

Biomass pelleting
Together, we make a difference

Biomass pelleting

ANDRITZ has the ability to manufacture and supply each and every key processing machine in the pellet production line. We offer single machines for production of biomass pellets, solid biofuel, and waste pellets.

Installation of ANDRITZ hammer mills 4360



- Homogenous fuel of identical standard
- Environmentally friendly
- CO₂ neutral fuel

Several different raw materials can be used for biomass pelleting

- Sawdust
- Bark
- Wood chips
- Straw

Raw material sources

- Timber industry
- Sawmills
- Paper industry
- Furniture industry
- Building industry
- Agricultural by-products



Installation of ANDRITZ Pellet mill PM30

With over 350 reference plants, ANDRITZ is a global leader in biofuel pelleting technology. ANDRITZ pellet mills produce more than 50% of all biofuel pellets worldwide, and ANDRITZ has held a market share of over 50% since the pioneering of biofuel pelleting in the 1980s.

If correctly managed, biomass is a sustainable fuel that can deliver a significant reduction in net carbon emissions compared to fossil fuels.

The amount of CO₂-neutral fuel produced with equipment from ANDRITZ replaces almost five million tons of oil per year.

Some of the advantages of pelleting

- Simple handling
- Reduced transport cost
- Better storage capabilities



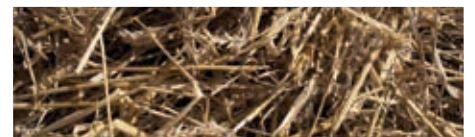
▲ Sawdust



▲ Bark



▲ Wood chips



▲ Straw

Grinding and pelleting

ANDRITZ makes grinding and pelleting equipment for converting forestry and agricultural by-products into uniform, densified fuel pellets for large-scale power and heat generation, and for heating private homes.

Key processing machinery

ANDRITZ-design solutions are based on highly advanced key machinery for wood grinding and pelleting, including chippers and dryers for the processing of wet and/or green wood prior to the pelleting process.

Compression by means of biomass pelleting provides a substantial density increase. By converting wood chips into compressed wood pellets, the density typically increases from 150 kg/m³ to 650 kg/cm³, which generates significant savings on transport, storage, and handling, as well as various other environmental advantages.

Increasing need for environmentally friendly fuel

The private market as well as the market for large-scale power stations is growing rapidly. This is mainly a consequence of the Kyoto Protocol, which covers more than 160 countries, representing over 55% of the global greenhouse gas emissions.

Leading market share

ANDRITZ is a major player in supplying and supporting wood pellet producers all over the world and holds a share of more than 50% of the biomass fuel market as well as the wood grinding market.

Pelleting



▲ LM26



▲ Paladin

Grinding



▲ Multimill B



▲ PM30



▲ Hammer mill 4360



▲ Biomax

Process flow

Biomass pelleting

Pre-grinding size reduction

Raw material: Wood chips

Raw material supplied as wood chips in sizes of approx. 100+ mm requires size reduction in a chipper and a hammer mill prior to the subsequent drying process. The Optimill hammer mill is intended for high capacity and optimum particle size distribution by means of an energy-efficient rotor design and replaceable wear liners in the grinding chamber.

Drying

Raw material: Sawdust

The drum drying system dries the raw material before the fine-grinding process. To ensure an evenly dried product, the raw material is conveyed pneumatically by a stream of hot gases and dried in a convective process until it reaches a residual moisture content of approx. 10%.

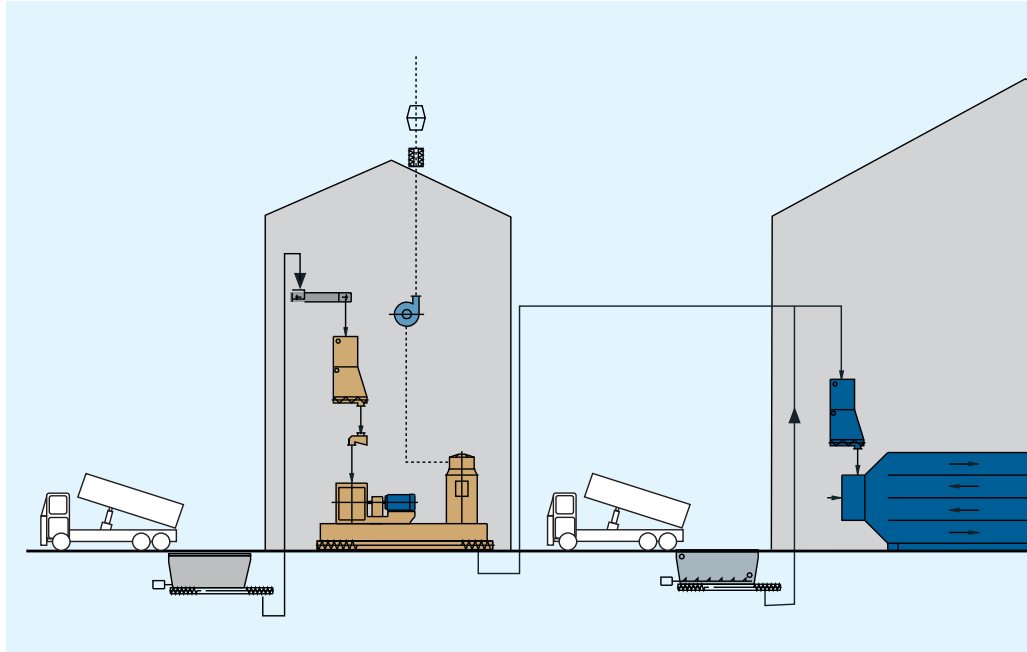
Fine-grinding

It is recommended to grind raw materials in a hammer mill to achieve homogeneous pellets. The large surface and open fibers of ground products facilitate steam absorption in the cascade mixer. Steam and high temperature in the cascade mixer soften the lignin in the wood, after which pelleting can take place without the addition of binders.

The Multimill hammer mill operates with an airflow that optimizes the grinding process and carries the wood meal on to a cyclone or filter for separation.

Pelleting

The pellet mill ensures high output and efficient control of the pellet quality. The pellet mill is dimensioned for large forces and provided with exchangeable wear parts. The efficient process control ensures high flexibility and optimum energy utilization. The



Process flow for wood chips

Process flow for sawdust



▲ Hammer mill

▲ Hammer mill

▲ LM26

▲ Paladin pellet mill

energy consumed to operate the pellet mill and heat the steam corresponds to 2.5-3% of the wood energy content.

ANDRITZ offers two types of biomass pellet mills.

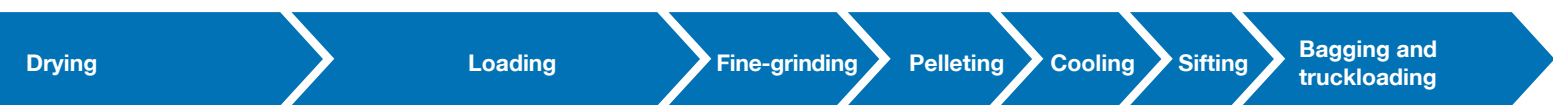
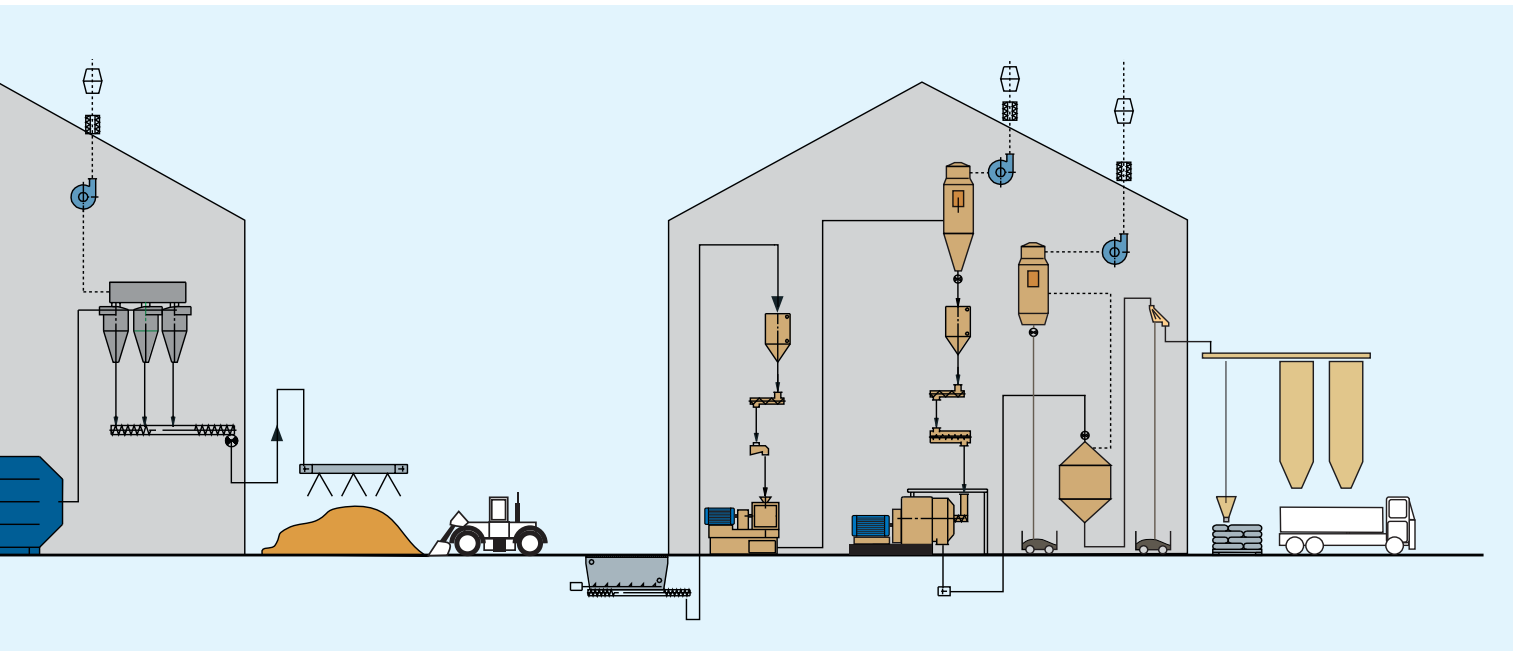
Cooling

A cooler is provided for wood pellets prior to packing and storage. The friction generated in the die during the pelleting process develops additional heat in the pellets,

which has to be removed before sifting and storing the pellets. The pellets are cooled by air taken from the surrounding area, thus the pellet temperature will always be 5 to 10 °C above room temperature. The cooler retention time and the wood pellet diameter are decisive for dimensioning the cooler.

Final sifting

Finally, the pellets pass through a sifter for removal of crumbs and dust, which are re-circulated to the process.



▲ PM30 ▲ BioMax ▲ Cooling ▲ Dust Filter ▲ Process control

Process control

ANDRITZ offers modularly designed, computerized controls for individual key machines, complete processing channels, and complete plant controls.



Waste pelleting by ANDRITZ

Waste products can be very valuable!

A wide variety of materials that are considered to be waste can in most cases be transformed into valuable recycled materials. Among many production processes, pelleting can give a significant added value to these types of product.



Why should we pelletize waste?

In the pelleting process, loose material is converted into compressed material. As a result of the pressure and heat applied to the substances, the density of the material is increased by a factor of up to 10, in pellets with diameters of 3 mm up to 30 mm. This results in great advantages in handling the waste, better storage, and significant savings in transportation costs.

Waste pellets as bioenergy

Waste material mixtures containing of many high calorific value products, such as paper/plastic and other foreign materials like silica, can make this product a valuable type of pellet for the bioenergy industry. By using renewable forms of energy, it is possible to reduce the dependency on fossil fuel and use pellets to fill the gap for heating and electricity.

Waste pellets recycled into new products

Waste pellets made of pure, surplus materials or, in other words, waste materials consisting of only one type of product, such as celluloses, plastic mainly coming from production processes, can be made suitable for many types of application. Clean plastic materials are often applied in molding processes for new types of furniture. The molding process demands stable pellets at bulk densities of approx. 400 kg, which improves the molding process significantly.

Materials for waste pelleting

- Composite materials for substitute fuel
- Paper sludge
- Plastics PE and PP
- Wood
- Carpet waste
- Household waste

Pelleting

The ANDRITZ Paladin pellet mill ensures high output and efficient control of the pelleting process. The pellet mill is dimensioned for large forces and designed with exchangeable wear parts. The robust Paladin pellet press with twin drive provides smooth operation with low vibration levels. The belt drive and heavy-duty pellet chamber ensure reliable and safe production.

Pure materials for recycling into new products

- Plastics
- Stabilizers
- Compost
- Sewage sludge
- Chemicals
- Chicken manure
- Electronic waste
- Industrial dust
- PUR foam (e.g. refrigerator recycling)

Advantages of pelleting

- Simple handling
- Reduced transport cost
- Better storage capabilities
- Homogenous fuel of identical standard
- Specified bulk material for further processing
- Environmentally friendly



Paladin pellet mill 2000 BM



▲ Service and support

Aftermarket

After-sales service and support

Our excellent aftermarket service and support is what sets us apart from our competitors. Our collaboration with our customers does not end with the sale – or the machine installation. The good customer relationship is extended through important after-sales service and support.

Our services

Our highly skilled and motivated employees stand ready to help you with:

- After-sales services, support, and follow-ups
- Spare and wear parts, maintenance, and repairs
- Process optimization
- Training of plant operators

Field services

We offer our customers excellent field services, where our service technicians come to you and your plant to provide assistance. The depth and experience of our field ser-

vice specialists is unmatched – backed by the full knowledge and technical support that only the equipment manufacturer can provide.

Benefits

There are several benefits to be gained from continuous upgrades, optimizations, and service work on your equipment:

- Maximum production
- Process knowledge and experience
- Reliability and cost efficiency
- Reduced life cycle costs
- Short and effective shutdowns
- Improved energy efficiency



Where to find us

Global supplier – local presence

ANDRITZ is truly a global organization – but also with local presence. We are represented all over the world. The global market for feed technologies is served from five main locations:

- Esbjerg, Denmark
- Sanshui, Guangdong Province, China
- Geldrop, Netherlands
- Muncy, PA, USA
- Humenné, Slovakia

In addition, we operate from several strategic regional sales, engineering, and service locations in China, Vietnam, India, Australia, Mexico, Venezuela, Brazil, Chile, France, the UK, and Germany – and are also represented locally by agents and distributors in many other markets.



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