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Image-to-Print

Rotogravure Technology & Innovation Days

Laser Technology for cylinder making

Liong Yew Wei

Janoschka | 31.11.-01.12. 2011 | Indonesia

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The Future is Laser

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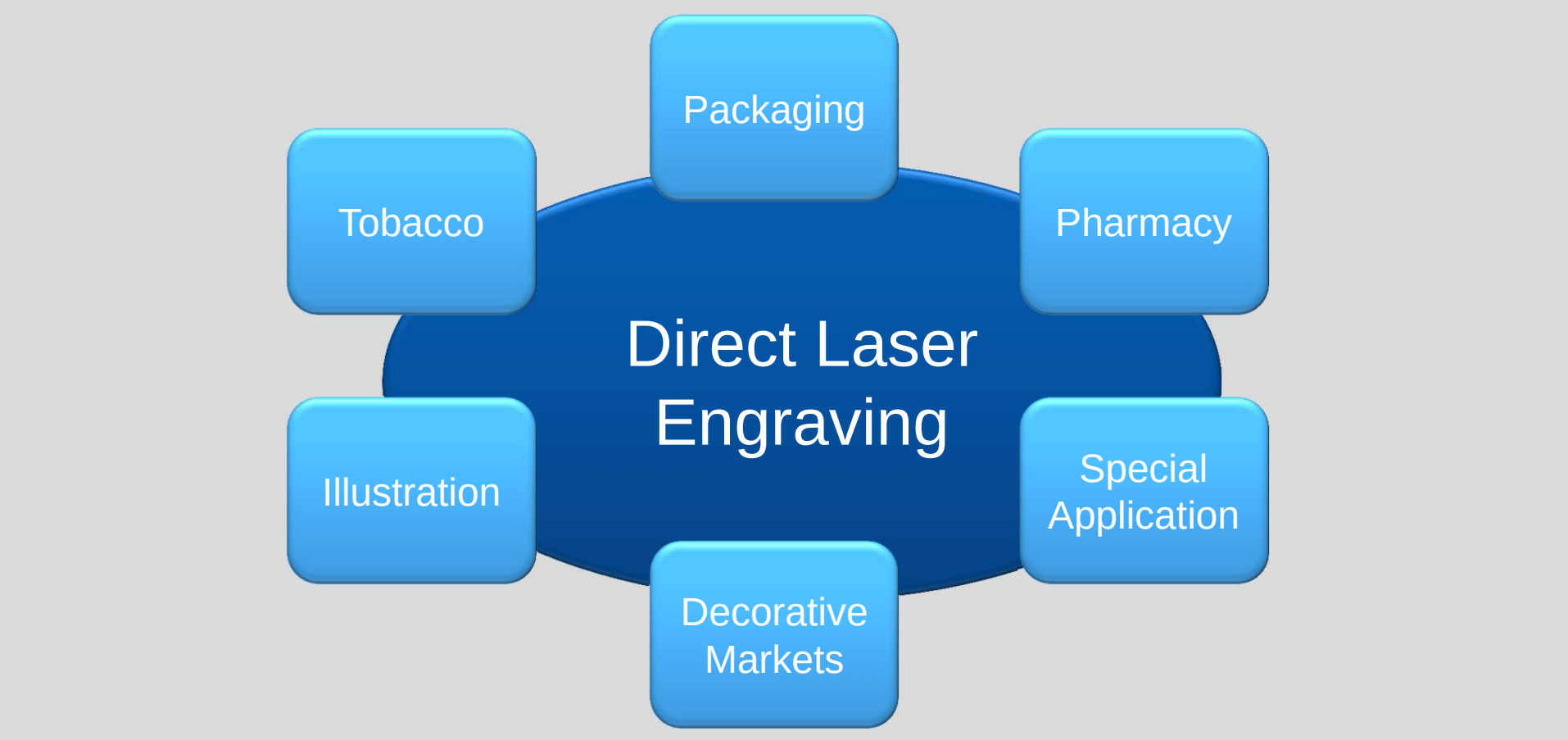
Markets



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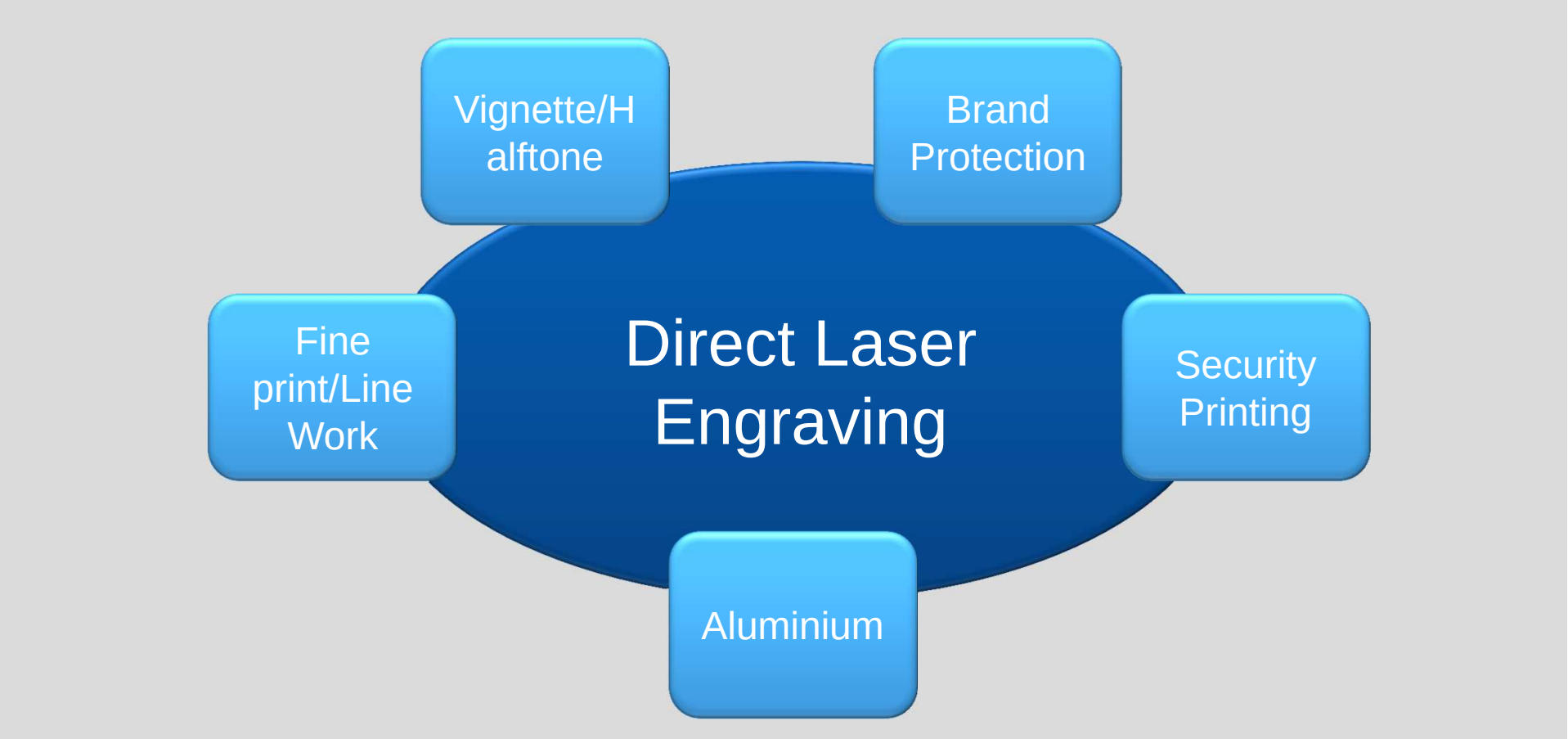
Fields of Application



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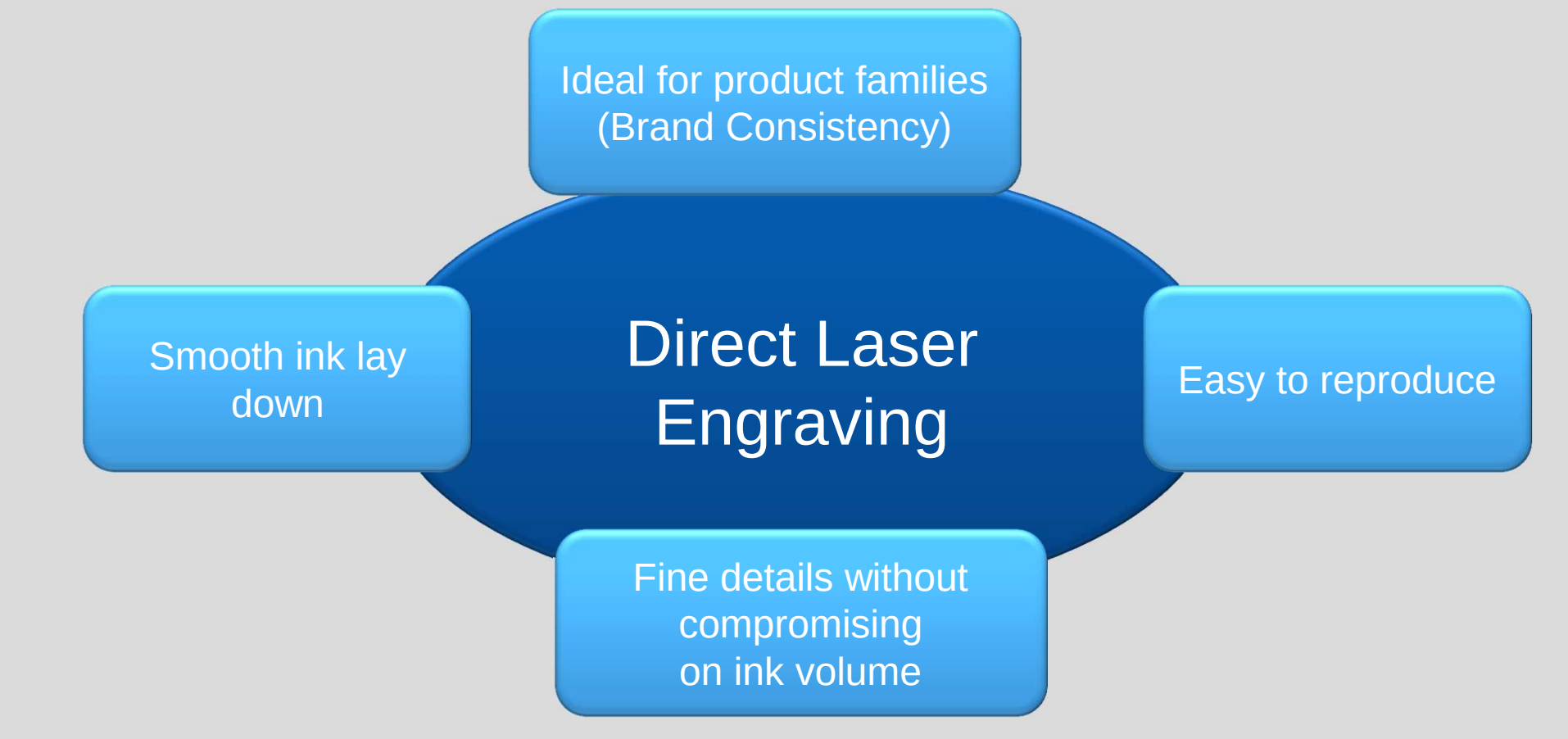
Advantages



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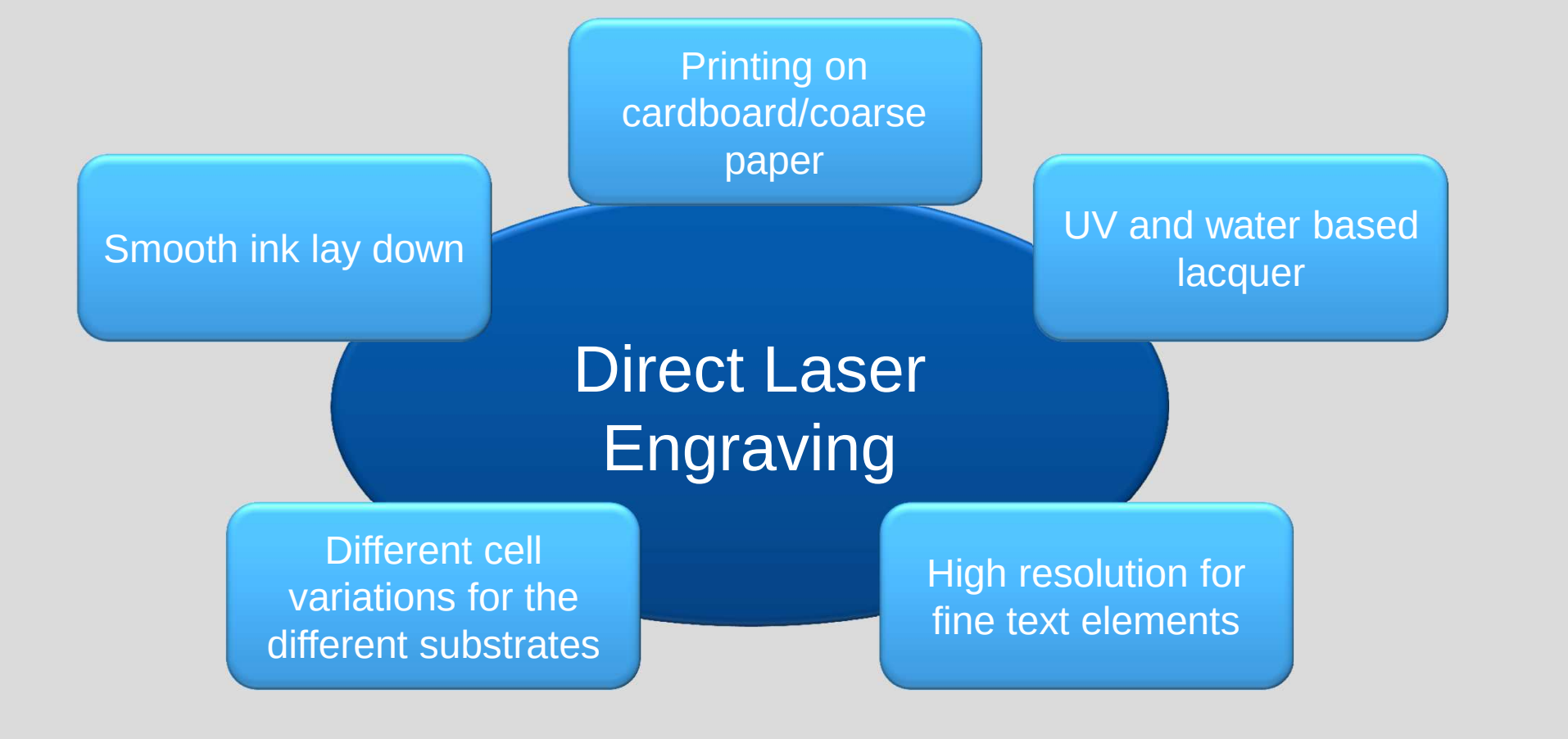
Demands

Tobacco



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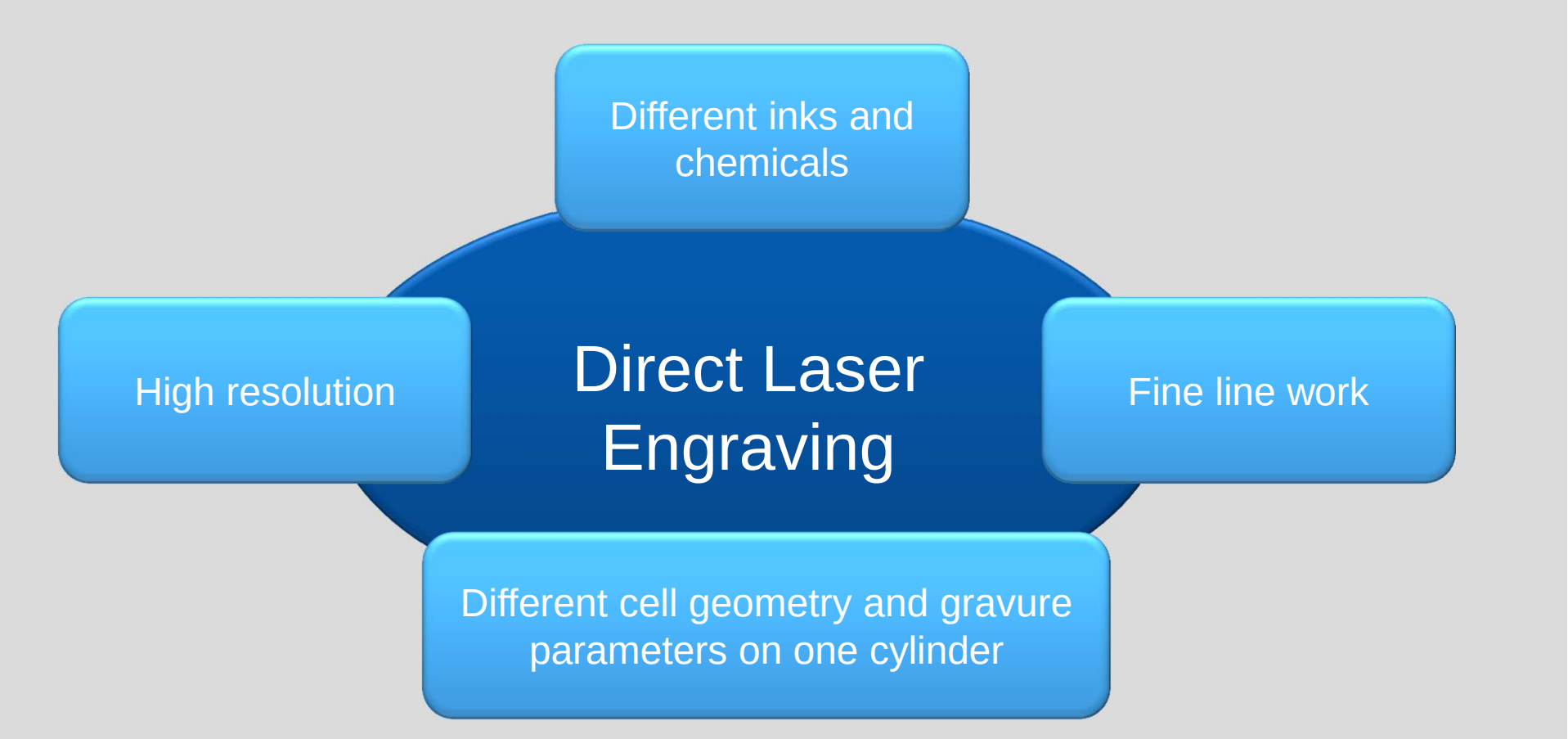
Demands

Security Printing



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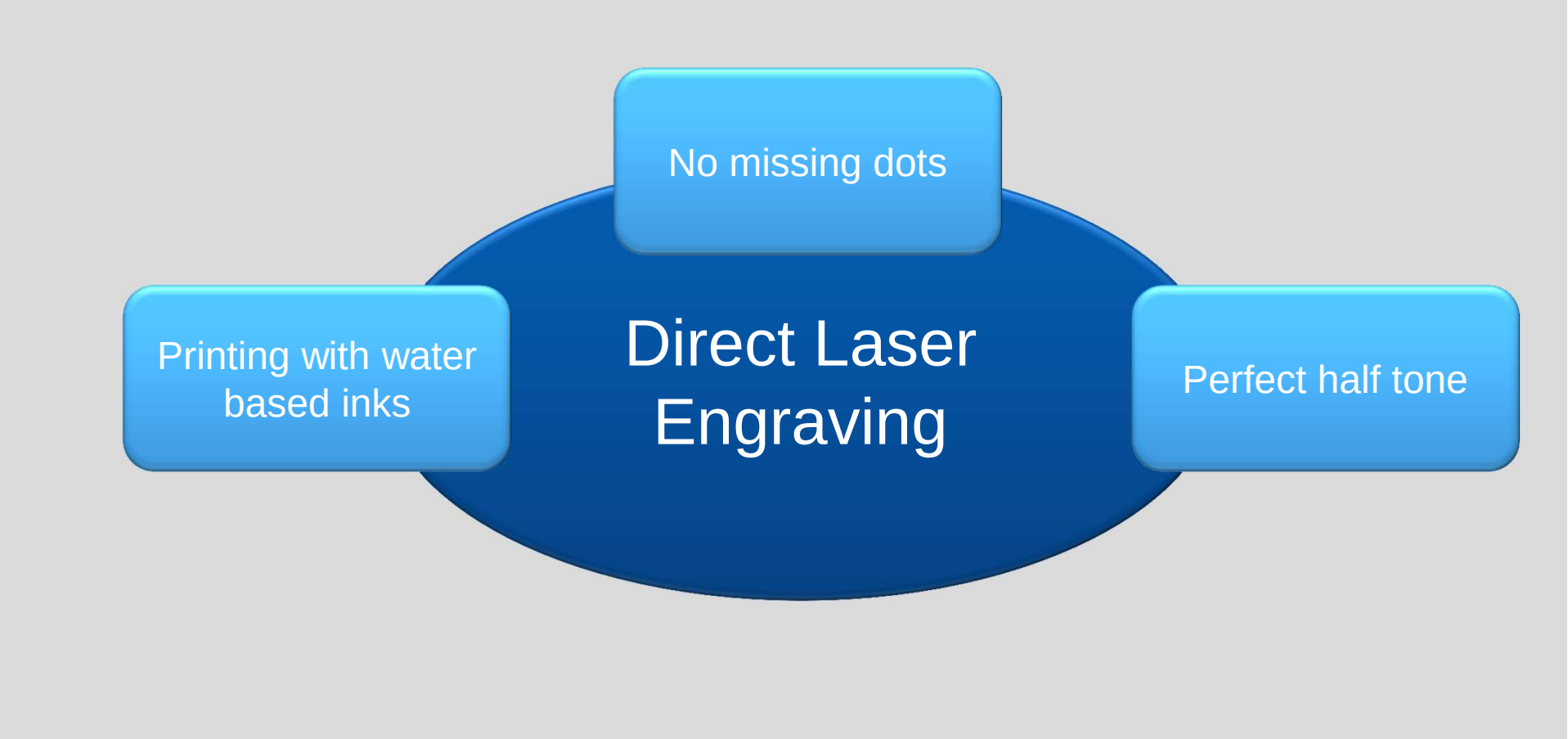
Demands

Decor



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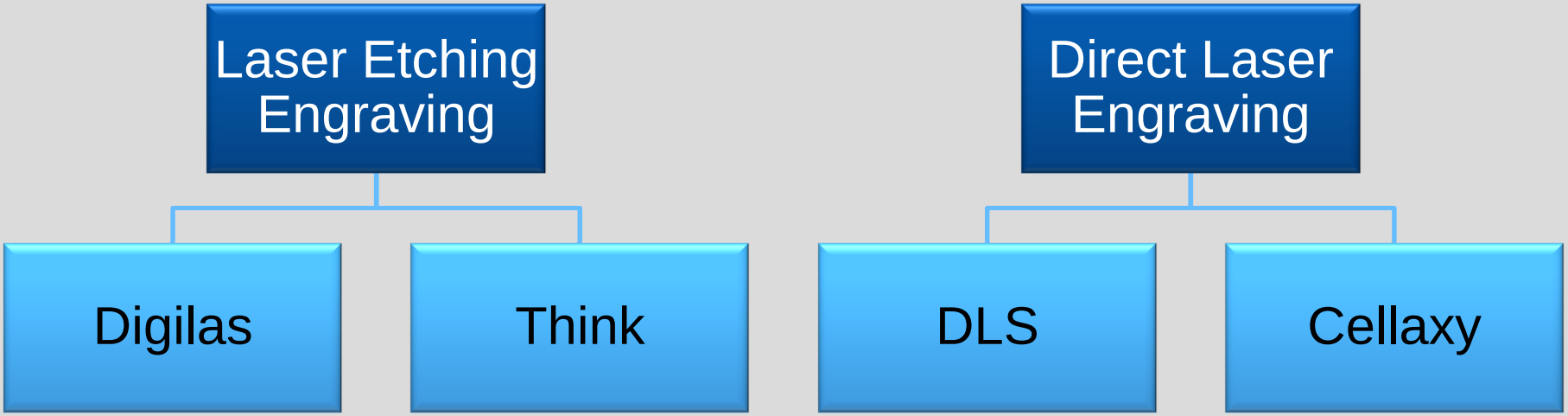
Laser Technologies at Janoschka



Janoschka is the only service-house using and having experience with all existing Laser Technologies.

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Cell geometries vs. Engraving Technology

Etching	Stylus	Direct Laser Engraving
Variable area	Variable area and variable depth But strongly connected	Variable area and variable depth Independent

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Laser System – Daetwyler DLS

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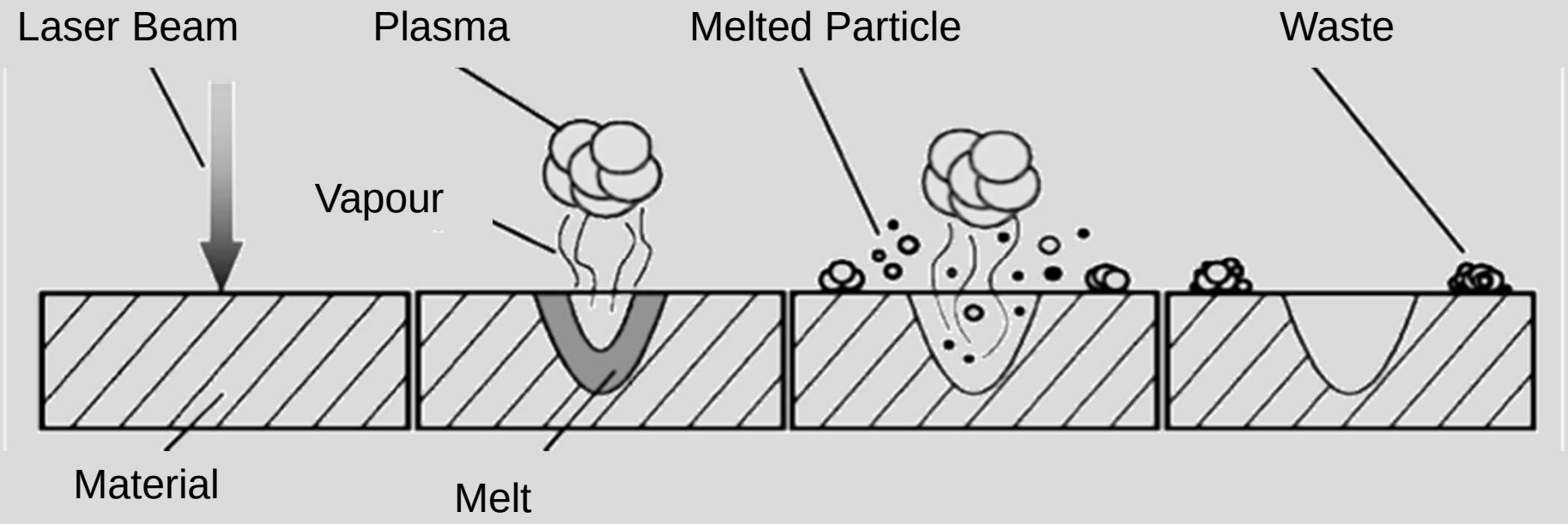
Laser Material Interaction



Fritz Klocke, Wilfried König: „Fertigungsverfahren 3 – Abtragen, Generieren, Lasermaterialbearbeitung“, 2007 ,Aachen, Springer Verlag Berlin

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Laser Direct Engraving • Workflow

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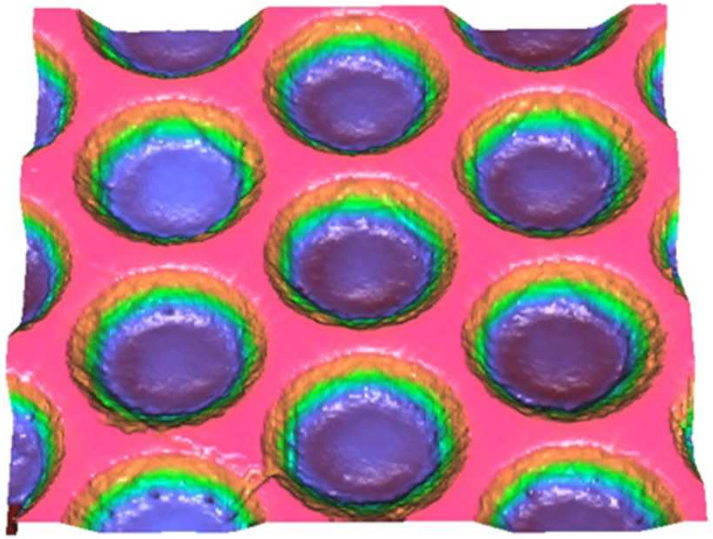
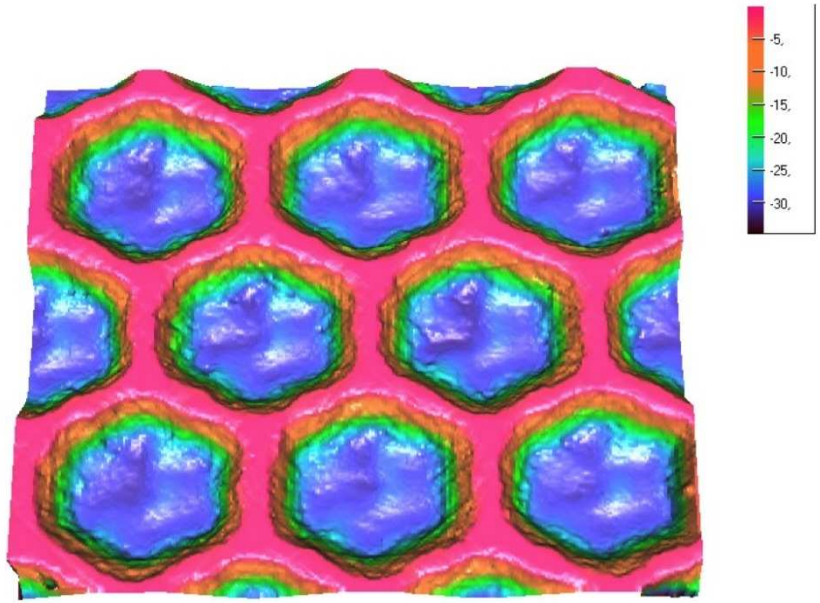
Laser System – Daetwyler DLS



Single Shot



Master Screen

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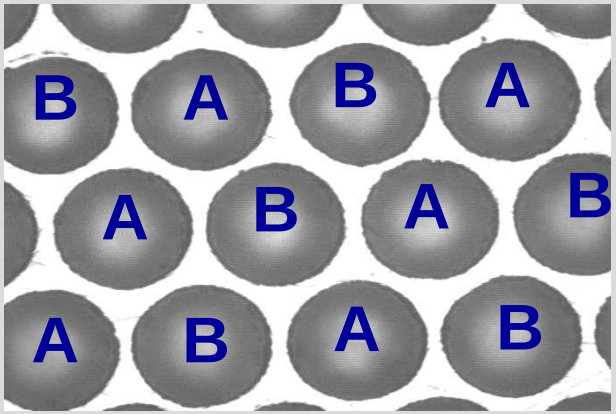
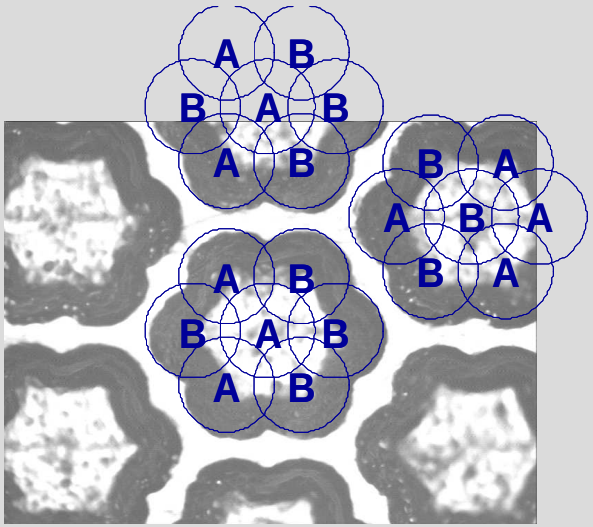
Performance

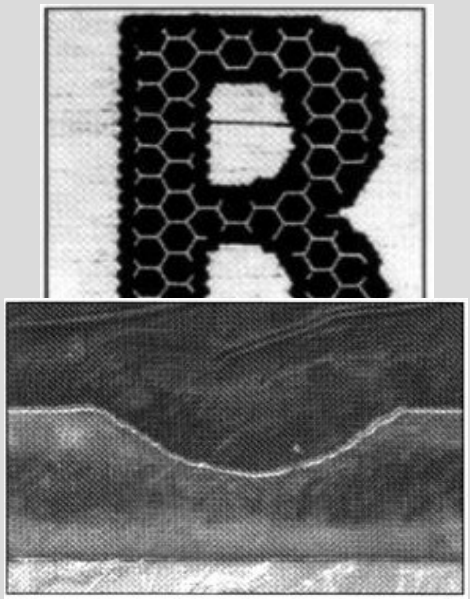
- Engraving Speed: **35,000 or 70,000 cells/s**
- Effective Range of Screen: **30-160L/cm**
  (Single Shot and Master Screen)
- Effective Resolution used: **100-400L/cm**



Single Shot



Master Screen



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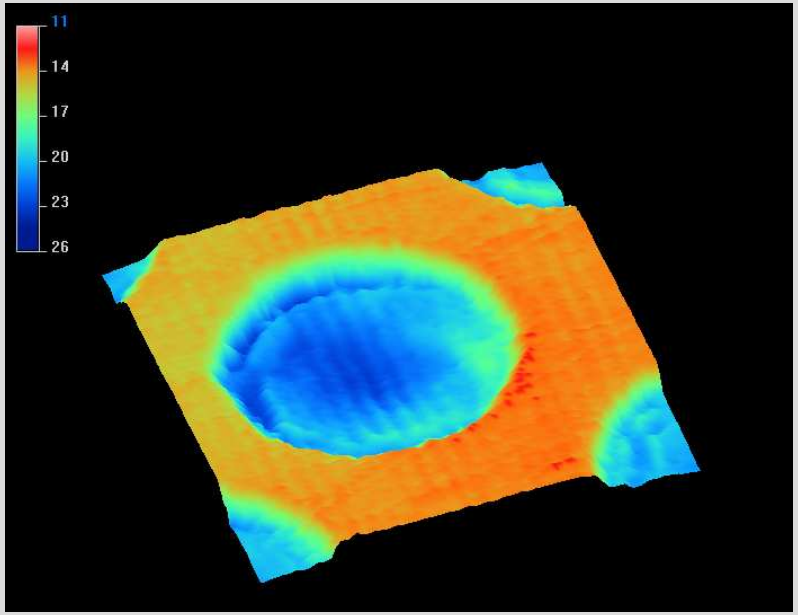
Cell Geometry • Single Shot vs Master Screen

Single Shot

- Screen equals resolution
- Very fast engraving
- Only round cells possible
- Variation in cell types conventional, halfautotypical and superhalfautotypical
- Cell depth up to 35µm (in one pass) (Multi pass possible)



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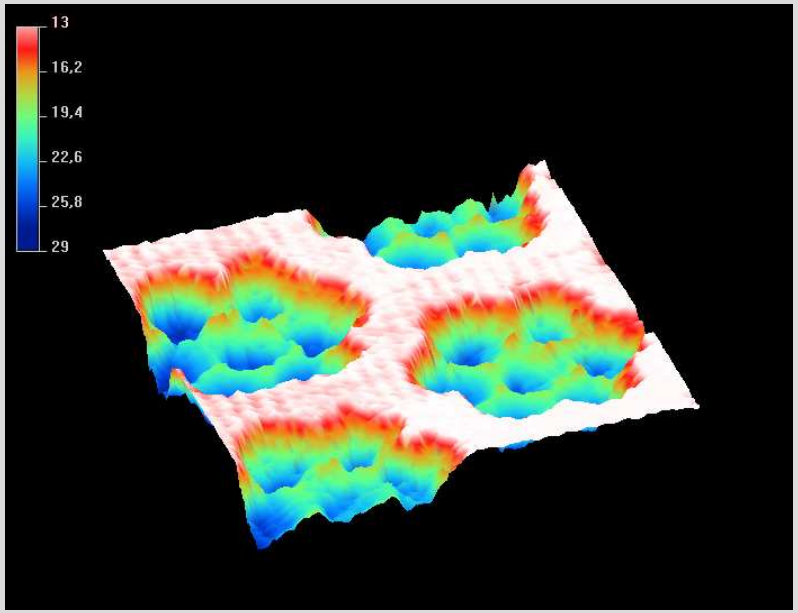
Cell Geometry • Single Shot vs Master Screen

Master Screen

- Resolution higher than screen (similar to image setter)
- Hexagonal cell
- Variation in cell types conventional, halfautotypical
- Outline possible
- Cell depth up to 35µm (in one pass) (Multi pass possible)



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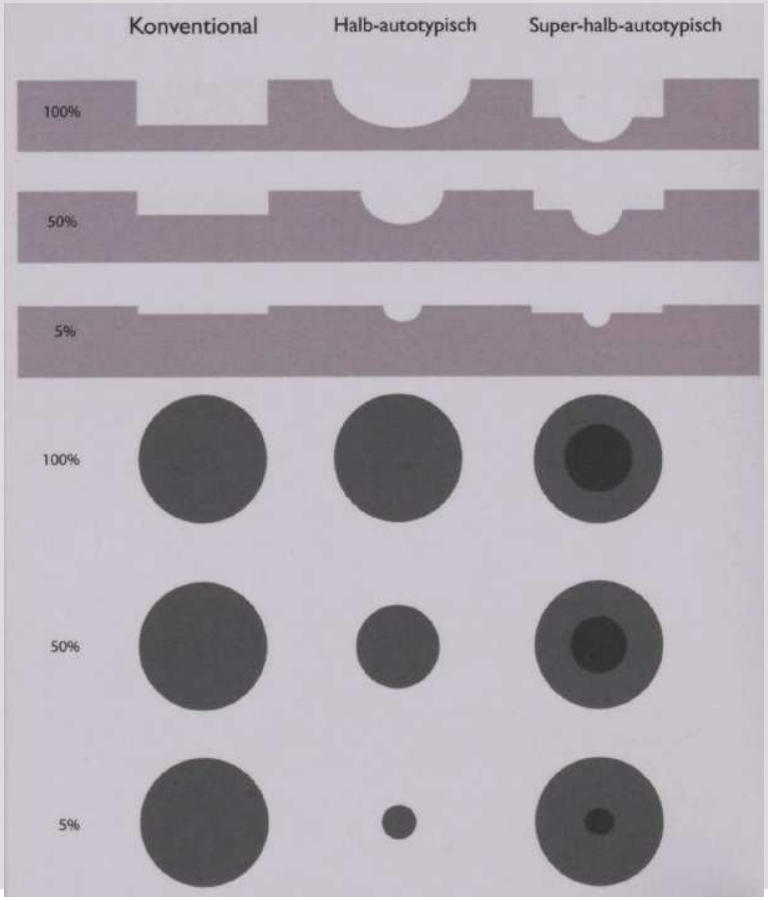
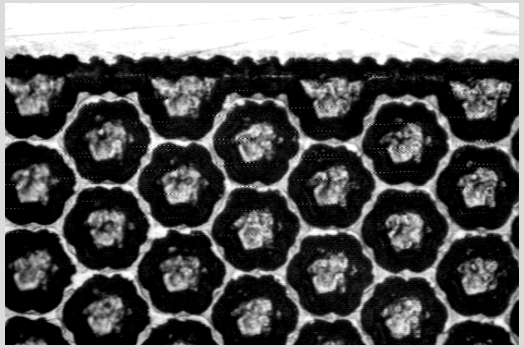
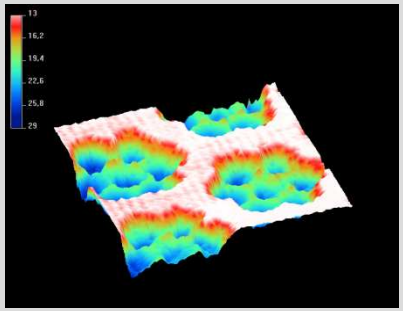
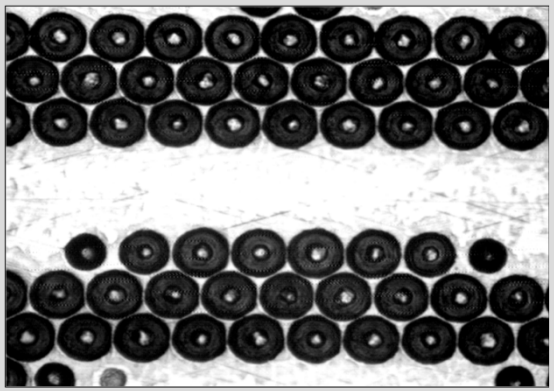
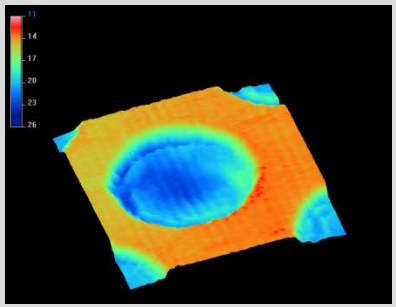
Cell Geometry











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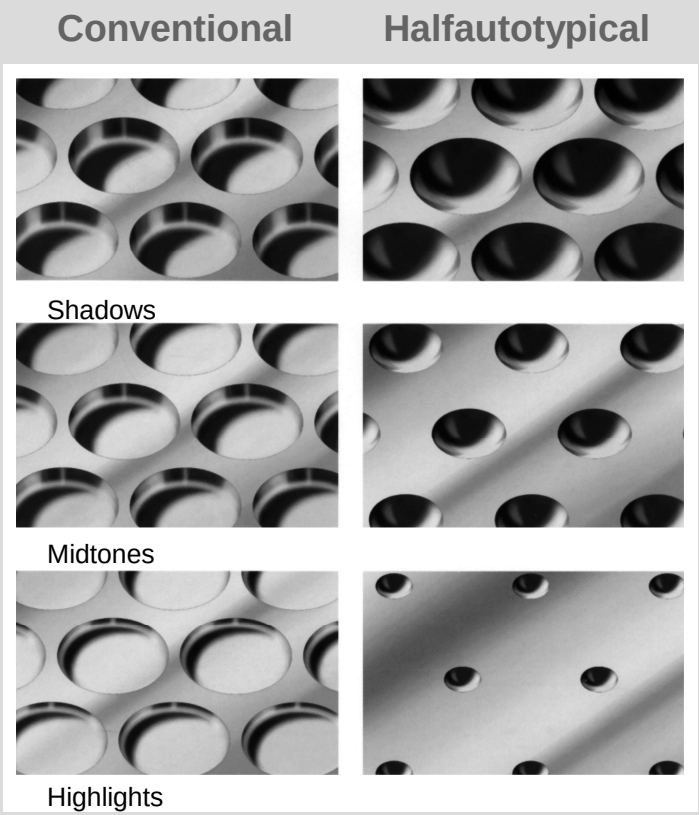
Advantages of Cell Geometry

➔Excellent printing results in half-tones and vignettes

➔especially on rough substrates which are difficult to print



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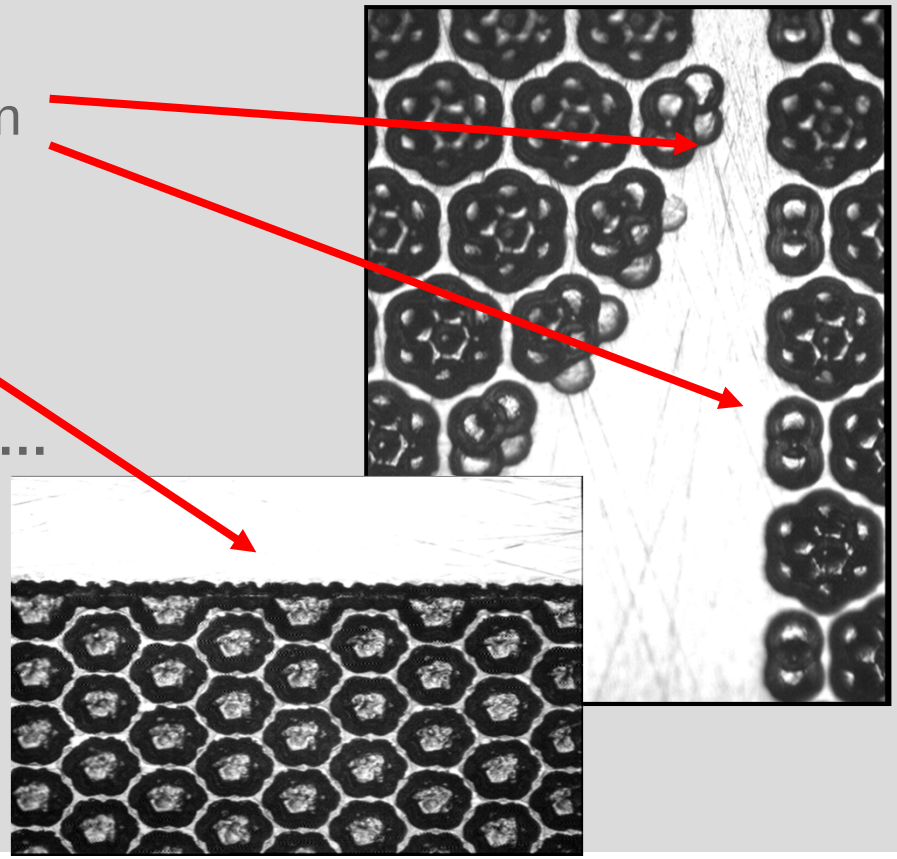
Advantages of Cell Shapes

➔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…**



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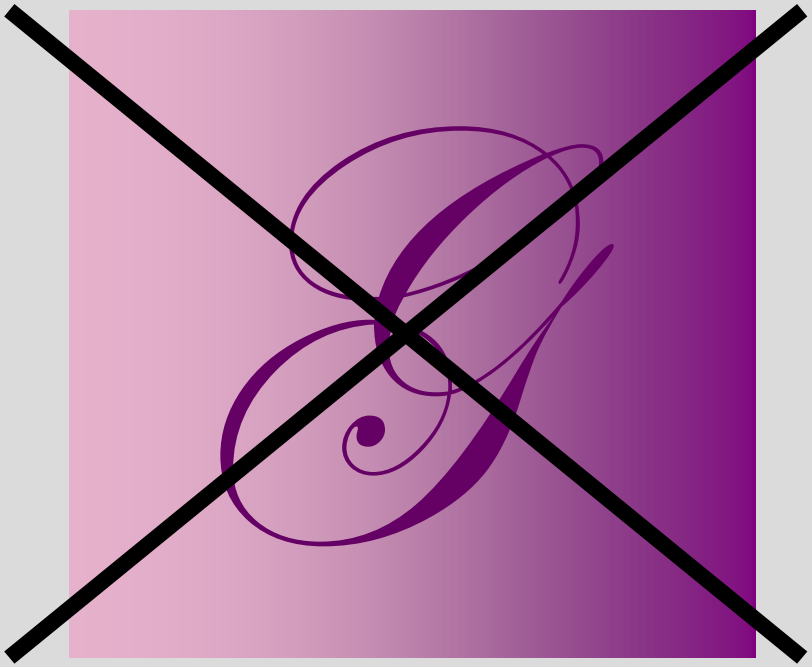
Advantages of Cell Shapes / Cell Geometry

➔ In the past,
combinations of half-tones
and fine text on same cylinder
was only possible
under very limited conditions.



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Advantages of Cell Shapes / Cell Geometry

3 cylinders needed to be engraved:

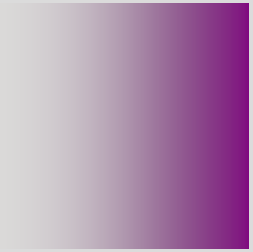
1. Full-tone (background color)

2. half-tone vignette using electromechanically engraved cylinders

3. line-work (fine type) using Laser exposed and chemically etched cylinders

Cylinder 1
- full-tone

Cylinder 2
- Half-tone



Cylinder 3
- Fine-type

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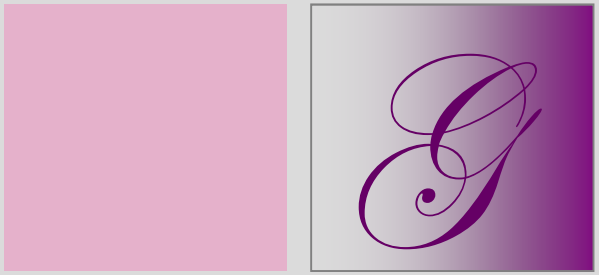
Advantages of Cell Shapes / Cell Geometry

➔ with DLS we can mix today half-tones
and fine elements without any limit,
and they can be combined
on the same cylinder.

with DLS: 2 cylinders



with former technology: 3 cylinders

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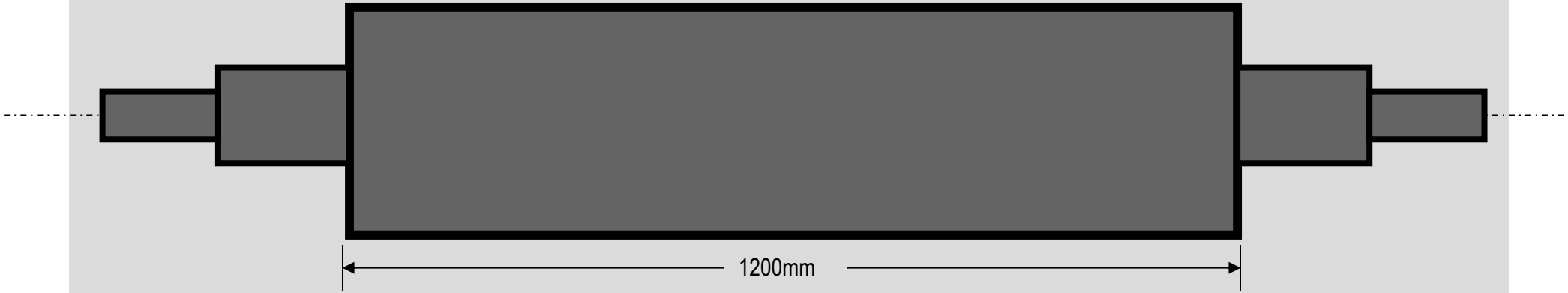
DLS – significant reduction of production time…



Electromechanically engraved…

Laser engraved…

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DLS – less productions time

- **Electromecanical Engraving**

  Production steps

30 min.	30 min.	120 min.	30 min.	60 min.	30 min.	15 min.
De-Chrome	turn-off	copper	Polish	**Engraving**	Chrome	Finish

Total time needed: 5 h 15 min.

Engraving Speed: 8.000 cells/sec.

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DLS – less productions time

- **Direct-Laser-System**

  Production steps

40 min.	50 min.	15 min.	30 min.	30 min.	30 min.	15 min.
De-plate	Zinc-plate	Polish	**Laser**	Cleaning	Chrome	Finish

Total time needed: 3 h 10 min.

Engraving Speed: 70.000 cells/sec.

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DLS – less productions time

- **Electromecanical Engraving**
  Total time needed: 5 h 15 min.
  Engraving Speed: 8.000 cells/sec.

- **Direct-Laser-System**
  Total time needed: 3 h 10 min.
  Engraving Speed: 70.000 cells/sec.

➔ 2 h 5 min. less / or 40% reduced production time!

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Direct Laser Engraving – Benefits (Summary)

- **High Quality / High Resolution**
- **Flexible in Cell Geometry and Cell Depth**
- **Excellent in Ink Transfer and Ink Layer Deposition**
- **Tailor made gravure structures for different applications**
- **New and Innovative applications (Infant stage)**
- **Fast & Reliable**

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DLS Development at Janoschka

The Year 2000:

- Installation of the first Direct Laser Line (DLS) at Janoschka in Germany. Beginning of the DLS development
- R&D team of Janoschka worked hand-in-hand with the suppliers team.
- The technology was established and accepted quickly in the high quality markets.

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DLS Development at Janoschka

The Year 2003:

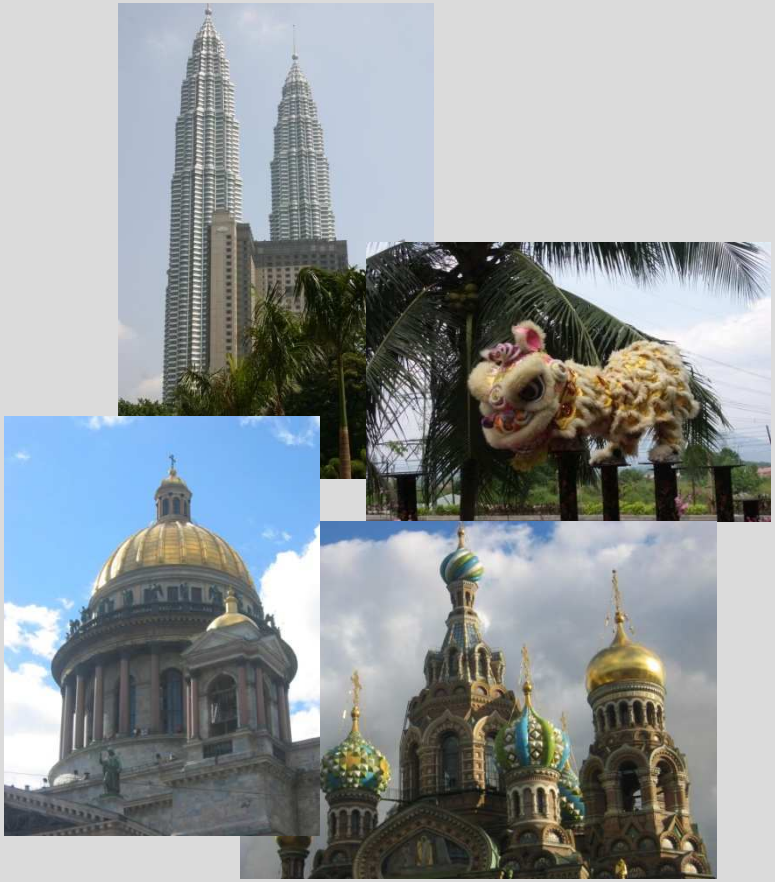
- Installation of the second DLS line at Janoschka in Germany

The Year 2005:

- Installation of the first DLS line at Janoschka APE in Malaysia

The Year 2006:

- Installation of the first DLS line at Janoschka Pavlovsk in Russia



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DLS Development at Janoschka

The Year 2009:

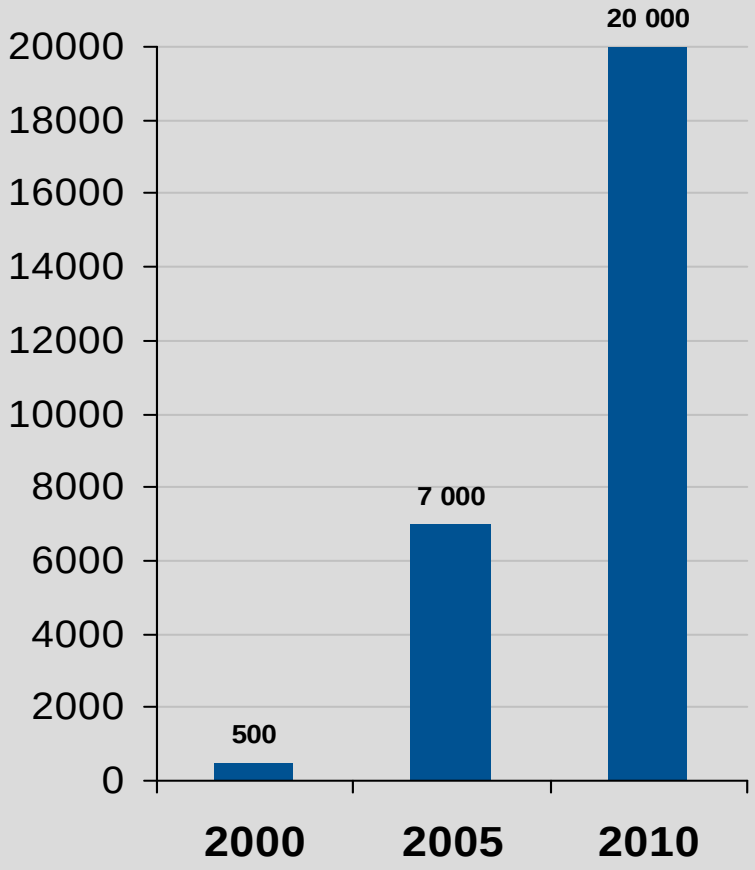
- Janoschka produces more than 20.000 Laser cylinders per year

The Year 2010:

- Installation of the first DLS line in South America at Janoschka Bosisio

The year 2011:

- Janoschka joins up with Grupo Gondi in Mexico and will strive to become a leader in the packaging printing market in Mexico in terms of quality & service.



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DLS Technology becomes a global reference for quality

- Especially in the tobacco market, the DLS technology becomes the ultimate reference for quality
- Janoschka will become the first service house to provide this technology in a global Network

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Janoschka's Global Network with DLS Technology

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Laser Technologies in Asia

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DLS line in APE Malaysia

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DLS line in APE Malaysia

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Think laser lines in APE Vietnam

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Thank you for your attention