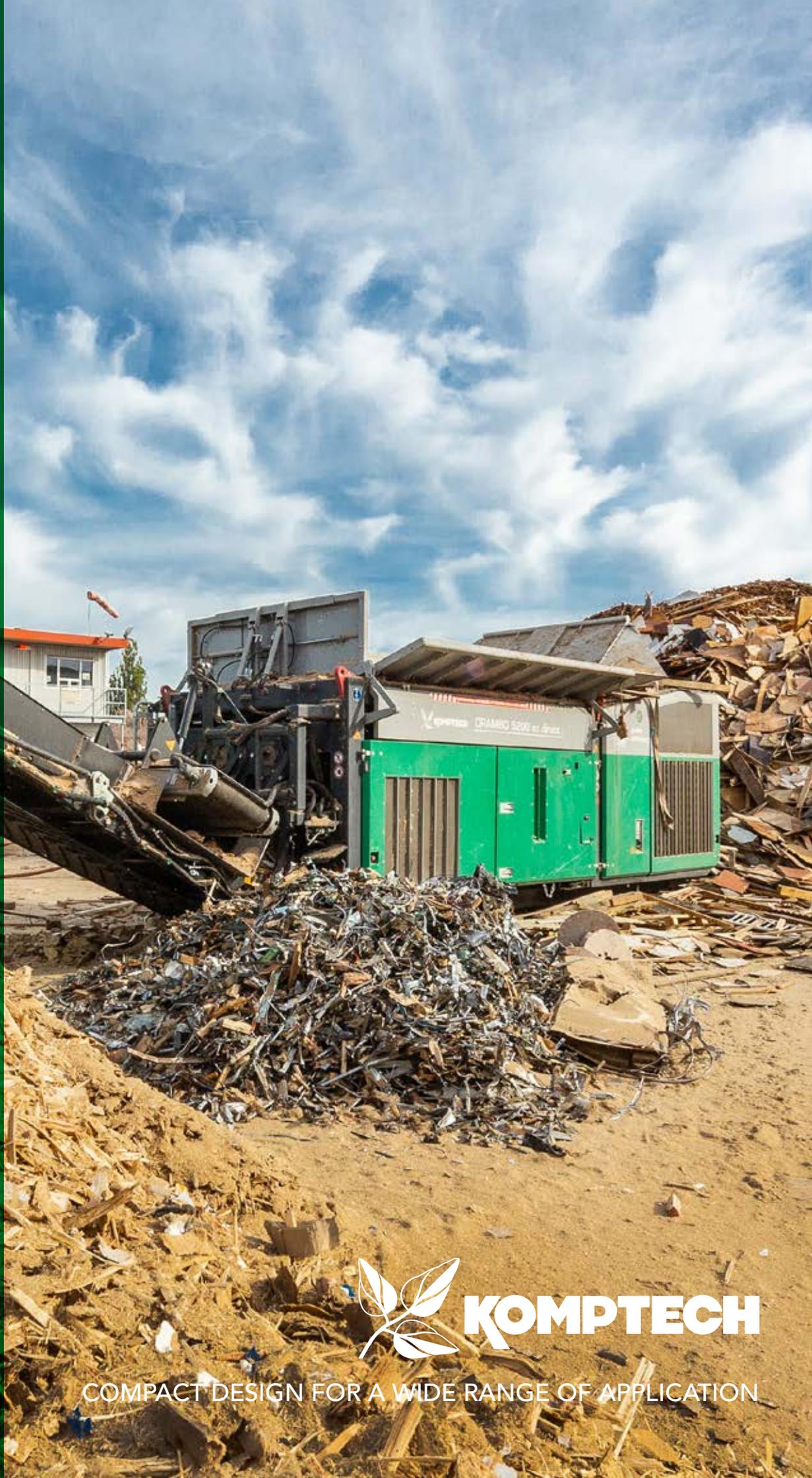


# WASTE WOOD PROCESSING



**KOMPTECH**

COMPACT DESIGN FOR A WIDE RANGE OF APPLICATION



# 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.



# 50 mill.

tonnes of waste wood annually in the EU



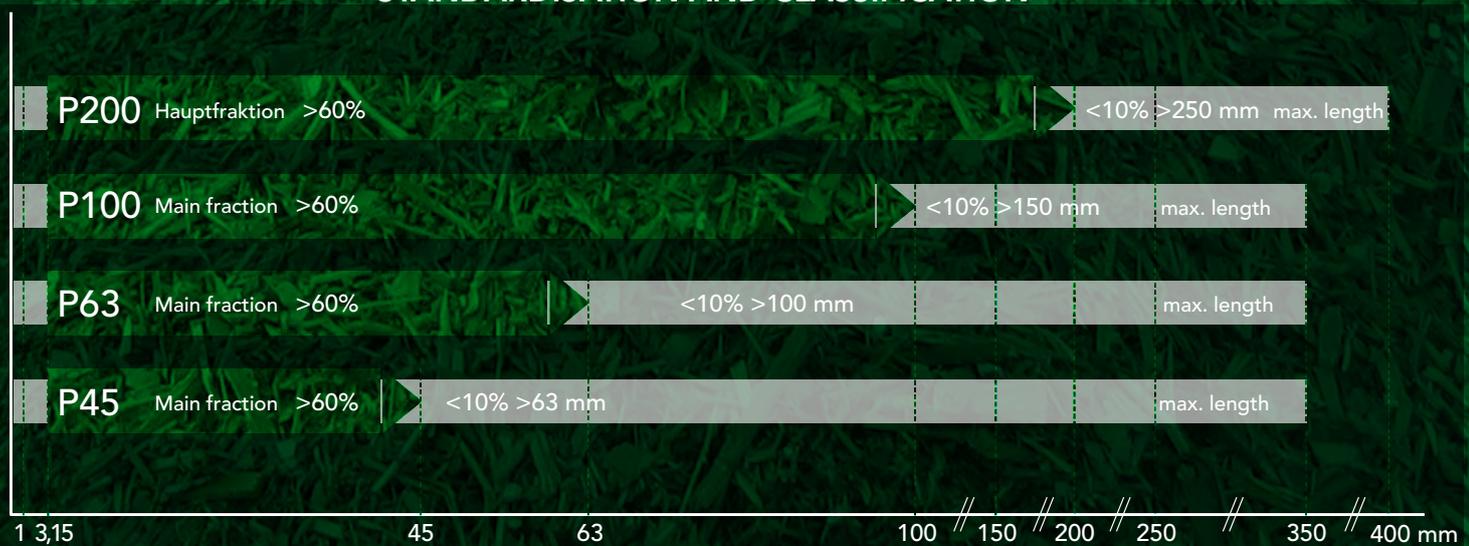
RECYCLING



ENERGY USE

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

## STANDARDISATION AND CLASSIFICATION



EN ISO 17225 Solid biofuels — Fuel specifications and classes

Table 5 – Specification of characteristics of wood chips and coarse shredded wood

Example: For particle class P63, at least 60 percent by mass should be between 3.15 and 63 mm, less than 10 percent can be larger than 100 mm and the maximum edge length must not exceed 350 mm.

## THE TASK

### USES

The most common use for untreated waste wood is the manufacture of wooden building materials, such as chip or particle board. Used wood that is unsuitable for recycling as materials can be used as fuel to generate electrical energy or heat. The hazmat 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.

A distinction is made between pre- and post-processing, with the latter being especially important for material recycling use. During pre-processing, waste wood is shredded to the best particle size for the intended use, and cleaned of metallic contraries. The "EN ISO 17225 Solid biofuels — Fuel specifications and classes" standard is often used to classify the particle sizes, and it defines them very precisely. Post-processing typically takes place in the particleboard factory, where all undesired components are removed and the material is worked into fine chips for board production.

### WELL PREPARED

Our lineup for processing waste wood leaves virtually nothing to be desired. If the objective is to reduce volume, there is a wide selection of mobile and stationary Crambo and Terminator shredders that can reduce wood to P200 or P100 particle size in one step. To shred waste wood to particle classes P100 to P63, two-stage processing is most efficient way to go. 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. For even smaller particle sizes, the combination of Crambo for pre-shredding and Axtor for post-shredding is ideal.

In modern waste management systems, waste wood is collected separately for recycling as material or for use as fuel. Materials falling under the term waste wood can have widely varying composition, ranging from untreated pallet wood to painted or coated particle board to impregnated construction lumber. The hazardous material content determines which waste wood goes to recycling and which is used as fuel. National classification schemes take this into consideration and provide guidance on which types of use are permitted.



#### WASTE WOOD CATEGORY A I

Untreated wood or wood that has been treated only mechanically, that has not been substantially contaminated with non-wood substances

USES:

- As material in the wood products industry
- As fuel in biomass co-generation plants



#### WASTE WOOD CATEGORY A II

Glued, painted, coated, lacquered or otherwise treated waste wood, without coatings containing organohalogen compounds and without wood preservatives

USES:

- As material in the wood products industry (observe limit values)
- As fuel in biomass co-generation plants (observe limit values)



#### WASTE WOOD CATEGORY A III

Waste wood with coatings containing organohalogen compounds, without wood preservatives

USES:

- As fuel in waste wood cogeneration plants
- Material reclamation only after extensive processing



#### WASTE WOOD CATEGORY A IV

Waste wood treated with wood preservatives, such as railroad ties, power masts, hops stakes and grapevine stakes, whose hazardous material content is higher than that permitted in waste wood categories A I, A II or A III, excepting PCB waste wood.

USES:

- As fuel in waste wood cogeneration plants

Waste wood classes and their processing options, with AltholzV Germany as an example.



PROCESSING FOR VOLUME REDUCTION

## ONE-STAGE SHREDDING

Coarse pre-shredding with a Crambo or Terminator results in class P200 waste wood. It can be used as a fuel in grate furnaces designed for this particle size.

Further applications for coarse pre-shredding can be to reduce volume to save transport costs, or to prepare the shred for downstream processing steps.

If necessary, class P100 shred can be made in a single step with special equipment.

There is a suitable mobile machine version for every application. These shredders are offered in hook-lift platform, three-axle trailer and tracked chassis versions. There are also many ways to integrate the function into stationary processing lines. All models feature easy maintenance access.

### EQUIPMENT RECOMMENDATION

#### Terminator

F-shredding unit for P200

V-shredding unit (xtron) for P100

#### Crambo

Screen basket 220,180,150 mm for P200

Screen basket 100 mm for P100



PARTICLE CLASSES

P200

P100

## PROCESS AT A GLANCE



1

### PRE-SHREDDING WITH THE CRAMBO

In the Crambo's extra-large shredding chamber, two counterrotating drums with teeth ensure positive feed. The degree of shredding can be adjusted flexibly, by changing either the screen basket or the entire screen basket cartridge. In both mobile and stationary versions, there is a choice of hydraulic drum drive or highly efficient mechanical direct drive.

2

### PRE-SHREDDING WITH THE TERMINATOR

The Terminator is a robust single-shaft shredder with an extremely wide range of applications, from coarse pre-crushing to defined shredding with the appropriate drum/countercomb configuration. The continuous cutting gap adjustment allows tailoring of the output particle size to the intended use. The mobile versions use hydraulic drum drive, while stationary versions can also be fitted with switchable or stepless direct drum drive.



## TWO-STAGE PROCESSING MOBILE MACHINES

The 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 overlengths, to precisely limit the particle size of the shredder output. The machine has only a small footprint, and offers very convenient loading. On-board electricity generation driven by a Crambo or Terminator makes the Multistar One independent of the grid. A Metalfex FE/NE separator can be added to further improve product quality.

### EQUIPMENT RECOMMENDATION FOR P100

- Crambo**  
Screen basket 220,180,150 mm
- Terminator**  
V-shredding unit (xtron), F-shredding unit
- Multistar**  
Screen deck 90/120



PARTICLE CLASSES  
**P100**  
**P63**

## PROCESS AT A GLANCE



1

### PRE-SHREDDING 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 contraries.

2

### SCREENING MULTISTAR ONE

A Multistar One star screen downstream of the shredder separates out a defined useful fraction, while returning overlengths back to the shredding process. The low-wear screen deck and electric power ensure top economy.

3

### FE/NE-SEPARATION METALFEX

The combination of eddy current separator preceded by an overband magnet makes the Metalfex a dependable solution for getting metals out of a material stream. Material enters from the discharge conveyor of the Multistar One.



## TWO-STAGE PROCESSING STATIONARY MACHINES

The two-stage compact system can be used to prepare various classes of waste wood for material recycling or energy recovery. The first step is shredding by a Crambo. The shredding teeth and screen basket size are configured for the input material and desired output product. The objective is a homogeneous shred with the lowest possible amount of fine fraction. The second step is separation of the useful fraction and return of the overlengths to the shredder, and for this a Multistar SE star screen is used. Integrated bypass and reversing in the conveyor, and further processing steps like metal removal, increase the functionality of this setup.

### EQUIPMENT RECOMMENDATION FOR P63

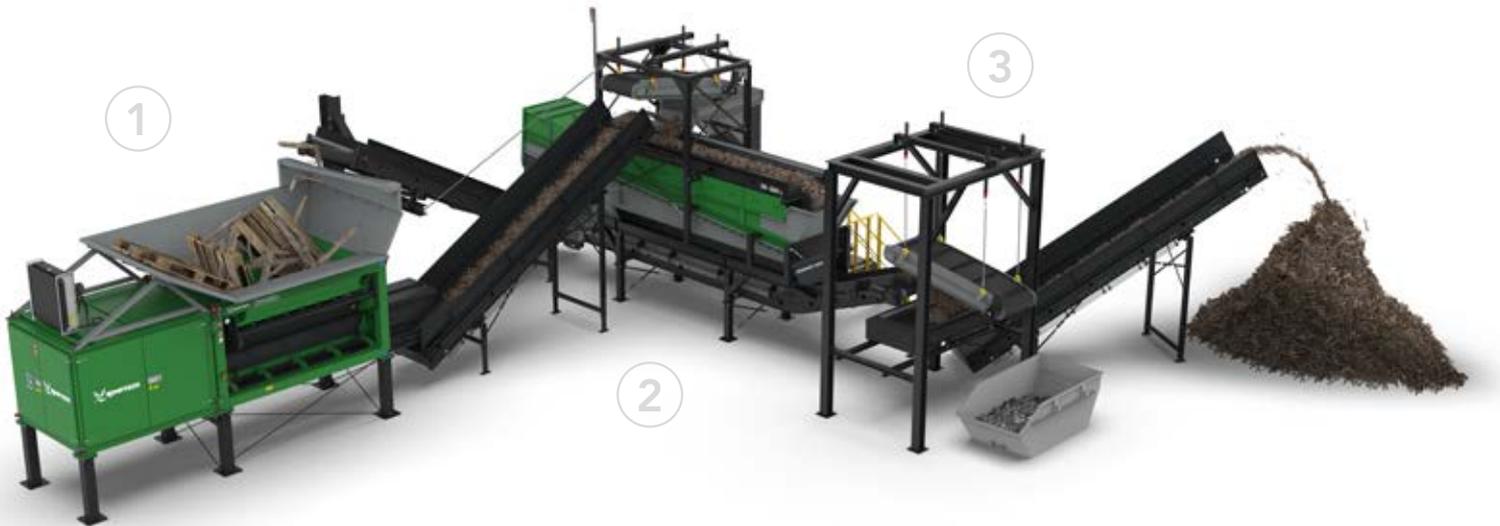
**Crambo**  
Screen basket 150,125 mm  
**Multistar**  
Screen deck 60/90

PARTICLE CLASSES

P100  
P63



## PROCESS AT A GLANCE



1

### 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.

2

### SCREENING 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 a conveyor. The desired particle size can be obtained simply by adjusting the rotational speed of the star shafts.

3

### FE/NE-SEPARATION

Metallic contraries are not desired in the output product. 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.



## TWO-STAGE PROCESSING PRE- AND POST-SHREDDING

In some cases particle class P45 is needed by the downstream process. This requires a two-stage process, with post-shredding taking the place of screening. The combination of low-speed pre-shredder and high-speed post-shredder can efficiently reduce waste wood down to P45, P63 or P100 sizes, depending on the teeth 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 contrary content, and carefully separate out the metal before post-shredding.

### EQUIPMENT RECOMMENDATION FOR P45

**Crambo**

Screen basket 150 mm

**Axtor**

Free swinging tools with armored attachment

Screen basket 60 mm



PARTICLE CLASSES

P100

P63

P45

## PROCESS AT A GLANCE

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1

### PRE-SHREDDING WITH THE CRAMBO

The Crambo provides the pre-shredding. Its low drum speed means that it handles metallic contraries with ease. In the first shredding step it is important to break up combined wood and metal elements like nailed pieces, so that the overband magnet on the shredder discharge conveyor can do its job.

2

### POST-SHREDDING WITH THE AXTOR

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





WHY KOMPTECH?

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## MORE BUSINESS

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

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## YOUR CHOICE

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

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## FLEXIBLE

Wide range of applications through flexible  
adaptation to task and location

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## BUILT TO LAST

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

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## WE KEEP YOUR MACHINE UP AND RUNNING

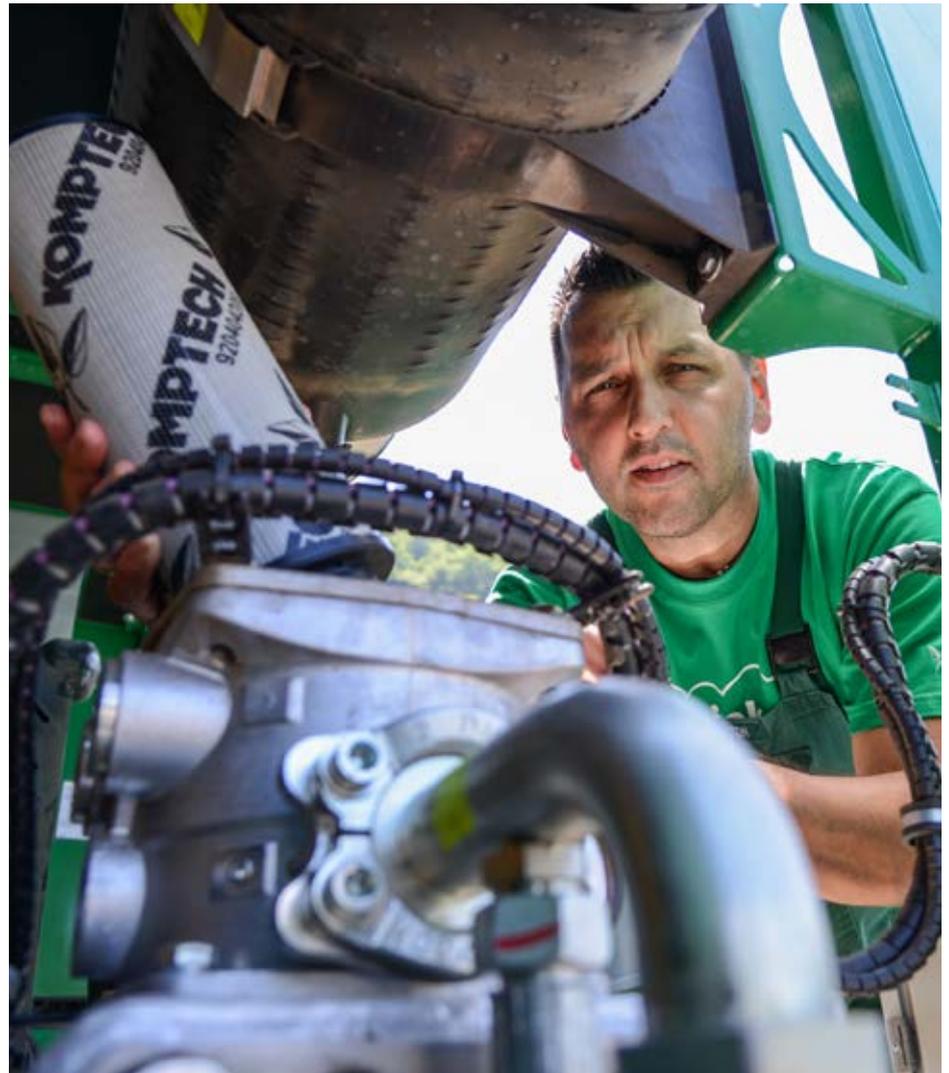
Together with our partners we've built a worldwide service network of the highest calibre. Over 300 highly motivated experts are ready to take care of any issues on-site, and make over 7000 service calls each year. If more extensive work is needed, our network has over 70 very well-equipped service locations.

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### 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.



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