

WASTE RECYCLING



KOMPTECH

TREATING MIXED MUNICIPAL WASTE
FOR RECLAMATION



think! GREEN

Komptech is a leading international supplier of machinery and systems for the mechanical and biological treatment of solid waste and for the treatment of biomass as a renewable energy source. The product range includes over 30 different types of machines, covering all key process steps in modern waste handling – shredding, screening, separation, and biological treatment.



The focus is always on innovative technology and solutions that ensure maximum customer benefit.

FACTS

~225 Mio.

Tons municipal waste
per year in the EU (Eurostat 2019, EU27)

502 kg

Average amount per capita

Germany: 609 kg, of which 25 %
is mixed municipal waste

24,2 %



LANDFILL

27,1 %



INCINERATION

48,5 %



RECYCLING

55%



2025

60%



2030

65%



2035

EU targets for recycling (Waste Framework Directive 2018/851)

THE TASK

The goal of reducing our material footprint through a recycling-centric economy with high reclamation rates presents new challenges for the waste industry. Treatment lines for mixed municipal waste need to be designed in such a way that the process adapts dynamically to changing conditions, to become more recyclables-oriented and efficient. This can raise recycling and reuse rates, and reduce the greenhouse emissions of the entire waste disposal system.

PROCESSING LINES TO ORDER

Komptech recycling systems are designed and dimensioned to customer requirements. The composition of the feedstock and the potential sales outlets of the final recycled materials are key factors. With a comprehensive line of the key components for shredding, screening and separating, plus market-proven components by well-known manufacturers, Komptech builds efficient solutions for complex tasks.

Delivering a turnkey waste processing plant requires solid expertise and resources along the entire performance chain. These extend from the initial idea to professional installation and commissioning to user training. Comprehensive customer service for high availability, and active digitalization from individual components to the entire system, are further elements of our approach to forward-looking processing plant technology.

Mixed municipal waste as a resource

Municipal waste is waste from private households and comparable sources, as well as similar waste from commerce and industry. Separately collected fractions like glass, paper and organic waste are already reused to a great extent. Mixed municipal waste such as residential, commercial and bulky waste also has high reclamation potential.



HOUSEHOLD WASTE



COMMERCIAL WASTE



BULKY WASTE



SPECIAL FRACTIONS



1

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SHREDDING

TERMINATOR: Single-shaft shredder

Efficient solutions for complex tasks

In a processing system, various mixed or presorted wastes are unbagged and separated to get the best possible recycling of the valuable materials in the material streams.

The first process step is selective shredding to unbag the material and homogenize the input stream. If needed, shredding can be followed by separation of the fines (organic and inert) by spiral shaft separator, drum screen or disc screen. This is followed by ballistic separation into flat (2-D) and three-dimensional (3-D) fractions as preparation for further sorting. Ferrous and non-ferrous metals are likewise removed from the separated material streams.

In the sorting steps that follow, wood, paper, cardboard and plastics like PE, PP, PET, PVC and PS are retrieved from the 2-D and 3-D fractions, manually or mechanically. The remaining high-caloric fractions are used as RDF, either directly or after further treatment.

2

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SEPARATION

SPLITTER: Spiral shaft separator

TS: Drum screen

FLOWERDISC: Disc separator

BALLISTOR: Ballistic separator

Metal separation

3

PAGE 12

2-D/3-D SORTING

NIR sorters

Robot sorting

Manual sorting

Baling

PROCESS OVERVIEW



1

SHREDDING

Low-speed shredders with adjustable shredding gap generate a continuous material stream at the desired particle size. The machines can be driven by hydraulics or high-efficiency mechanical systems.

2

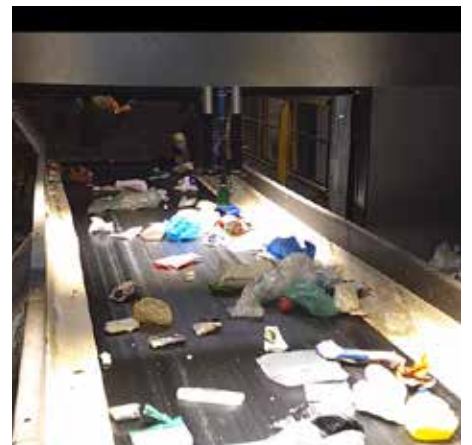
SEPARATION

Separation is performed by the type of machine that is most appropriate for the situation, a maintenance-free spiral shaft separator, compact disc screen or all-purpose drum screen. This step removes the fines, and the remaining material is then ballistically separated into a 2-D and a 3-D fraction.

3

SORTING

Sorting is the final step. Great advances have been made in sorting technology and machinery, for example with robots, making these systems suitable for both 2-D and 3-D fractions. Manual sorting of the recyclables is also a workable solution.





PROCESS STEPS



SHREDDING

Preshredding brings the input material to a consistent particle size and prevents overlengths that might cause problems farther on. Of equal importance are high contrary resistance and steady throughput for continuous feed of downstream machines. The Terminator single-shaft shredder meets these requirements perfectly. The hydraulically adjustable shredding gap lets the operator optimize the shred size to get efficient separation and sorting of the recyclables. The shredding itself is somewhat selective, in that organics to be separated out in the fines are shredded finer than high-caloric or recyclable fractions.

The Terminator is able to shred the most difficult materials. Everything is shred to the desired particles size. Applications with drum/counter comb system variants range from coarse pre-crushing to defined shredding.



HYDRAULIC TERMINATOR

On the hydraulic models, in addition to the standard frame version, the drive can be physically separated from the shredding unit if desired. The advantages are better protection of the drive, and space-saving integration of the shredding unit in the machine chain.



TERMINATOR DIRECT SL

The Terminator direct SL shredder has a newly developed all-electric drive system that offers maximum efficiency. With its load-dependent speed control the machine adapts to the input material, allowing high throughput even with the most difficult materials. The space-saving design of the machine makes for easy integration into new or existing processing lines. The clever layout of the cladding protects all of the major components from dirt, while offering optimum access for service and maintenance.



TERMINATOR DIRECT

Mechanical direct drive offers high efficiency combined with low energy costs. Other features are two gears to adapt to the material, and automatic reversing.



The engine compartment with large doors offers perfect access to all drive components. Swivelling of the counter comb provides perfect accessibility for maintenance of the shredding area.



PROCESS STEPS

2



SCREENING & SEPARATION

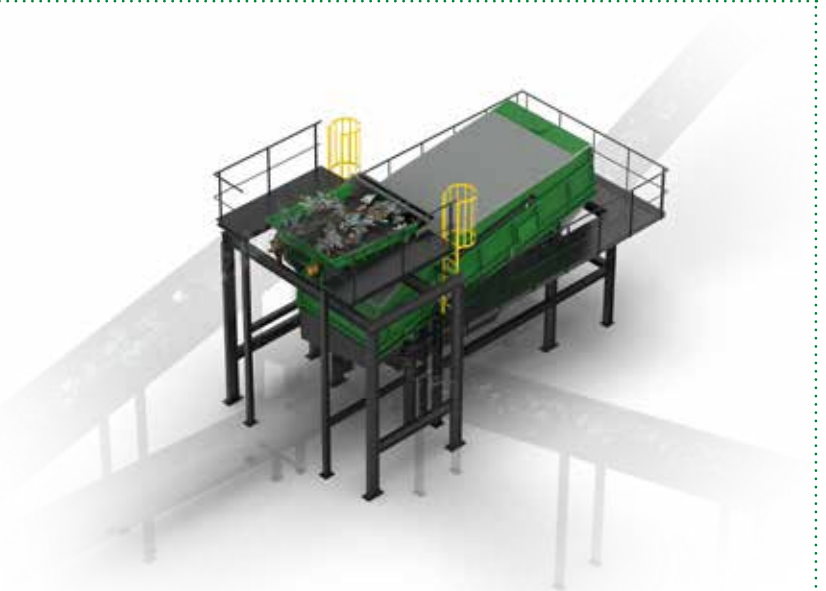
Preparation is very important in order to get high recyclables yield and quality from mixed municipal waste. If the feedstock or the shredded material has a substantial fine fraction (< 80-100 mm), this should be removed prior to sorting. The machine used for this can be either a stationary Komptech drum screen or compact Flowerdisc disc screen. The Splitter spiral shaft separator is also suitable for the job. A ballistic separator brings a major efficiency boost to sorting. The material stream is separated into 3-D (cubic) and 2-D (flat) fractions; fines then leave the material stream through holes in the screen elements, which can be selected for the right size. Another adjustment option is to change the degree of 2D and 3D separation by altering the slope and release points on a ballistic separator. This reduces mistakes in downstream sorting and the danger of overloading, since the mass stream has already been coarsely separated.

With the stationary drum screens, a suitable size is available for every throughput rate. The drum diameter ranges from 1800 mm to 2500 mm.



SPLITTER

With its long, flat screen deck the Splitter untangles the material and so ensures dependable fines removal. Cleaning and maintenance effort is minimized by the one-sided worm shaft bearings. The spiral shaft Splitter also features low energy consumption and a modular design for high variability.



BALLISTOR

The motion of the screen elements cleans the 2-D fraction of contamination and moves it upwards. The 3-D fraction moves in the opposite direction, downwards. Energy costs are low due to the low power consumption of the efficient mechanism. The tough housing gives easy access to the screen elements, and easy replacement of the wear parts reduces operating costs. With four sizes and many equipment options, the Ballistor can be ideally configured for its application.



FLOWERDISK

This sturdy, compact disc screen delivers effective separation of 80-100 mm fines. The flexibly mounted bushings almost entirely prevent blockages or damage of the screen deck.



Variable configuration of sub-structure, servicing accessibility, enclosure and drive simplify adaptation of the Ballistor to on-site conditions.

3



SORTING

In modern waste treatment plants, sorting has already moved to fully automated systems. Sensor-supported automated sorters react to quality changes of the input material. They sort very efficiently and have high availability. Permanent data processing offers extensive scope for performance improvement, and artificial intelligence makes the systems self-learning.

It is important that the pieces on the intake conveyor be separate from each other. If are, the detection unit and separating system can work together almost fault-free.

Examples of recyclables from mixed municipal waste

3-D: Cubic wood, hard plastics, minerals, C&D waste, ferrous metals, non-ferrous metals, glass

2-D: Flat wood, flat plastics, plastic film, paper, cardboard, textiles

REDWAVE sensor-based sorters are powerful sorting machines for the recovery of the recyclables from the pretreated material stream. High speed valves powered by compressed air eject the identified material.



SENSOR TECHNOLOGY

Modern systems use a combination of near infrared (NIR) sensors, optical cameras and metal detectors. Powerful computers interpret the data and activate the respective separation systems.

SEPARATION SYSTEMS

Pneumatic blowout systems or robots with various grippers are used to remove items from the stream. Where circumstances are suitable for it, manual sorting remains a practical option.



Future-proof combination: mechanical processing by Komptech and automatic sorting technology by REDWAVE.

WHY KOMPTECH?



MORE BUSINESS

The right business model for any operator:
NEW/USED/RENTAL and more



YOUR CHOICE

Mobile and stationary machines in many power
levels and with many equipment options



FLEXIBLE

Wide range of applications through flexible
adaptation to task and location



BUILT TO LAST

Tough build quality and high-quality components,
designed for long-term performance

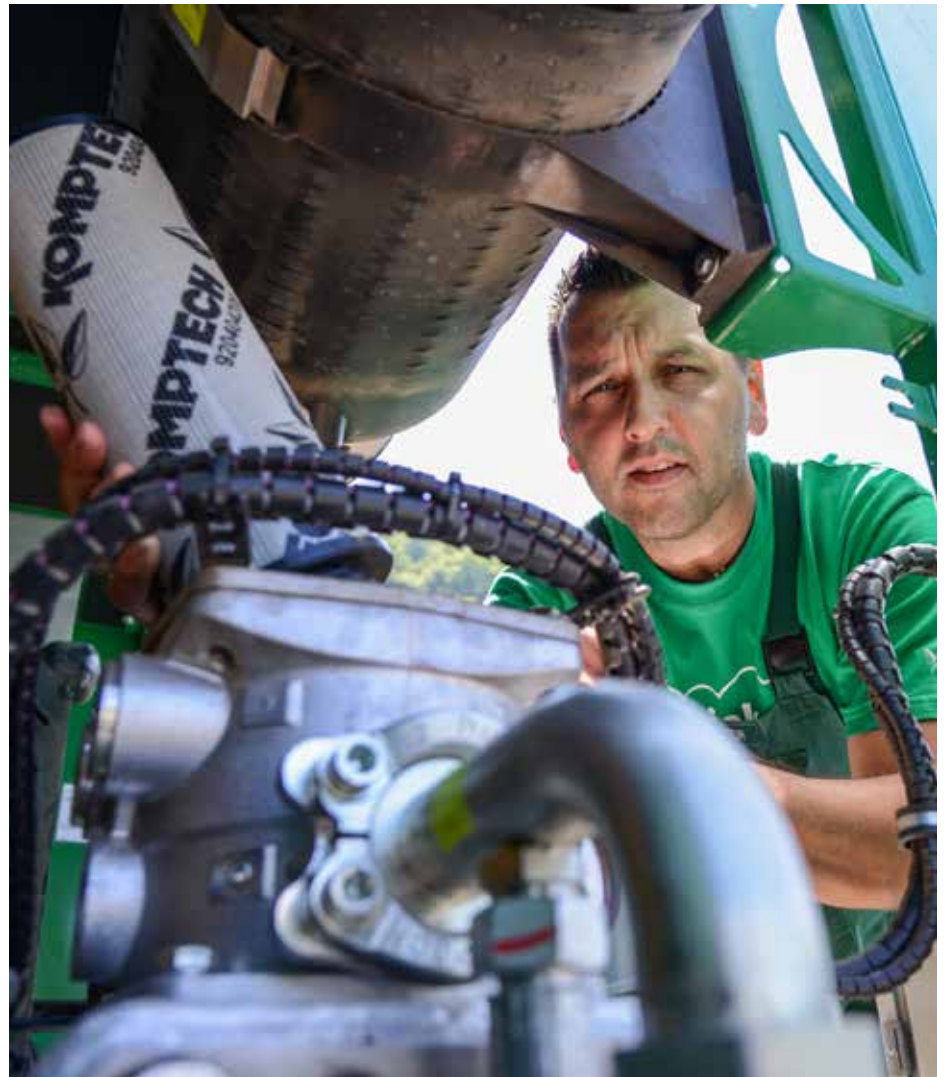
WE KEEP YOUR MACHINE UP AND RUNNING

Together with our partners we've built a worldwide service network of the highest calibre. Over 300 highly motivated experts are ready to take care of any issues on-site, and make over 7000 service calls each year. If more extensive work is needed, our network has over 70 very well-equipped service locations.

EXPERT SUPPORT

Komptech customers can rely on the expertise of our service technicians and the service specialists of our worldwide partners. Our ASSIST! online service information system, and the professional training provided by the Komptech Academy, ensure that all service technicians always have the latest information.

The CONNECT! condition monitoring system provides additional assistance, by letting technicians check the machine condition and history before going on a service call. This makes it possible to rule out certain faults from the outset, and in many cases to pinpoint the problem in advance. Technicians can thus take the right parts with them on a call, and get the machine up and running again faster.



REPLACEMENT PARTS SECURITY

Komptech machines are in use in over 40 countries. Everywhere, their owners know they can depend on a reliable supply of wear and spare parts. And rightly so, for the most important parts are always kept in readiness at our local partner sites. To do this we use a special system that categorizes parts by their importance for machine function. The greater the importance, the closer the parts need to be to the machine, pre-packaged and ready to ship from the respective stock. With our own order tracking system, sales and service partners can keep an eye on the status of their orders at any time and immediately pass this information on to their customers.



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TECHNOLOGY FOR A BETTER ENVIRONMENT

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We reserve the right to make technical changes
in the course of ongoing development.