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UNIQUE BIOMASS HANDLING CAPABILITIES: SYSTEMS THAT SERVE THE ENTIRE SUPPLY CHAIN

Bruks Siwertell is the market leader in the biomass handling and processing sector. In the port terminal, Siwertell ship unloaders have the unique ability to handle biomass safely in a totally enclosed system and our ship loading, conveying, stacking and reclaiming, truck unloading, chipping, grinding and milling, screening and wood-residue processing systems support every other part of the biomass logistics chain, from its waste form to the pellet. All stakeholders in this industry can benefit from the operational and technological advantages that our biomass handling and biomass processing equipment offer.

Biomass, the collective term for organic material used as fuel in power generation, is increasingly gaining ground in the renewable energy sector. It is derived from plant or animal material and is often generated from waste, either from wood or forest residues, food crops or food processing. Biomass can also be purely grown in the form of an energy crop, often destined for the biofuel sector. Our biomass processing equipment can literally transform the fibers in waste wood to valuable feedstocks.

ENVIRONMENTAL REGULATIONS DRIVE BIOENERGY BOOM

Power-generation is an essential role of the global dry bulk handling industry, and renewable biomass and biomass processing equipment is a growth industry. However, biomass in bulk has a lower calorific value than the same volume of coal, so efficient, high-capacity ship unloaders, loaders, conveyors and storage and reclaiming systems are needed to maintain power demands, along with raw material biomass processing equipment for reliable streams of feedstock.

Throughout the world, many power plants are adapting to burning both coal and biomass to comply with stricter environmental regulations, and to achieve net-zero carbon emissions targets.

Separate power-generation systems can be found on the same site in many facilities: one burning coal, one burning biomass. In others, a single system burns either coal or biomass, or both at the same time, known as co-firing. In all cases these plants can benefit from the flexibility of our Siwertell ship unloaders in port terminals as they can handle both commodities in one machine, without adjustment.

bioenergy industries

FIBER PREPARATION SYSTEMS TRANSFORM WASTE FEEDSTOCKS

The efficiency and heavy-duty production capabilities of biomass handing systems and biomass processing technology rely on extremely robust, powerful grinding, screening, cleaning and milling equipment. Together, these technologies combine to offer customers the capability of transforming multiple fiber-based raw material waste feedstocks into a finished product that is not only consistent in condition, but can be used a valuable high-quality biomass fuel.

We are able to offer a wide range of biomass handling systems and biomass processing equipment including a wide range of Bruks and WSM wood-processing technologies. Our mill-duty grinders innovative design features that deliver high-volume production and reliable operation with minimal labor, maintenance, and operating costs.

Bruks and WSM biomass processing equipment can transform round wood, branches, storm debris, land clearing, woody biomass, sawmill residues, sawdust, wood shavings, wood chips, forest residuals, used wood, and other wood residuals into biomass feedstock.

We have hundreds of long-term installations in the most rugged applications around the world, for example, WSM biomass processing equipment can convert even the most challenging waste wood residues like large-diameter stumps and root balls into biomass feedstock. For this material, WSM exceptionally heavy-duty Titan horizontal grinding systems are typically specified, and have the capacity to process up to 100 metric tons per hour.

The Titan grinder features almost 210-degrees of open screen area for more efficient processing and high-volume production. The core components of a WSM Titan horizontal grinding system are a heavy-duty chain infeed conveyor, extra-large pivoting feedroll, and the Titan grinder. The WSM feedroll has a uniquely developed climbing ability for large or bulky pieces, and an extra-large feedroll opening. The grinder has the ability to operate its large rotor in up-stroke or down-stroke rotation, which delivers exceptional grinding abilities.

Our fully integrated WSM biomass handling systems can include grinding, pre- and post-screening systems, conveyors, access platforms, structures, and a range of control systems.

MULTI-FUEL UNLOADERS SECURING SUPPLY CHAIN

Two Siwertell multi-fuel screw-type unloaders serve Associated British Ports' Immingham Renewable Fuels Terminal. The ST 790-D-type units are used for unloading imported biomass pellets to fuel the nearby Drax power station, which supplies between seven and eight percent of the UK's electricity demand.

The Immingham Renewable Fuels Terminal (IRFT) is a multi-customer terminal designed to meet the increasing need for renewable fuels. At full capacity the terminal can handle about six million tonnes of biomass per annum. It may also be called on to handle coal.

Read full customer case

FROM PALM KERNELS TO WOOD CHIPS



Biomass can not only take the form of wood pellets, but also palm kernel shells from countries such as Indonesia and Malaysia. In southeast Asia, at the Tembusu Multi-Utilities Complex (TMUC) on Jurong Island in Singapore, a combination of energy production, desalination, and wastewater treatment is powered using coal, wood chips, and palm kernel shells. Two ST 640-M rail-mounted Siwertell unloaders have served TMUC since 2012, alternating between unloading coal and various biomass cargoes in a seamless and environmentally friendly way.

Read full customer case

MAXIMIZING SAFE MATERIAL HANDLING

Especially when contained, biomass comes with the inherent safety concerns of spontaneous combustion. Biomass handling systems and biomass processing equipment must be able to mitigate the risks associated with containment. They must also ensure minimal cargo degradation. This preserves the quality of the shipment and minimizes dust creation, therefore reducing fire and explosion risks.

Bruks Siwertell has decades of experience handling hazardous materials, which has been used to develop safety systems for biomass handling. These meet CE conformity regulations and the latest ATEX directive relating to the control of explosive atmospheres.

Bruks Siwertell offers the only totally enclosed ship unloaders that can safely be used for large-scale biomass handling.

SHIP UNLOADING

SYSTEMS THAT OFFER BROADER BENEFITS

All Siwertell ship unloaders, for biomass and other bulk materials, have small structural footprints and weigh less than alternative systems with comparable capacities. This results in reduced jetty construction or conversion costs. Also, their high through-ship unloading capacity means that jetty occupancy is minimized, while annual intake is maximized.

Investment costs can also be reduced as our ship unloaders, loaders and jetty conveyors handle biomass and other materials with equal efficiency and flexibility, ensuring that changing market conditions can be met.

Our truck unloading, storage, stacking and reclaiming, and conveying systems further add to outstanding biomass-handling performance. Ideally suited to conveying this material is our innovative air-supported conveyor range, which includes the Bruks Tubulator TM and The Belt Conveyor TM.

AIR-SUPPORTED CONVEYORS

MAKING THE MOST FROM WOOD WASTE

Decades of technological developments in the transfer, transport and processing of wood for the biofuel and bioenergy markets through to the pulp and paper and engineered wood board industries, gives Bruks Siwertell unrivalled knowledge of biomass-based materials.

We pass this experience onto our customers in the form of market-leading waste wood processing machinery, biomass handling and processing equipment and technology,
and through-life biomass handling equipment support services, which deliver excellent levels of operational performance, safety, efficiency and environmental protection.

wood residue processing

TRUCK DUMPERS WITH A DIFFERENCE

Our specially designed truck unloading solutions not only ensure fast, efficient truck unloads, but also prioritize environmental protection, minimizing dust emissions.

With around 75 installations worldwide, Bruks Siwertell's truck dump tipping platforms are one of the fastest, most effective ways to discharge free-flowing materials, such as processed wood and other biomass from bulk trucks.

They deliver long-term, cost-effective operations and have been designed to reliably perform under very high-use conditions, offering an expected service life of two million tipping and lowering cycles, which exceeds 25 years of full-time operation.

truck unloading

COLLECTING VALUABLE DUST

Sawdust is a valuable byproduct that was once considered waste; its collection also protects the environment.

Sawdust is a major contributor to biomass pellet production. We have a full range of technology that can handle, transport and process sawdust. Also, to make sure nothing is wasted, our dust collecting systems can be found in receiving hoppers, able to duct the dust away and bag it for use. They are also a feature at sawmills, collecting dust under the sawline as part of byproduct handling and processing systems.

STORAGE AND RECLAIMING: A SPECIALIST JOB

Storing and reclaiming organic biomass materials such as wood chips, bark or sawdust is a specialist task.

Our range of customized and automated stacker reclaimers have a worldwide reputation for delivering exceptional operational efficiency and biomass handling performance. Stacker reclaimers are a combination of technologies that pile and then retrieve dry bulk materials for onward conveying in a very efficient, controlled way. They also blend material, which is particularly important for organic commodities to reduce fiber losses from microbial action and heat build-up in the pile.

Bruks Siwertell delivers stacker reclaimers that form linear, semi-circular and fully circular piles in a range of sizes and capacities. Automated stacking and

reclaiming systems deliver the greatest efficiencies.

storage &reclaiming

SIWERTELL BULK HANDLING SYSTEMS OFFER BROADER BENEFITS

An unloader that can handle coal and biomass efficiently reduces investment costs and provides the flexibility needed for changing market conditions. High through-ship unloading capacity means that jetty occupancy is minimized, while annual intake is maximized. Siwertell ship unloaders for biomass and other bulk materials have small structural footprints and weigh less than alternative systems with comparable capacities. This results in reduced jetty construction or conversion costs.



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