Unique steel belt press technology for
development of high strength wood containing paper

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Desirable change
Hot - Pressing

- Temperature
- Pressure
- Lignin and hemicellulose
- Moisture
Moist Sheet making

Rapid Köthen

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammage</td>
<td>150 g/m²</td>
</tr>
<tr>
<td>Dry content</td>
<td>45 – 50 %</td>
</tr>
<tr>
<td>Press drying Pressure</td>
<td>100 kPa</td>
</tr>
<tr>
<td>Press drying Temperature</td>
<td>90°C</td>
</tr>
</tbody>
</table>

Cylinder Press

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>1 m/min</td>
</tr>
<tr>
<td>Temperature interval</td>
<td>20-200°C</td>
</tr>
<tr>
<td>Nip pressure</td>
<td>Constant</td>
</tr>
<tr>
<td>2 plies felted web</td>
<td>0,25 mm</td>
</tr>
</tbody>
</table>

Hot-pressing
Increasing nip temperature 20°C to 200°C

- CTMP
- HT-CTMP
- TMP
- NSSC
- Bleached Kraft
Wet tensile index after 1 min (kNm/kg)

Temperature (°C)

CTMP
HT-CTMP
TMP
NSSC
Bleached Kraft
New Rotopress from IPCO

Improved flexibility when optimizing

- Temperature
- Pressure
- Press time
- Steel Belt
- IR heater
Machine data

- Speed: 0,1-4,5 m/min
- Steel belt width: 400 mm
- Steel belt thickness: 0,8 mm
- Different material, up to 10 mm thickness

Machine:
- Width: 1660 mm
- Height: 2400 mm
- Length: 3350 mm
- Weight: 2500 kg
Cylinder diameter 800 mm
Two press rolls diameter 200 mm
Max nip force 6 kN each
IR heater with 6 parallel lamps
Maximum temperature: 180°C and 300°C for rubber (Viton) and steel press roll respectively
Web tension: 50-70 kN
5 Temperature sensors for monitoring
Ongoing progress

- Further improve strength and wet strength in HYP based materials with the new rotopress
- Comparison cylinderpress vs. rotopress
  - $F(\text{temp, moisture, pressure, ...})$
- Steel roll vs. soft rubber covered roll
  - Pressure
- Water transport/delamination
Acknowledgments

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Opening ceremony for the Rotopress from IPCO, December 13th 2018

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