KOMPTECH

RESOURCE AND FUEL

Treatment of waste wood

OVERVIEW

Think green!

Komptech is a leading international manufacturer of machines and systems for the mechanical and biological treatment of solid waste and biomass, and the processing of woody biomass for use as renewable fuel.

Waste wood processing

In modern waste management systems, waste wood is collected separately for subsequent material or energy use. The most common use for untreated waste wood is the manufacture of wooden building materials, such as particle board. Waste wood that is not suitable for recycling can be used as fuel to generate electrical energy or heat. The contaminant content and origin determine whether the fuel can be used in biomass heating plants or needs to go to waste wood cogeneration plants with extensive exhaust gas scrubbing equipment. The EN ISO 17225 “Solid biofuels – Fuel specifications and classes” standard is often used to classify the suitable grain sizes, and it defines them very precisely.

Well prepared

Our product range can handle almost any task in waste wood processing. If it’s about volume reduction, we have our Crambo and Terminator shredders in multiple mobile and stationary versions. They can generate P200 or P100 shred in one step. For shredded waste wood in particle classes P100 and P63, two-step processing is most efficient. For this, we offer flexible combinations of low-speed shredders and star screens, either as mobile machines that can be used anywhere, or as customized stationary systems. An even finer grain is possible by combining a Crambo for preshredding with an Axtor for post-shredding.

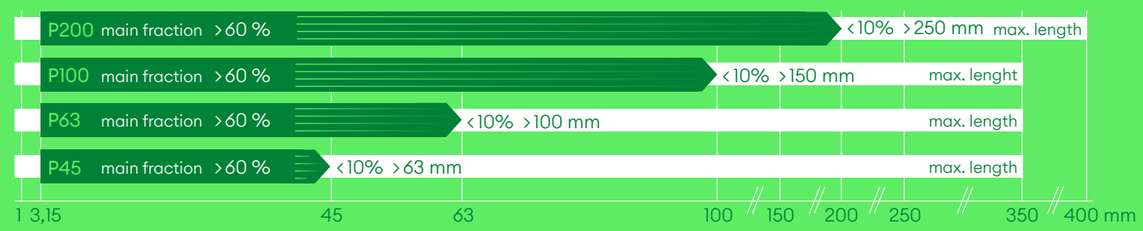
EN ISO 17225 “Solid biofuels – Fuel specifications and classes, Table 5” specifies the properties of wood chips and coarse wood shred.
For example, for particle class P63, at least 60 percent by mass should be between 3.15 and 63 mm, no more than 10 percent can be larger than 100 mm and the maximum edge length must not exceed 350 mm.

50 mill.

tonnes of waste wood annually in the EU

Depending on the quality and source, processed waste wood is either recycled back to the wood products industry or used as fuel to generate renewable energy.

Standards and categories



Waste wood categories

The designation “waste wood” is used for materials of many different compositions, from untreated wooden pallets to painted or coated particle board and impregnated construction lumber. It is primarily the contaminant content that determines whether waste wood is processed for recycling. The national classifications are based on this. They divide waste wood into four categories according to their contaminant content, and for basic orientation as to permissible reclamation routes.

01 Waste wood category A I

Untreated wood or wood that has been treated only mechanically
Uses: material reclamation in the wood products industry, thermal reclamation in biomass heating/ power plants

02 Waste wood category A II

Glued, painted, coated, lacquered or otherwise treated waste wood, without organohalogen compounds in the coating and without wood preservatives
Uses: material reclamation in the wood products industry, thermal reclamation in biomass cogeneration plants (observe limit values)

03 Waste wood category A III

Waste wood with organohalogen compounds in the coating, without wood preservatives
Uses: thermal reclamation in waste wood cogeneration plants, material reclamation only after extensive processing

04 Waste wood category A IV

Waste wood treated with wood preservatives and other waste wood whose contaminant content is higher than that allowed in waste wood categories A I, A II or A III
Use: fuel in waste wood cogeneration plants

Waste wood classes and their processing options (Germany)

Particle classes P200 | P100

Single-stage shredding

Coarse pre-shredding with a Crambo or Terminator results in particle class P200 waste wood in a single step. It can be used as a fuel in grate furnaces sized for this grain. The purpose of this can be to reduce the volume of the material in order to reduce transportation costs, or shred it for downstream preparation steps. If necessary, class P100 can be made in a single step with special equipment.

There is a suitable mobile shredder for every application, in hook lift platform, 3-axle chassis or tracked versions. There are also many integration possibilities with stationary machines. All feature very good accessibility for maintenance.

Preshredding with the Crambo

On the low-speed dual-shaft Crambo direct, an extra-large shredding chamber with two counterrotating toothed drums ensures positive feed.
The degree of shredding can be adjusted flexibly, either by changing the screen basket using a hoist, or by changing the entire screen basket cartridge. This preshredder comes in mobile and stationary versions. Both are available with hydraulic drum drive or a highly efficient mechanical direct drive.

Preshredding with the Terminator

The Terminator is a tough single-shaft shredder with an unusual range of possible applications. Through variations in the drum and counter comb system, the possibilities range from coarse break-up to defined shredding. Stepless cutting gap adjustment allows sizing of the output for its intended purpose. In its mobile version, the Terminator comes with a hydraulic drum drive. The stationary versions are also available with switchable or stepless direct drive.

Recommended configuration

Terminator
F shredding unit for P200
V shredding unit (xtron) for P100

Crambo
220, 180, 150 mm screen baskets for P200
100 mm screen basket for P100

Particle classes P100 | P63

Two-stage mobile processing

Our combination of shredder and Multistar screen has proven its value many times, and now it's better than ever. The Multistar One is designed to separate out oversizes, to precisely limit the particle size of the shredder output. The well-designed machine base takes up minimal space, yet offers very convenient loading.

On-board electricity generation driven by a Crambo or Terminator makes the Multistar One independent of grid power. A Metalfex FE/NF separator further improves product quality.

Screening/returning with the Multistar One

The Multistar One star screen downstream of the shredder outputs a defined useful fraction, while returning overlengths back to the shredding process. The low-wear screen deck and electric power keep operating costs low.

Preshredding with the Crambo/Terminator

Both machines are basically suitable for this application. The special strength of the Crambo is its aggressive intake of bulky pieces and boards, while the Terminator features high resistance against massive metallic contaminants.

FE/NF separation with the Metalfex

The combination of eddy current separator and upstream over-conveyor magnet makes the Metalfex a dependable solution for getting metal out of a material stream. Loading is by the discharge conveyor of the Multistar One.

Recommended configuration for P100

Crambo
Screen baskets: 220, 180, 150 mm

Terminator
Shredding: V unit, F unit

Multistar
Screen deck: 90/120

Particle classes P100 | P63

Two-stage stationary processing

This stationary two-stage compact system prepares various waste wood classes for material or energy reclamation. As the first stage, a stationary Crambo reduces the feedstock to a homogenous shred with as few fines as possible. The shredding teeth and screen basket size are configured for the input material and desired end product.

A Multistar SE star screen is used for the second step, namely separation of the useful fraction. Overlengths are automatically returned to the shredder by return conveyor. This cuts filling time and costs. Integrated bypass and reversing in the conveyor, and further processing steps like metal removal, add to the functionality of the setup.

Screening/returning with the Multistar SE

Depending on requirements, a Multistar star screen is used to generate two or three fractions. The overlengths from screening are fed back into the shredder by conveyor. The desired particle size can be obtained simply by adjusting the rotational speed of the star shafts.

Shredding Crambo

Two drums with special teeth give very effective shredding. The stationary Crambo is offered with hydraulic or mechanical drum drive. A modular system for setup, material feed, discharge and controls offers numerous options for almost any requirement.

FE/NF separation

Metallic contaminants in the output product are undesirable. An overband magnet pulls ferrous metal items out of the shred stream. It is installed in the line of material flow, for maximum effectiveness. Another option is the addition of an eddy flow separator to remove non-ferrous metals.

Recommended configuration for P63

Crambo
Screen baskets: 150, 125 mm

Multistar
Screen deck: 60/90

Particle classes P100 | P63 | P45

Two-stage processing
Pre- and post-shredding

In some cases particle class P45 is needed for downstream processing. This requires a two-stage process, with post-shredding instead of screening. The combination of low-speed preshredder and high-speed post-shredder can efficiently reduce waste wood down to fine grain, P63 or P100 sizes, depending on the tooth and screen baskets used. The versatile Axtor has proven highly effective for post-shredding. In this application, it is important to use waste wood with low contaminant content, and carefully separate out the metal before post-shredding.

Preshredding with the Crambo

The Crambo provides the preshredding. Its low drum speed means that it handles metallic contaminants with ease. In the first shredding step it is important that combined wood and metal elements be broken up so that the overband magnet on the shredder discharge conveyor can do its job.

Post-shredding with the Axtor

Directly in line with the pre-shredder, further processing with the Axtor is best done with free-swinging tools. Depending on the material and the requirements, free-swinging teeth with armored attachment or free-swinging quick-change blades and screen baskets with small diameter holes are used.

Recommended configuration for P45

Crambo
Screen basket: 150 mm

Axtor
Tools: free-swinging, with armored attachment
Screen basket: 60 mm

SERVICE

The Komptech plus

Top advice

We'll show you how to optimize your processes, based on our experience and extensive data analyses.

All-in solutions

From individual mobile machines to complex stationary systems, with us you get the right process solution.

Service near you

Expert technicians are on-site quickly to make sure your machines keep running.

Productivity in view

Apps and integrated monitoring let you keep an eye on operating data and economy.

Spare parts always available

Intelligent stocking for the fast, economical provision of high-quality spare parts.

Need-based service

Our maintenance and service agreements, as well as extended warranties, are aligned with your needs.

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Never waste an opportunity.

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We create value for you

Waste-stream expertise

Because you need a setup that is tailored to your waste stream.

Innovative technology

Because you need to adapt your output to your market needs.

Flexible sales models

Because you have the choice between new, rented and used machines.

Service excellence

Because you always need to keep your system running.