



ANDRITZ  
FEED & BIOFUEL

# FEEDING AND FUELING THE PLANET

HOW CAN WE HELP FUEL YOUR BUSINESS?

WOOD PELLETING 2023

**ANDRITZ**

ENGINEERED SUCCESS



**ANDRITZ GROUP**

**ENGINEERED SOLUTIONS MINIMIZE  
YOUR CARBON FOOTPRINT**

22 MAY 2023 / DOMINIQUE KÜHNER

**ANDRITZ**

**ENGINEERED SUCCESS**

# CHAPTER OVERVIEW



01

THE ANDRITZ GROUP

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02

CHALLENGE OR OPPORTUNITY?

---

03

ANDRITZ ENGINEERED SOLUTION  
“MINIMIZE YOUR CARBON FOOTPRINT”

---

04

MEET NEXT GENERATION PELLET MILL

---

05

LET'S TALK

# THE ANDRITZ GROUP



**ANDRITZ is a globally leading supplier** of plants, equipment, systems, and services for the pulp and paper industry, the metalworking and steel industries, hydropower stations, pumps, solid/liquid separation in the municipal and industrial sectors as well as for animal feed and biomass pelleting



## GLOBAL PRESENCE

Headquarter

**GRAZ, AUSTRIA**

Production sites and service/  
sales companies worldwide:

**OVER 280**

# A WORLD MARKET LEADER WITH FOUR BUSINESS AREAS



- Equipment for production of all types of pulp, paper, tissue, and board
- Boilers for power generation
- Flue gas cleaning systems
- Plants for the production of nonwovens and panelboard
- Recycling and shredding solutions



- Presses/press lines for metal forming (Schuler)
- Systems for production of stainless steel, carbon steel, and non-ferrous metal strip
- Industrial furnace plants



- Electromechanical equipment for hydropower plants (turbines, generators)
- Pumps
- Turbo generators



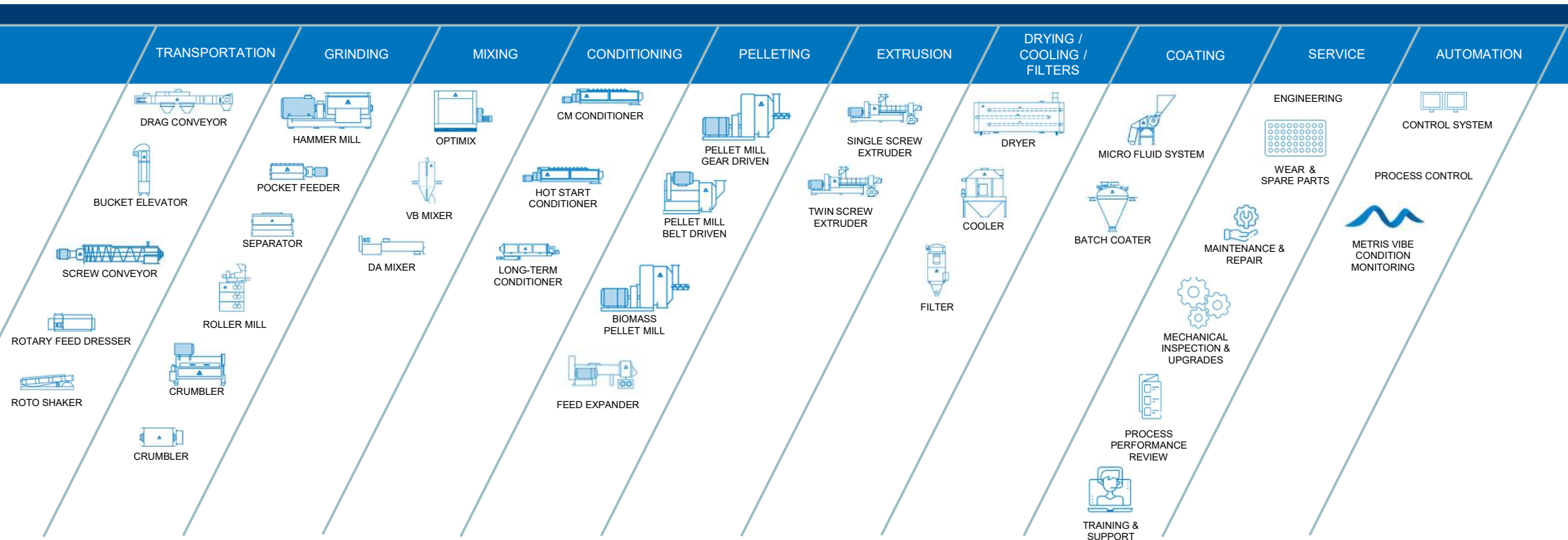
- Equipment for solid/liquid separation for municipalities and various industries
- Equipment for production of animal feed and biomass pellets



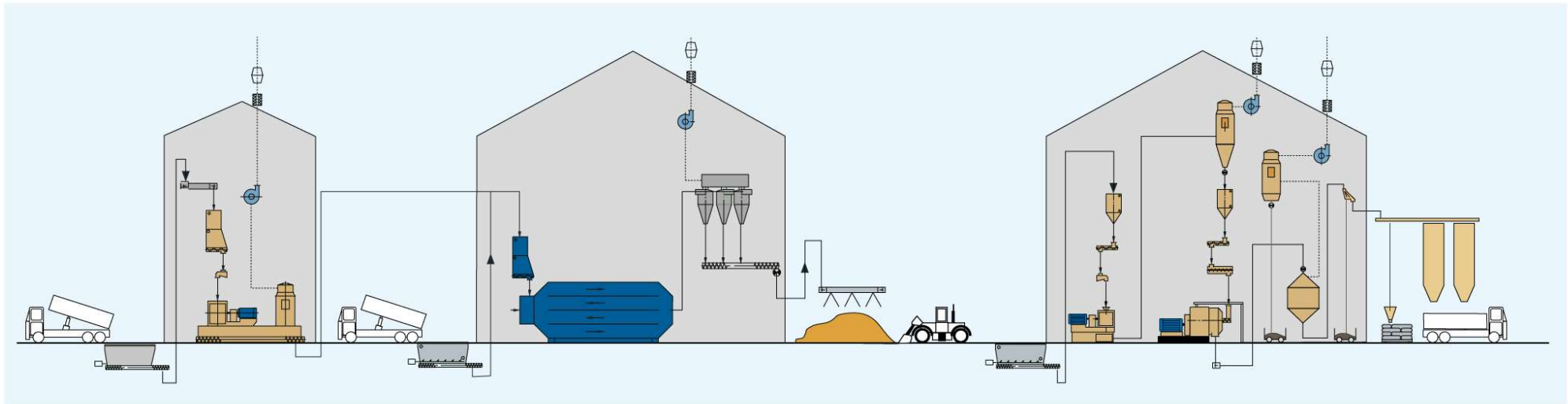
# WIDE RANGE OF TECHNOLOGIES AND SERVICES



Portfolio proven to optimize customer performance



# ANDRITZ BIOMASS TECHNOLOGIES



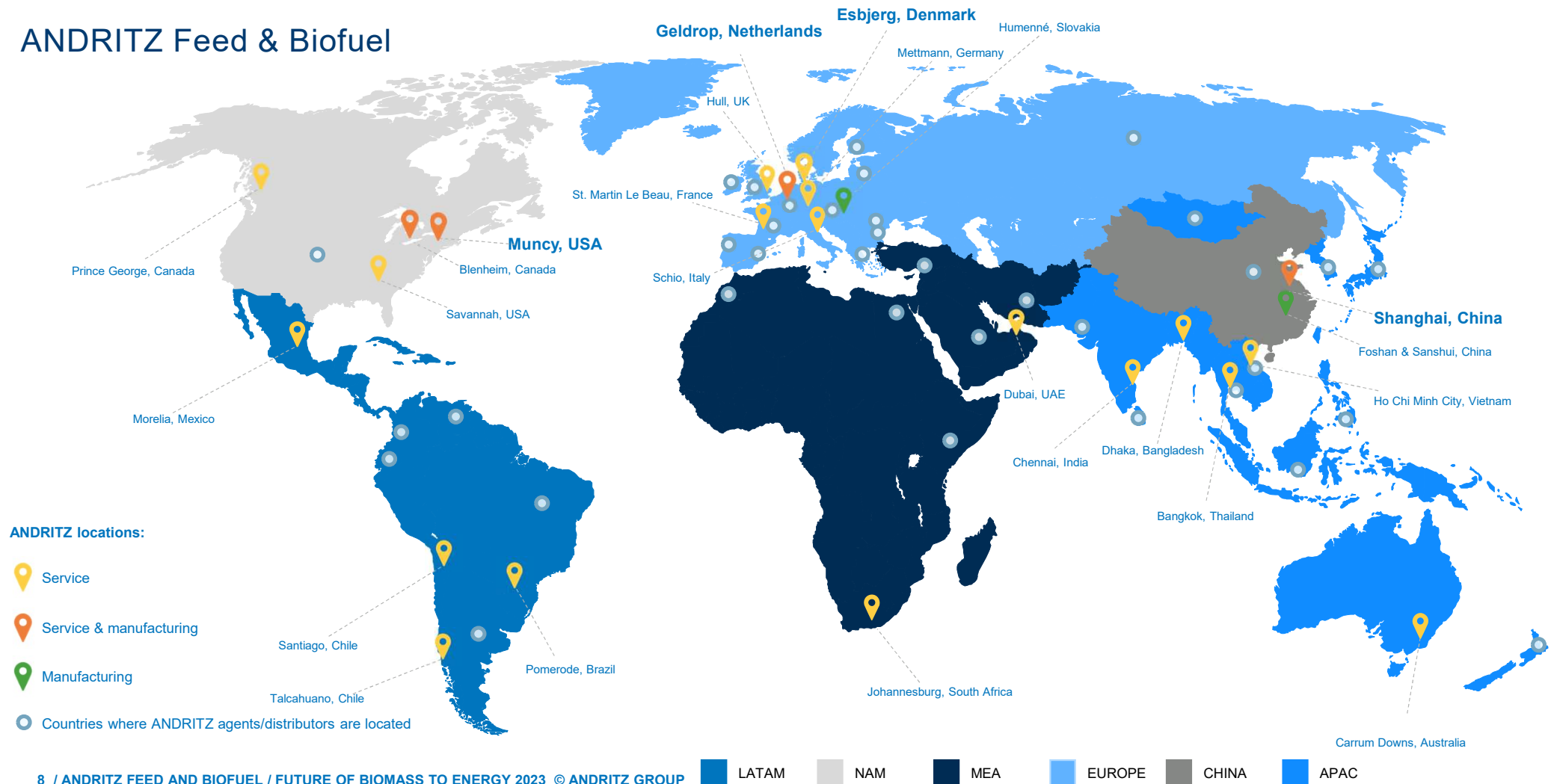
Process flow for wood chips

Process flow for sawdust



# GLOBAL LOCATIONS

## ANDRITZ Feed & Biofuel





# KEEP YOUR BUSINESS GROWING WITH OUR GLOBAL SERVICE NETWORK



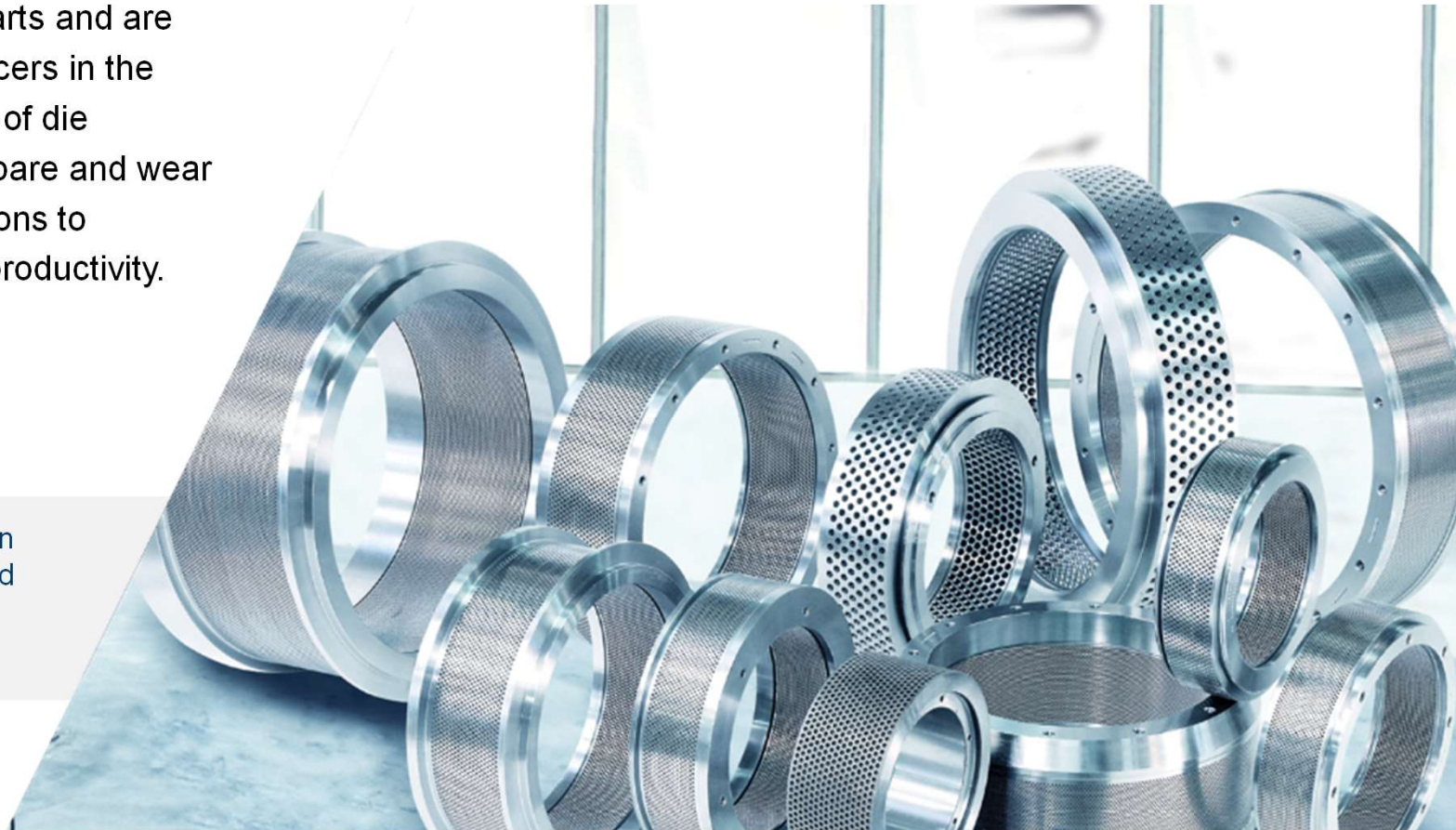
How can we help serve your business?

We manufacture wear and spare parts and are the largest die and roll shells producers in the world; covering approximately 25% of die production around the world. Our spare and wear parts are stocked at strategic locations to minimize downtime and maximize productivity.



**25%**

of die production  
around the world  
is covered by  
ANDRITZ

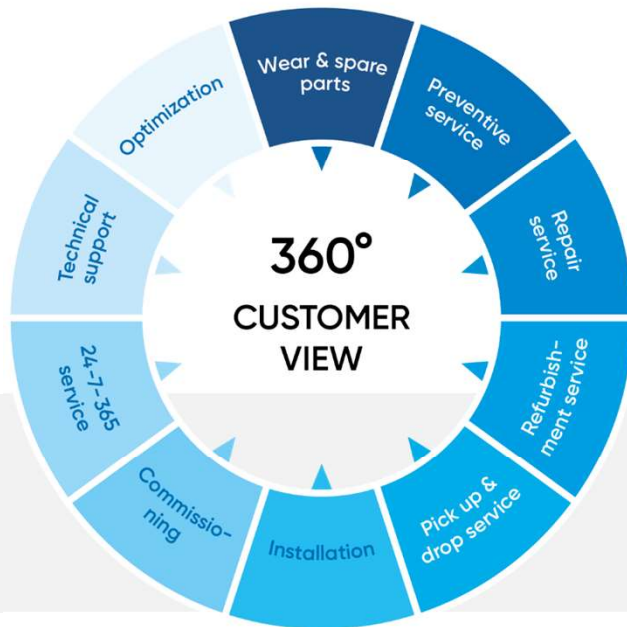


# KEEP YOUR BUSINESS GROWING WITH OUR FULL CIRCLE CUSTOMER VIEW



How can we help serve your business?

We are the all-around best pellet production partner  
because we view the process from 360 degrees.





# FUTURE OF BIOMASS TO ENERGY

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# CHALLENGE OR OPPORTUNITY?



## EU Renewable Energy Directive (RED II and III)

Increased focus on greenhouse gas emissions along the entire supply chain

- Raw Material
- Production
- Processing
- Transport

New definition of sustainability changing raw-material and supply chain requirements for biomass in Europe

Production

Transport

Processing

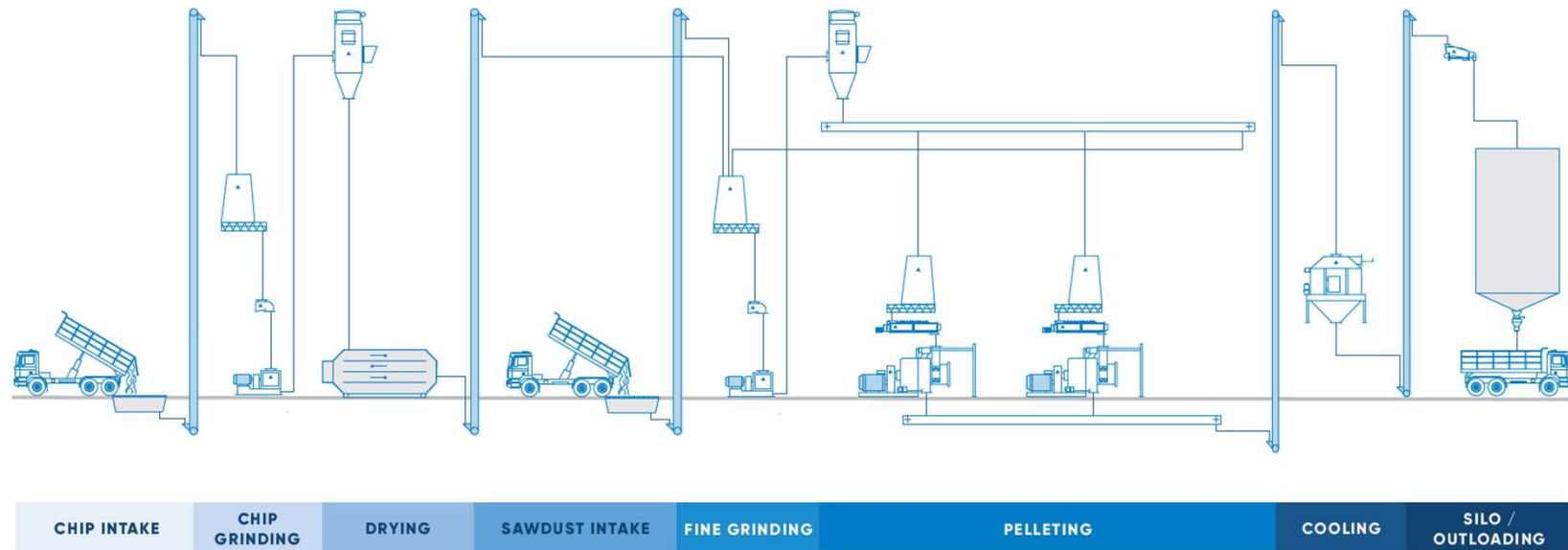
Transport

# FUTURE BIOMASS PELLETTING PLANTS



## The global trend

- We will continue seeing **wood as the dominating source of raw material**.
- A **broad variety of new and alternative raw material** will also play a significant role in the future.





# FUTURE BIOMASS PELLETING PLANTS



## Raw material types



### WOOD AND FOREST RESIDUE

- Virgin logs
- Wood Chips
- Sawmill residues
- Logging residues



### AGRICULTURAL BY-PRODUCTS

- Rice straw
- Wheat straw
- Rice husk
- Bagasse

Left over after harvesting or other processing



### ENERGY CROPS

- Willow
- Poplars
- Frass



### PLANTATION CROPS

- Eucalyptus
- Yellow pine

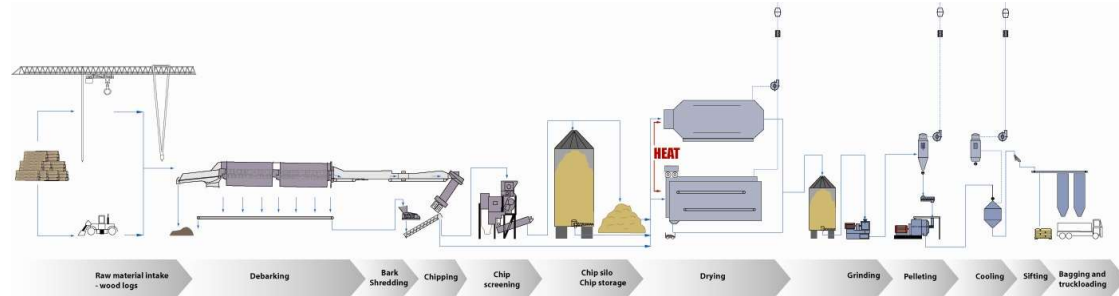
High yielding crop species special planted / harvested with focus on energy production

# ANDRITZ - FOCUS ON PROCESS KNOW-HOW

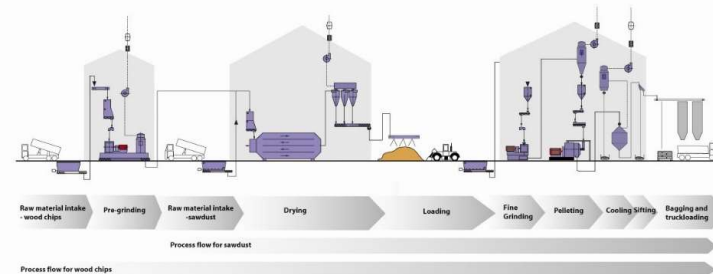


What processes can ANDRITZ offer?

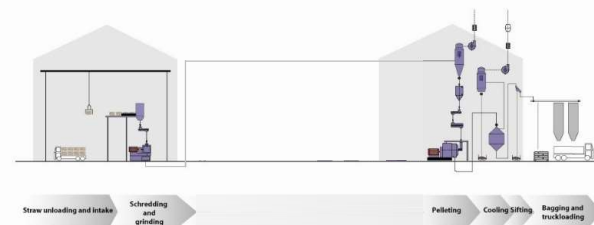
- Process line (pellet production)
  - Intake
  - Size reduction
  - Drying
  - Grinding
  - Pelleting
  - Cooling
  - Sieving
  - Storing
  - Out-loading
  - Automation
- Engineering
- Erection support
- Start-up support



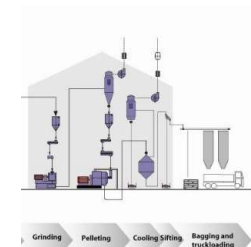
Process - From logs to pellets



Process - From chips and/or sawdust or wet fibre to pellets



Process - From dry baled fiber to pellet



Process - From dry fiber to pellet



# WOODY BIOMASS

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# ANDRITZ ENGINEERED SOLUTION



Engineered solution can:

- Focus on Safety and Serviceability
  - Focus on complete process
  - Reliability and lifetime of parts
  - Key Equipment Design
- Minimize your Carbon Footprint
  - Reduce your OPEX (existing plants)
  - Reduce your CAPEX (expanding / new plants)
- Increase your Pellet Quality
  - High bulk density
  - Less fines
  - Pellets to meet customer requirements

PREMIUM / INDUSTRIAL  
WOOD PELLETS



CHIPPING – WET GRINDING – DRYING – GRINDING – PELLETING

# ANDRITZ ENGINEERED SOLUTION



## Chipping / Wet Grinding

- Conventional Process
  - 2 process step required (chipping and grinding)
  - Cutting fiber in uncontrolled direction
- ANDRITZ Engineered solution
  - Only 1 process step required
  - Cutting fiber in controlled direction
  - Uniform chips → good dryer performance

## MINIMIZE YOUR CARBON FOOTPRINT !

- Energy saving 10 - 20 kWh / ton

MINI “CHIPS” SUITABLE FOR DRYING  
PRODUCED IN ONE STEP





# ANDRITZ ENGINEERED SOLUTION



## Drying and Grinding

- Conventional Process
  - Inhomogeneous particle size
  - Low dryer performance
  - Variations in moisture content
- ANDRITZ Engineered Solution
  - Uniform chips size
  - Good dryer performance
  - Uniform moisture content => Good grinder performance

## MINIMIZE YOUR CARBON FOOTPRINT

- Energy saving 8 - 15 kWh / ton

CONVENTIONAL / MINI “CHIPS”



Non uniform drying is a hammer mill “killer”

# ANDRITZ ENGINEERED SOLUTION



## Pelleting

- Conventional Process
  - No use of steam
  - Use of additives
  - Low pellet mill performance
- ANDRITZ Engineered Solution
  - Use of steam (pre-heating of fiber)
  - Good pellet mill performance
  - Increase pellet quality

### MINIMIZE YOUR CARBON FOOTPRINT

- Energy saving 15 - 20 kWh / ton

PREMIUM / INDUSTRIAL  
WOOD PELLETS



“Go Green” use steam

# ANDRITZ ENGINEERED SOLUTION



Summarizing:

<u>Process step</u>	<u>Energy savings</u>
• Chipping / Wet Grinding	10 - 20 kWh / ton
• Drying and Grinding	8 - 15 kWh / ton
• Pelleting	15 - 20 kWh / ton

**AN ENGINEERED SOLUTIONS WILL MINIMIZE  
YOUR CARBON FOOTPRINT BY ~1.000-ton CO<sub>2</sub>E/YEAR**

(based on 100.000-ton pellets/ year)

**PREMIUM / INDUSTRIAL  
WOOD PELLETS**



# ANDRITZ ENGINEERED SOLUTIONS



## Benefits of choosing ANDRITZ as a complete plant provider

**ANDRITZ** has demonstrated capability to design and supply plants that will achieve “nameplate” capacity and quality

**ANDRITZ** has all main equipment / process steps in-house

**ANDRITZ** offers a single point of responsibility

**ANDRITZ** offers a single point of service agreement with local service shop / consignment stock

**Sindus ANDRITZ** provides Industrial Maintenance, Process Optimization, and Industrial Automation

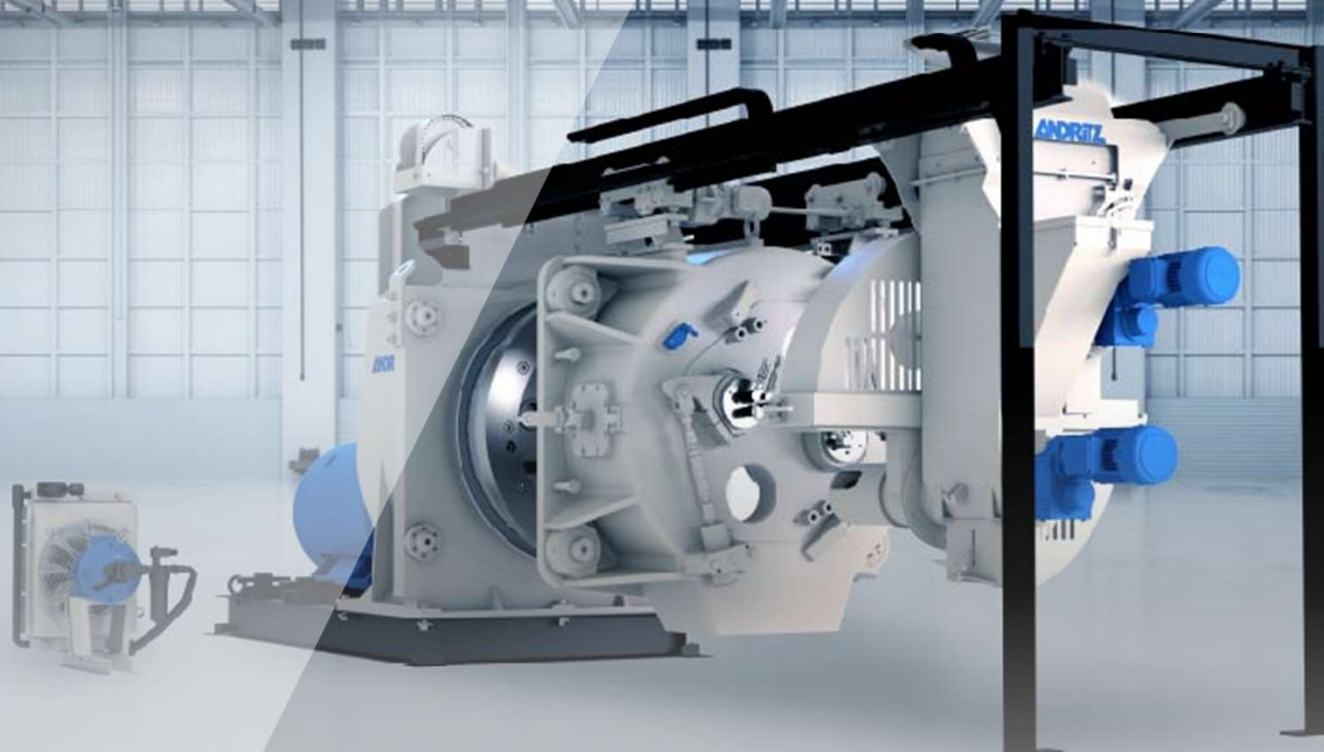
Combined, ANDRITZ Technologies and our global teams of experts make successful projects

**WE HAVE DONE IT BEFORE!**

ENGINEERED  
SUCCESS



PELLET FORMING  
PELLET PRESSES  
NEW GENERATION PM30



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# UPGRADED PM30-6



## Background

The present design of the PM30 pellet mill has already proven itself a success in the market, but time has come for an upgrade with 4 main focus areas:

- **Increased capacity**
- **Improved serviceability and safety**
- **Increased reliability and uptime**
- **Reduced maintenance and operation costs**

Discover the PM30-6, an exceptional pellet mill engineered specifically for biomass, designed to create superior-quality products while lowering maintenance and operational costs. Benefit from increased capacity with the PM 30-6, featuring optimized die speed and an innovative, patented feeding system. Experience smart, efficient, and high-performance pellet production.

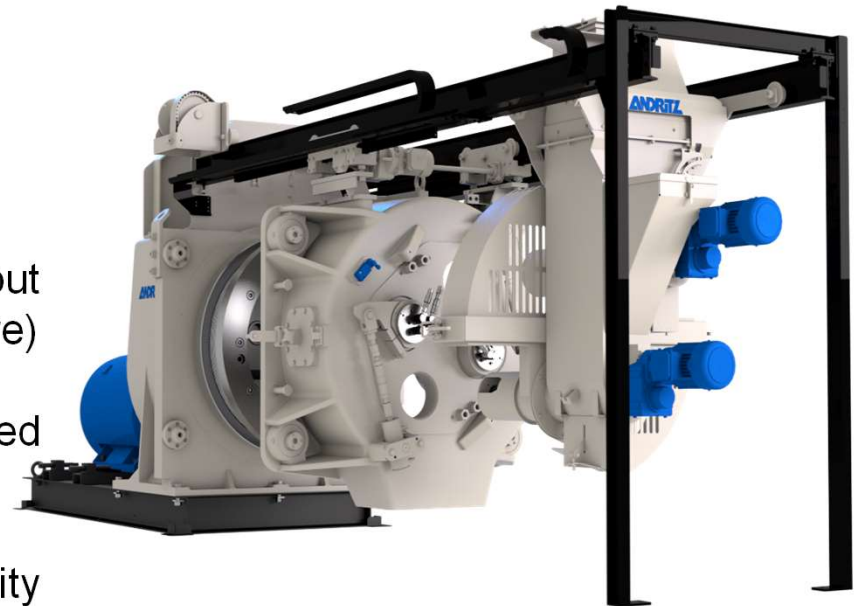
# UPGRADED PM30-6



## Benefits

The upgraded PM30-6 will provide the following benefits:

- High-quality products thanks to exclusive design for Biomass application
- Improved safety and operational flexibility due to a more maintenance-friendly design
- Lower CAPEX per ton due to increased capacity without increasing overall electrical energy consumption (up to 15% more)
- Lower OPEX due to reduced maintenance effort and extended lifetime of wear parts (expected up to 10% less)
- Increased uptime due to better serviceability, improved reliability and extended lifetime of wear parts





# Let's Talk

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