Elastomeric printing forms

ContiTech Elastomer Coatings
The characteristics of rubber

<table>
<thead>
<tr>
<th>Digitally processed</th>
<th>Resistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>◾ Three dimensional forming of all printing elements</td>
<td>◾ Solvent + water based inks</td>
</tr>
<tr>
<td>◾ No use of solvents, UV light or nitrogen</td>
<td>◾ UV &amp; EB inks</td>
</tr>
<tr>
<td></td>
<td>◾ 2c whites and varnishes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjustable</th>
<th>Not sensitive towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>◾ Hardness</td>
<td>◾ UV light</td>
</tr>
<tr>
<td>◾ Surface tension</td>
<td>◾ Ozone</td>
</tr>
<tr>
<td>◾ Surface roughness</td>
<td>◾ Oxygen inhibition</td>
</tr>
<tr>
<td>◾ Compressibility</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precise</th>
<th>Rigid</th>
</tr>
</thead>
<tbody>
<tr>
<td>◾ Stable in all dimensions</td>
<td>◾ Tearproof</td>
</tr>
<tr>
<td>◾ High resolution</td>
<td>◾ Shockproof</td>
</tr>
<tr>
<td></td>
<td>◾ Long service life</td>
</tr>
</tbody>
</table>
The principle of laser engraving

Three-dimensional forming of all printing elements!

Leading to the following possibilities:

- All dot shapes and surfaces (Round top, flat top, etc.) are possible without additional equipment
- Surface screening
- Variable angles and depth
- Adjustable first step
- Undercut
Elastomeric printing forms & Laser engraving

Laser engraving
the only
truly digital process
to produce flexo printing forms!

Elastomeric printing forms
as an image carrier
with integrated compressible
layer!
Production

**Compund feeder**
- Adhesive
- Compressible layer
- Top layer

**Carrier**
- Fiber
- Metal
- Foil

**Calander**

**Vulcanisation**
- Oven
- Continuous vulcanisation

**Grinding**
- Pre grind
- Fine grind

Thickness tolerance = max. +/- 15μm over 500 m in length and 2100 mm in width!
Functions and features
Compressibility/ Materials

Solid materials in comparison to compressible elastomeric compounds

Solid material

Compressible material

Solid materials are not compressible, independent of the type of polymer!
Functions and features
Compressibility/Deformation

No pressure load...

Total thickness of both printing forms is the same!

- Traditional printing form
- Compressible
der
- Photopolymer
- Carrier foil
- Foam tape
- Elastomer
- Compressible layer
- Carrier foil (* inc. thin, hard mounting tape)

* Elastomer Coatings
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Functions and features
Compressibility/ Deformation

With pressure load…

During pressure load

The carrier foil acts as a barrier and does not allow for true compressibility!

Photopolymer
Carrier foil
Foam tape

Elastomer
Compressible layer
Carrier foil*

* inc. thin, hard mounting tape
Functions and features

Compressibility: Solid material, mounted on cushion tape

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**Graph Details:**
- **Type:** CSX 1.14mm
- **Date:** 15.08.11
- **Graph Description:**
  - **Axis:** kPa (Y-axis), EINFRUHLUNG (SINKING), EINDRUCKUNG (DEPTH OF IMPRESSION)
  - **Legend:**
    - **FEDERKFEHLINIE:** COMPRRESSIBILITY CURVE (QUASISTATISCH)
    - **GESPANNT:** UNDER TENSION (SEMISTIC)

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**Contacts:**
- **CONTITECH**
- **ELASTOMER-BESCHICHTUNGEN GMBH**
- **F&E DRUCKTECHNIK**
Functions and features
Compressibility: Compressible elastomer, mounted on hard tape
The feeding characteristics of rubber …are the key to victory or loss in car racing!

In flexo printing they are the key to quality!
Functions and features

Feeding characteristics

When pressure is applied to the printing form there will be a change in length of the print repeat, which leads to speed differences between the central drum and the printing form. This will result in halo effects and poor ink coverage.
Functions and features
Feeding characteristics

Result

- Poor ink coverage
- Hard to control tonal values
- Halo effects

Using defined compressibility *within the printing form* setup, the feeding characteristics can be *neutralized* and *visibly improve* the printed result!
Functions and features

Feeding characteristics

The feeding characteristics and therefore ink transfer/coverage are in direct relation to compressibility.

Only when both components are working together on an optimal base, it makes sense to think about …

- Dot shapes and surfaces
- Variable depths and angles
- First step and plateaus
- Undercut
Products
CONTI Laserline CSC

- Comes of the reel
- Stable in all dimensions (no shrinking)
- Integrated compressible layer
- Reduces press chatter
- High resolution
- Even ink coverage
- No plate swelling!
  Suitable for solvent and water based inks, as well as UV and EB curing inks
- Long service life
- Optimized ink transfer
Produkte
CONTI Laserline CSX

- Comes of the reel
- Stable in all dimensions (no shrinking)
- High resolution
- Even ink coverage
- No plate swelling!
  Suitable for solvent and water based inks, as well as UV and EB curing inks
- Long service life
- Optimized ink transfer
Summary
Quality and economics

Quality
- Better ink transfer
- Better ink lay down = better coverage!
- Better control over tonal values
- Reduction of press chatter
- No halo effects
- No plate swelling
- No limitation in the structure of the printing elements
Summary
Quality and economics

Economics

- No need for expensive foam tapes
- Long service life
- Less waste (material of the reel)
- Less space consumption for consumables (material of the reel)
- Only two steps in production: Engraving & Cleaning
- No use of additional consumables like film, solvents or inert gases
- Reduced amount of machinery and less energy consumption
Further information

Product sheets

conti-laserline.com
Thank you for your attention!

ContiTech Elastomer Coatings