



FEED AND BIOFUEL
**GET IT RIGHT
THE FIRST TIME**

PILOT PLANTS, SDR. STENDERUP, DENMARK
AND MUNCY, PENNSYLVANIA

ANDRITZ

ENGINEERED SUCCESS

Feeding and fueling the planet

Dedicated to feeding and fueling the planet

ANDRITZ is vital to ensuring a reliable global supply of aqua feed, animal feed, pet food, and biofuel. With full process lines accounting for half the world's production of aqua feed and biomass alone, we continuously support leading producers in achieving the highest levels in safety, quality, and control from feedstock to final product.

**HOW
CAN WE HELP
GROW YOUR
BUSINESS?**

ENGINEERED SUCCESS

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LET'S FEED AND FUEL YOUR BUSINESS

The future of food and energy is full of ambitious ideas such as novel nutrient blends, unique feed properties that boost conversion rates, and high capacity process lines that virtually eliminate waste. To seize upon these opportunities, feed and biofuel producers demand a partner they can trust to deliver the right production capacity with the right service and expertise today – and for decades to come.

As a partner with more than 180 years of industry experience, no one knows more about these opportunities than ANDRITZ. From initial feedstock analysis to grinding, conditioning, and drying. From extrusion and pelleting all the way through to the largest parts and service supply chain on the planet. Together with leading producers in all major markets worldwide, our knowledge, services, and solutions continue to drive the evolution of tomorrow's feed and biofuel production.



European scale pilot plant

The ANDRITZ pilot plant in Sdr. Stenderup, Denmark, is outfitted with our smallest industrial-scale key process equipment, which ensures safe upscaling. The pilot plant is open and available to customers and project departments all around the world. Our partner is the Danish Technological Institute (DTI), which supplies highly qualified experts for product and process testing and laboratory facilities for feed and product analyses. Together with ANDRITZ equipment experts, we deliver pilot trial results of the highest quality, which ensures reliable and valuable information for customers.

JOINT PROJECTS

The customer may be present to provide support and expert product knowledge during pilot trials. This collaboration between the customer, the expert engineers at ANDRITZ, and the highly trained technicians of DTI ensures the correct applications are developed right from the start.

CLOSED-LOOP PROCESS OPTIMIZATION

Open, easy, and safe product access throughout the process lines enables good product sampling. A well-equipped laboratory means fast local sampling and analysis to comply with process regulations. The laboratory is managed by DTI, ensuring results are always reliable and unbiased.

APPLICATIONS

- Animal feed
- Pelleting, grinding, cooling, and coating
- Aqua feed and pet food
- Extruding, drying, cooling, and coating
- Biofuel and renewables
- Grinding and pelleting

REPORTING

All lab equipment is paired with ANDRITZ Process Control software, providing complete documentation of the process parameters. DTI extracts samples throughout the process and performs additional testing in their laboratory. The data from each source is then compiled into the final report of the pilot trials, forming the basis for selecting the most appropriate process technologies and upscaling them accordingly.

PROJECT TYPES

Project trials can be executed as an hourly project or as part of a broader commercial proposal and are usually complete within a day or two. Contact your local sales manager for information on the wide range of commercial terms available.

RAW MATERIALS

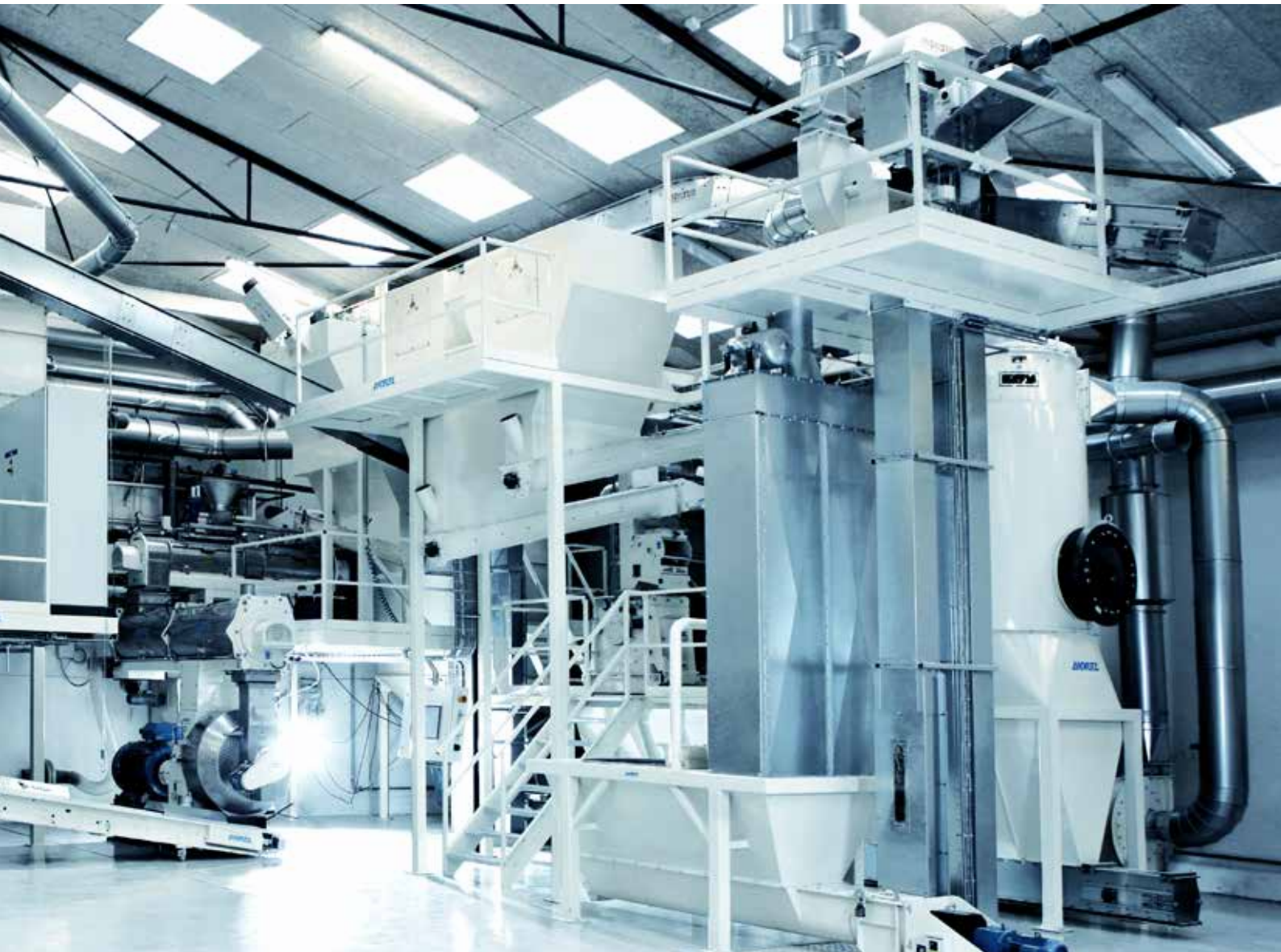
The customer may supply the raw materials necessary for testing as long as said materials meet necessary legal requirements. Alternatively, ANDRITZ can source the raw materials from local suppliers on behalf of the client.



All lab equipment is paired with **ANDRITZ Process Control software**, providing complete documentation of the process parameters.

PROCESS EQUIPMENT

- Coarse grinding of animal feed, up to 2-3 t/h
- Fine grinding for extrusion, up to 2 t/h
- Pellet machine with dual hygienization conditioners, up to 2-3 t/h
- Range of smaller pellet machines, from 200-300 kg/h
- Extruder with dual conditioner, up to 2-3 t/h
- Pellet dryer for CombiZone, up to 2-3 t/h
- Vacuum coater with batch size of 1,300 kg
- Relevant coolers and mixers
- Fully equipped laboratory with particle size and moisture analysis



Material testing facility in the U.S.

The goal of the new ANDRITZ testing facility, located in Muncy, Pennsylvania is to ensure processors who are engaging in the initial stages of product development have the right information from the very start.

Every test conducted in the 2,850 ft² ANDRITZ test lab is tailored to fit the individual customer's needs; whether they are experienced or prospective processor, testing large or small batches - so they have the most cost-effective and efficient solutions.

The new, self-contained, North American lab features a production size pellet mill and specialized size reduction equipment that will produce the most accurate process data and operating characteristics needed to fulfill your requirements.

The whole testing process is monitored and controlled using the ANDRITZ Automation Control System. In addition, equipment for analyzing material characteristics such as bulk density, moisture content, particle distribution, mean particle size, angle of repose, and pellet durability are located within the lab. The lab also features an enclosed observation and conference room as well as additional safety features that make the health and well-being of our customers and staff a top priority.

Along with the modern ANDRITZ technology comes over 75 years of expert processing knowledge. Our engineering teams are involved in the testing process to optimize trial runs, perfect a long-term solution for your processing requirements, and assist in designing the equipment processing line that matches your unique solution.

Processed samples and a detailed test report are available upon completion of each test and random sample processing can be sent to third party lab for additional unbiased validation upon request. We can also provide video documentation for future reference and we submit signed non-disclosure agreements to safeguard your information and give you the security necessary to protect your proprietary property.

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PROCESSES

Controlled by ANDRITZ
Automation Control system

PROCESSES

- Agglomeration/pelleting
- Control and automation
- Material handling
- Size classification
- Size reduction

PROCESS EQUIPMENT

- 16" diameter pellet mill with a 100 HP (75 kW) variable frequency drive
- 43" diameter hammer mill with a 75 HP (55 kW) variable frequency drive
- 12" diameter disc/attrition mill w/30 HP (22 kW) variable frequency drive
- 15" diameter precision rotary knife cutter w/30 HP (22 kW) variable frequency drive
- 10" diameter impact mill / CU cutter with a 15 HP (10 kW) variable frequency drive
- 8" diameter pneu-vac pneumatic transport system
- Batch mixer 11 Ft3 (311 L)
- Double agitator mixer
- ANDRITZ automation control system





**HOW
CAN WE HELP
GROW YOUR
BUSINESS?**

CASE STUDIES

European commercial feed producer

CUSTOMER

Large European commercial feed producer

DESCRIPTION

Upscaling of feed extrusion process

PURPOSE

Estimate finished product quality, power requirement, and process parameters

RAW MATERIAL

Customer supplied four tons by truck in tote bags.

FINISHED PRODUCT

Samples returned to customer for analysis. Remaining product disposed of locally.

LAB RESULTS

Samples extracted from process and analyzed locally – chemical composition and starch gelatinization.

DURATION

Two days. Customer's technologist present during trials.

REPORTING

One day. Written report with results, trend curves, laboratory results, and recommendations.

PREPARATIONS AND CLEANING

One day.

PRICE

Approximately EUR 4,000 subtracted from final order sum.



Scandinavian biofuel producer

CUSTOMER

Scandinavian biofuel producer

DESCRIPTION

Pelleting of steam-exploded wood fiber

PURPOSE

Estimate finished product quality, power requirement, and process parameters

RAW MATERIAL

Customer supplied six tons by truck in tote bags.

FINISHED PRODUCT

Samples returned to customer for analysis. Remaining product disposed of locally.

LAB RESULTS

Samples extracted from process and analyzed locally – particle size distribution, moisture content, and bulk densities.

DURATION

Two days. Customer's technologist present at pilot plant for one day during trials.



An R&D partner for ANDRITZ and our customers

The mission of the Danish Technological Institute (DTI) is to ensure that new knowledge and technologies are quickly translated into value for businesses in the form of new or improved products, materials, processes, methodologies, and more efficient forms of organization. To achieve this, DTI offers a wealth of products and services – from research and development at a high technical level to specialist consultancy and technological services that include laboratory services and product certification.

PROCESS EQUIPMENT

DTI offers access to a range of equipment, including:

- Knife mills with replaceable sieves, 10-100 kg/h
- Pin mills, below 100 microns, 10-500 kg/h
- Ultra-fine grinding on pilot-scale ball mills
- Equipment for optimizing particle size and for particle size analyses
- Air separation for particle fractionation
- Single pelletizing for testing pelletization properties, calorific value, and for documentation of energy consumption during production
- Pilot-scale pelleting, up to 300 kg/h
- Twin screw extruder, 31 kW motor, up to 70 kg/h
- Pilot-scale coating up to 15 kg
- Advanced pilot-scale belt dryer with combined IR and hot air
- Tools for pilot-scale, high-moisture texturizing
- Possible to imitate production of pelleted shrimp feed with post-conditioning on a small scale.





DANISH TECHNOLOGICAL INSTITUTE



the entire process from recipe formulation, purchase of ingredients, grinding, mixing, and subsequently, pelletizing, or extrusion. A well-equipped laboratory is available for physical and mechanical testing of raw material and products.

R&D PROJECTS

DTI is a partner in product and process development for commercial conditions and R&D projects, where we initiate Danish- and European-funded projects together with industrial partners and universities.

DTI

The Danish Technological Institute (DTI) has been the preferred partner of ANDRITZ for many years of pilot plant operations.

SERVICES

The Danish Technological Institute's food, feed, and biomass pilot plant offers a 1,300 m² test facility for pilot-scale testing and production in feed, food, and biomass applications. Our experts provide knowledge on product and process development from laboratory set-ups up to pilot-scale equipment, supplemented with relevant analyses of feed and products. DTI supports





GLOBAL SUPPLIER – LOCAL PRESENCE

With sales, service, engineering, manufacturing and production sites located all around the world, ANDRITZ Feed and Biofuel is truly a global organization with a local presence. ANDRITZ is vital to ensuring a reliable global supply of aqua feed, animal feed, pet food, and biofuel. With full process lines accounting for half the world's production of aqua feed and biomass alone, we continuously support leading producers in achieving the highest levels in safety, quality, and control from feedstock to final product.

How can we help grow your business?

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