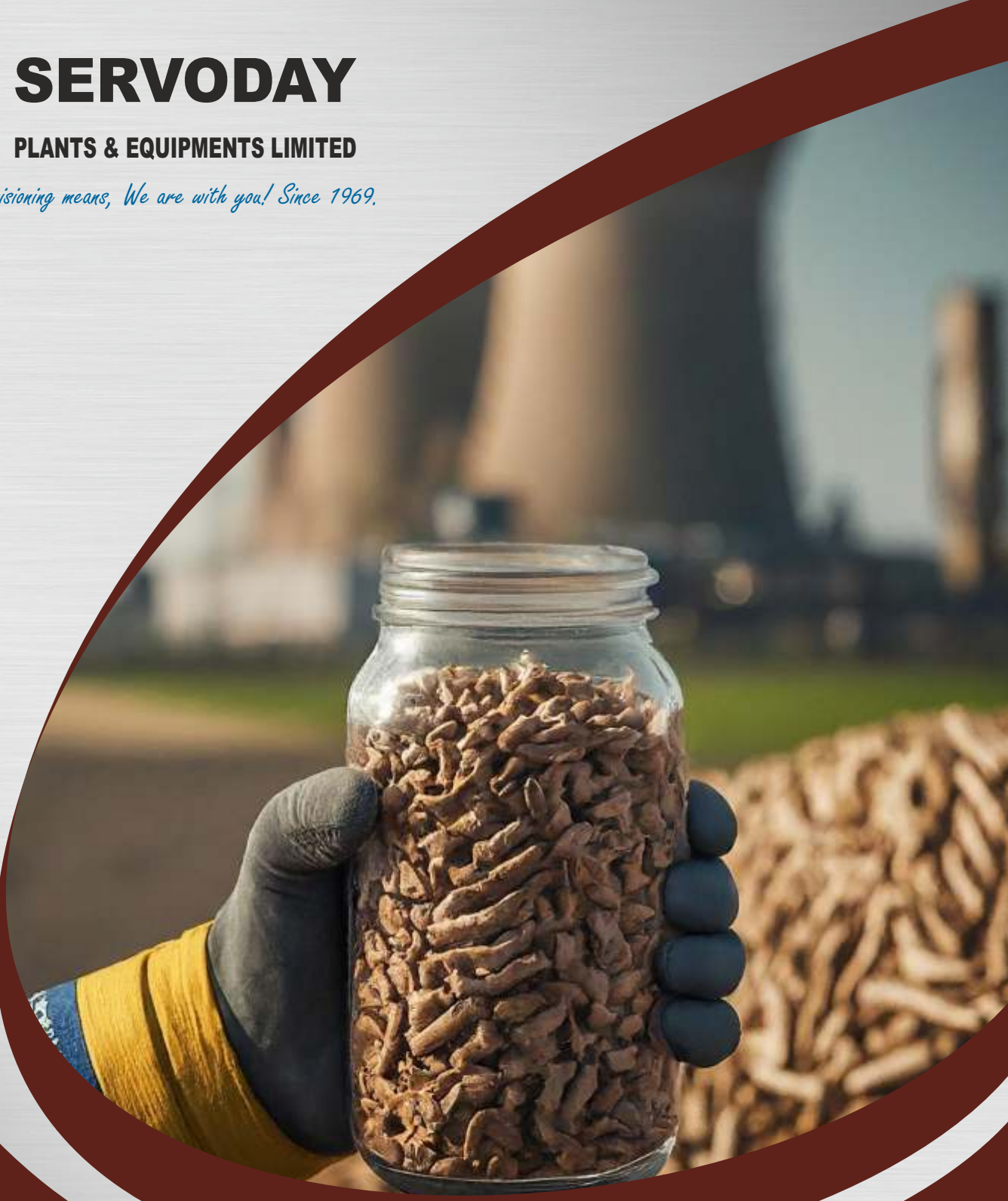
SERVODAY

PLANTS & EQUIPMENTS LIMITED

Concept to commisioning means, We are with you! Since 1969.



Biomass Pellet Plant & Equipment

Servoday Plants & Equipments Limited
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FULLY AUTOMATED WOOD - FEED - BIOMASS PELLET PLANT

Capacity: 1-5 TPH

Simplicity Is The Soul Of Efficiency!

1. Power Generation
2. Industrial Heating: Mainly Namkeen, Pharmaceuticals, Dairy Industries
3. Residential Heating
4. Commercial Heating
5. Co-Firing with Coal
6. Feedstock for Other Industries
7. Export
8. Agricultural Residue Utilization

BIOMASS RAW MATERIALS

Bagasse – Napier Grass - Castor Seed Shell - Castor Stick - Coconut Wastes - Coffee Husk - Coir Pith - Corn Cobs - Corn Dental Stick - Cotton Stalk & Shell - Groundnut Shell - Lemon Grass - Mulberry Stick - Rice husk - Saw Dust - Sugar Cane Leaves - Sun Flower Stalk - Sweet Sorghum Stalk - Tobacco Waste - Black Wattle - Paddy Straw - Mustard Shell - Barks Wood - Wheat Straw - Soya Bean Husk - Jute Waste - Cashew Husk - Palm Husk - Bamboo Dust - Forestry Waste - Mustard Stalk - Wood Chips - Rice Straw - Tea Waste - Sunflower Stalk – Agro Residue

BIOMASS FLASH DRYER

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Biomass Flash Dryer, also known as pneumatic drier or sawdust dryer, is an important equipment in the production and processing of wood powder. The Biomass Flash Dryer is a good choice for processing the finished material of low melting point, wood chips(sawdust), wood powder, wood pellet, flour, feed and so on. The fastest speed and best economic benefits can be obtained with the minimum investment, energy consumption, manpower and area by using the Biomass Flash Dryer.

FEATURES

1. Large drying intensity of the Biomass Flash Dryer: because of the high air velocity, materials are dispersed well in the gas phase and the whole surface of the material is the effective area of drying, therefore, the dry area is greatly increased. At the same time, due to the effect of dispersing and stirring when drying the material, so that the surface of gasification is constantly updated, thus the heat transfer process of drying is larger.
2. Short drying time of the Biomass Flash Dryer: the contact time of material and air is quite short. The drying time is usually 0.5 to 5 seconds. Overheating or decomposition will not cause for heat-sensitive or low melting point materials and affect its quality.
3. High thermal efficiency of the Biomass Flash Dryer: materials and gas are co-current in the air drying. Both the material temperature and air temperature can reach a reasonable state from the beginning to the end with short drying time, therefore, higher drying temperature can be achieved.
4. The Biomass Flash Dryer is featured with wide application, high productivity, large precipitation, simple structure, less occupied area, low investment and maintenance cost.
5. The hot air source of the Biomass Flash Dryer: fuel stove, gas stove, coal stove, steam heat exchanger.

OPERATION

- After installation, open the air blower and check the direction of the air blower rotates and the feeding port.
- Check the flange interface to see whether there is leakage.
- The feed opening of the separator is tied up with the bag which is open at both ends.
- Feed materials to be dried in the feeding port. Large particles should be removed before drying, which is conducive to improve the drying rate.
- Add fuel into the furnace and ignite the fuel. Open the air blower and start feeding the material for drying when the outlet temperature is up to 150° C.
- Remove bulk materials in the discharging port timely for ease of feeding.

The Biomass Flash Dryer is a pre-treatment facility always with a pellet mill or a briquette machine.

TORREFIED PELLET PLANT

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Torrefaction is an advanced thermal process that involves heating biomass at high temperatures (typically between 200°C and 300°C) in a low-oxygen environment. This process removes moisture and volatile organic compounds, resulting in a more energy-dense, hydrophobic, and easily transportable bio-coal that is a superior alternative to traditional fossil fuels.

ADVANTAGES

- **High Energy Efficiency**: Our torrefied biomass contains significantly higher energy content, making it ideal for industrial applications, power generation, and co-firing with coal.
- **Sustainable & Eco-Friendly**: The process reduces carbon emissions by up to 90% compared to coal, making it a key player in combating climate change and promoting a sustainable energy future.
- **Cost-Effective & Scalable**: The conversion of local biomass resources into bio-coal reduces transportation and raw material costs, offering industries a cost-efficient renewable energy option. Our plants can be customized to meet different production capacities, ranging from small-scale operations to large industrial projects.
- **Improved Storage & Handling**: Torrefied biomass is hydrophobic, meaning it can be stored outdoors without the risk of degradation, unlike raw biomass which absorbs moisture.
- **Reduced Ash Content & Cleaner Combustion**: Bio-coal from our torrefaction plants produces lower ash content, resulting in cleaner combustion and less maintenance for industrial boilers.

FEATURES

- **Advanced Automation & Control Systems**: Our plants come equipped with cutting-edge control systems, ensuring optimized torrefaction processes, minimal energy consumption, and consistent product quality.
- Modular Design: Easily scalable to match growing energy demands, our modular design allows for seamless integration into existing energy infrastructures.
- **Comprehensive Support & Training**: PelletIndia offers full technical support, training, and after-sales service to ensure smooth operation and maximum uptime.

APPLICATIONS

- **Power Plants**: An efficient co-firing fuel to reduce coal dependency.
- **Industrial Heating**: High-energy bio-coal for process heat and steam generation.
- **Agricultural & Rural Energy Solutions**: Sustainable, local biomass utilization for decentralized power generation.

BIOMASS PELLET MILL

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CAPACITY: 2 - 5 TPH

Ring Die type design, fresh engineering and design have been combined with the latest manufacturing technology. The pellet mill are built to operate 24 hours a day under severe running conditions to match the output requirements, Capacity: 1 Ton per Hour to 5 Ton Per Hour, field research has proven the one-piece cast gearbox can produce continuously in the most severe condition, our gearboxes feature pressurized oil lubrication onto helical gears with automatic grease system.

Dual (Twin) Track Ring Die Benefits:

- **Higher Production Efficiency -** Increases pellet output by utilizing dual paths for continuous operation.
- **Extended Die Life & 200% Tonnage Output -** Distributes pressure evenly, doubling the lifespan of the ring die and delivering 200% more output.

KEY BENEFITS

- **High-Capacity Output**: Produces 1-5 tons per hour for commercial and industrial needs.
- **Durable & Heavy-Duty**: Built for continuous 24/7 operation with minimal downtime.
- **Versatile Material Handling**: Processes wood, agricultural residues, and biomass waste.

APPLICATIONS

- Biomass Pellets for Energy
- Animal Feed Pellets
- Wood Pellets for Heating
- Biomass Fuel Production

RING DIE MODELS

Model	Die ID (mm)	Die Track Width (mm)	Die Area (cm^2)	Motor Power (kW)	Speed (RPM)	Capacity
2016 (SP6)	407	55	700	132	212	1.0-1.3 TPH
3022-75	572	60	1078	160	150	2.0 TPH
7730-100	762	94	2250	200	150	3.0 TPH
7932-125	825	115	2980	315	150	5.0 TPH

HAMMER MILL

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Hammer Mill for the most demanding applications like Feed, Biomass and Wood Pellet Plant and Grinding industries, the heavy-duty Tear Drop Hammer mill comes in a variety of sizes and models that match all particle size-grinding needs.

Tear Drop Hammer Mill built to the highest standards, the heavy-duty frame is design to minimize vibration and noise, a robust regrind chamber and pivoting arms type full-access doors, allow the doors to move out of the way during maintenance of Mill.

FEATURES

- Dual hammer position
- Mill Regrind chamber
- Diamond hammers
- Bearing Temperature monitor probes
- Vibration switches
- Trap key interlock
- Replaceable Abrasion-resistant wear liners for Mill

APPLICATIONS

- **Biomass Processing**: Converts agricultural and forestry residues into fine, uniform particles.
- **Feed Production**: Used in livestock and poultry feed mills for consistent grinding.
- **Wood Pellet Plant Operations**: Prepares raw materials for pelletizing processes.
- **Industrial Grinding**: Suitable for size reduction in large-scale commercial setups.
- **Renewable Energy Production**: Essential for biomass fuel processing plants.

RIBBON MIXER / BLENDER

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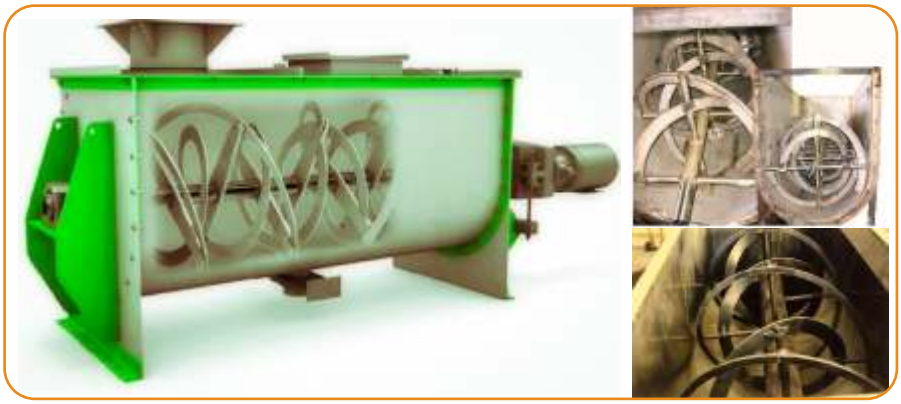


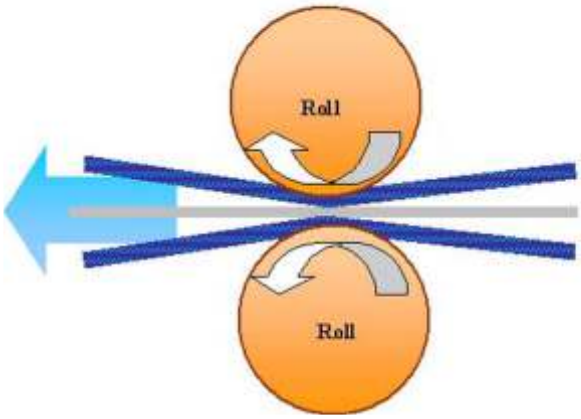
ADVANTAGES

- Efficient & Fast Mixing
- Gentle & Consistent Mixing
- Handles Various Materials
- Easy to Clean
- Low Maintenance
- Uniform Discharge
- Energy Efficient

FEATURES

- Suitable to handle all kind of biomass materials with various density and shape.
- Fabricated with superior quality raw materials and standard items (Gear Box, Motors, Belts & Accessories)
- Mixing capacity up to 20 TPH
- Available in variety of Trough and Worm (Flight) Thickness
- Designed for Consistent, Homogenous Batch or Continuous Blending of Powders and Granules.
- Process free-flowing material with a U-Shaped Trough. A Horizontal Agitator moves the material in a highly-balanced Axial and Radial Flow Pattern, ensuring Mixed Consistency and high level of Precision

NAPIER GRASS PRESS ROLL



Innovative Technology for De-watering of Napier grass.

- Efficiency Redefined: Out squeezing press technology boasts unparalleled efficiency in removing moisture.
- Robust Design: The squeezing press system ensures consistent performance under demanding operational conditions.
- Adaptability: Versatility is at the core of our technology. Whether you're dealing with small-scale operations or large-scale industrial applications, our system adapts to your unique requirements.

ROTARY DRUM CHIPPER / SHREDDER

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The SERVODAY Rotary Drum Chipper Shredder breaks down the timber logs, biomass residues, Empty Fruit Bunch (EFB), off cuts and wood waste coming from Saw mills and biomass waste to the required input size, the Drum fitted with sets of blades that carry out this process, the internal screens of the Chipper Shredder work to cut each chips to the shape and size as set with screens, anything larger than the set size cannot pass through the Rotary Drum Chipper Shredder.

ROTARY DRUM CHIPPER SHREDDER

PelletIndia Rotary Drum Chipper Shredder are suitable for producing high quality chips from round wood, waste wood, slabs, trimmings, edges, veneer residuals, sleepers, wooden poles, biomass residue, EFB etc.

High quality chips for further processing in Wood Biomass Pellet Production Plant, particle board industry and as boiler fuel to produce energy. PelletIndia Rotary Drum Chipper Shredder comes with heavy-duty self-aligning bearings, wear-resistant HARDOX steel Screen.

BIOMASS PELLET COOLER

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FEATURES

Efficient Cooling: Reduces the temperature from 70 to 90 °C to 5 to 10 °C above ambient temperature

Consistent Quality: The conical bottom provides even distribution of hot pellets across the entire cross-section ensuring uniform thickness of the product layer.

Reduced Pellet Breakage: Air cushions and a vibration motor allows pellets to flow smoothly into the hopper beneath, leaving almost no residues.

Counter Flow Pellet Cooler is available in capacity up to 20 TPH.

STORAGE SILO

Biomass Pellet and Chips Storage Silo for Pine, Cedar, Fir, Spruce, Hemlock, Teak, Rose, Oak, Maple, Mango, Cherry, Walnut Wood, Feed & Biomass Pellet Production Plant provides a safe, efficient material handling solution for wood pellet, wood chips and feed industry, we design and supply silos with flexibility to comply with varying specification for the safe storage of wood pellets and wood chips. Capacity starts from 1.0 Ton to 1000 Tons.

ADVANTAGES

- Customizable Design: Tailored to meet specific storage and production requirements.
- Energy Efficient: Optimized insulation and ventilation for reduced energy consumption.
- Scalability: Modular design allows future expansion to match growing demands.
- Environmental Compliance: Dust control and airtight sealing ensure minimal environmental impact.

APPLICATIONS

- Biomass Pellet Storage: Safe storage for wood pellets, feed pellets, and more.
- Wood Chip Storage: Suitable for storing wood chips used in biomass plants.
- Agricultural Residues: Ideal for storing materials like rice husk, straw, and bagasse.
- Renewable Energy Plants: Supports biomass handling for power generation.
- Industrial Biomass Facilities: Tailored for large-scale biomass production and processing plants.

HYDRAULIC MOVING FLOOR

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A hydraulic moving floor system is a type of technology used in biomass storage and handling. It involves a series of hydraulically operated slats or panels that move in unison to push biomass materials forward or backward.

The hydraulic moving floor systems by PelletIndia.com are equipped with different carrier systems, depending on the task. At any operating stage, a wheel loader can travel the storage system for filling. The carriers of the push floor systems move directly on the concrete floor via steel rails which are encased in concrete. The racks of the push floor are moved forward and backward via a two-way hydraulic cylinder. Due to the special construction of the carriers, the material is transported in only one direction with precise discharge rate.

ADVANTAGES

- Uniform Material Distribution
- Optimized Storage Space
- Reduced Bridging and Blockages
- Enhanced Flow Control
- Reduced Manual Handling
- Minimized Wear and Tear
- Compatibility with Conveyor Systems
- Prevention of Material Segregation
- Customizable Speed and Direction

APPLICATIONS

- Biomass pellet production plants.
- Biomass boiler fuel feeding systems.
- Bulk storage facilities for wood chips and pellets.
- Renewable energy biomass storage and handling.
- Agricultural residue movement and storage.

KEY BENEFITS

- Efficient Storage Utilization: Optimizes storage space with even material distribution.
- Reduced Manual Labor: Automated operations improve safety and productivity.
- Prevents Blockages: Ensures consistent material flow without bridging issues.
- Energy Efficient: Low energy consumption.

BIOMASS SHREDDER

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Capacity: Up to 20 TPH

FEATURES

- Heavy-Duty Construction: Designed using high-tensile steel, ensuring durability and long life even in demanding operations.
- Maximum Efficiency: Engineered for high efficiency, delivering optimal shredding performance with reduced energy consumption.
- Low Maintenance: Built to minimize maintenance requirements, ensuring less downtime and lower operational costs.
- Robust Design: The shredder is designed to withstand heavy-duty biomass shredding operations, providing consistent performance.
- Plug-and-Play Operation: Ready for immediate use with easy installation. This user-friendly system reduces setup time, allowing quick integration into production lines.

APPLICATIONS

- Biomass shredding for pellet production.
- Preparation of raw materials for biomass power generation.
- Shredding agricultural residues for composting or mulching.
- Reducing biomass size for easier handling and transportation.

KEY BENEFITS

- Versatility: Handles a wide range of biomass materials with ease.
- Scalability: Suitable for operations needing high throughput, up to 20 tons per hour.
- Cost-Effective: Reduces operational costs by minimizing maintenance and energy usage.
- Sustainability: Supports the renewable energy sector by processing bio-based materials for fuel and energy.








TROMMEL ROTARY SCREEN

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Capacity: 1 TPH to 10 TPH

Application: Designed for the separation of oversize material and offcuts of woods as well as the separation of oversize stones and foreign materials.

FEATURES

- Design:
  - Heavy Duty Structural Steel Main Frame: Provides a robust framework to support the screen basket and drive mechanism, ensuring durability and longevity.
  - Sub-frame Assemblies: Additional support to maintain structural integrity and reliability under heavy loads.
- Functionality:
  - Loading Hopper: Raw material is discharged into the loading hopper.
  - Screening Process: As the screen drum rotates, materials are screened. The finished materials pass through the screen and fall into the discharge hopper.
  - Discharge Mechanism: Finished materials are conveyed to the Moving Floor by a Belt Conveyor.
  - Handling Oversized Materials: Larger and oversized materials flow forward along the direction of the slop and are stacked for manual handling.

OPERATION

- Raw Material Discharge: Raw materials are discharged into the loading hopper.
- Screen Drum Rotation: The screen drum rotates, causing the materials to be screened.
- Separation of Materials:
  - Finished Materials: These pass through the screen and fall into the discharge hopper.
  - Oversized Materials: These flow forward along the slop direction and are manually handled.
- Conveyance: Finished materials are conveyed to the Moving Floor by the Belt Conveyor for further processing or storage.

ADVANTAGES

- Efficient Screening: Capable of handling materials ranging from 1 TPH to 10 TPH, ensuring flexibility for various biomass processing needs.
- Robust Construction: The heavy-duty design ensures long-lasting performance and reliability.
- Easy Handling of Oversized Materials: The system effectively separates oversized materials, simplifying the manual handling process.

GCV of Biomass Materials (Torrefied vs. Non-Torrefied):

Biomass Material	GCV Non-Torrefied (kcal/kg)	GCV Torrefied (kcal/kg)	Factors Affecting GCV	Typical Uses
Wood Chips	3800-4000	4200-4500	Moisture & Wood Species	Biomass power plants, residential heating
Sawdust	3400-3600	4000-4300	High moisture reduces GCV	Biomass boilers, pellet production
Eucalyptus Bark	4000-4200	4500-4800	Resin & Moisture Level	Industrial heating, co-firing
Alfalfa	3200-3400	3600-3900	High moisture & fiber	Biomass plants, rural heating
Corn Cob	≈ 4238	4500-5000	Dry & dense, high energy	Biomass power generation, co-firing
Rice Husk	3300-3500	3800-4000	High silica content	Biomass boilers, especially designed for high ash
Rice Straw	≈ 3200	3600-4000	High silica and ash content	Biomass plants designed for high ash conten
Napier Grass	≈ 4000-4200	4500-4800	Moisture & fibrous nature	Green energy production, pellet mills
Sugarcane Bagasse	3200-3500	3800-4100	Moisture, Fiber & Sugar	Sugar mills, co-generation in power plants
Peanut Shell	≈ 5119	5400-5900	High oil content	Biomass boilers, energy-dense fuel additive
Sunflower Husk	3200-3400	3600-3900	High ash & fibrous content	Biomass boilers, agricultural waste energy
Bamboo	4200-4500	4600-5000	High lignin & cellulose	High grade fuel for pellet production
Bamboo Bark	4000-4200	4400-4700	Low density than core	Pellet production, power generation
Press Mud	2900-3100	3200-3500	High moisture, Low density	Agricultural and rural heating, low-cost energy
Mustard Stalk	3300-3500	3700-4000	High cellulose, moisture	Biomass plants, co-firing with other biomass

STATIONARY MOUNTED CLAMSHELL GRAB

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The Stationary Mounted Crane with Grapple is built for high-performance lifting and material handling in demanding industrial environments. With a 12-meter turning radius and 350° rotation, it ensures excellent flexibility and reach. The integrated grapple and rotator enhance operational efficiency, making it ideal for intensive load-handling applications. Its robust construction guarantees durability under continuous use. Designed for sawmills, recycling plants, and heavy-duty industries, this crane ensures superior handling precision.

KEY BENEFITS

- Heavy-Duty Lifting – Handles 1000 kg at a 12-meter radius with precision.
- Versatile Operation – 350° rotation for enhanced maneuverability.
- Enhanced Material Handling – Equipped with a grapple and rotator for smooth and efficient control.
- Built for Industrial Use – Designed for sawmills, recycling plants, and heavy industries.
- Reliable and Durable – Constructed with high-strength materials for continuous operation.

ADVANTAGES

- Extended Reach – 12-meter turning radius allows handling in large industrial areas.
- Precision Handling – Rotator and grapple combination ensures efficient material gripping.
- Durability in Harsh Environments – Built for rugged industrial conditions.
- Increased Productivity – Reduces manual labor and improves workflow efficiency.
- Low Maintenance – Engineered with robust components for long-term use.

APPLICATIONS

- Sawmills – Efficient log handling and processing.
- Recycling Plants – Heavy material movement and sorting.
- Industrial Warehouses – Lifting and placing bulk materials.
- Construction Sites – Handling of steel, timber, and industrial materials.
- Port Handling – Moving bulk cargo efficiently.

SERVODAY INFRASTRUCTURE STRENGTH

Facility Overview

- Covered Shed: 50,000 Sq. Feet
- Total Land Area: 125,000 Sq. Feet
- Power Supply: 125 HP Power / 250 KVA DG Set

Lifting and Handling Equipment

- EOT Cranes:
  - 25 MT x 2 Nos (Hook Approach 12mtr.)
  - 5 MT x 2 Nos
- Hydra Crane: 14 MT
- Multiple Cantilever EOT Crane: 1 MT

Welding and Cutting Facilities

- Welding Facilities:
  - SAW (Submerged Arc Welding)
  - MIG (Metal Inert Gas Welding)
  - ARC Welding
  - Multiple Inverter type MIG and ARC Welding Machines
- Cutting Facilities:
  - Plasma CNC Plate Cutting up to 35mm
  - Multiple Plasma Cutting Machines
  - Multiple Oxy – Lpg – Acetylene Cutting Facility up to 150mm
  - Multiple Bandsaw Machines

Bending and Forming Equipment

- Plate Bending: Multiple machines capable of bending up to 50mm
- Girder – Channel Bending Machine: Capable of bending up to 400mm

Drilling and Machining

- Multiple Radial Drills
- Multiple Conventional Lathe Machines

Press and Testing Facilities

- Hydraulic Press and Testing Facility: Pressure up to 400 Bar
- Shot Blasting Facility
- Water Pressure Testing Facility: Up to 1000 Bar
- Water Jet Cleaning Facility
- Shell Rotator

Pneumatic and Hydraulic Tools

- Pneumatic Oil Filtration and Charging Facility
- Pneumatic Spanner Tools
- Multiple Pneumatic Tools

Radio Remote Control Grab

Biomass Pellet Production Line

Electrify Your Excavator

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