Savings energy

Savings energy is an important issue for the textile industry today, as power requirements are continuously increasing due to high-speed operations. The ring spinning frame is a major consumer of energy, taking 40% to 60% of total spinning mill energy consumption.

As a result, saving energy with the spindle tape has become even more vital in the spinning industry. Studies conducted by a leading research institute in South India on modern ring spinning frames at higher spindle speeds have shown convincing results.

Proliferated in field tests

Field tests at reputed spinning mills have confirmed that the replacement of polyamide spindle tapes with the highly efficient Habasit polyester W-8 spindle tape provides substantial energy and cost savings.

Unique characteristics of the W-8 polyester spindle tape

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>High tape flexibility</td>
<td>Low bending resistance</td>
</tr>
<tr>
<td>Constant friction (black side)</td>
<td>Reliable power transmission</td>
</tr>
<tr>
<td>No fiber and fluff accumulation</td>
<td>No slip</td>
</tr>
<tr>
<td>Dimensional stability, no elongation</td>
<td>Constant spindle speed, Consistent yarn quality</td>
</tr>
</tbody>
</table>

Product liability, application considerations

The Willow spinner and application of Habasit products is recommended by an authorized Habasit sales representative. Habasit products are not intended for use by untrained persons. Habasit products should only be used in accordance with the application instructions and the data sheet. The specifications and descriptions are intended as a guide and do not constitute a warranty or guarantee of performance. The specifications and descriptions are subject to change without notice. The use of Habasit products may result in personal injury and substantial property damage.

Habasit reserves the right to make changes to the specifications and descriptions and to discontinue any product at any time. The use of Habasit products in a manner inconsistent with their intended use or to an extent not covered by the specifications and descriptions could result in injury or damage. Habasit cannot assume any liability for personal injury, property damage, or any other loss or damage caused by the use of its products. Habasit disclaims any and all warranties, express or implied, including, but not limited to, any warranty of merchantability or fitness for a particular purpose.

Energy and Cost Savings with Habasit Power Transmission Belts and Tapes

With energy costs increasing continuously, Habasit has the right solutions for energy and cost savings across the entire range of textile machinery.

Our belts and tapes offer:

- High efficiency
- High machine performance
- Low energy consumption
- Low costs

World-famous Habasit W-8 spindle tapes are energy-saving champions

4% - 8% energy and cost savings
Energy savings with Habasit TC tangential belts compared with competitors’ polyamide belts:

Your savings
Compare the energy cost-saving potential of Habasit polyester TC and TF tangential belts with competitors’ polyamide tangential belts:

<table>
<thead>
<tr>
<th>Average energy-saving potential in percentage of power to be transmitted</th>
<th>4% – 6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average energy cost-saving potential per spindle / year</td>
<td>~ USD 1</td>
</tr>
<tr>
<td>Average energy cost-saving potential per year in a spinning mill with around 200,000 spindles</td>
<td>~ USD 200,000</td>
</tr>
</tbody>
</table>

Energy consumption comparisons – showing savings
Energy consumption comparison between competitor polyamide tangential belts and Habasit polyester TC tangential belts, made on Laxmi TFO two-for-one twisters at the Rajasthan Spinning & Weaving Mills Ltd. in India:

<table>
<thead>
<tr>
<th>Spindle speed</th>
<th>Competitor polyamide belt</th>
<th>Habasit TC-35ER belt</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</td>
<td>11,100</td>
<td>10,100</td>
</tr>
<tr>
<td>Consumed energy</td>
<td>22.82 kWh</td>
<td>22.3 kWh</td>
</tr>
<tr>
<td>Energy savings with Habasit TC belts</td>
<td>6.2%</td>
<td>4.3%</td>
</tr>
</tbody>
</table>

Energy savings comparisons – showing savings
Energy consumption comparison between competitor polyamide tangential belts and Habasit polyester TC tangential belts, made on Zhejiang Weifeng WF-168 covering machines (840 spindles) in China:

<table>
<thead>
<tr>
<th>Spindle speed</th>
<th>Competitor polyamide belt</th>
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Developed for excellence
Habasit has developed its unique TC and TF belt ranges based on experience, ongoing research, close contacts with the textile industry, and long-term partnerships with leading machine manufacturers.

TC tangential belts: The high-efficiency tangential belt with a polyester traction layer, which results in high-accuracy spindle speeds.

TF tangential belts: The high-efficiency tangential belt with an aramide traction layer, resulting in the highest accuracy spindle speeds and shortest take-up.

Features TC TF Benefits

- High efficiency
  - Energy and cost savings
  - Energy consumption reduced by 4% – 6%
  - Economical
  - Reduced operating costs

- Simple and fast joining method
  - Short machine downtimes
  - Reduced operating costs

- Variable and homogenous joining quality
  - High spindle speeds
  - No vibration
  - Consistent yarn quality

- TC range: high elastic modulus
  - High accuracy of speed
  - Consistent yarn quality

- TF range: top-grade elastic modulus
  - Highest accuracy of speed even with very long belts

- Optimized design
  - Low noise emissions

For technical details or further information, please contact your local Habasit representative: www.habasit.com

Examples from China
Energy consumption comparison between competitor polyamide tangential belts and Habasit polyester TC tangential belts, made on Zhejiang Weifang WF-168 covering machines (840 spindles) in China:

<table>
<thead>
<tr>
<th>Examples from China</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy savings per machine and day</td>
<td>CNY 6.00</td>
<td>CNY 6.13</td>
</tr>
<tr>
<td>Average working days per year</td>
<td>360</td>
<td>360</td>
</tr>
<tr>
<td>Energy costs per kWh</td>
<td>CNY 6.7</td>
<td>USD 0.11</td>
</tr>
<tr>
<td>Number of machines installed</td>
<td>275</td>
<td>290</td>
</tr>
<tr>
<td>Number of spindles per machine</td>
<td>840</td>
<td>840</td>
</tr>
<tr>
<td>Total energy savings per year</td>
<td>CNY 1,333,000</td>
<td>USD 217,800</td>
</tr>
</tbody>
</table>

Outstanding benefits of the TC and TF tangential belts

Join the energy-saving campaign
For peripheral equipment and plant infrastructure (e.g. fans, compressors, vacuum pumps, blowers, etc.) Habasit also provides optimized driving belt solutions. Conversion campaigns at over 2,000 sites have demonstrated that switching from V-belts to Habasit’s flat belts reduces energy consumption by 4% to 6%.

Energy savings with Habasit TC and TF flat belt drives compared with V-belt drives

Energy savings on fans drives
The energy-saving properties of the flat belt drive compared to the V-belt drive have been proved during practical tests.

- The illustration indicates the saved energy as a percentage, depending the nominal power of the installed motor.

  - Partial load range
  - Rated load (full load) range

Examples (red dotted line):
Energy saving of a fan drive equipped with flat belts on a 45 kW motor
- at rated load (full load) about 2%
- at partial load about 5%

As electric motors usually work at partial load, the energy-saving potential of a flat belt drive is considerable.

Average: 4% to 6% energy savings.