ANDRITZ FABRICS AND ROLLS

Two strong brands, XERIUM and ANDRITZ Kufferath merge

200 YEARS EXPERIENCE

500 PATENTS

TECHNOLOGY DRIVEN
• In October 2018, ANDRITZ acquired Xerium Technologies, Inc., headquartered in Youngsville, North Carolina, USA.

• ANDRITZ has been operating successfully in the pulp and paper industry for a very long time, offering technologies, systems, and services for pulp and paper production as well as designing and building pulp and paper mills for customers all over the world.

• The complementary acquisition of Xerium Technologies with its fabrics and roll service divisions complements ANDRITZ’s product offering to the pulp and paper producing industry.

• **ANDRITZ Kufferath**, a supplier of forming fabrics and engineered fabrics, was acquired by ANDRITZ in 2008.

• Xerium Technologies, supplier of forming fabrics, press felts, dryer fabrics, engineered fabrics and roll covers and services, and ANDRITZ Kufferath operate together under the name **ANDRITZ Fabrics and Rolls (“AFR”)**, covering the former Xerium product brands Huyck, Wangner, Weavexx, Stowe & Mount Hope, and JJ Plank-Spencer Johnston in addition to the Kufferath brands.
2018 Sales $547 million (MC $347m / Rolls $200m)

2018 EBITA $75 million 14% of Sales

~3,300 Employees

Direct Sales
- Customers in 63 Countries
- ~70% sales outside U.S.
- 11 Primary Currencies

Continuous Innovation
- 3 R&D Centers
- ~500 Patents

30 Plants in 14 Countries
 Lean Six Sigma culture

Powerful Data Analytics
- Industrial Internet of Things (IIoT)
  "Digital to Win"
MARKET SIZE AND GROWTH

Global Production by Product FY 2018
440 million tons (MT)

- Containerboard: 165 MT (37%)
- Boxboard: 66 MT (15%)
- Kraft: 37 MT (9%)
- Printing & Writing: 81 MT (18%)
- Newsprint: 54 MT (12%)
- Tissue: 18 MT (4%)
- Market Pulp: 19 MT (5%)

Growth % By Grade 2018 – 2023E CAGR

- Total Paper & Board: -2.1%
- Containerboard: 1.0%
- Boxboard: 2.2%
- Kraft: 0.8%
- Newsprint: 3.2%
- Printing & Writing: 2.3%
- Market Pulp: 0%
- Tissue: -6%

Source: PPPC/Numera Analytics
A GLOBAL COMPANY WITH FACILITIES LOCATED IN EACH OF THE MAJOR MARKETS

- **North America**: 9 Plants, 796 Employees
- **Europe**: 10 Plants, 1,456 Employees
- **Latin America**: 6 Plants, 533 Employees
- **Asia-Pacific**: 5 Plants, 454 Employees

- 11 Machine Clothing Factories
- 19 Roll Repair & Mechanical Service Centers
- 14 Countries
- ~3,300 Employees
- Customers in 63 Countries

2018 Revenue by Region:

- North America: 35%
- Europe: 34%
- Latin America: 11%
- Asia: 20%

ANDRITZ Fabrics and Rolls Global Headquarters

÷ ANDRITZ CMD 2019 / ANDRITZ PULP & PAPER SERVICES / ANDRITZ FABRICS AND ROLLS
A GLOBAL LEADER IN FABRICS, FELTS & ROLLS
TECHNOLOGY FOR PULP & PAPER MACHINES

Fabric & Felt Products
- **Forming Fabrics**
  - Captures the slurry
  - Initial formation
- **Press Felts**
  - Conveys the product
  - Sets final form & shape
- **Dryer Fabrics**
  - Conveys the product
  - Dries product

Roll Covers & Machine Services
- **Roll Covers**
  - Numerous types per machine
  - Recovered every 2-3 yrs.
- **Spreader Rolls**
  - 2-15 per machine
  - Rebuilt every 2-3 yrs.
- **Mechanical Repair Services**
  - OEM component refurbishing other than covers
  - For every roll on the machine
# PRODUCT SALES BY GROUP

<table>
<thead>
<tr>
<th>63% MC (Fabrics)</th>
<th>37% (Rolls, Covers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forming Fabrics</td>
<td>Roll Covers, SMART® Rolls, Spreader Rolls, Mechanical Services</td>
</tr>
<tr>
<td>Press Felts</td>
<td></td>
</tr>
<tr>
<td>Dryer Fabrics</td>
<td></td>
</tr>
<tr>
<td>Engineered Fabrics</td>
<td></td>
</tr>
<tr>
<td>Shoe Press Belts</td>
<td></td>
</tr>
</tbody>
</table>
MANUFACTURING PROCESS – PRESS FELTS

1. Warping
2. Weaving
3. Pre-finishing
4. Batt Preparation
5. Needling
6. Seaming (seam felts)
7. Finishing
MANUFACTURING PROCESS – ROLL COVERS

1. Mixing
2. Core Prep
3. Adhesion Additive
4. Extruding or Casting
5. Wrapping
6. Vulcanizing
7. Grinding
8. Venting/Drilling
NATURE OF PRODUCT USE PROVIDES REVENUE STABILITY

- ANDRITZ products represent fraction of paper mill maintenance costs
  - Value-add products that can have significant impact on paper machine efficiency
  - High switching costs and low cost structure enable customer loyalty

Paper Mill Cost Structure

- Vast majority of ANDRITZ Machine Clothing revenue comes from consumable products with short lifespans
  - 94% of machine clothing orders are from repeat sales
  - 89% of roll cover and service orders are from repeat sales

Illustrative machine clothing revenue potential for a board and packaging machine

<table>
<thead>
<tr>
<th>Product</th>
<th>lifespan (months)</th>
<th>positions on machine</th>
<th>number products used per year</th>
<th>value per piece (x 1000 Euros)</th>
<th>value per year (x 1000 Euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press Felt</td>
<td>2</td>
<td>4</td>
<td>24</td>
<td>33</td>
<td>792</td>
</tr>
<tr>
<td>Forming Fabric</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>35</td>
<td>210</td>
</tr>
<tr>
<td>Dryer Fabric</td>
<td>12</td>
<td>8</td>
<td>8</td>
<td>30</td>
<td>240</td>
</tr>
<tr>
<td>Belt</td>
<td>12</td>
<td>1</td>
<td>1</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: management estimates.
STRATEGIC GOAL IS TO ALIGN WITH STABLE, GROWING SEGMENTS OF THE MARKET

% of Revenue from Steady, Growing Market Segments

End Product Growth
- Consumer packaging
- Tissue
- eCommerce boxes
- Tissue converting
- Paper towels, napkins
- Shipping containers
- Folding cartons

Emerging Country Growth
- Asia
- Latin America
• AFR Machine Clothing (MC) plants provide forming fabric, press felts and dryer products for the global paper market. Albany is the market leader for MC with ANDRITZ, Voith and AstenJohnson holding significant market shares.

• ANDRITZ and Voith are the global leaders in the roll cover market. Valmet is also a strong competitor.

<table>
<thead>
<tr>
<th>Company</th>
<th>Machine Clothing</th>
<th>Rolls</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANDRITZ</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Valmet</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Voith</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td>Albany</td>
<td>11</td>
<td>n/a</td>
</tr>
</tbody>
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COMPETITIVE OVERVIEW

ANDRITZ, compared to its key competitors, has the most balanced portfolio of global production facilities.

A $17 million project to significantly increase China machine clothing production will be initiated in 2020.
• Stable and strong operating cash flow remains core

• Leverage ANDRITZ presence and expertise to grow revenues cautiously

• Continue to invest in R&D and utilize consolidated resources to drive best in class product portfolio

• Integrate Kufferath into operating and commercial platforms

• Deliver synergistic revenues for ANDRITZ using already deployed, paper machine sales and service team of over 250 personnel globally
• AFR to utilize ANDRITZ pilot plants such as TIAC (Tissue pilot plant) to further develop and test best in class products.
• AFR to develop new equipment and service product solutions together with Paper Machine Equipment department. Same is valid for Pulp Drying Equipment.
• AFR to utilize ANDRITZ market access and joint product development in process industries like Non-Woven and Separation.
• Share market and product know-how in the different industry segments where both parties are active.
• Utilize the common global service workshops to improve local footprint for joint service business.
• Streamline redundant management structure where applicable.
• AFR to utilize the global ANDRITZ Marketing and Communication channels and tools to ensure a global brand awareness.
GROWTH OPPORTUNITIES

Projects in Progress
• Expand presence and product portfolio for global Dryer Fabric market
• Expand Kunshan facility to add capacity for Press Felt production and seaming of Forming Fabrics

Under Evaluation
• Expand existing Roll facilities as well as invest in new facilities in regions which are currently not covered, e.g. South China