



PULP & PAPER SERVICES

ANDRITZ FABRICS & ROLLS

COMPANY OVERVIEW

SEPTEMBER 17, 2019

ANDRITZ

ENGINEERED SUCCESS

ANDRITZ FABRICS AND ROLLS



Two strong brands, XERIUM and ANDRITZ Kufferath merge

200 YEARS EXPERIENCE

500 PATENTS

TECHNOLOGY DRIVEN



ANDRITZ FABRICS AND ROLLS - INNOVATIVE PRODUCTS AND COMPREHENSIVE SERVICES



The new brand with decades of experience

- 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.

ANDRITZ FABRICS AND ROLLS – AT A GLANCE



2018 Sales \$547 million
(MC \$347m / Rolls \$200m)



2018 EBITA \$75 million 14%
of Sales



~3,300 Employees



Continuous Innovation

- 3 R&D Centers
- ~500 Patents



30 Plants in 14 Countries
Lean Six Sigma culture



Direct Sales

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



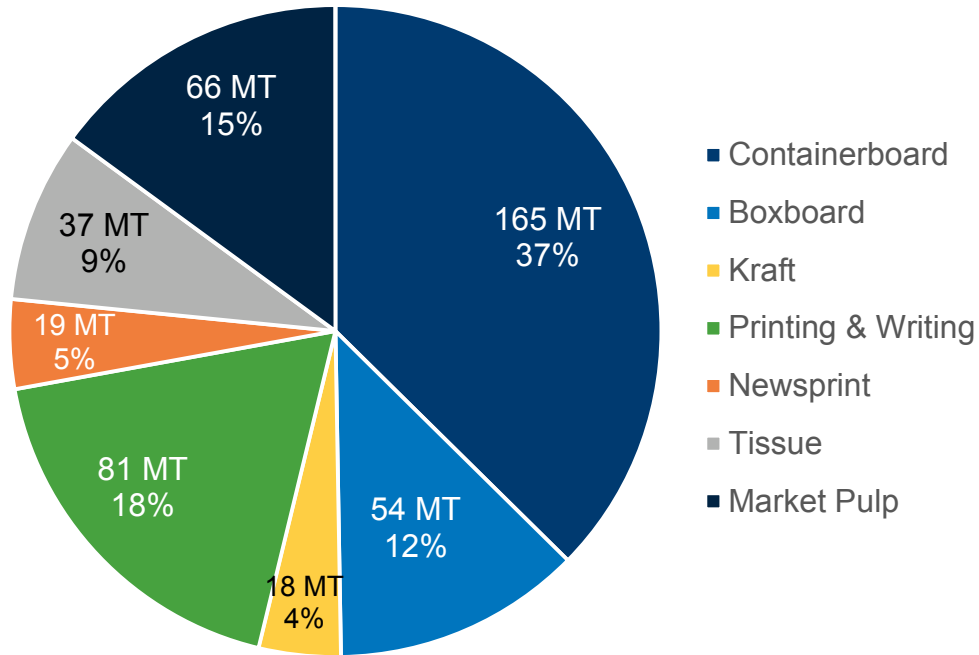
Powerful Data Analytics

- Industrial Internet of Things (IIoT)
“Digital to Win”

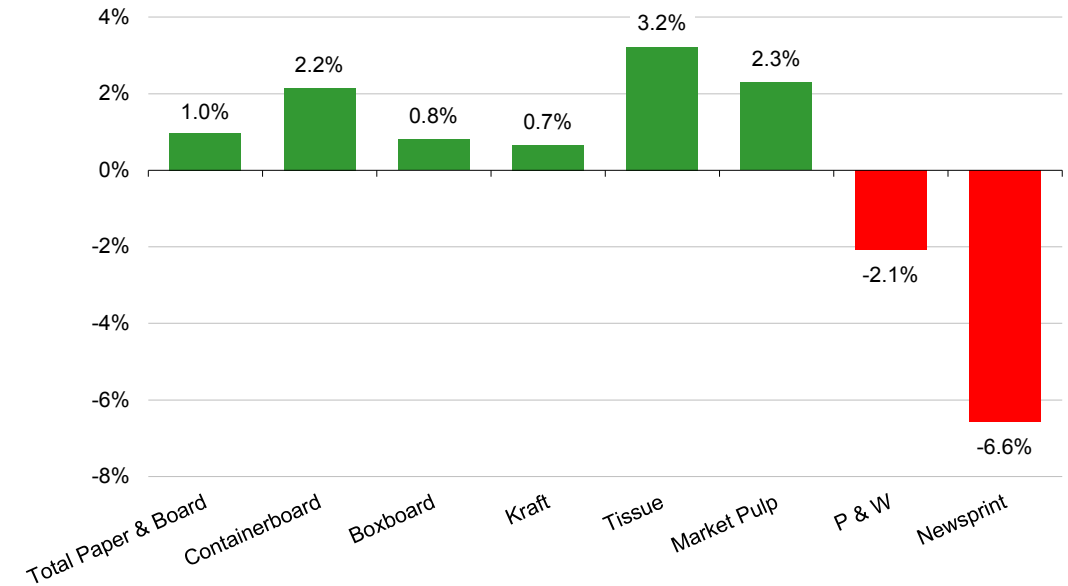
MARKET SIZE AND GROWTH



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



Growth % By Grade 2018 – 2023E CAGR

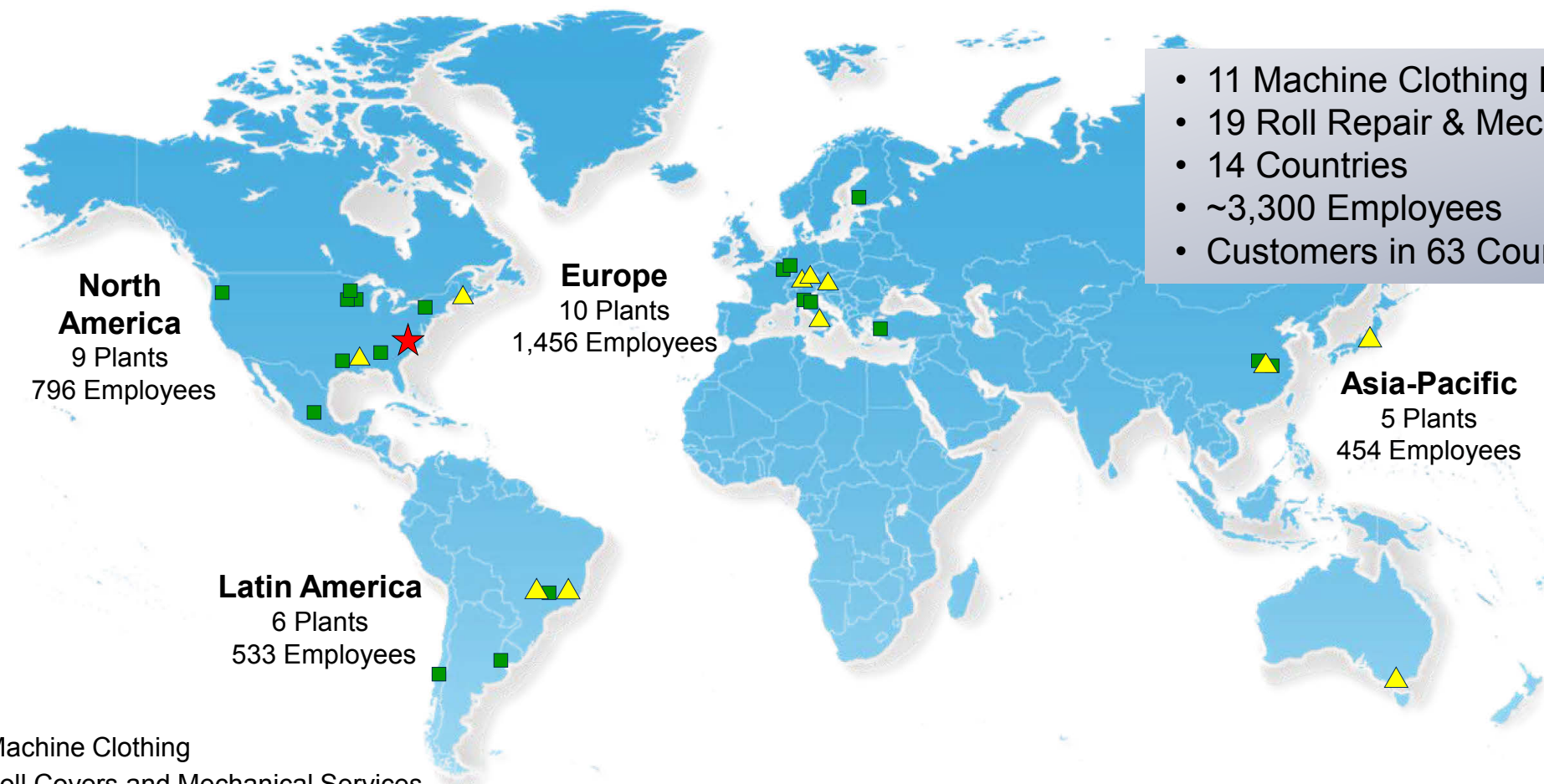


Source: PPPC/Numera Analytics

A GLOBAL COMPANY WITH FACILITIES LOCATED IN EACH OF THE MAJOR MARKETS



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



North America
9 Plants
796 Employees

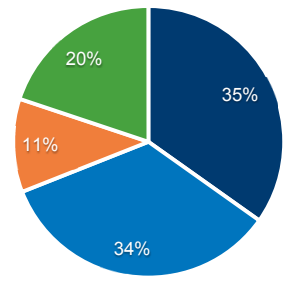
Europe
10 Plants
1,456 Employees

Asia-Pacific
5 Plants
454 Employees

Latin America
6 Plants
533 Employees

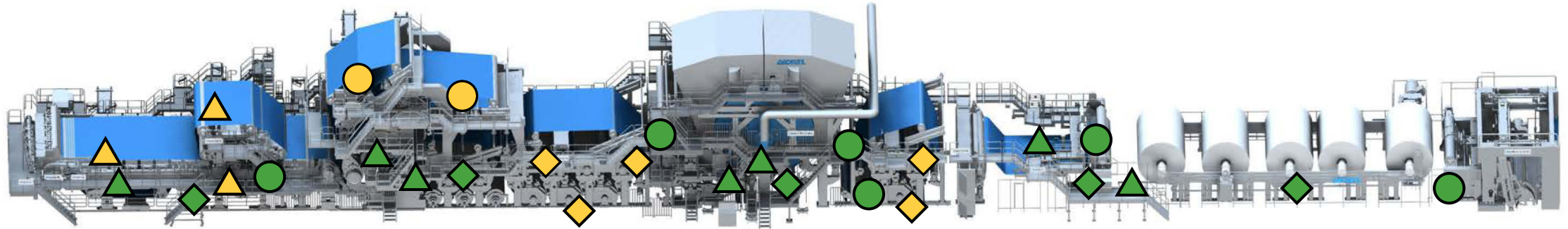
- ▲ Machine Clothing
- Roll Covers and Mechanical Services
- ★ ANDRITZ Fabrics and Rolls Global Headquarters

2018 Revenue by Region

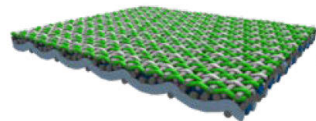


■ North America ■ Europe ■ Latin America ■ Asia

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

HUYCK.WANGNER

WEAVEXX

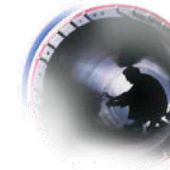
Roll Covers & Machine Services



- ▲ 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

STOWE
WOODWARD

MOUNT HOPE

SPENCER JOHNSTON

PLANK

SMART
TECHNOLOGY

&

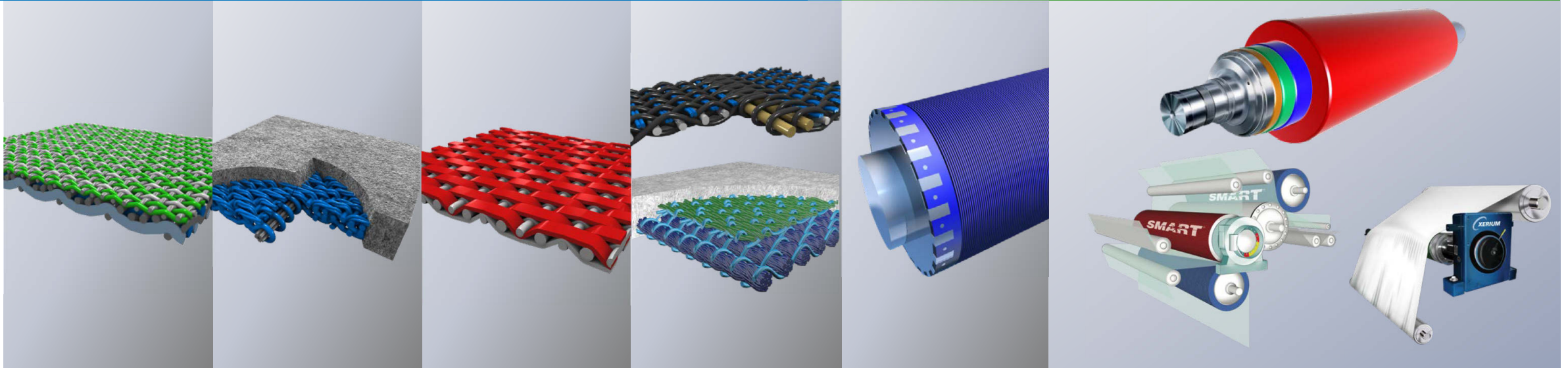
Rezolve
Total Machine Solutions

PRODUCT SALES BY GROUP



63% MC (Fabrics)

37% (Rolls, Covers)



Forming
Fabrics

Press
Felts

Dryer
Fabrics

Engineered
Fabrics

Shoe Press
Belts

Roll Covers, SMART® Rolls,
Spreader Rolls,
Mechanical Services

MANUFACTURING PROCESS – PRESS FELTS



1. Warping



2. Weaving



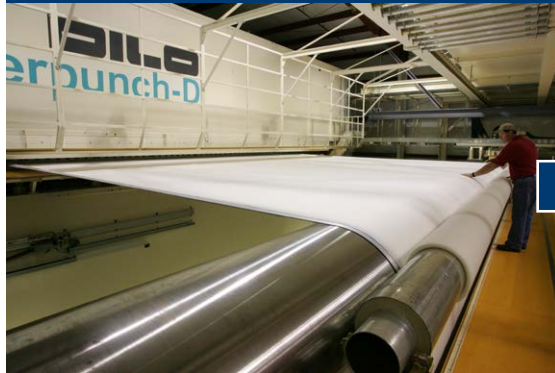
3. Pre-finishing



4. Batt Preparation



5. Needling



6. Seaming (seam felts)



7. Finishing



MANUFACTURING PROCESS – ROLL COVERS



1. Mixing



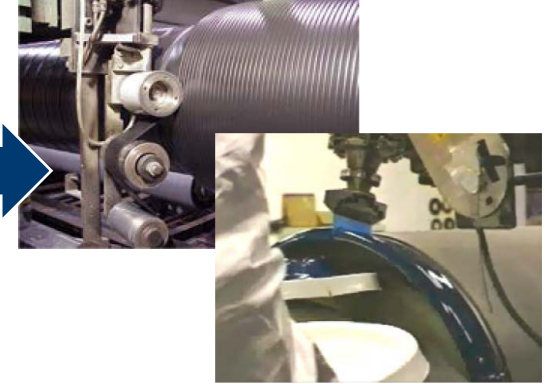
2. Core Prep



3. Adhesion Additive



4. Extruding or Casting



5. Wrapping



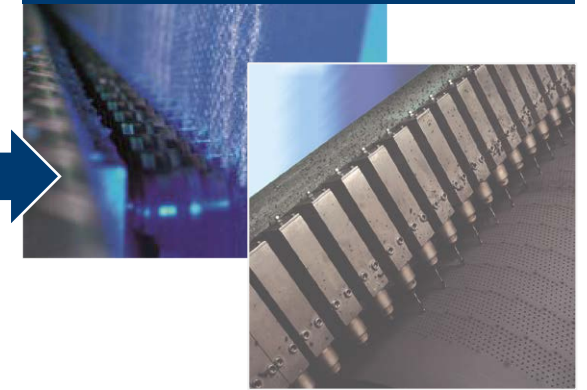
6. Vulcanizing



7. Grinding



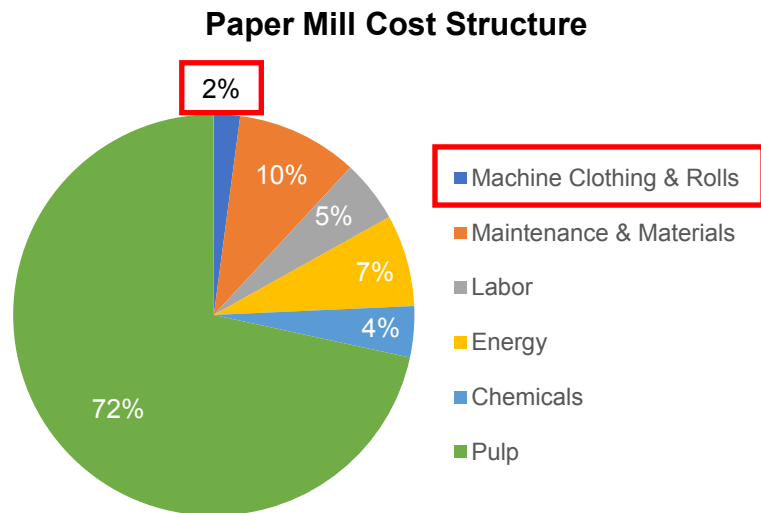
8. Venting/Drilling





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



- 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

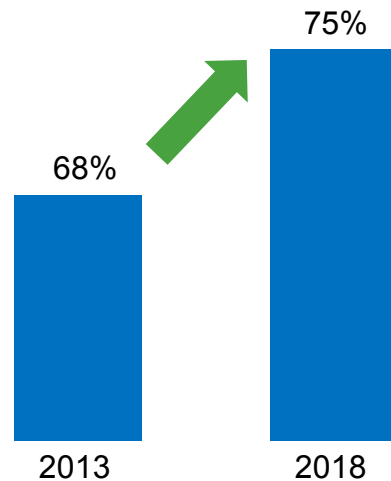
Product	lifespan (months)	positions on machine	number products used per year	value per piece (x 1000 Euros)	value per year (x 1000 Euros)
Press Felt	2	4	24	33	792
Forming Fabric	4	2	6	35	210
Dryer Fabric	12	8	8	30	240
Belt	12	1	1	35	35

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

COMPETITIVE LANDSCAPE

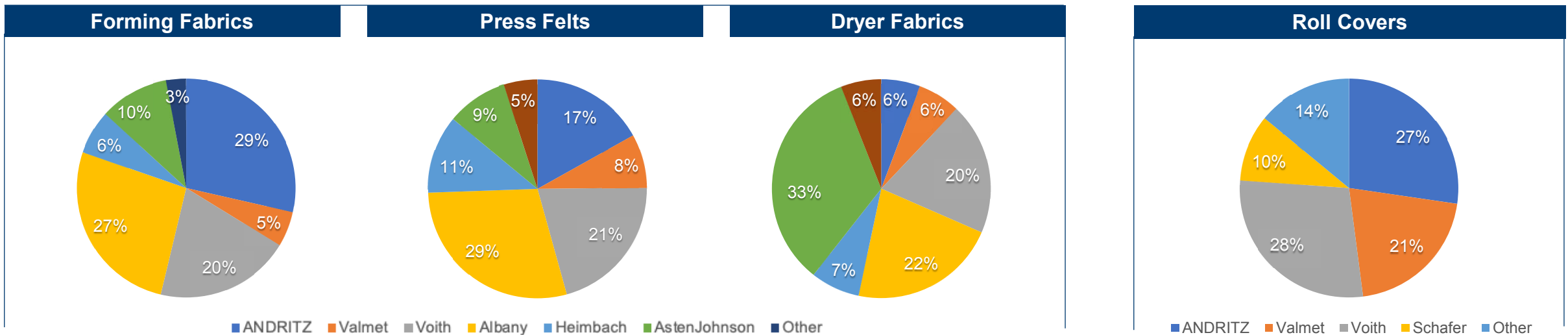


- AFR Machine Clothing (MC) plants provide forming fabric, press felts and dryer products for the global paper market. Albany is the market leader for MC with ANDRITZ, Voith and AstenJohnson holding significant market shares.
- ANDRITZ and Voith are the global leaders in the roll cover market. Valmet is also a strong competitor.

Production Facilities by Segment

Company	Machine Clothing	Rolls
ANDRITZ	11	19
Valmet	3	18
Voith	8	22
Albany	11	n/a

Market Share of Select Competitors



COMPETITIVE OVERVIEW

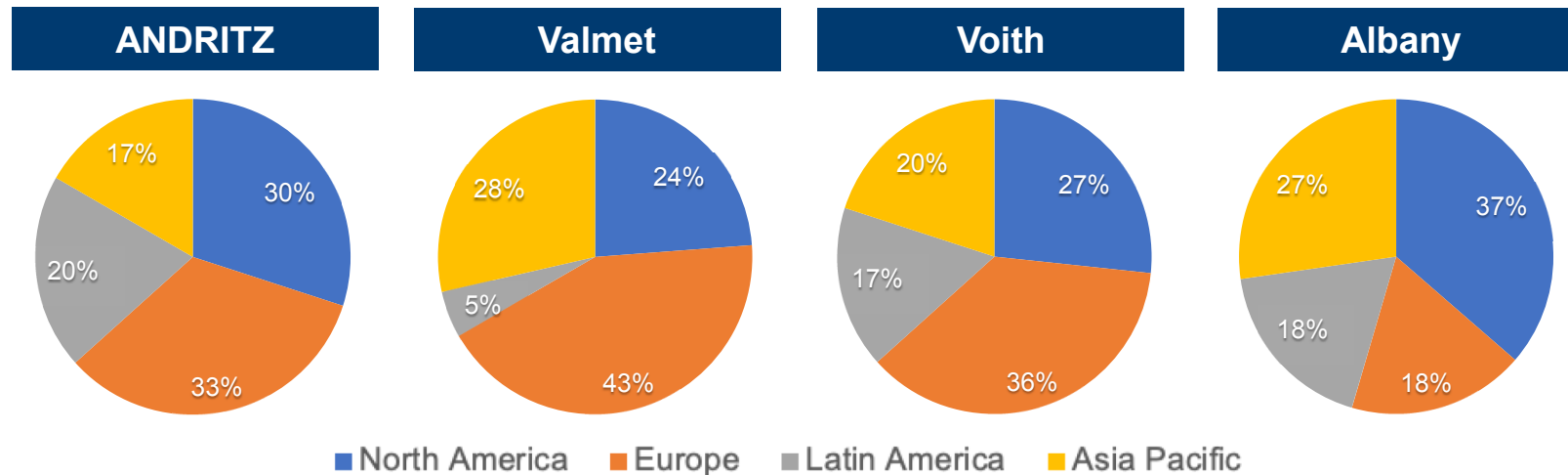


- ANDRITZ, compared to its key competitors, has the most balanced portfolio of global production facilities.
- A \$17 million project to significantly increase China machine clothing production will be initiated in 2020.

Production Facilities by Geographic Region

Company	North America	Europe	Latin America	Asia Pacific	Total
ANDRITZ	9	10	6	5	30
Valmet	5	9	1	6	21
Voith	8	11	5	6	30
Albany	4	2	2	3	11

Asset Positioning of Select Competitors





STRATEGY

- 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





FURTHER SYNERGIES

- 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





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