The pulp & paper industry is facing many new challenges: Increasing global competition, decreasing demand for certain types of paper due to digital media, rising energy costs, stricter health, safety and environmental policies. To meet these challenges, pulp & paper manufacturers must increase plant productivity and profitability by cutting operating costs. perma lubrication systems can help with some of these challenges.

**Lubrication points**

<table>
<thead>
<tr>
<th>Pulp production</th>
<th>Roller bearings</th>
<th>Shaft seals</th>
<th>Chains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipping, storing</td>
<td>Belt conveyors, tumblers</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cooking, washing</td>
<td>Pumps, wash presses</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bleaching, drying</td>
<td>Electric motors, dryers</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pulp treatment</th>
<th>Roller bearings</th>
<th>Shaft seals</th>
<th>Chains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defibration</td>
<td>Pulpers, electric motors</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Grinding</td>
<td>Refiners, electric motors</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Transportation, Thickening</td>
<td>Pumps, electric motors</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
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<tr>
<th>Paper production</th>
<th>Roller bearings</th>
<th>Shaft seals</th>
<th>Chains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water removal / screening</td>
<td>Vacuum systems</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Pressing, drying</td>
<td>Pulpers, dryers</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Spreading</td>
<td>Dryers, roll conveying systems</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Finishing / refining</th>
<th>Roller bearings</th>
<th>Shaft seals</th>
<th>Chains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>Chain conveyors</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Cutting</td>
<td>Length and cross cutters</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Challenges**

- Dust, dirt, moisture
- High speeds
- High maintenance costs, spread-out equipment with different lube-points
- Hard-to-reach lubrication points
- Rotating machine parts
- High temperatures
Advantages of automatic lubrication

- **Continuous relubrication** at short intervals reduces wear and seals lubrication points to prevent contamination from dust, dirt and moisture.

- **Individual and optimized lubrication** of pulp & paper process equipment (lubricant, lubricant amount, lubrication interval).

- **Simple installation** and exchange of lubrication systems outside of dangerous areas increases workplace safety.

- The use of automatic lubrication systems reduces personnel- and material costs and increases equipment service life.

Solutions

**Direct mounting on lubrication point: e.g. perma CLASSIC / FUTURA / FLEX / NOVA**

- Easy, quick mounting
- For lube-points with little vibration / shocks
- For easy-to-access and safe lubrication points

**Remote mounting to lubrication point: e.g. perma STAR VARIO**

- For lube-points with strong vibration / shocks (isolation of lubrication system)
- When workers’ safety is at risk: Mounting in safe areas
- For hard-to-access lubrication points

Would you like more information on perma products?

- Detailed product information in our perma catalog
- Visit our website www.permausa.com
Applications

- Bearing lubrication at tree sorting system
- Bearing lubrication on a belt conveyor
- Electric motor lubrication

- Motor lubrication on a vibrating screen
- Bearing lubrication on a pump
- Lubrication of a pillow block bearing on a blower

- Lubrication of bearing unit on a fan
- Shaft lubrication on belt conveyor pulley
- Lubrication of drive shaft on a mixer

Individual solutions

- perma Product portfolio
  - Solutions for all types of applications

- perma Lubricants
  - Large selection of high quality lubricants to meet the requirements of your equipment

- perma Accessories
  - Extensive range of accessories and connecting parts for your equipment

- perma SERVICE
  - Project planning, installation and maintenance

- perma SOFTWARE
  - Calculation of lubricant amount: • perma SELECT
    Maintenance Lubrication Program: • perma MLP