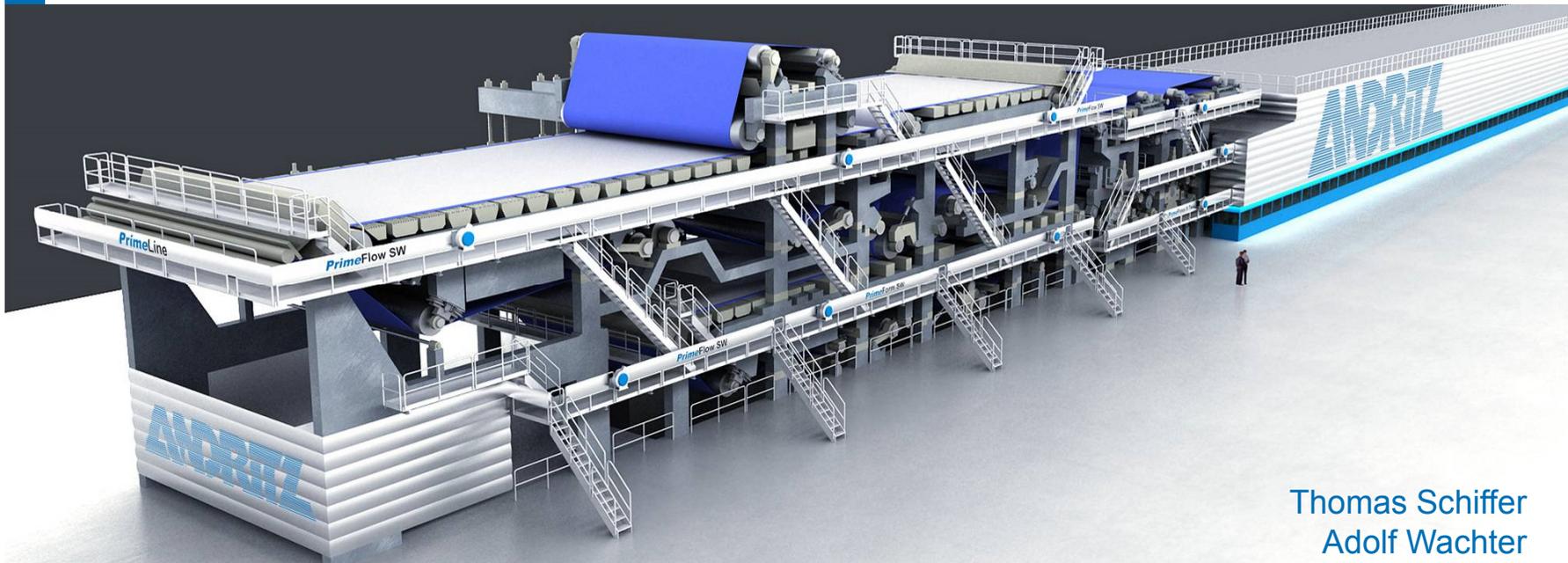


ANDRITZ

Pulp & Paper

ANDRITZ and Kama Karton LLC / Russia

First complete production line from wood log to board reel

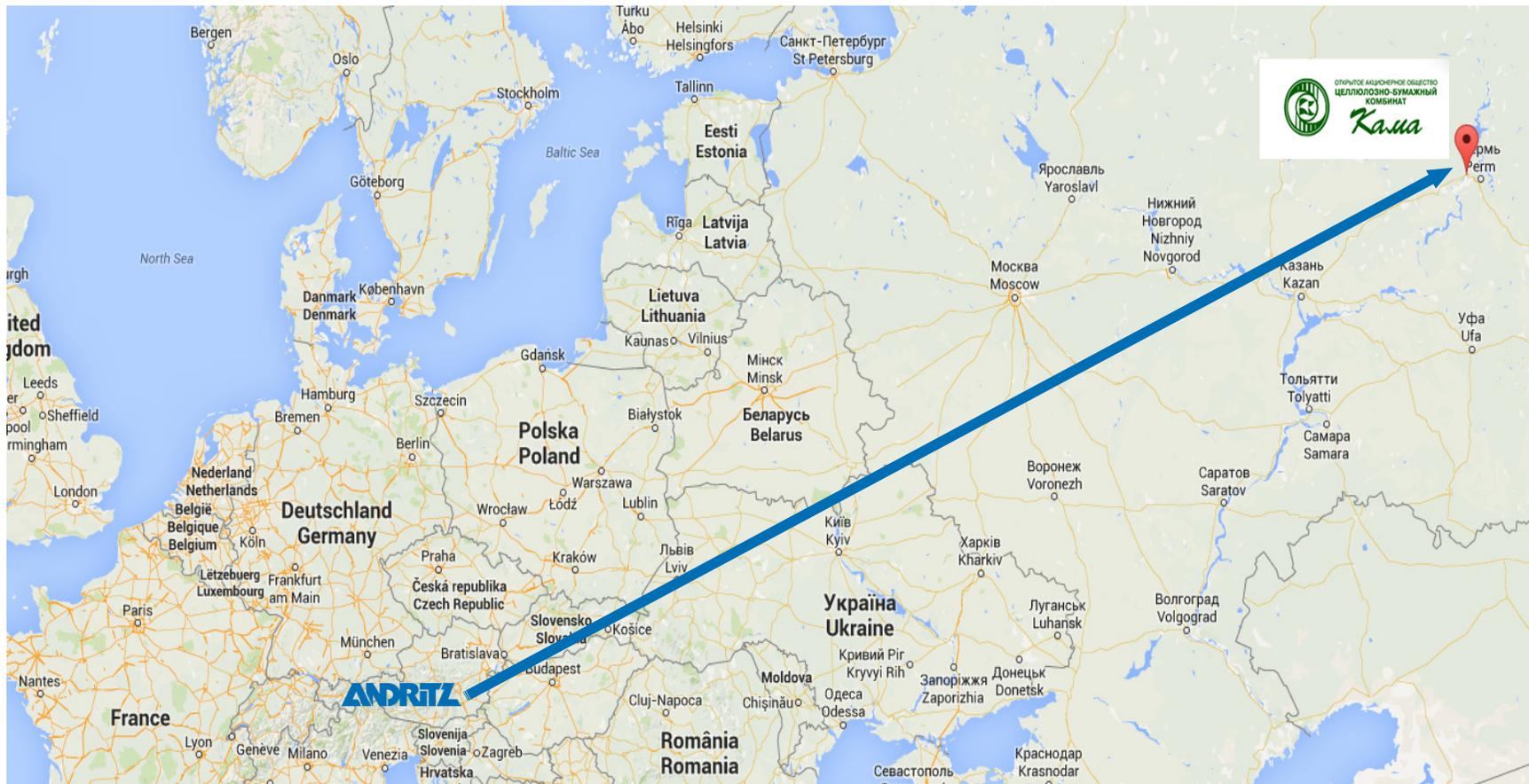


Thomas Schiffer
Adolf Wachter

Kama Karton LLC / Russia

Mill location

Distance Graz, Austria – Krasnokamsk, Russia: 3700 km @ the end of Europe



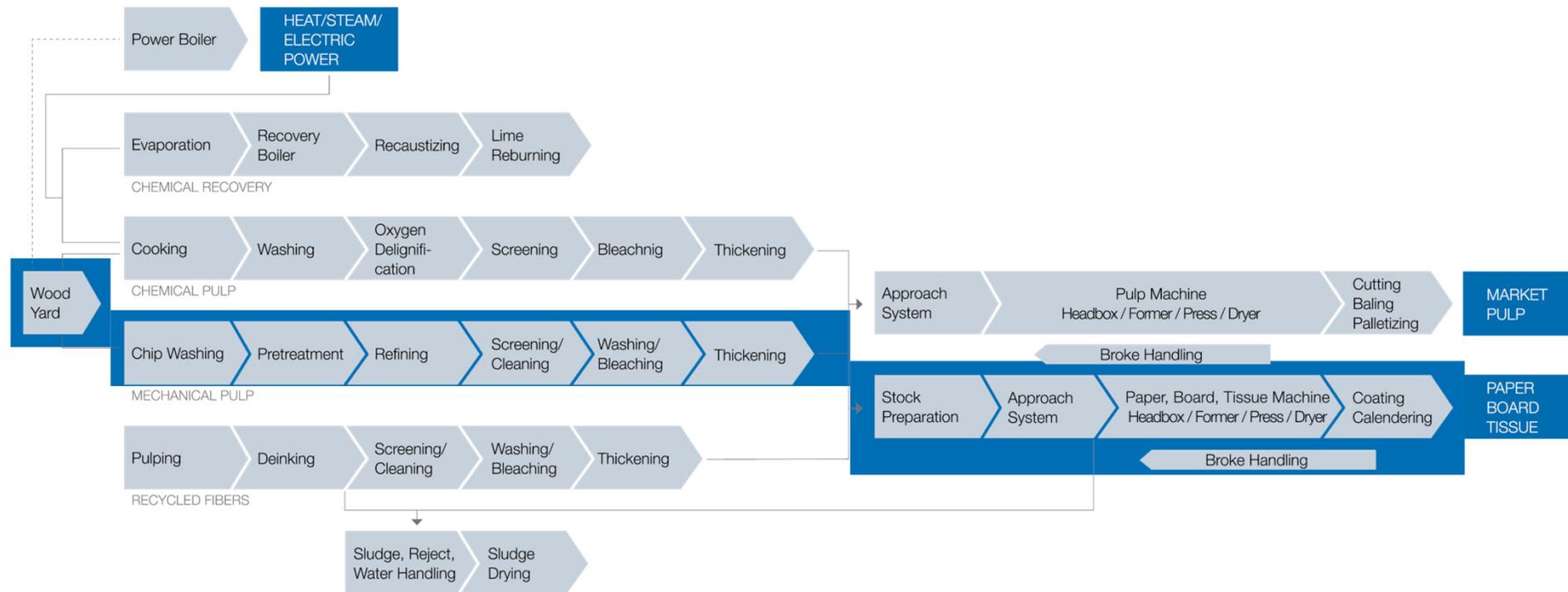
Kama Karton LLC / Russia

Mill location



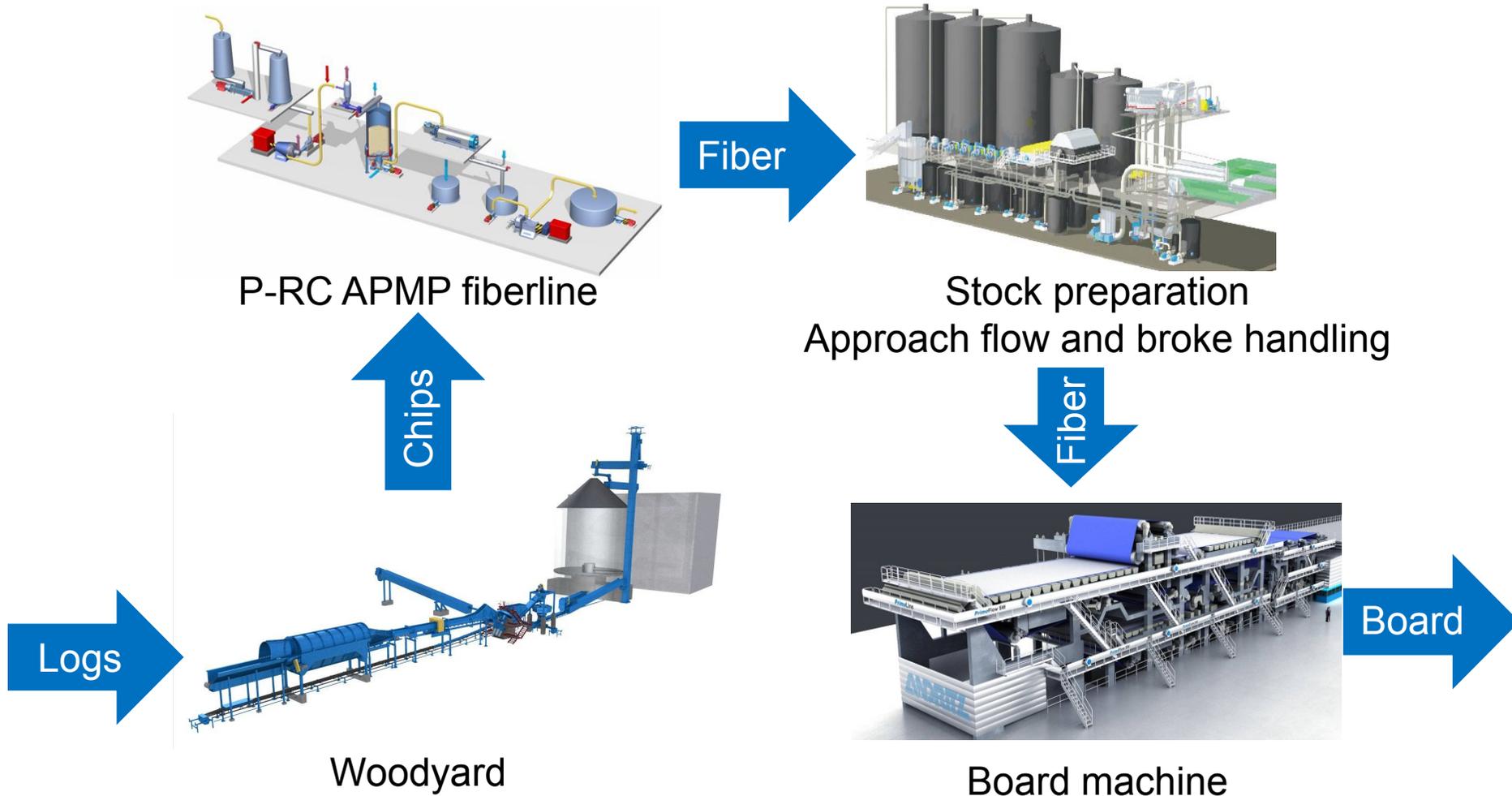
ANDRITZ Pulp & Paper

Full-line supplier in technologies and services



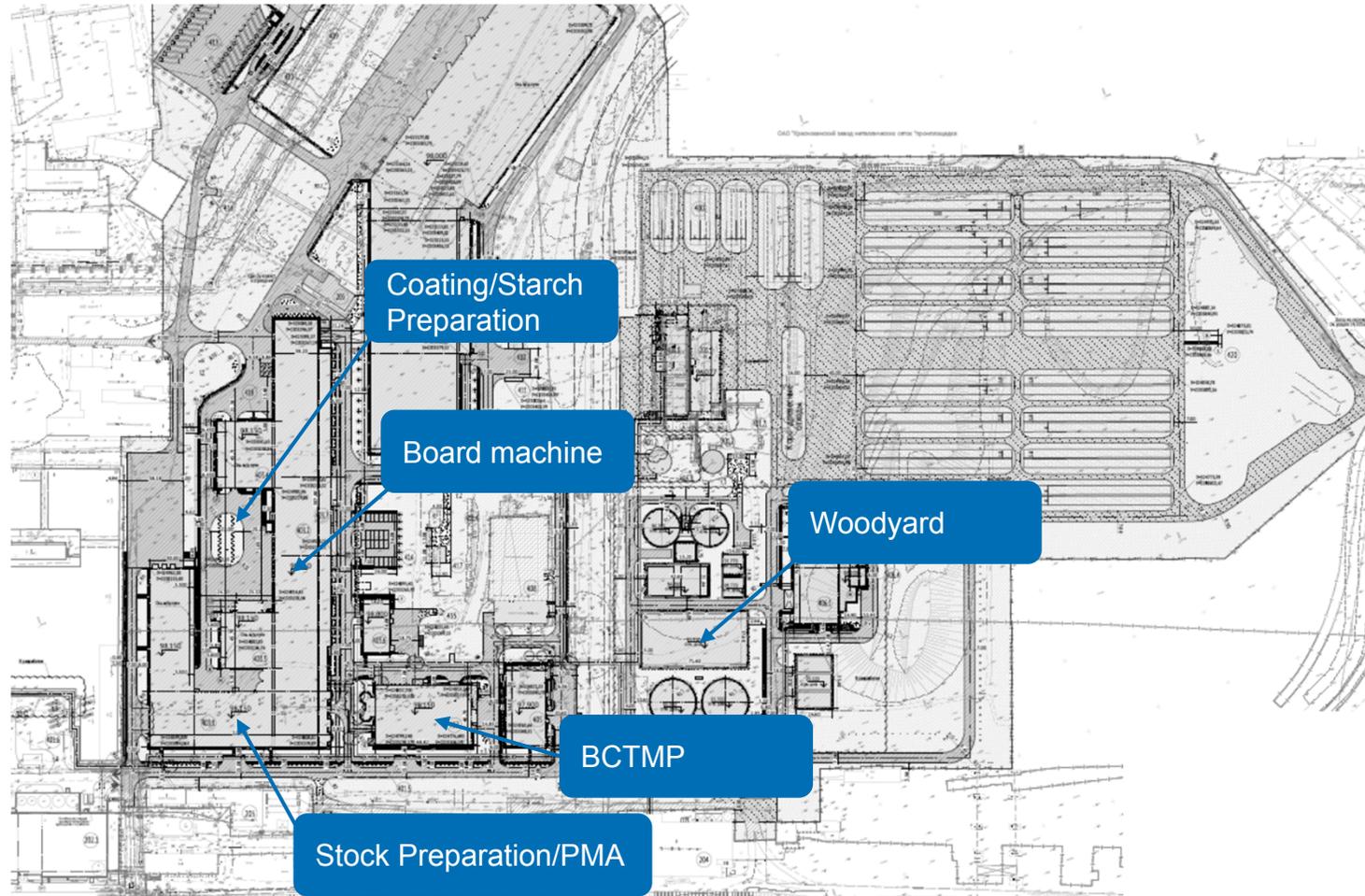
New production line for Folding Box Board (FBB)

Content of scope of supply



Kama Karton LLC / Russia

New production line layout for FBB – GC quality

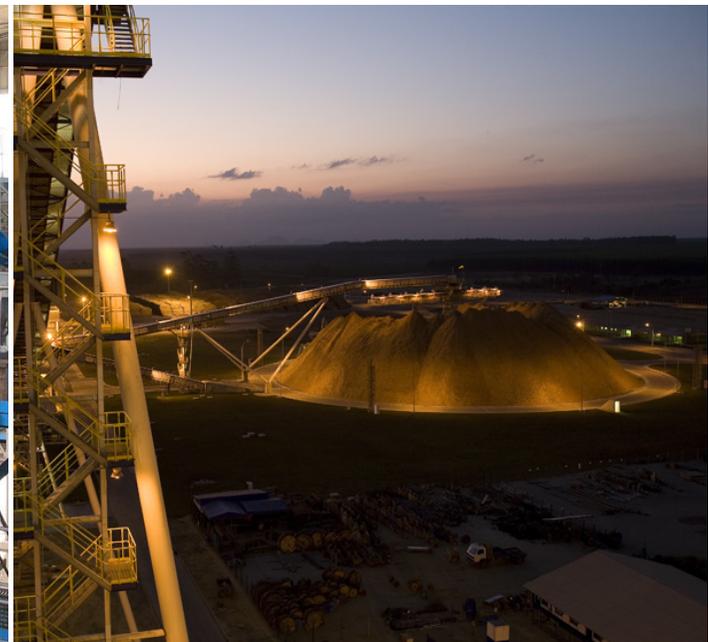
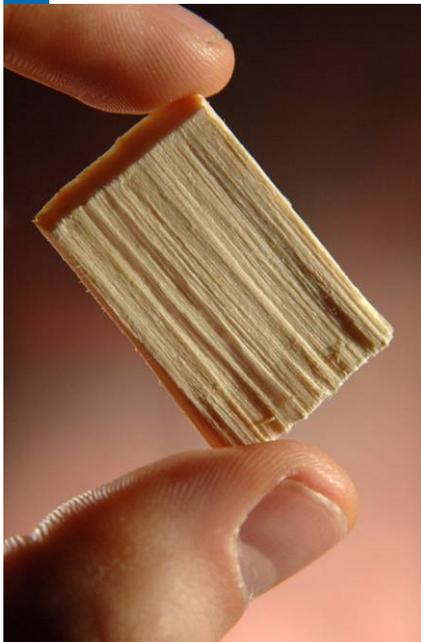


ANDRITZ

Pulp & Paper

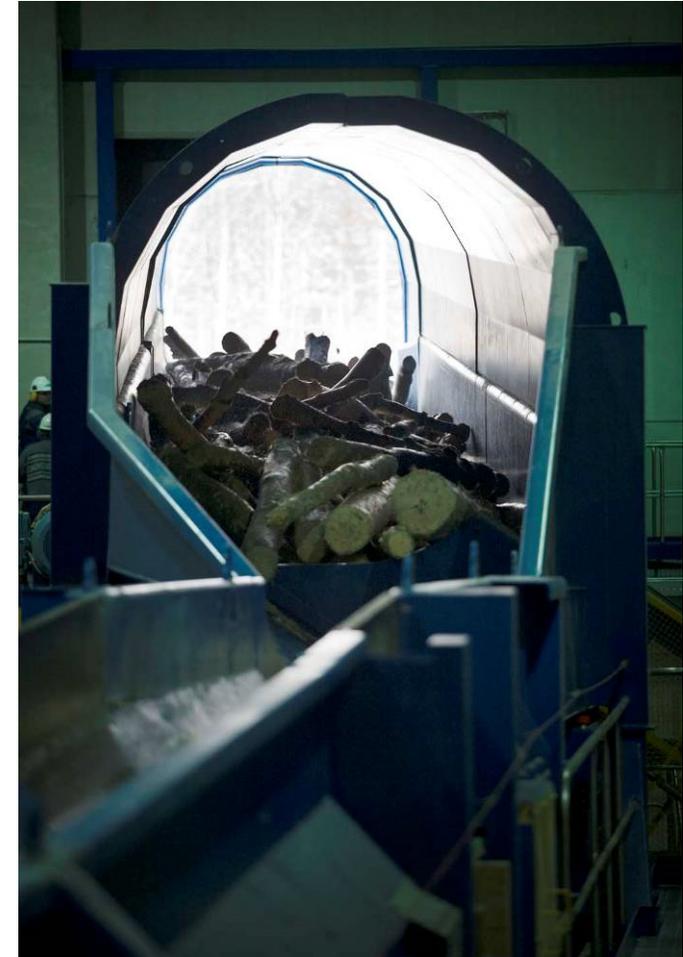
Woodyard

The leading chipping process with constant quality



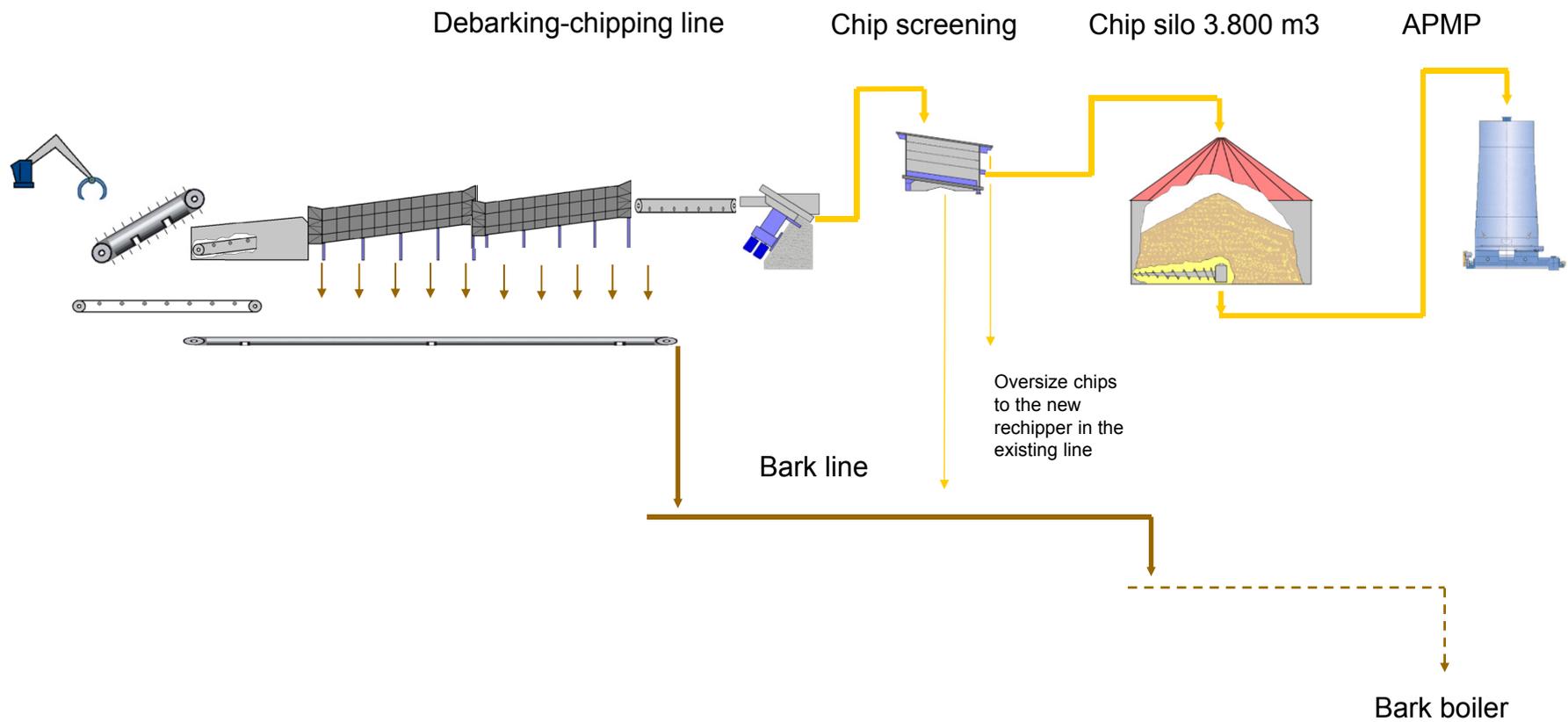
RotaBarker Line for cold climate – Estonian Cell

Typical debarking line with RotaBarker & HHQ-chipper



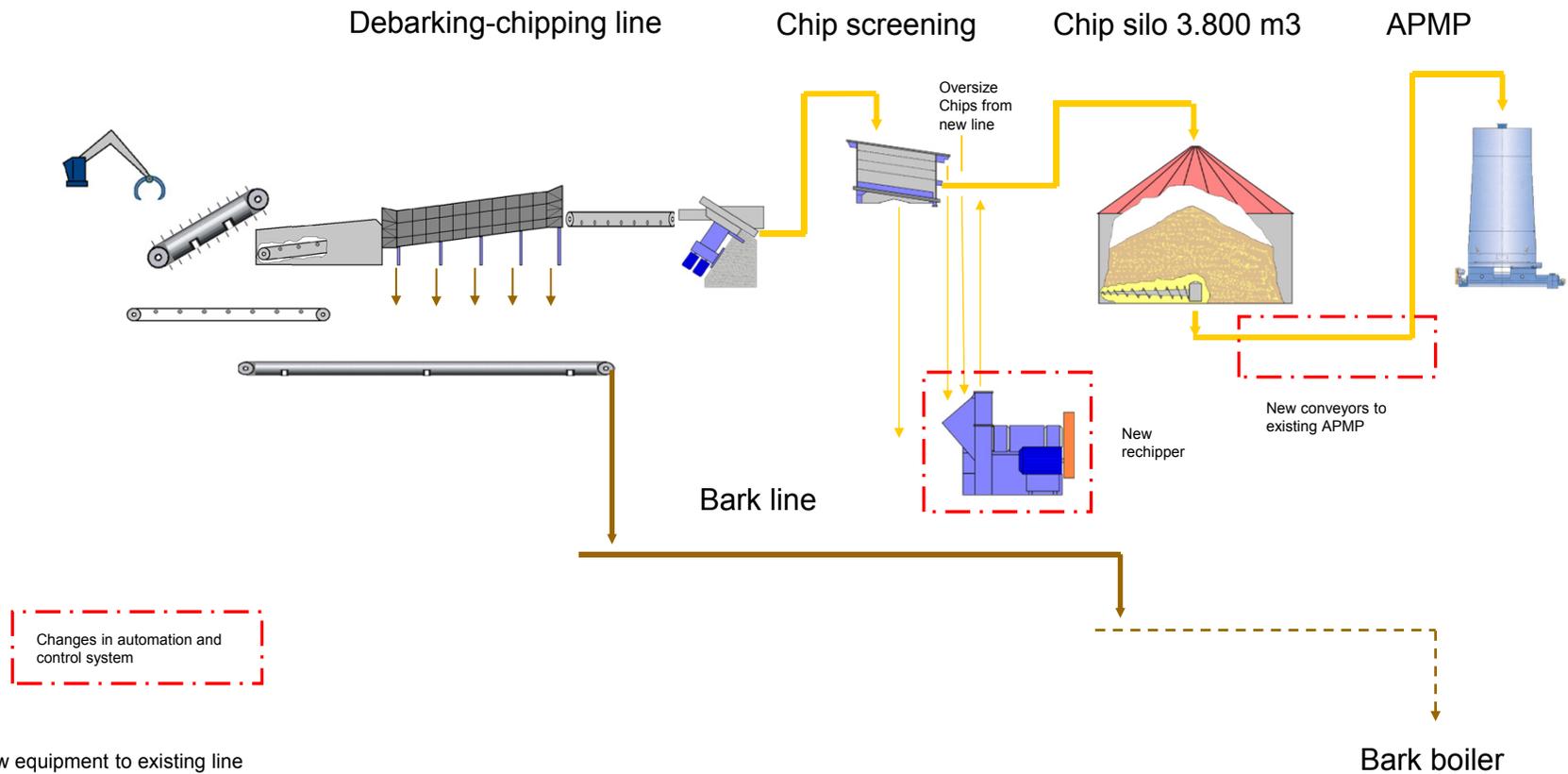
Woodyard

New chipping line



Woodyard

New equipment to the existing chipping line



ANDRITZ

Pulp & Paper

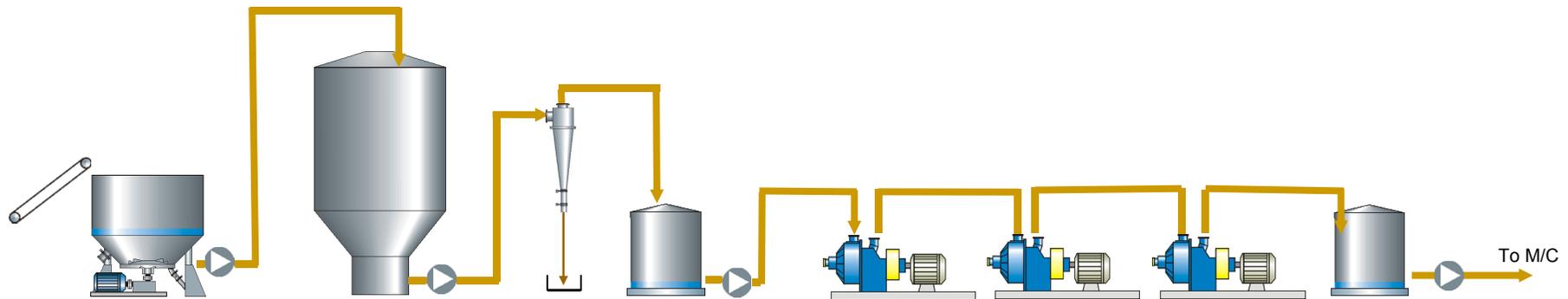
Stock preparation, approach flow & broke handling



Stock preparation line

NBKP Line

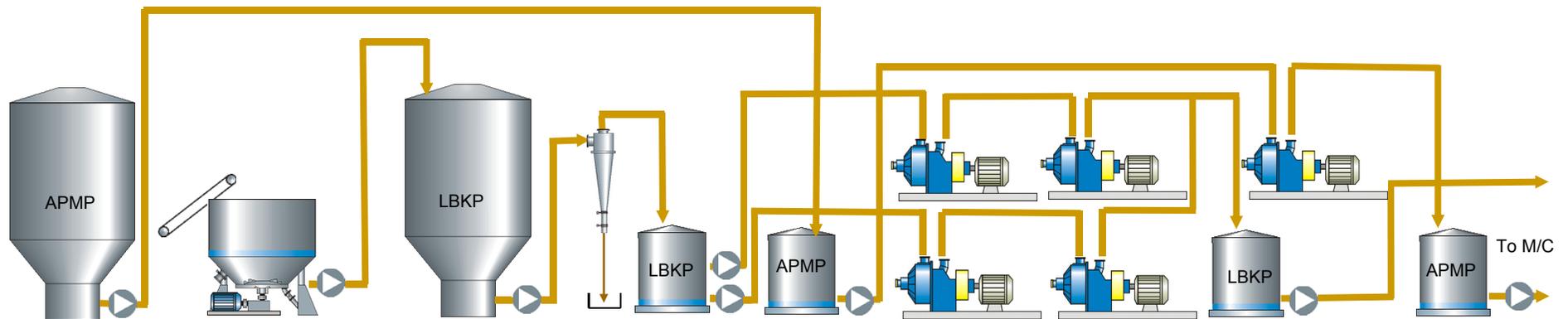
- One ANDRITZ FiberSolve FSV
- One ANDRITZ AhlCleaner for refiner protection
- Three ANDRITZ TwinFlo disc refiners



Stock preparation line

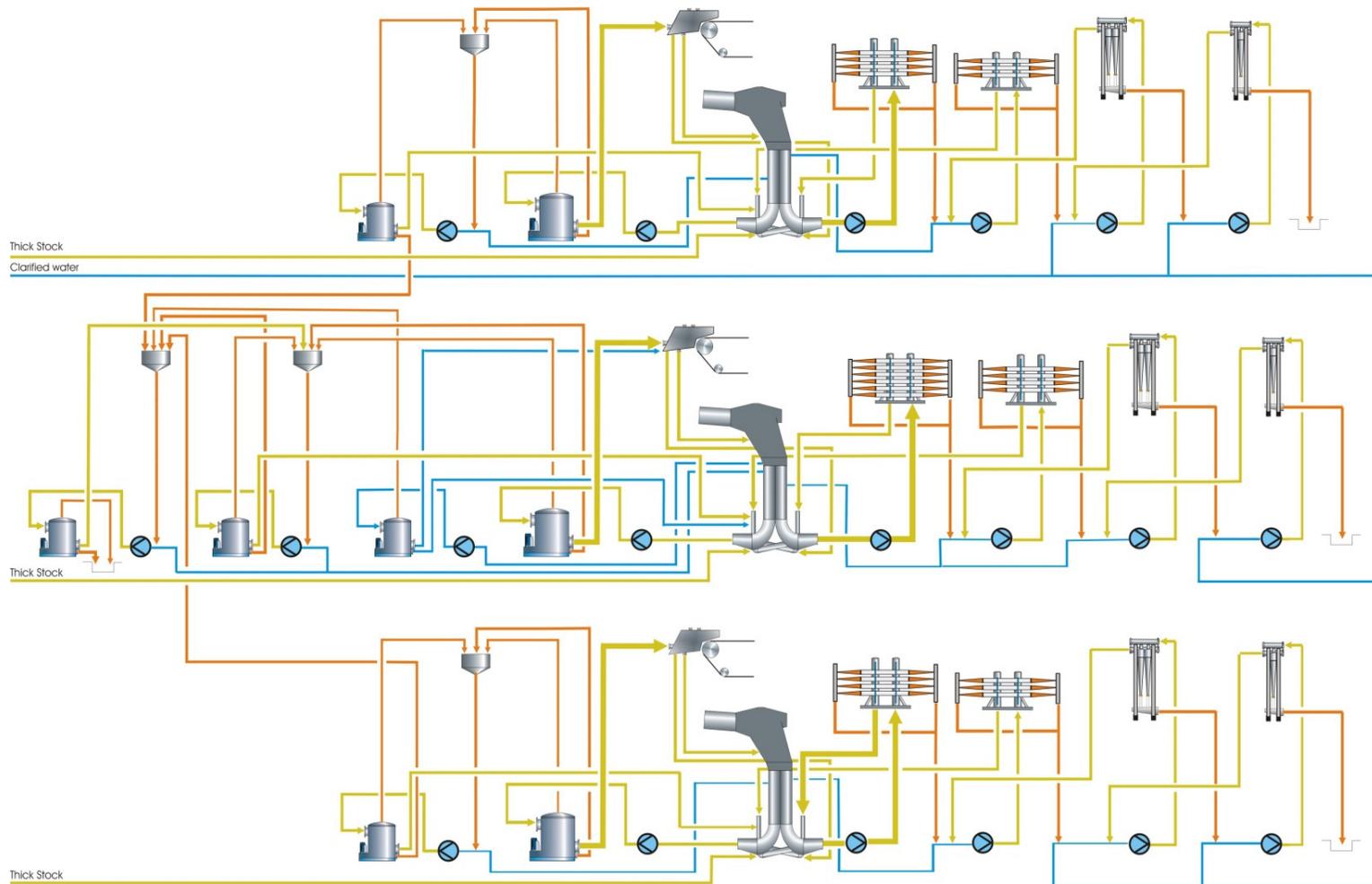
APMP/LBKP line

- One ANDRITZ FiberSolve FSV
- One ANDRITZ AhlCleaner for refiner protection
- Four ANDRITZ TwinFlo disc refiners for LBKP
- One ANDRITZ TwinFlo disc refiners for APMP



Approach flow system (PMA)

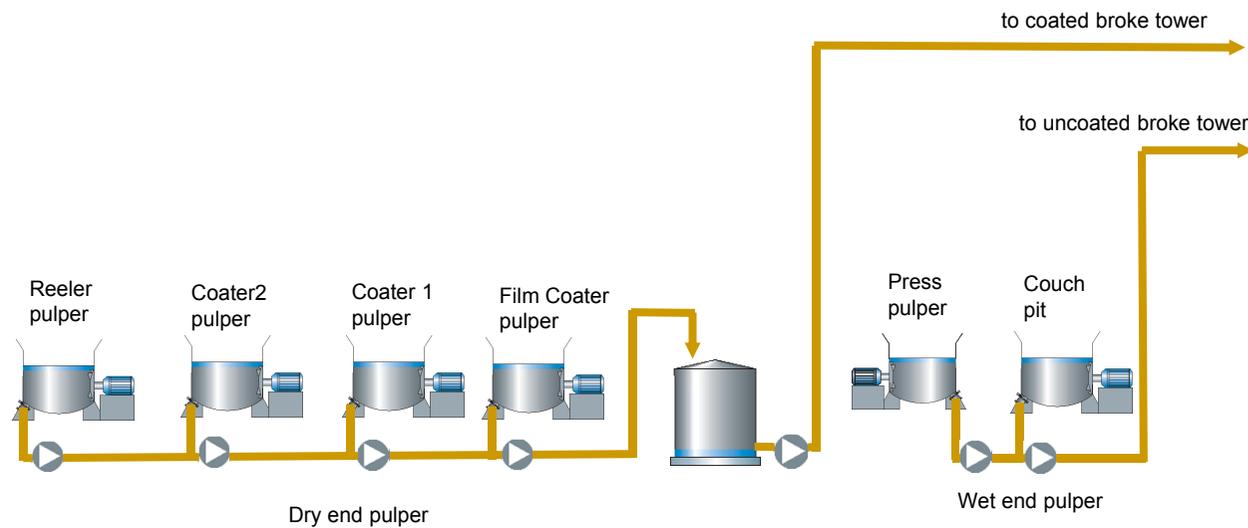
For 3 plies - top, filler and back ply



Broke handling

Under machine pulpers

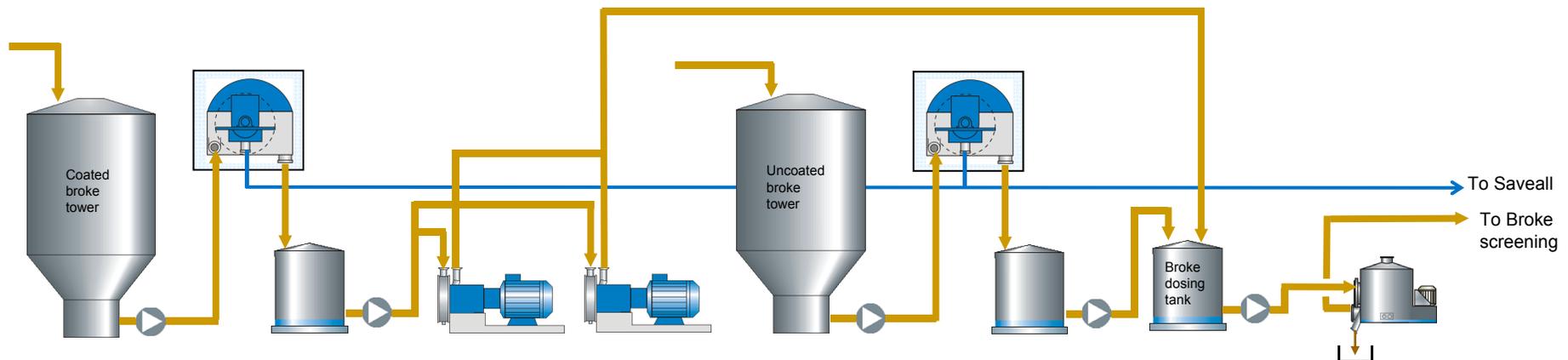
- Couch pit agitators 2x ANDRITZ TurboMix
- Five UTM pulper type ANDRITZ FibreSolve FSU



Broke handling

Broke preparation - design

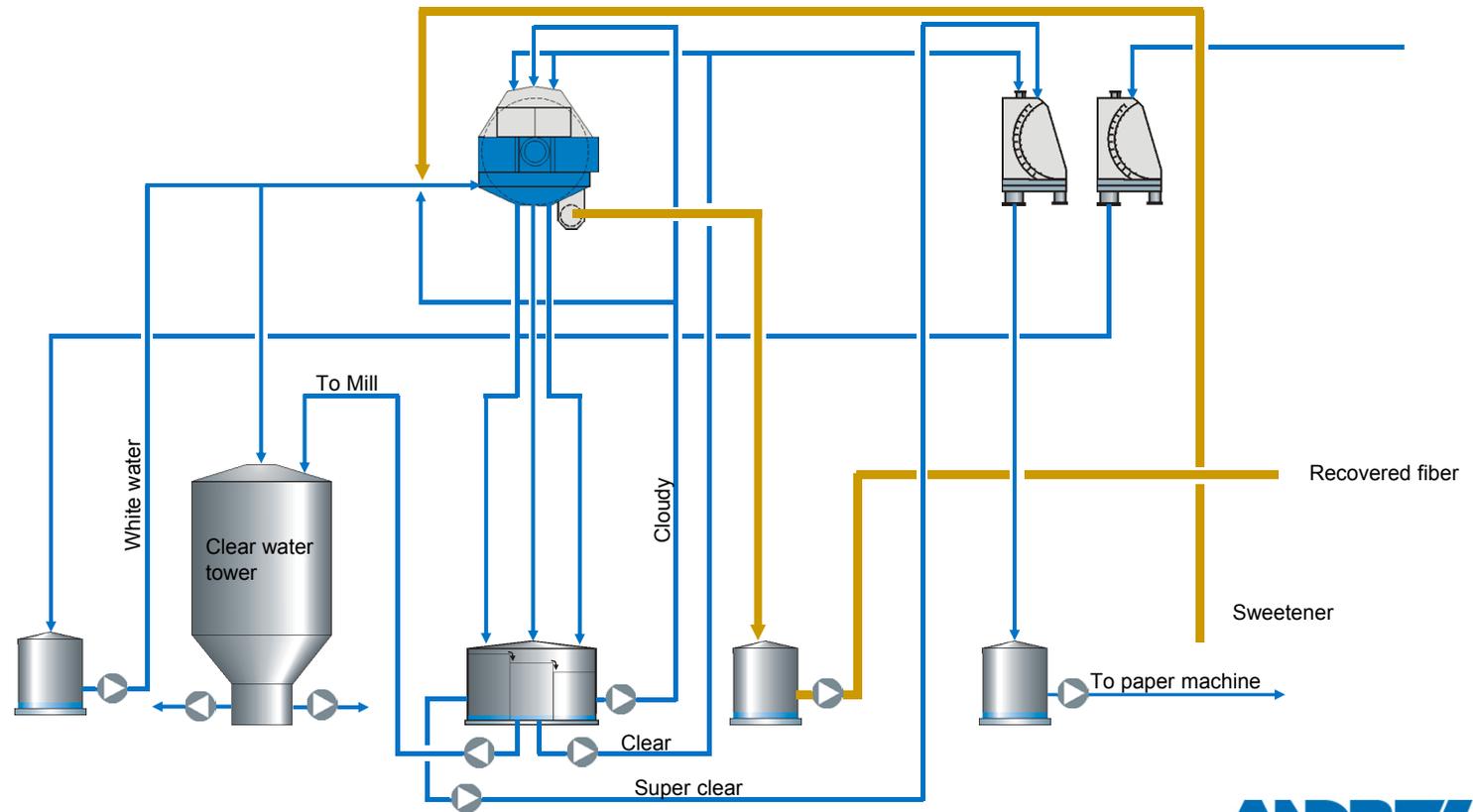
- Two ANDRITZ PRS thickener for coated and uncoated broke
- Two ANDRITZ Deflakers for coated broke
- One ANDRITZ ModuScreen for broke protection
- Broke screening three ANDRITZ ModusSreens and one ANDRITZ Deflaker



Fibre recovery system

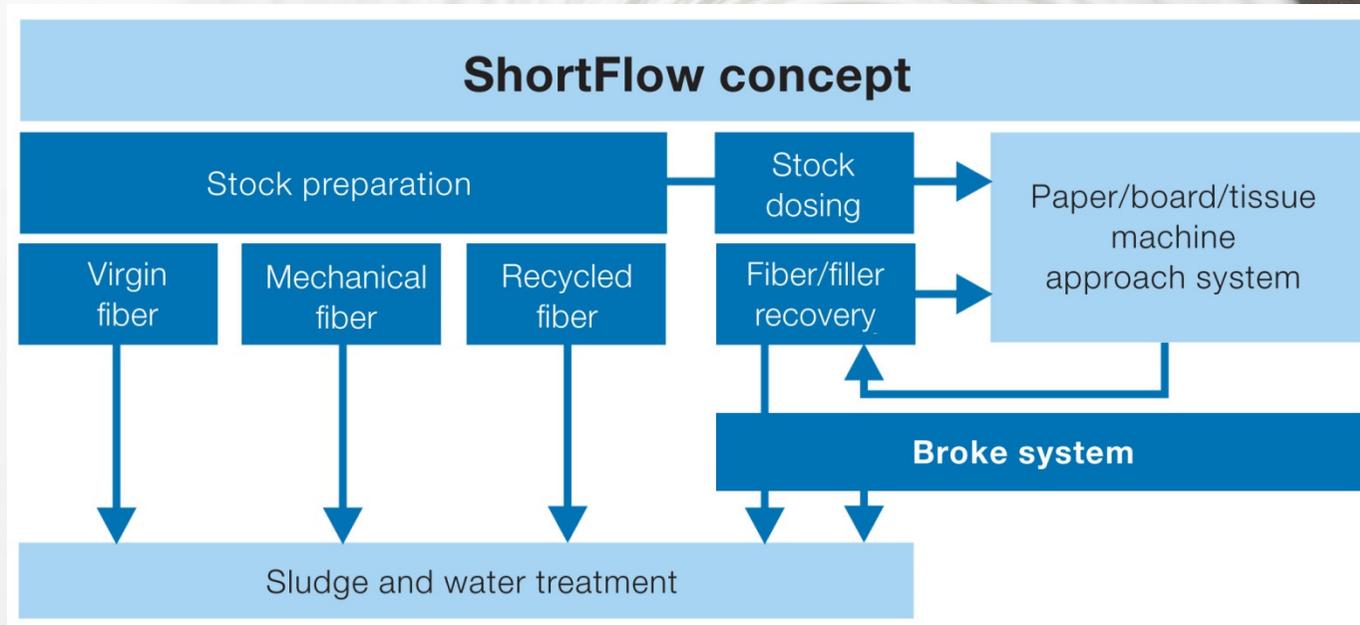
Design

- ANDRITZ SaveAll Disc filter
- Shower water Bow screen ANDRITZ MicraScreen
- Press water Bow screen ANDRITZ MicraScreen



ShortFlow concept

Plant concept



” *ANDRITZ ShortFlow concept contains overall process solutions – from bale pulping to the paper machine headbox.*

ShortFlow concept

For cost efficiency - summary

ShortFlow concept at a glance

- Minimized number of equipment and storage volume
- High flexibility concerning grade and color changes
- Compact layout: combination of machine chest and blend chest to a new module
- High grade reproducibility and short start-up times due to high level control philosophy

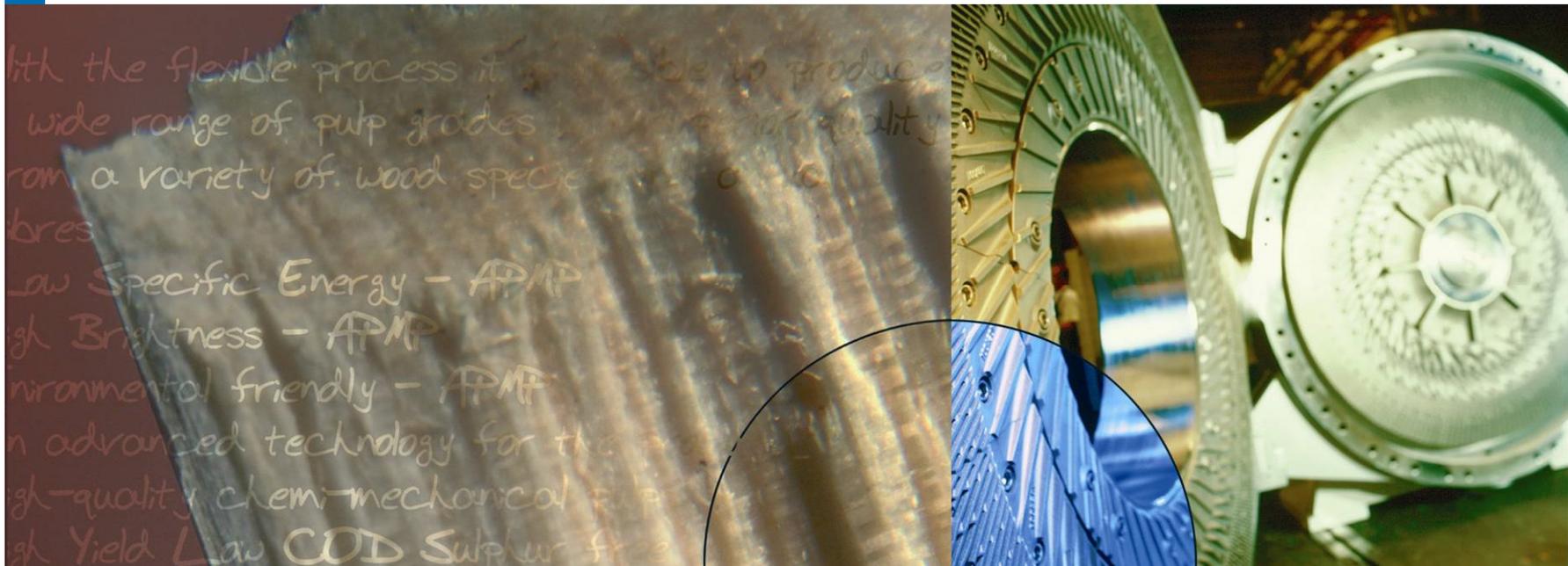


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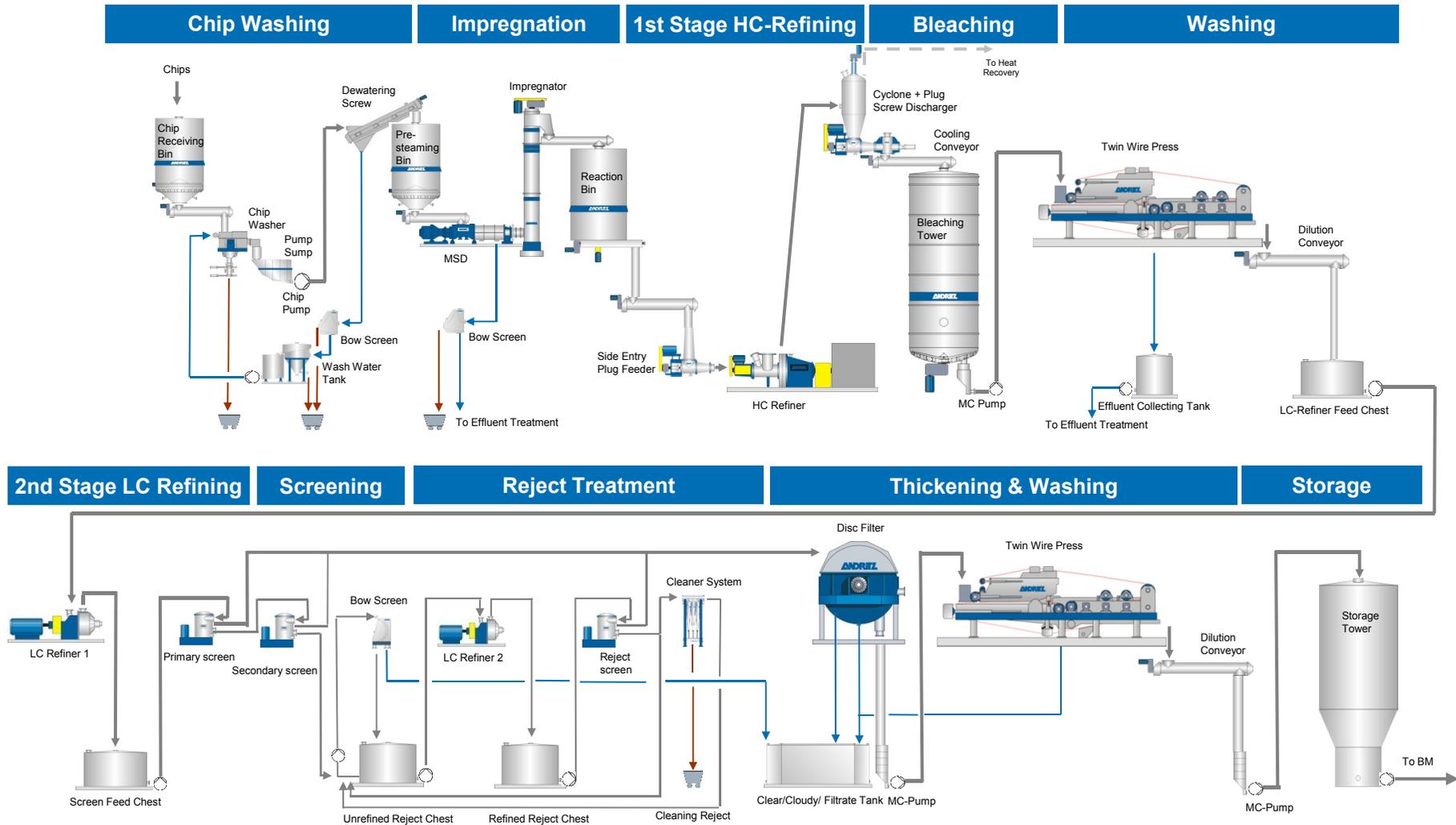
P-RC APMP fiberline

The leading hardwood mechanical pulping process



BCTMP

Basic flow sheet, 395admt/d, board grade



P-RC APMP (Pre-conditioning Refiner Chemical Alkaline Peroxide Mechanical Pulp)

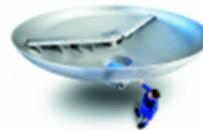
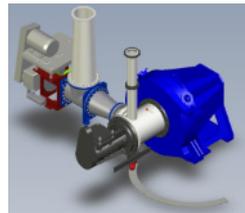
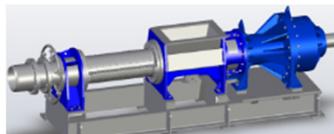
Why ANDRITZ equipment



Highest pulp quality at minimum energy demand

- **ANDRITZ Impressafiner** – most efficient
- **ANDRITZ HC Refiner** – lowest shives
- **ANDRITZ Bleach Tower** – even retention time
- **ANDRITZ Screw Press** – highest dryness
- **ANDRITZ LC Refiner** – lowest energy consumption

All key equipment made by ANDRITZ



P-RC APMP

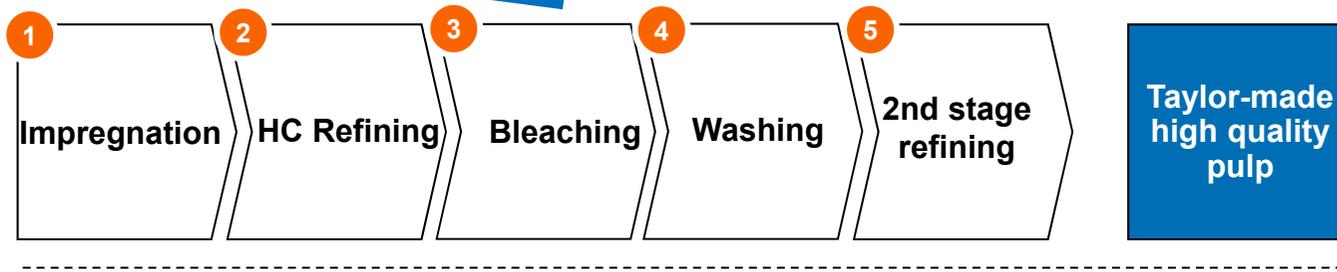
Why ANDRITZ P-RC APMP technology



Patented, reliable and proven

- ▶ There is an ANDRITZ P-RC APMP Plant for every type of pulp, wood species, brightness and capacity – MARKET LEADER 

Experience from more than 30 successful P-RC APMP installations

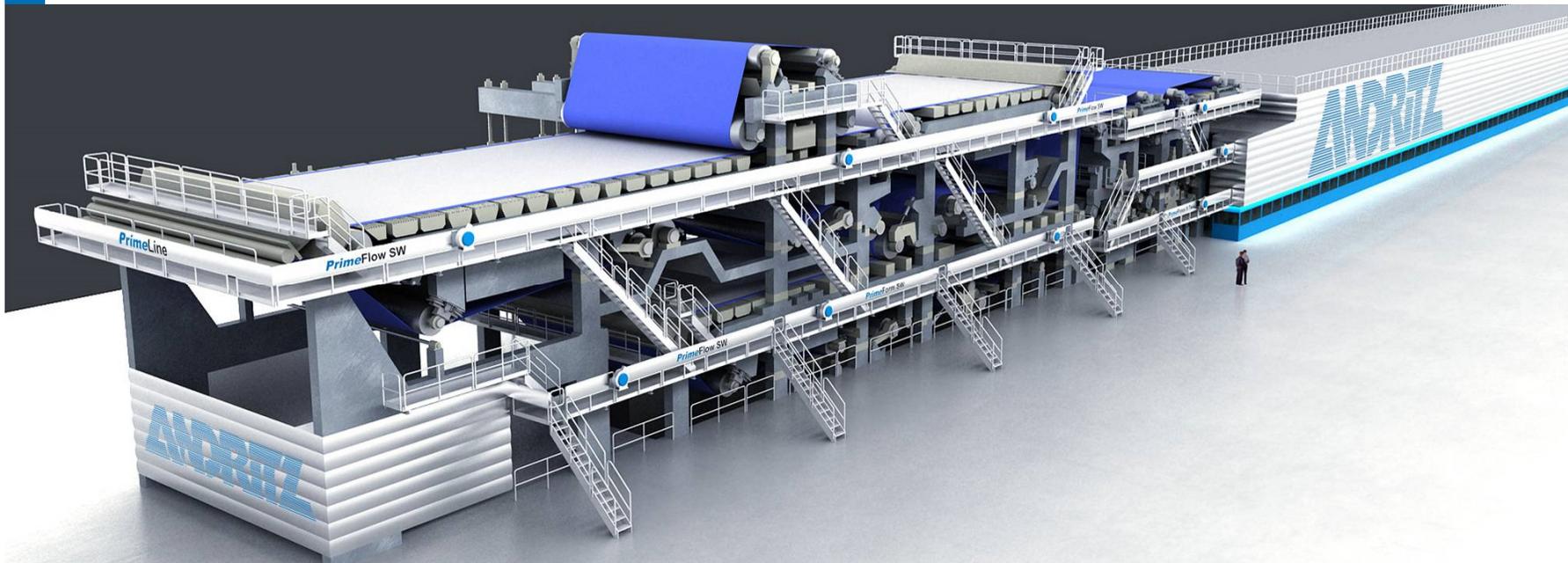


ANDRITZ

Pulp & Paper

Board machine

Europe's leading technology in multi-layer productions



Board machine from headbox to winder

Design data for 220.000 t/a

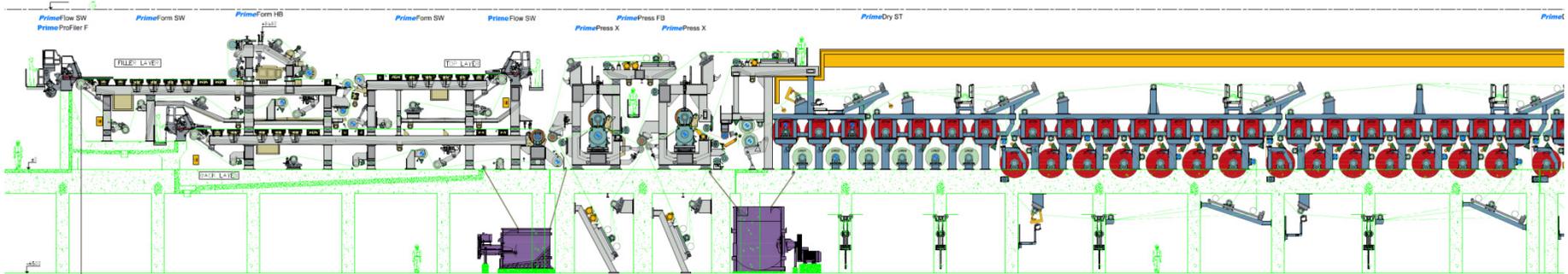
Basic data

Paper grade		FBB (GC1 and GC2 quality)
Basis weight range		200 – 350 g/m ²
Raw materials		LPKP, NBKP, BCTMP (Birch/Aspen)
Number of Layers / raw material split	Top Layer	50/50 LPKP, NBKP
	Filler Layer	80 % BCTMP / 20% Broke
	Back Layer	50/50 LPKP, NBKP
Wire width		4300 mm
Working width at reel		3750 mm
Design speed		800 m/min
Production speed		650 m/min

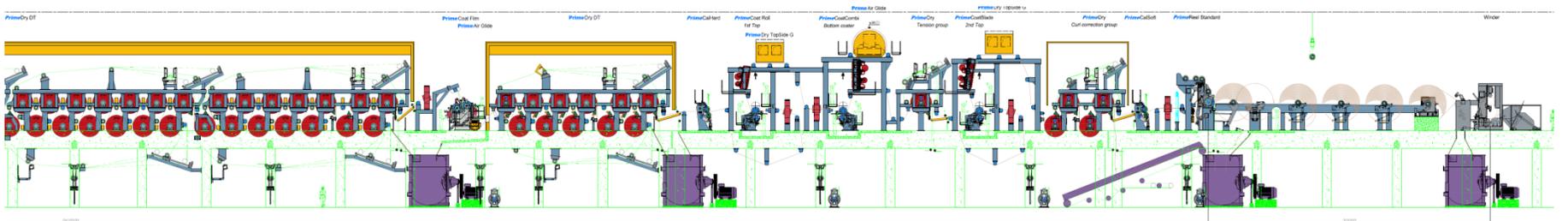
Board machine from headbox to winder

Overall length of 230 m

- 3 layer wire section with hybrid former
- Press section with two shoe press and one offset press
- Pre dryer section with 63 drying cylinders



- Film press with 1st post dryer section with 11 drying cylinders
- One hard nip calender and coating section with 3 coating heads
- 2nd post dryer section with 4 cylinders and soft nip calender, pope reeler and slitter rewriter



Board machine

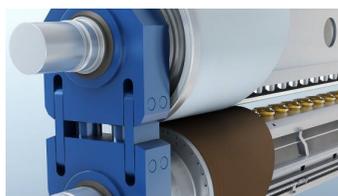
Why ANDRITZ equipment

Highest board quality at minimum energy demand

- **ANDRITZ Headbox** – best profiles
- **ANDRITZ Shoe press** – highest dryness
- **ANDRITZ Steel dryers** – lowest energy consumption
- **ANDRITZ Calender** – best smoothness
- **ANDRITZ Coater** – homogeneous coating properties



All key equipment made by ANDRITZ



PrimeDry steel cylinder

Completely made of steel

The material is they key – comparison steel vs. cast:

Characteristics	Steel vs. cast	Improvement
Material strength and elasticity	+++	approx. 40% higher
Cylinder weight	+	approx. 20% less
Heat transmission coefficient = better drying performance	+	7% better
Energy savings	++	% depends on process design
Mechanical design at web edges	++	approx. 15 cm on each side



The feasibility calculations shown herein are for indicative and illustrative purposes only and shall in no event represent binding obligations to ANDRITZ.



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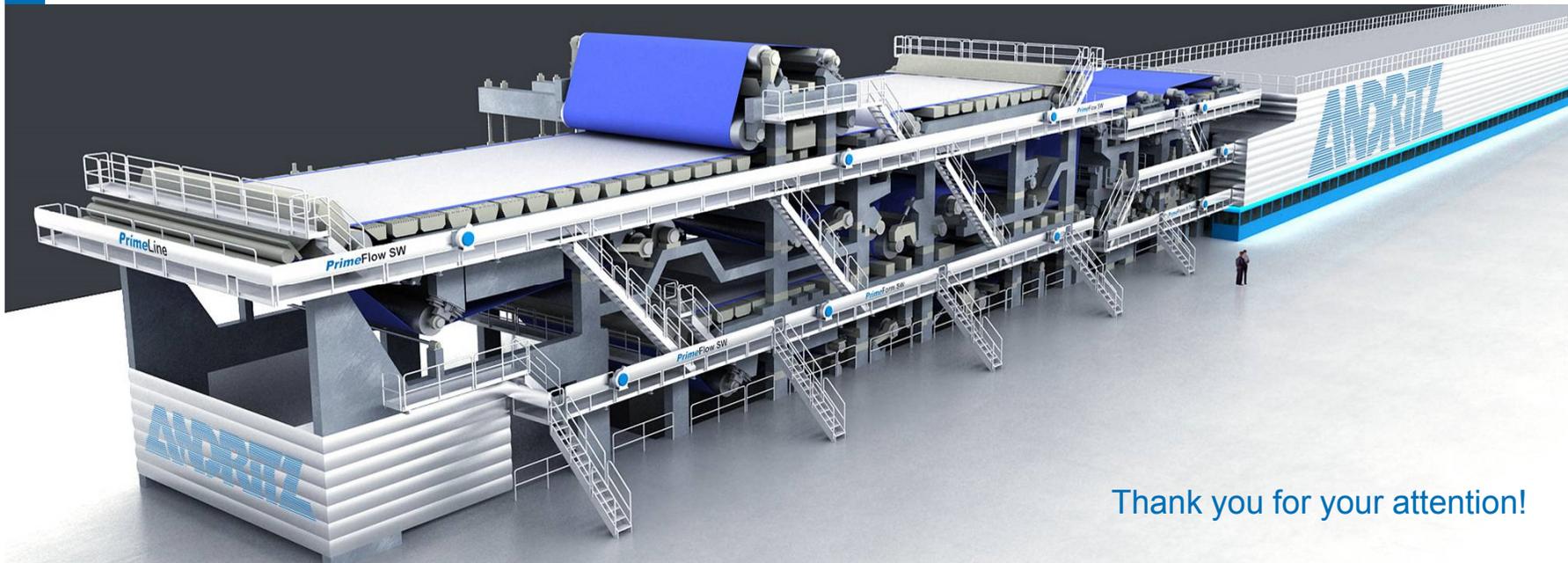
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ANDRITZ

Pulp & Paper

ANDRITZ and Kama Karton LLC / Russia

First complete production line from wood log to board reel



Thank you for your attention!