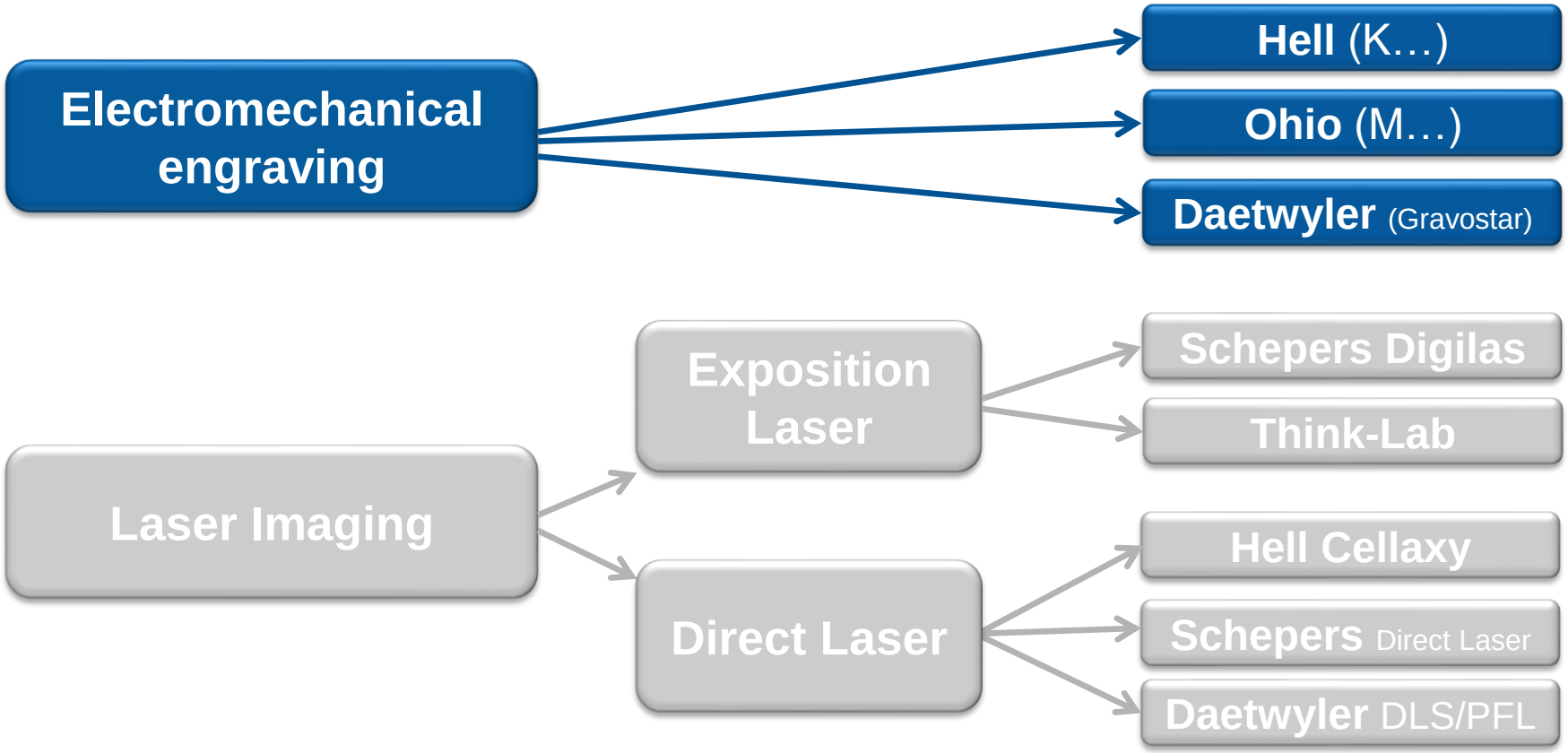
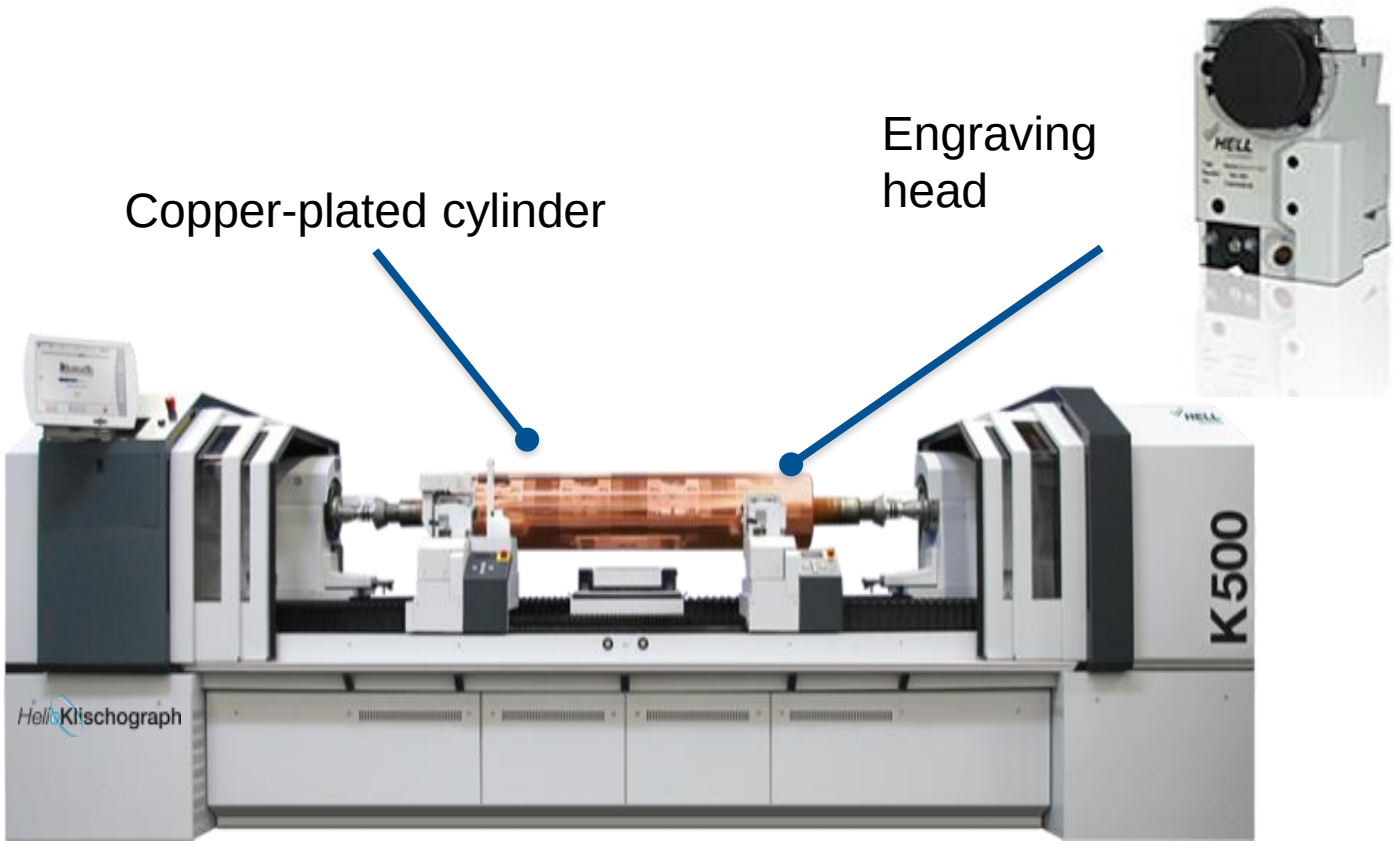


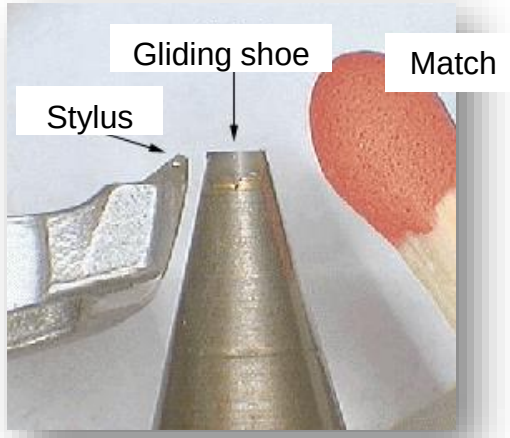
Electromechanical engraving



Electromechanical cylinder engraving machine

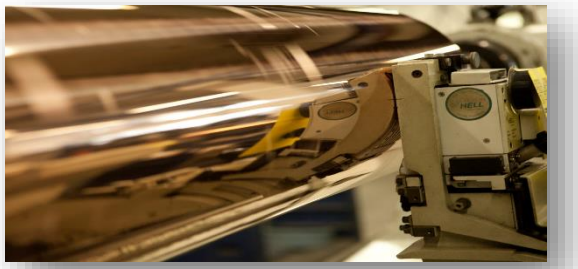


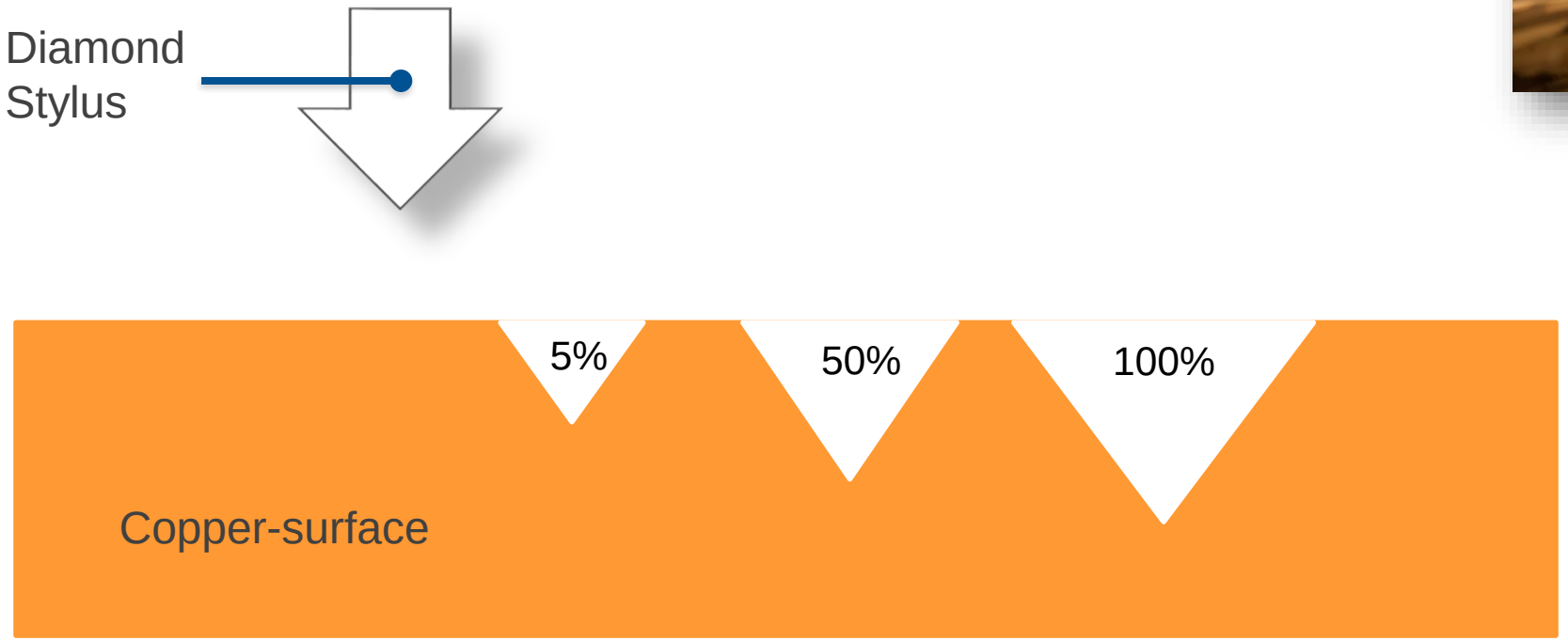
Stylus (electromechanical)



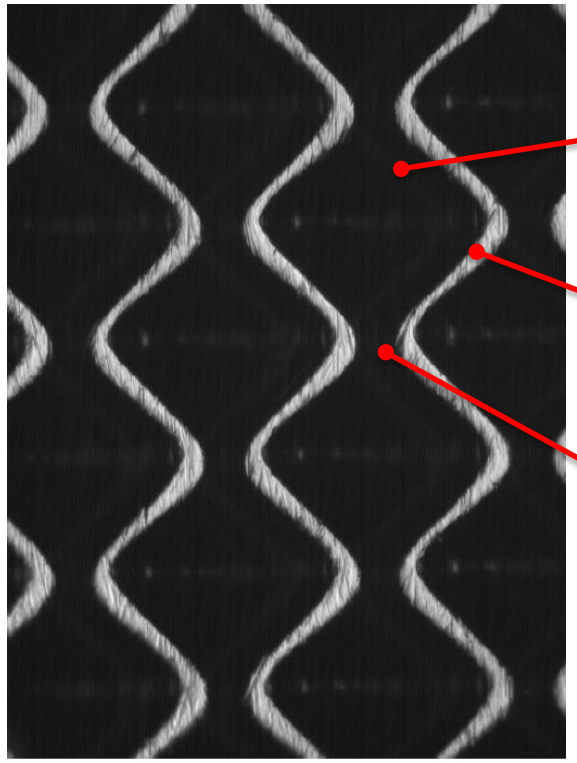
Variable in size
and variable in depth

The principles of electromechanical engraving





The principles of electromechanical engraving

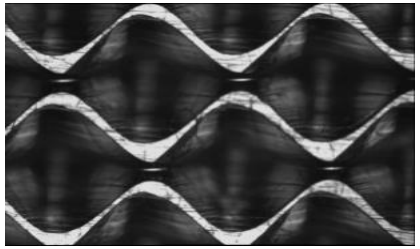


Cell
(ink carrier)

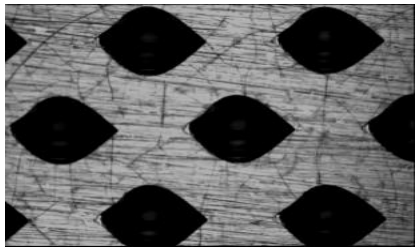
Cell-wall
(doctor-blade holder)

Channel
(ink-flow and
smooth print)

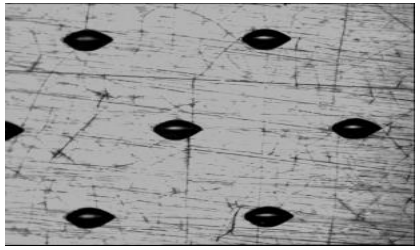
100%



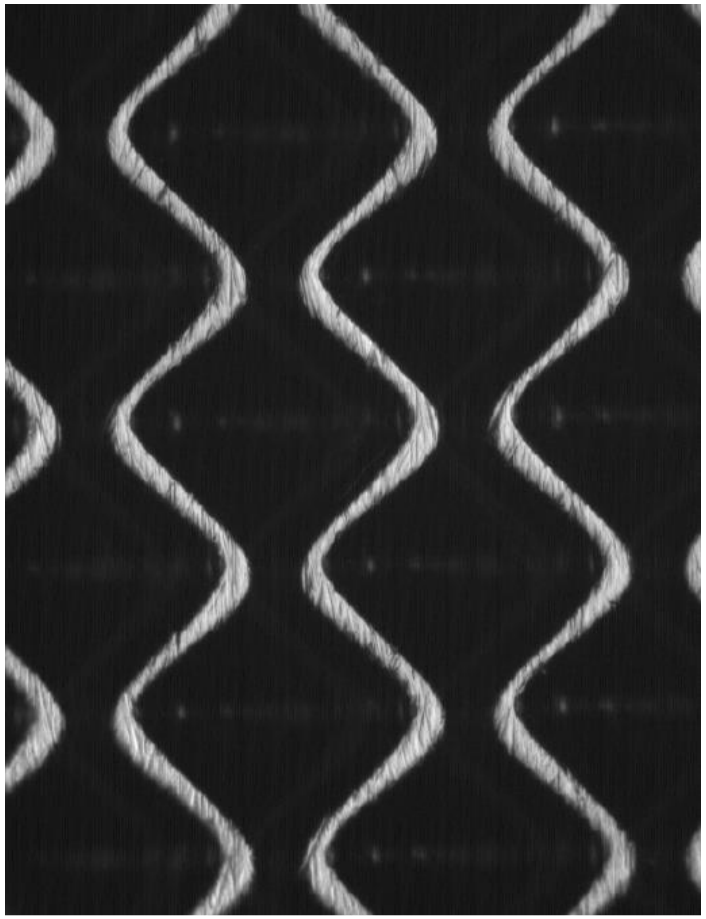
50%



5%



Screen/Raster (Cell quantity)^2/cm^2

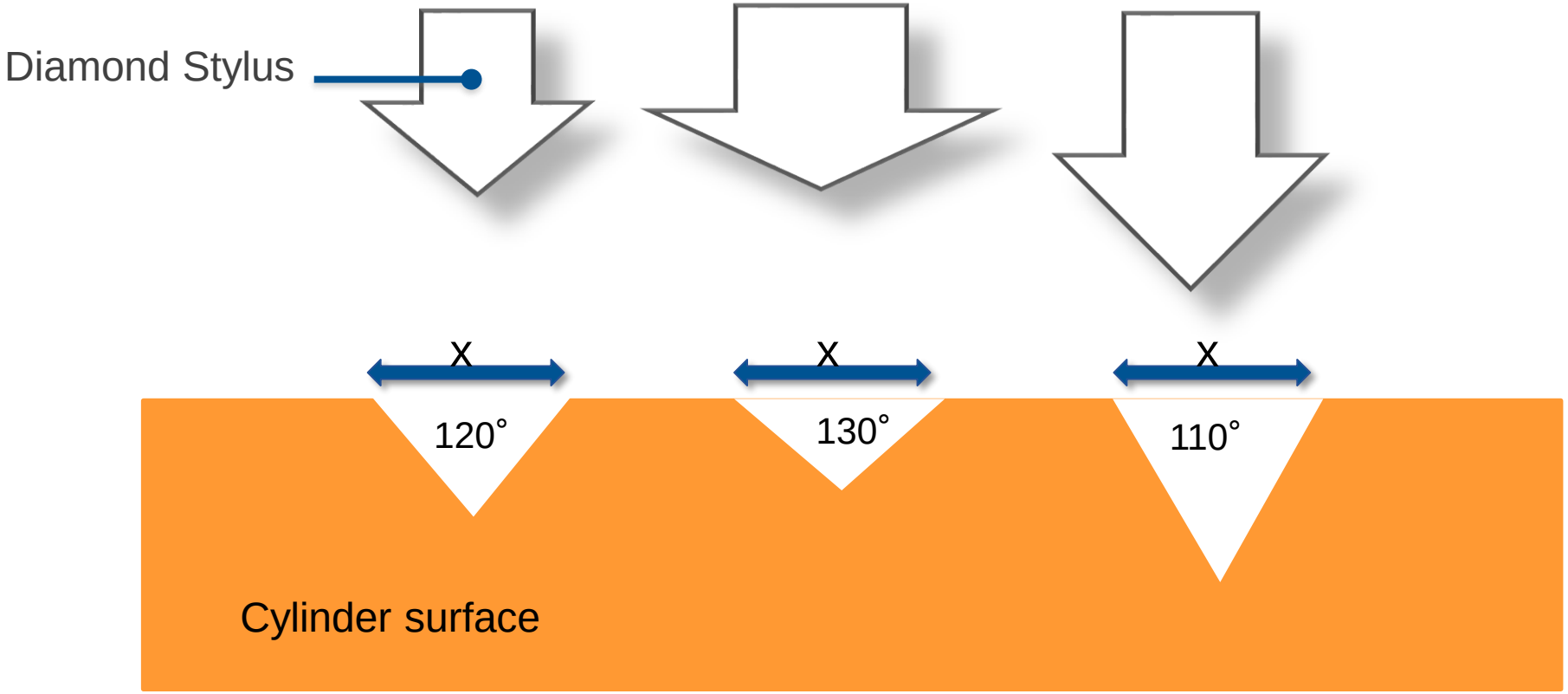


70 Screen

80 Screen

100 Screen

Different stylus angles



The different engraving technologies

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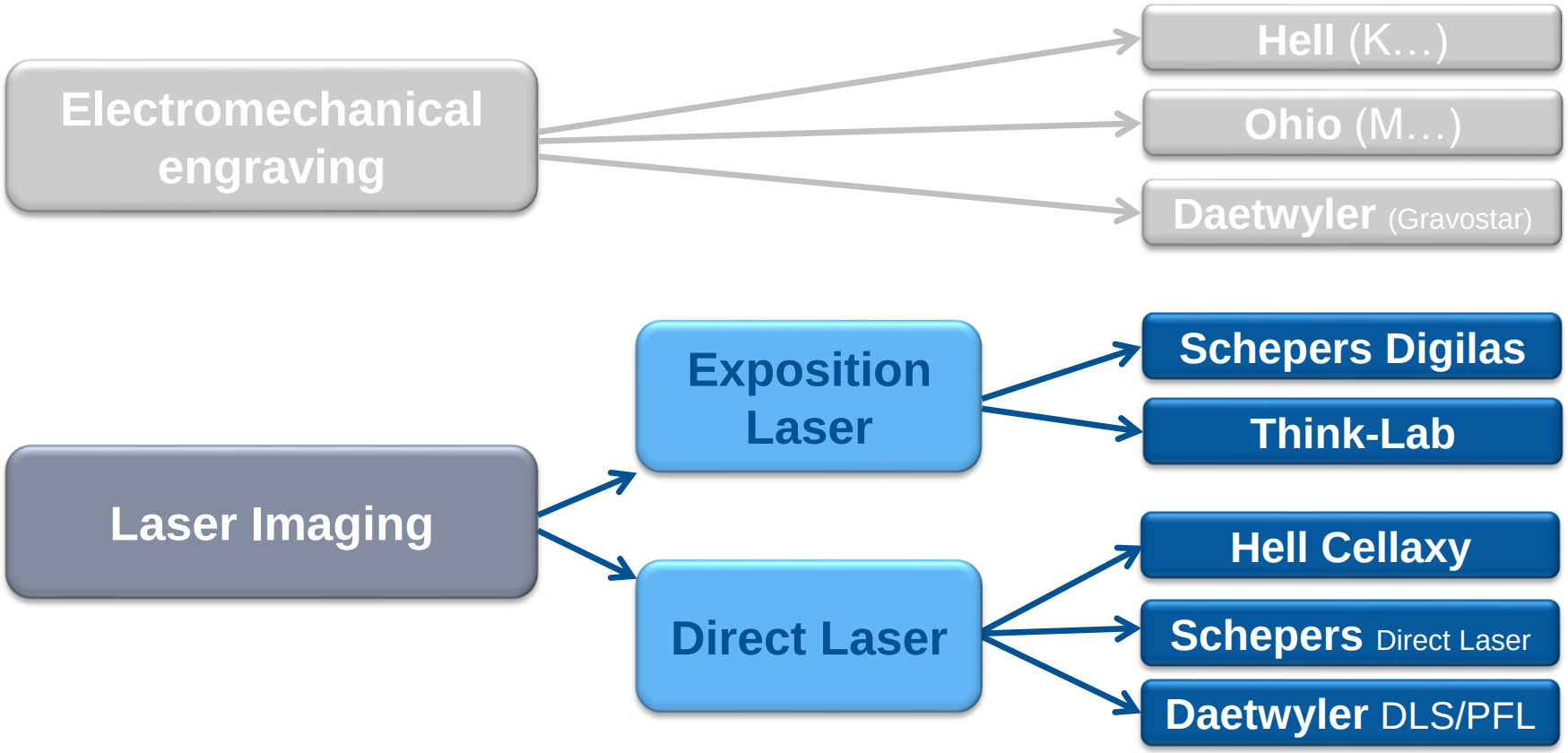

Laser Technology –
another dimension…

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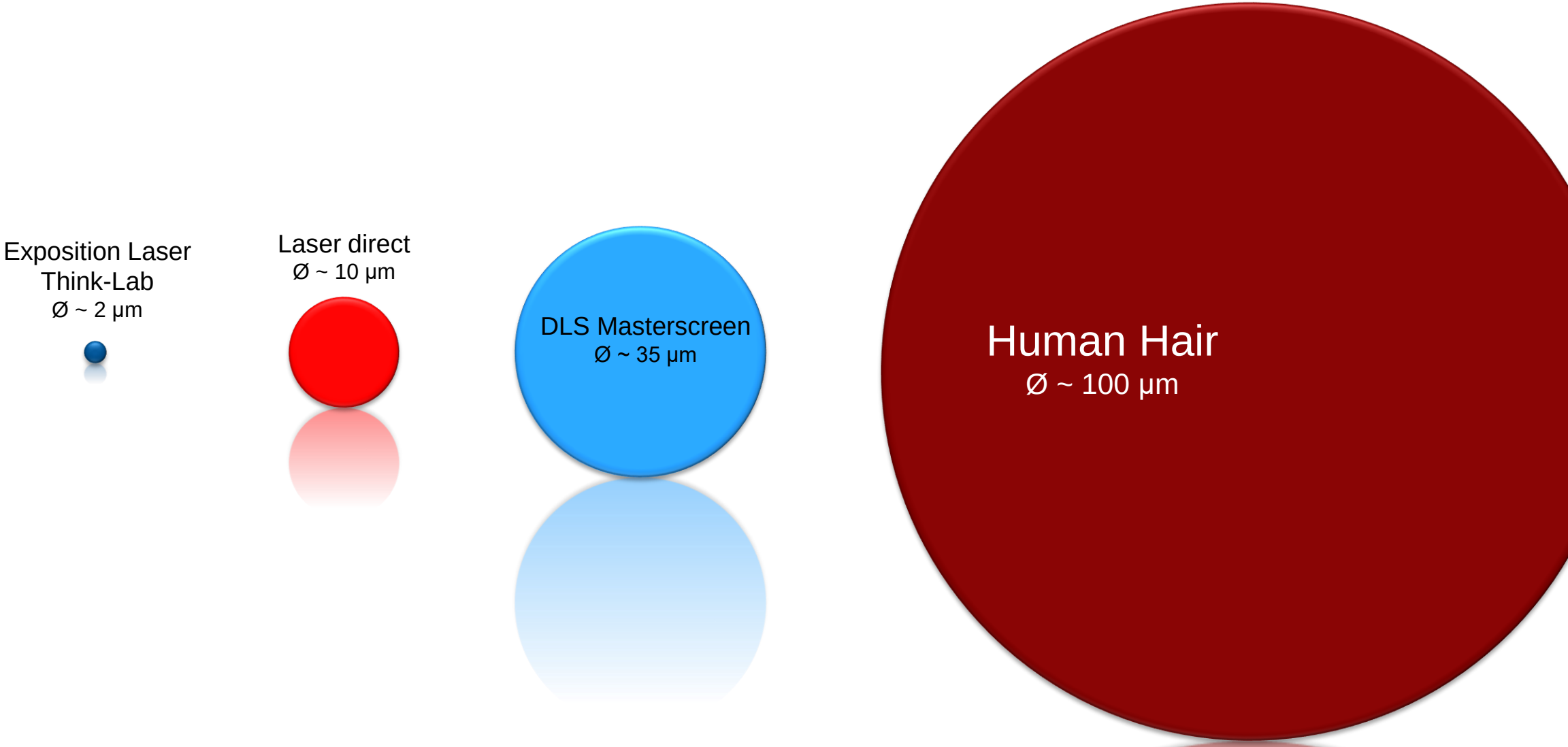
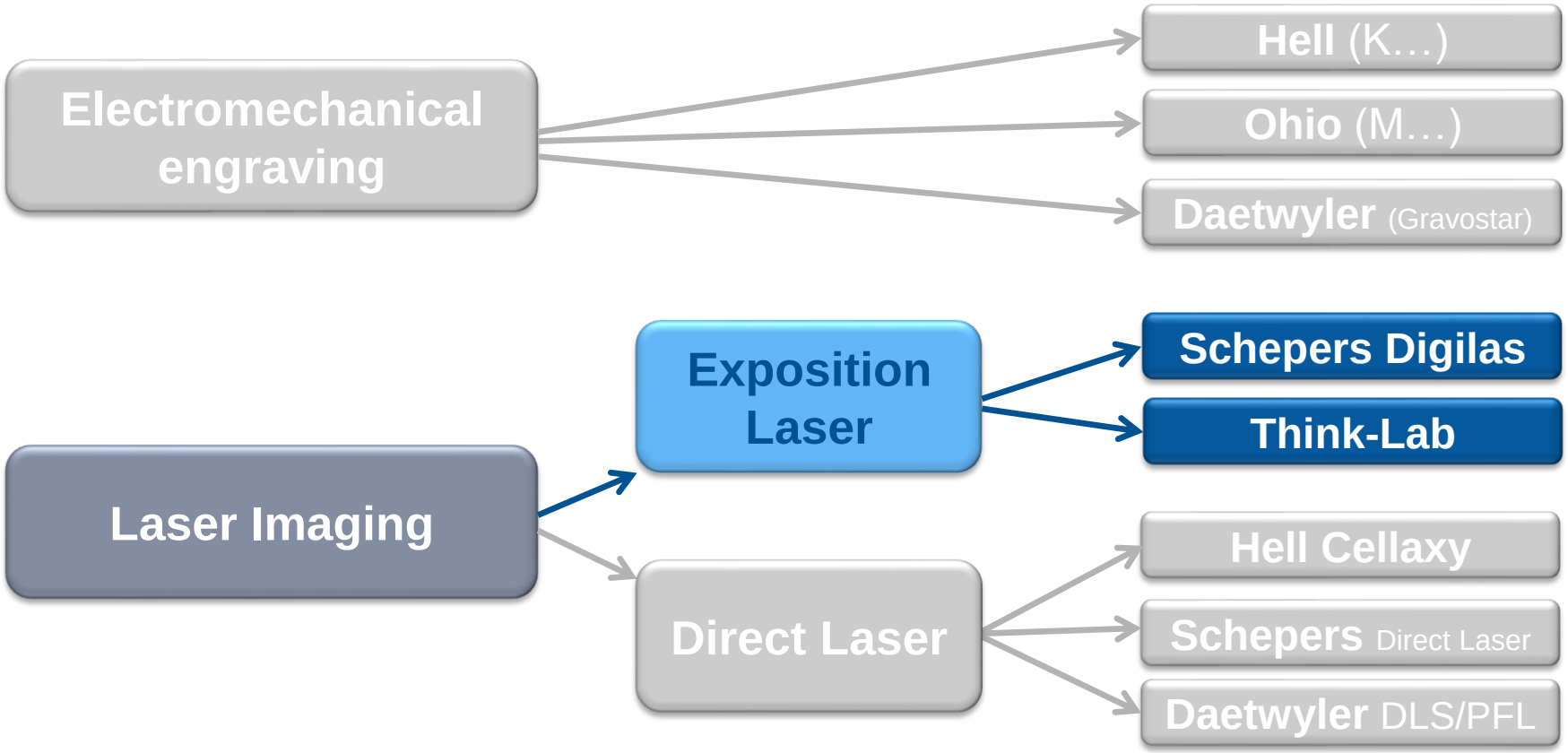
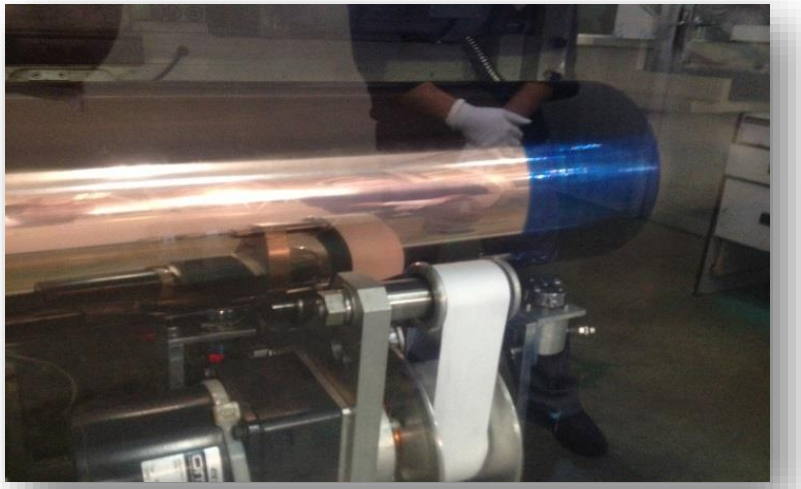
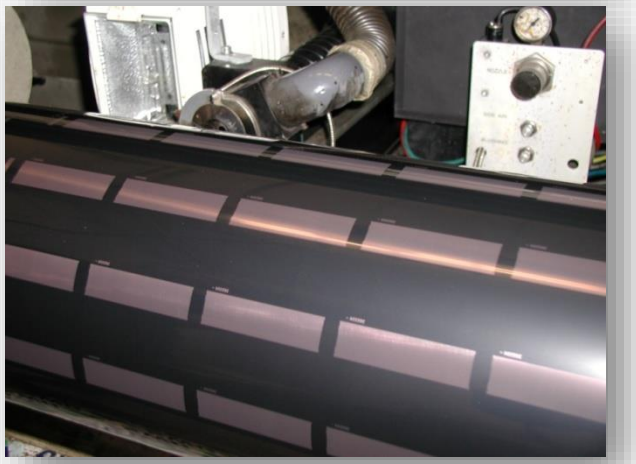


Laser Imaging – Exposition Laser

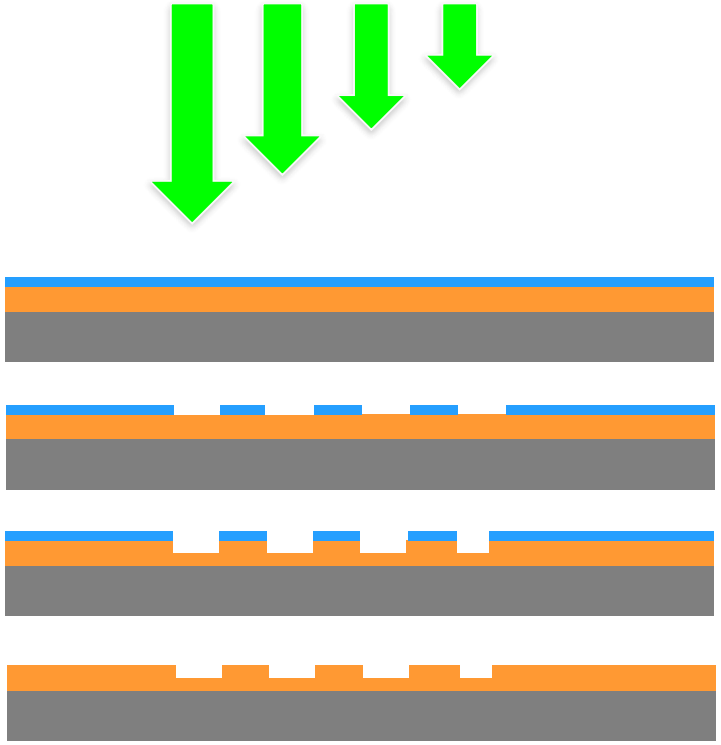


Laser Imaging –
Schepers Digilas or Think-Lab Technology





Laser Exposure



The Principles – Cell Geometry
Laser Exposure

Stylus (electromechanical)

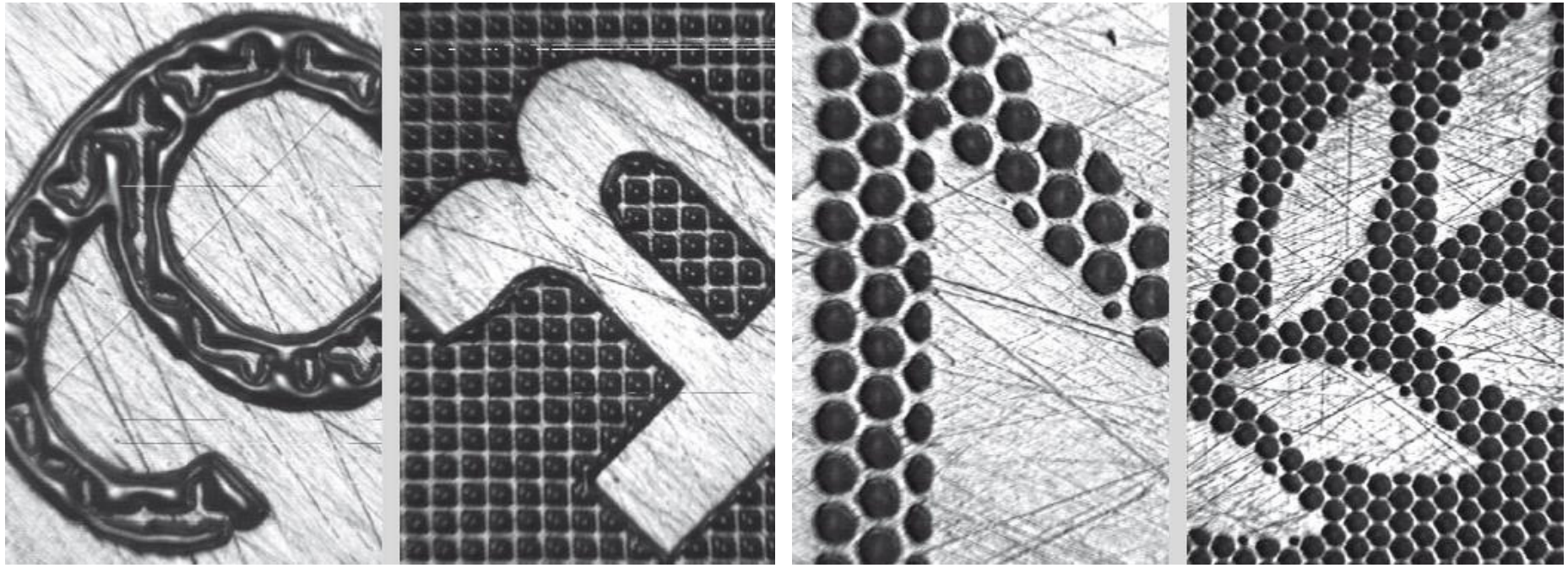
Variable in size
and variable in depth

Laser Exposure

Variable in size
not in depth

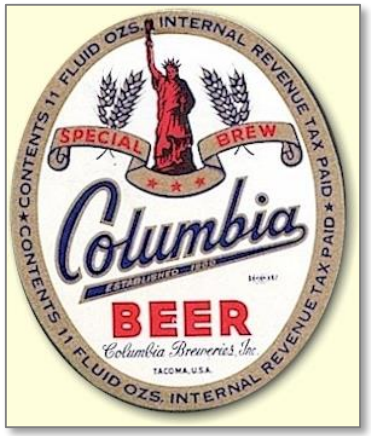
Laser Exposure – Fields of Application
Excellent for fine type

- Positive / negative text elements
- Strong background-colors



Laser Exposure – Fields of Application

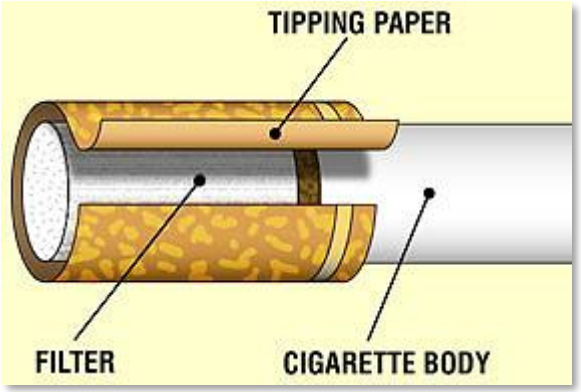
Laser Exposure – Fields of Application

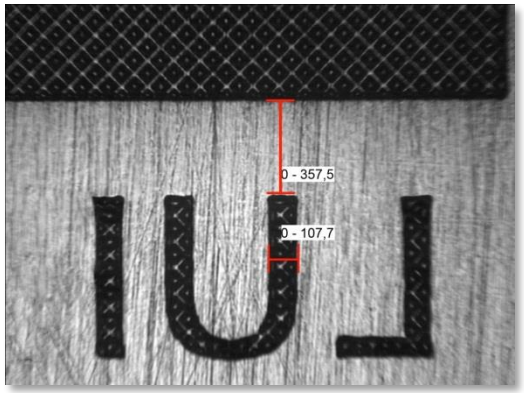


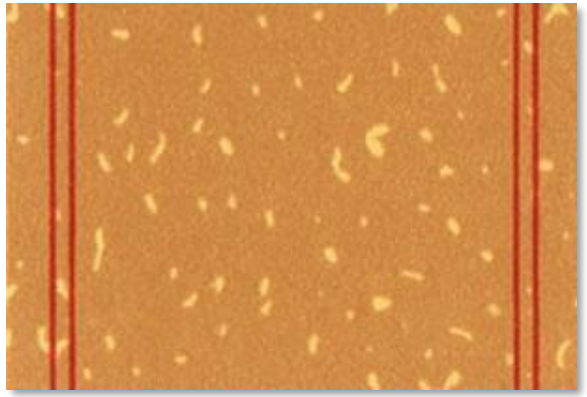
- Intense colors, fine lines, text and logos

Laser Exposure – Fields of Application
Tipping Papers, Cigarette Filters

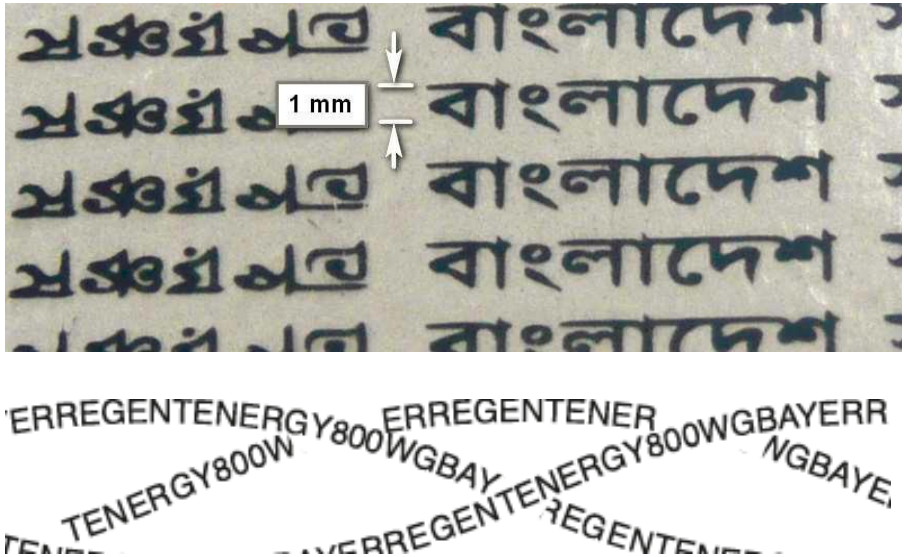
- 1 or 2 colors “cork design” (line-work)
- Fine lines and logos
- Laser technology recommended !





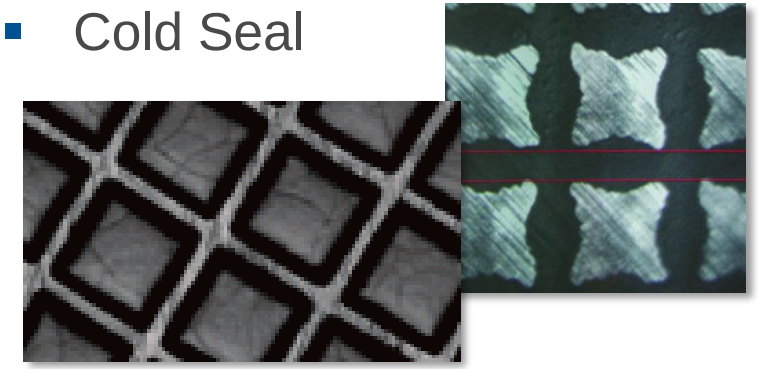


Laser Exposure – Fields of Application
Micro-Text

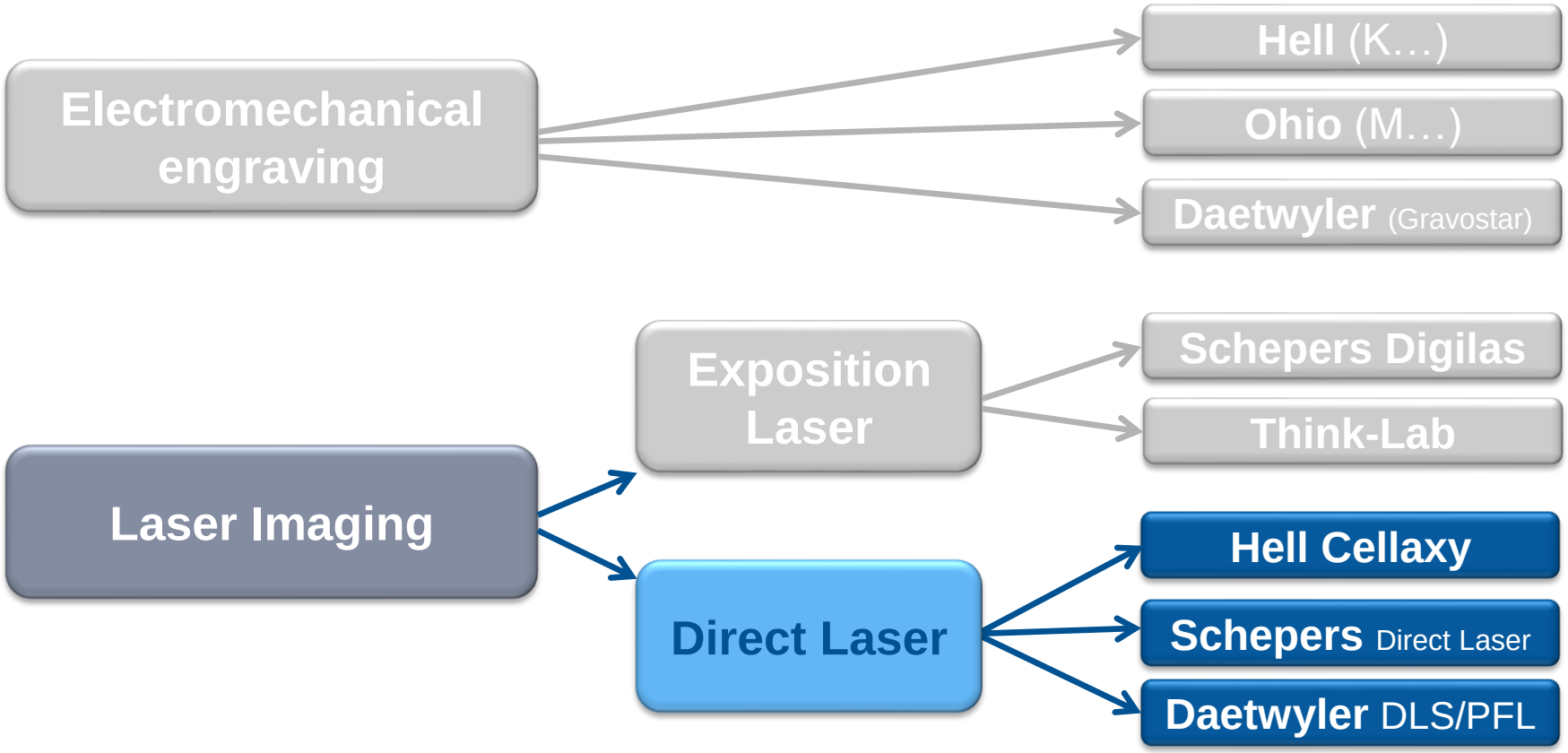


Laser Exposure – Fields of Application
Heavy Volume - Special Applications

- Lacquers and Varnishes
- Metallic Inks
- Primer
  example: medical packaging
- Hotmelt / Wax
- Cold Seal



Laser Imaging – Direct Laser



The Principles – Cell Geometry

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Stylus (electromechanical)

Variable in size
and variable in depth

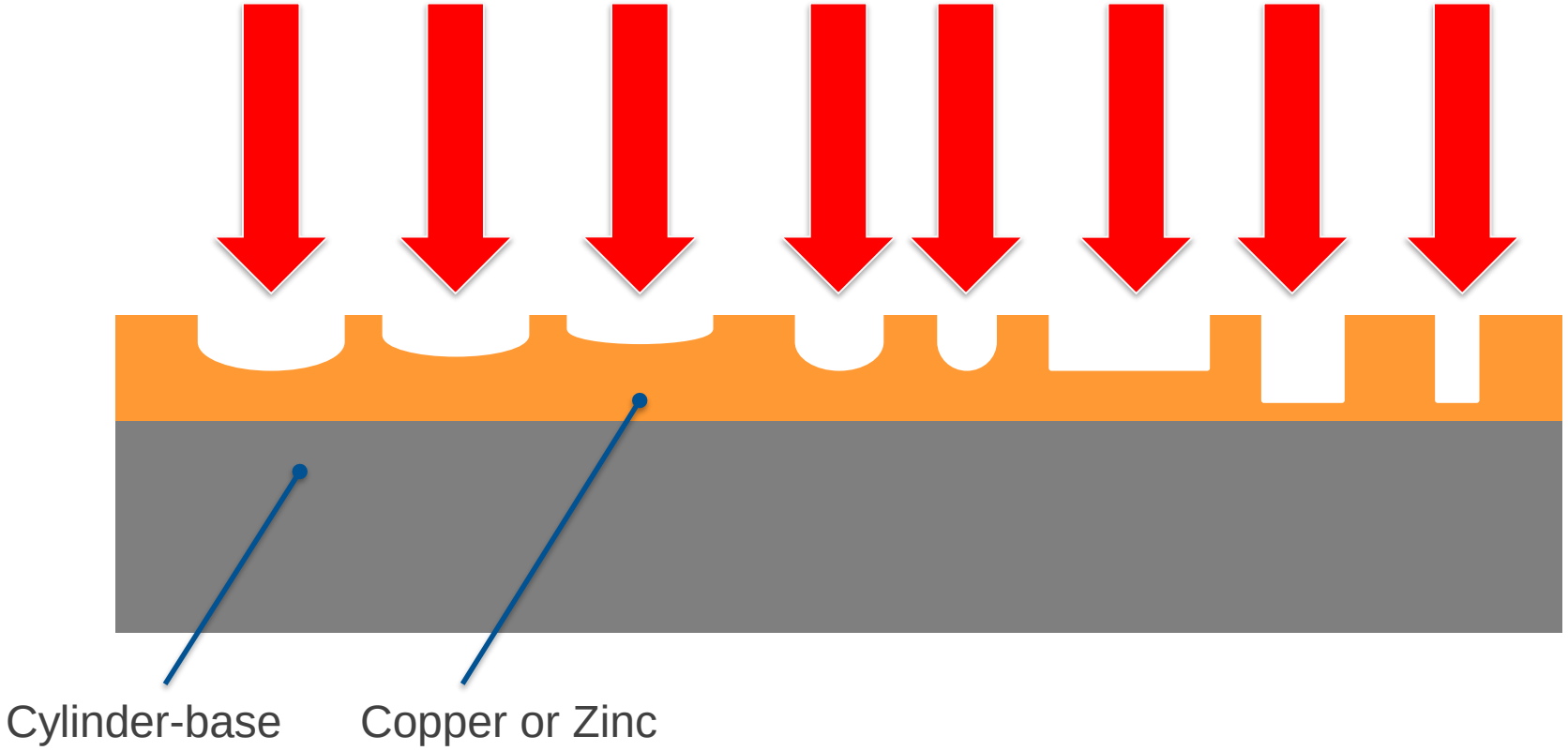
Laser Exposure

Variable in size
not in depth

Direct Laser

Variable in shape,
in size and in depth

Direct Laser – **DLS, Cellaxy**



Different Cell-Geometries with DLS

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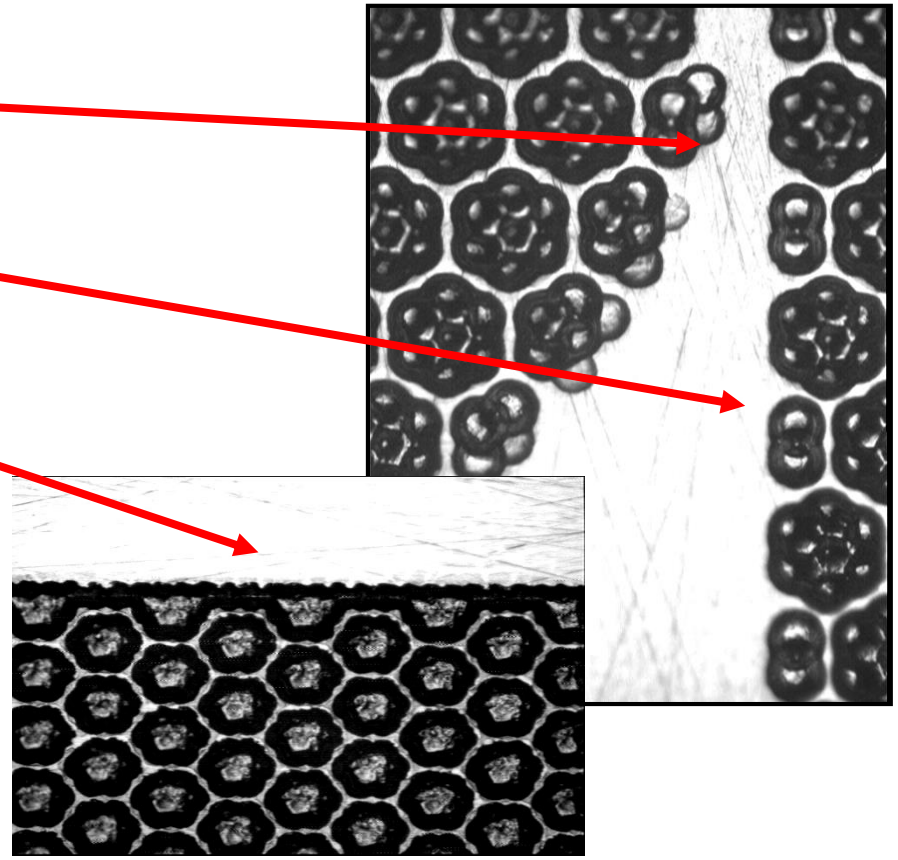
Advantages of Cell Shapes

➔Text, forms and designs can be reproduced without limits and will print in excellent quality.

➔ „Outlines“ can be produced as well, although they are not really needed...

➔ Offset-Quality with **Gravure Density…**



Different Cell-Geometries with DLS

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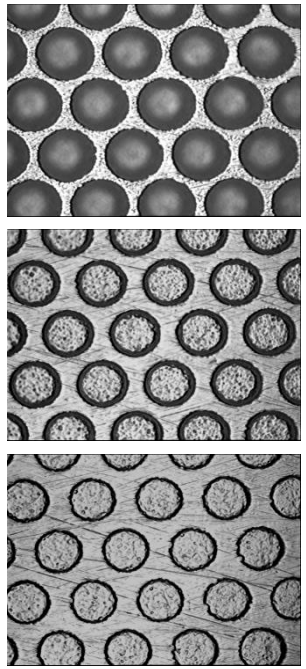
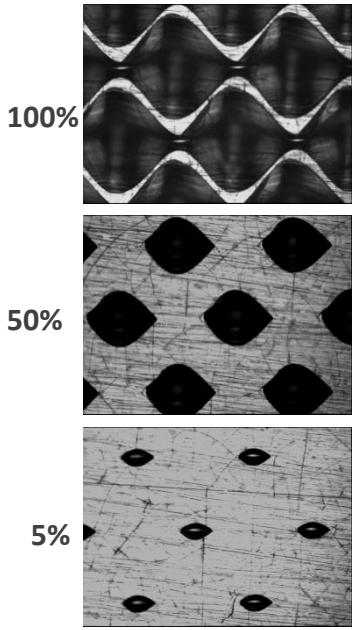
Direct Laser System | the benefits



Laser Conv.

➔Excellent printing results for half-tones and vignettes

➔Especially for substrates which are difficult to print



Gravure

Different Cell-Geometries with DLS

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Direct Laser System | The Benefits

line-work and half-tones combined

Ingredients:
Flavor, Butter, Eggs, Yeast, Fruit Extracts,
Vitamin A, Vitamin B, Vitamin C.

Produced by Janoschka
for our customers.

Fine negative text
in the vignette

Vignette

Positive text

Different Cell-Geometries with DLS

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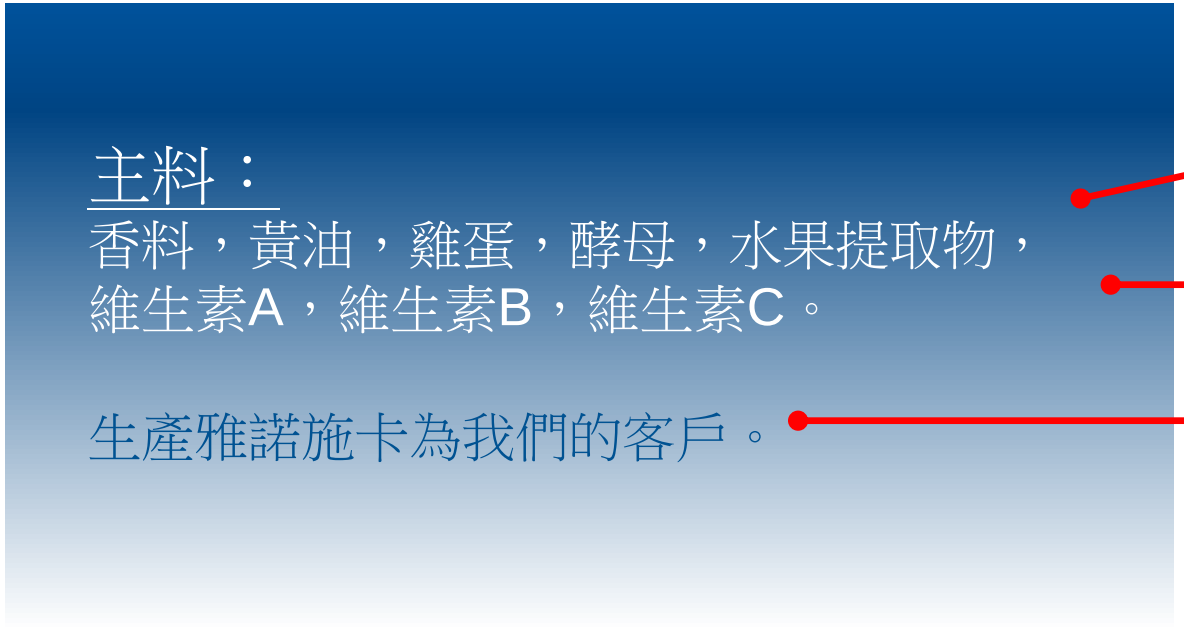
Direct Laser System | The Benefits
and imagine with Chinese characters



Fine negative text in the vignette

Vignette

Positive text

Different Cell-Geometries with DLS

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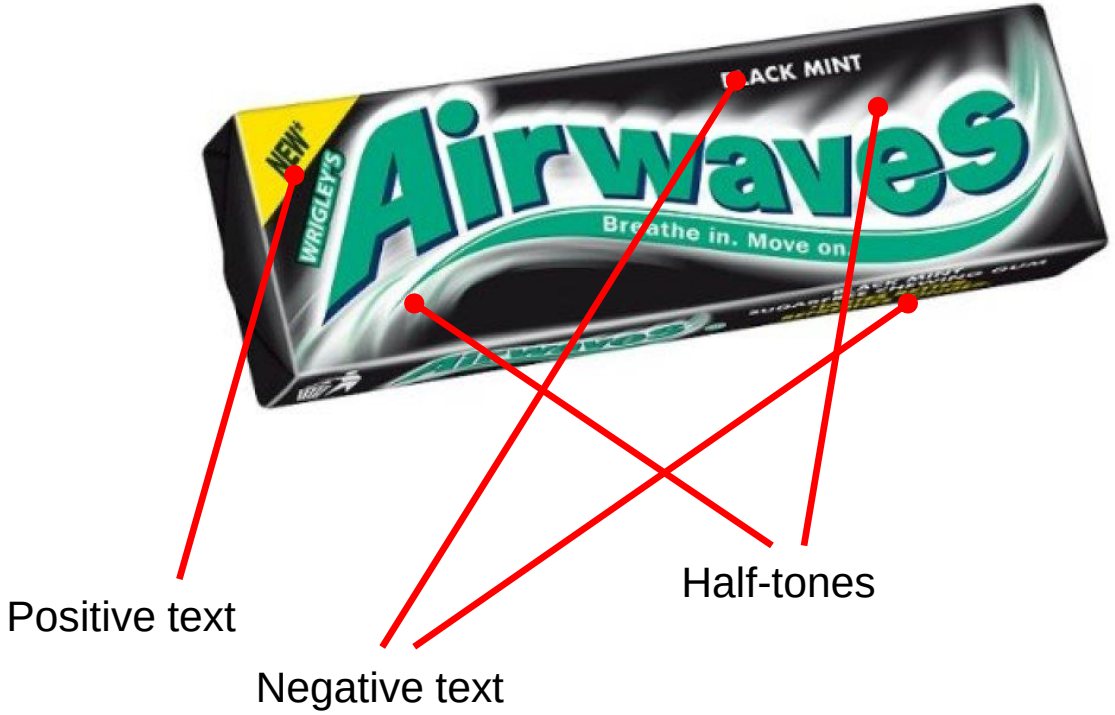
Direct Laser System - The Benefits

combination of line-work and half-tones…



Laser Technology - Cellaxy

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Cellaxy for direct lasering of embossing cylinders, where it far outperforms all established milling and laser technologies as well printing cylinders where it far outperforms all established electromechanical engraving, etching and DLS technologies in terms of quality, availability, and production speed.

Replacement of DLS Halftone's are in development.

Laser Technology - Cellaxy

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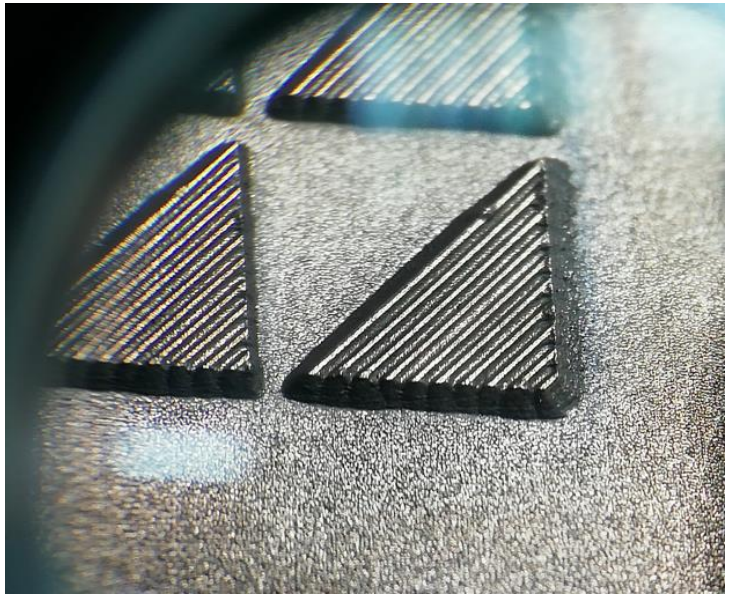
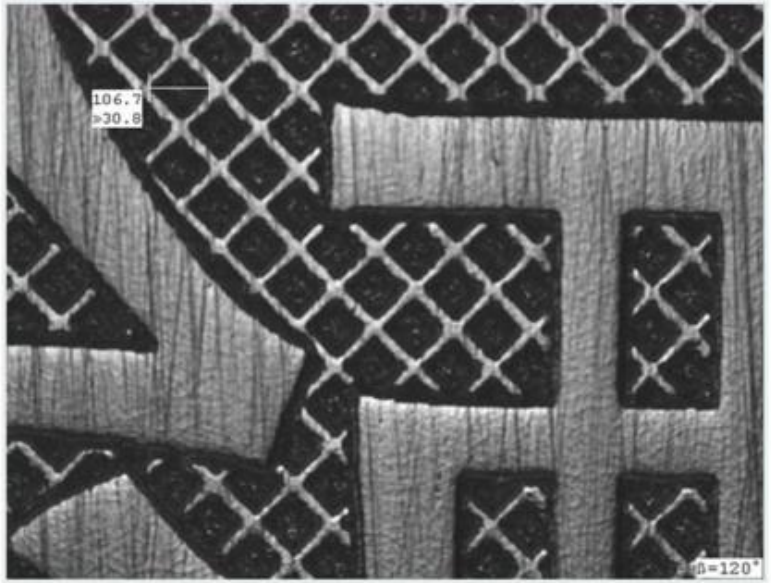
- Emboss and printing cylinders
- High quality Positive / negative text elements
- Capable of High Ink / Laquer transfer
- Strong background colors
- Variations of Cell Shape applicable





Desire to touch…

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Embossing with Laser Technology

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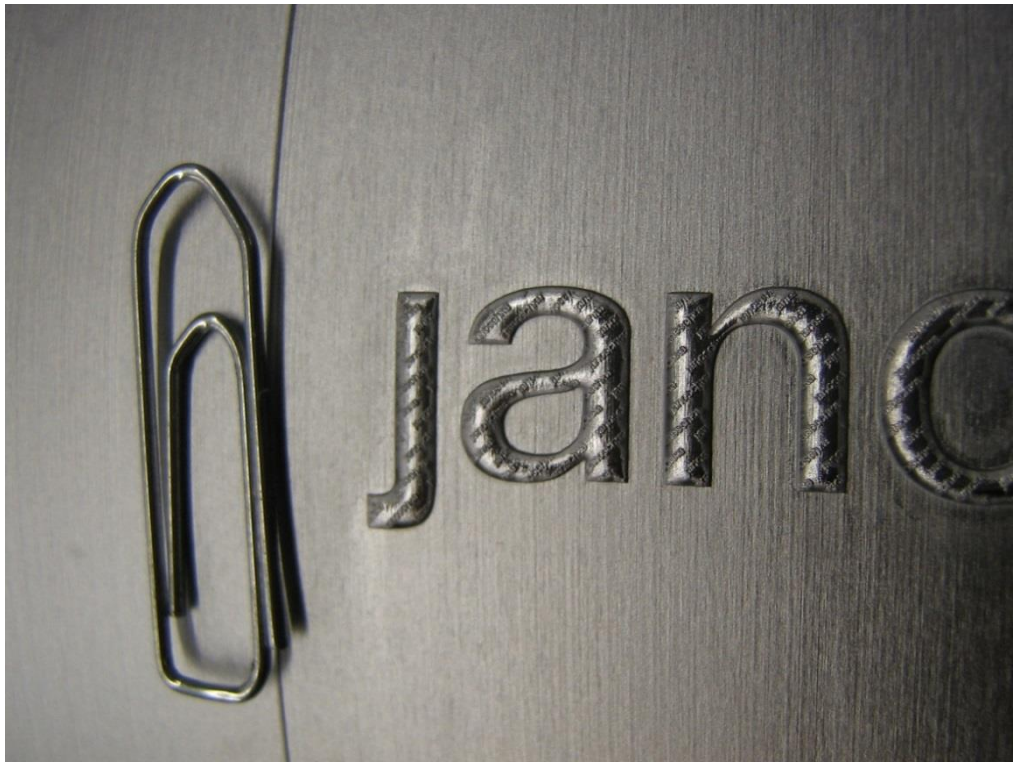
Micro-Embossing with Laser Technology



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your teampreneur

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