ServoDirect Technology
Increased Efficiency in the Press Shop

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Oerlikon Balzers Coating Germany GmbH
Schopfheim

Schuler Pressen GmbH – Stephan Paul
Agenda

- Introduction
- Servo Press – Technology
- Production Experience
- Efficient process chain
- Summary
A tradition of innovation
Schuler worldwide
Press Drives - Evolution
ServoDirect Technology

- **Highest productivity** due to very high output
- **High flexibility** due to freely programmable time/travel curve
- **High flexibility** due to freely programmable **stroke heights**
- **Adjustment** and **tryout functionality** by means of hand wheel
- **Maximum working capacity** starting from minimum spm
Production Experience with Schuler Servo Presses

- Schuler Servo Presses successfully in production since the beginning of 2007
- More than 340 servo presses from 1.250 kN up to 35.000 kN press force producing at customers premises or in production at Schuler
- Several servo presses have already made more than 200 mio. strokes in pendular mode
- In 2010, first servo press line successfully in production at OEM customer
- Continuous testing and tool tryout on our own servo presses
### Example – Domestic Appliance Industry

<table>
<thead>
<tr>
<th>Part</th>
<th>Drum cap - washer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stroke rate</strong></td>
<td></td>
</tr>
<tr>
<td>Conventional</td>
<td>16 1/min</td>
</tr>
<tr>
<td>Servo</td>
<td>24 1/min</td>
</tr>
<tr>
<td><strong>Increase</strong></td>
<td>50 %</td>
</tr>
</tbody>
</table>

![Graph showing comparison between conventional and servo presses](image.png)

- **Servo Press TSD 4-1600**
- **Conventional Press**
Example – Automotive supplier

<table>
<thead>
<tr>
<th>Part</th>
<th>Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prozess</td>
<td>ProgDie</td>
</tr>
<tr>
<td><strong>Stroke rate</strong></td>
<td><strong>Conventional</strong></td>
</tr>
<tr>
<td><strong>Stroke rate</strong></td>
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**Diagram:**
- **Servo Press MSD2-400**
- **Konventional Press**

**Axes:**
- Zeit [s]
- Hub [mm]
Efficient process chain
Process Evaluation in Advance

- The Part is producible?
- Which processes are necessary?
- How many operations and Die stages?
- Transfer or ProgDie process?
- Material costs and savings are important?
- Integration of a subsequent process is possible?
- Possible output rate?
- Production costs per Part?
Potential Process Integration

- Welding
- Piercing and riveting process
- Laser cutting
- Assembly
- Quality check
- Laser engraving
- Heat treatment
- Adhesive bonding
- Clinching
- Tapping process
- Mechanical processing / machining
- Joining technology for plastic and metal
- Soldering
Example – In Die Tapping process

- Example: Process - SCHULER Servopress MSD2-630
- Threads: 2x M8
- Unit: Servo driven tapping unit
- Stroke rate:
  - Conv. Eccentric Press: 30 spm
  - Servopress: 56 spm = + 87%
- Life time – thread formers:
  - Conv. Eccentric Press: 25.000 parts
  - Servopress: 75.000 parts = + 200%

Source: Pronic
Training - Employee Qualification

- New technology is only as good as the people who operate it
- The training and employee qualification is necessary in all target groups
- Training leads to more economic efficiency, higher output rates and a higher OEE
Summary

- **Increase of production output**: by freely programmable stroke lengths and motion curves.

- **Maximum production flexibility**: by freely programmable motion curves.

- **Shorter setup times for toolings**: by using the features of the tryout handwheel

- **Increase part quality and die lifetime**: through optimization of the forming process.

- **Experience**: more than 340 servo presses under order or in production.

- **Support & Service worldwide** for SDT technology.

$status

**Significant higher economic efficiency!**
Thank you for your attention!