CRAMBO
UNIVERSAL SHREDDER FOR GREEN WASTE AND WOOD
UNIVERSAL APPLICATION
FLEXIBLE PARTICLE SIZE
EFFICIENT DRIVE
ROBUST AND INSENSITIVE TO CONTRARIES
The Crambo is one of the best machines for shredding all types of wood and green waste. Two slow-running drums with shredding tools minimize fine particle and noise/dust emissions, and resist contraries. The Crambo enables easy adjustment of the output particle size, by simply exchanging the screen basket to instantly change your required particle size. In addition to the existing hydraulic drive model there is now a mechanical drive version, the new Crambo direct.

The drive train of the Crambo direct combines the functionality of hydraulic drive with the efficiency of mechanical drive. That means top economy, while retaining all product benefits like overloading protection, reversibility, adaptation to the material etc. A modern operating console and convenient access to all maintenance points makes everyday work very easy.
When shredding waste wood, the wear-resistant surface-hardened teeth provide a high level of resistance to contraries. Counter-rotating shafts, together with the special shape of the teeth, produce a perfect feed, even for fractions with high board content.

A high throughput of bulky vegetation is made possible with a generously dimensioned feed area, a folding hopper and counter-rotating teeth. Blockages from wet material and high grass content are practically impossible. The teeth clear the screen baskets on every revolution.

If a root stock fits into the shredding area, it will also go through. The highly effective tooth power offered by the efficient drive, the intense motion of the material and the insensitivity to embedded stones all make the Crambo ideal for this application.

The innovative shredding concept provides a wide range of application possibilities. Established applications are shredding bio-waste for composting, shredding market waste and food/kitchen waste for fermentation, and preshredding roofing fabrics for further treatment.

Universal shredder for green waste and wood
INSIDE
THE MACHINE

The Crambo is powered by a modern Caterpillar® diesel engine, equipped with the latest emission control. The complete muffling of the engine compartment reduces noise emissions to a minimum. Purchasers can choose between highly efficient mechanical drum drive with automatic transmission - the Crambo direct - or the familiar hydraulic drive with load-dependent speed regulation. Control electronics continually monitor the operational status of the machine, and intervene to protect the machine should a breakdown occur. Reversing programs precisely adapt the shredding process to the material. The menu guidance follows a logic any user can understand, and the screen shows all machine functions graphically.

01 Large feeding area with flap and fold system for filling hopper
02 Shredding drums with aggressive cutting tools
03 Crambo direct: CAT® diesel engine and automatic transmission
04 User-friendly operator panel with on-board computer
05 Swivellable screen basket cartridge

» Extremely large shredding compartment with two 2.8 metres long shredding drums
» Counter-rotating drums with tools in a spiral arrangement for active material movement
» Hydraulic folding hopper for more hopper volume
Universal shredder for green waste and wood

Drive system Crambo direct

» High-performance automatic transmission
» Adaption to the material with 2 speeds and intelligent control
» No engine stalling in the event of blockages due to overload clutch
» Programmable reversing function for self-cleaning

Operation

» Large colour display with logical menu guidance for easiest operation
» Optimum adaptation of machine function to the material
» Ideal placement of controls for folding out the hopper and conveyor

Maintenance access

» New designed engine compartment with large doors and foldable platforms
» All maintenance points are externally accessible (fuel, oil, filters etc.)
» Excellent access to the discharge channel through side service doors

Adaptions

» Particle size adjustment: Change of screen baskets or change of the entire basket cartridge
» Adjustable overbelt-magnet or magnetic drum at discharge conveyor
» Active feed device for moving on site by remote control (Track, Trailer)
» Remote control, central lubrication and more

Stationary machine

The stationary Crambo offer the same basic shredding concept, but with even more options in terms of drive system, frame and periphery, for a wide scope of applications. They get the job done, whether as standalone machines or part of a process chain, whether electro-hydraulic or electro-mechanical.
Extremely large feed area measuring 2000 mm in width and 2820 mm in length

Slow-running tool elements produce no fine fractions

Variable particle size spectrum by selecting the right screen basket

Quick-change system for screen basket and teeth

Low wear and maintenance costs

In the generously dimensioned shredding area, two 2820 mm long counter-rotating shafts provide active feed. The teeth seize the material and press it in a cutting/splitting action against the cutting edge and screen baskets located underneath. Slow turning (rotation speeds up to 44 rpm) results in a lumpy shred initially. The material does not exit the shredding area until the particle size matches the hole size of the screen basket, enabling the quantity of shredded material in the desired particle size to be maximised. There is no additional generation of fine fractions, and overlengths are reduced to a minimum.
These features make the Crambo the ideal biomass machine, especially where coarser particle sizes are the order of the day, and where metal, stones, and soil make life difficult for fast-running shredders.

Specially developed bearings keep the massive shredding drums securely in place, even under extreme loads. Strong planetary gears boost drive train life, for dependable service through thousands of operating hours. The shredding drums can also be armored at areas susceptible to wear, for additional protection.

With their optimal profile the dropforged wear teeth guarantee prologed service life whilst retaining consistent functionality. The sickle teeth are all-purpose usable, give aggressive feed and good cutting. The planing teeth give good results on waste wood when used with smaller screen baskets. Their shape makes them very long-lived.

Screen baskets are tailored to the cutter and are available in sizes most commonly used in practical applications. To replace, activate the button to swivel the screen basket cartridge out hydraulically. Remove the screen basket halves from the cartridge and replace with another screen basket or even more conveniently exchange the entire screen basket cartridge. Swivel in again to continue working.

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Shredding drum

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Options for biomass processing

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Bio cutting unit

This cutting unit is ideal for preparing woody biomass for use as fuel. Countercut teeth inserted near the central cutting edge give an efficient cut, for finer shredding and the right output particle consistency.

Bio-Basket XL

This combination of a special screen basket, holder and bio-blades gives more fuel and less fines. Its shredding efficiency boosts throughput while reducing fuel consumption.
All mobile versions can be transported without special authorisation

Switch from the transport position into the working position immediately

On-site mobility possible with towing or automatic feed device (option)

The right chassis for every surface and application

Mobile technology – getting from A to B quickly and easily. But also getting ready for operation on site quickly: Unload, open up, power on – and start working. The Crambo offers a selection of hook lift, three-axle chassis or steel tracked versions. On the hook lift version, towing or automatic feed device options provide manoeuvrability on site.

With its airsprung axles and automatic feed device (option), the Crambo trailer version offers the utmost in mobility. The self-propelled steel track version, with extra wide three-bar track baseplates, is ideal for soft ground or unstable terrain. Two speeds are available and steering is done by remote control.
Within easy reach

With the new exterior design, all maintenance can now be performed from outside the machine. Easily opened doors give access and fold-out platforms provide safe footing. The discharge channel is easily accessible through a service door on the side.

Ready for the rough stuff: Heavy Duty

The Crambo Heavy Duty’s extremely tough and wear-resistant features make it the way to go for contrary-heavy or abrasive material streams. A special screen basket cartridge, screen baskets with double wall thickness, and armour plating on the drums boost service life by up to three times.

Get the iron out!

The overbelt magnet is now mounted in a specially designed, steplessly adjustable holder that gives parallel positioning of the magnet over the discharge conveyor regardless of the conveyor slope. This gives the best possible separation performance in all working positions.

Man and machine

The new operating console with its big colour display makes it easy for new users to work with the machine, and gives pros many ways to optimize operation. The operating panel on the machine has a colour display that clearly shows all functions and operating status with symbols and colour coding.

Loading made easy

Load material into the big hopper - the machine does the rest. Hydraulic folding hopper sidewalls make the already generous shredding chamber even bigger, for a loading volume of up to seven cubic metres. That means less strain in loading and less outfall around the machine from overloading.

Easier working

Optional accessories let users configure the Crambo for the exact task. Central lubrication simplifies maintenance. Wireless remote control gives pushbutton control. A moistening system helps keep down dust, while an extended discharge conveyor permits higher material cones.
Innovative mechanical drum drive with load-dependent automatic transmission
Up to 35 percent lower specific consumption than comparable hydraulic systems
The same functionality and contrary resistance as on hydraulic systems
Exact material fit through intelligent control with two drum speeds

CRAMBO DIRECT

Electrically driven stationary machines, with their energy efficiency, low maintenance burden and technical control advantages, are perfect for large plants with long machine running times. Stationary Crambo customers can choose between hydraulic and mechanical drum drive. Just like the mobile versions, the stationary Crambo direct has a mechanical drive with load-dependent automatic transmission.

That means lower energy consumption through higher efficiency, while retaining full functionality like overload protection, reversing and two shredding speeds. Integration in a processing line is straightforward, as a modular system of setup, material feed and discharge, and control options enables configuration for almost any requirement.
Its electro-hydraulic drive system combines high reliability and low investment costs. Hydraulic drive is also an advantage where frequent throughput rate adjustments are needed, for example to accommodate downstream screeners and separators, due to the integrated throughput regulation by the drum speed.

In addition, the drive can be physically separate from the shredding unit if desired. This saves space in the processing line since only the compact shredding unit needs to go there, while the drive unit can be set up in a container or utility room where it is protected from dust and is easy to get to. Like for the mechanical versions, many preconfigured adaptation options are provided.

HIGHLIGHTS

» Hydraulic drive for high shredding power and stepless throughput control

» Separate installation with hydraulic drive:
  - Protects the drive unit
  - Saves in-line installation space

» Numerous options are available for setup, material intake/output, drive and controls

CRAMBO HYDRAULIC

Universal shredder for green waste and wood
**TECHNICAL SPECIFICATIONS**

### Engine

<table>
<thead>
<tr>
<th>Power (kW / HP)</th>
<th>4200 direct</th>
<th>5200 direct</th>
<th>6200 direct</th>
<th>3400</th>
<th>5000</th>
<th>6000</th>
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<tbody>
<tr>
<td>CAT® C9.3 Tier 4 Final/Stufe IV or Tier 3/Stufe IIIA</td>
<td>242 / 330</td>
<td>328 / 446 (3b, T4f) 354 / 480 (T3)</td>
<td>429 / 583</td>
<td>242 / 330</td>
<td>328 / 446 (3b, T4f) 354 / 480 (T3)</td>
<td>429 / 583</td>
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<tr>
<td>CAT® C13 Tier 4 Final/Stufe IV or Tier 3/Stufe IIIA</td>
<td>354 / 480 (T3)</td>
<td>429 / 583</td>
<td>242 / 330</td>
<td>328 / 446 (3b, T4f) 354 / 480 (T3)</td>
<td>429 / 583</td>
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<td>CAT® C18 Tier 4 Final/Stufe IV or Tier 3/Stufe IIIA</td>
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<td>242 / 330</td>
<td>328 / 446 (3b, T4f) 354 / 480 (T3)</td>
<td>429 / 583</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Shredding unit

| Drum drive | mechanical hydraulic |
| Drum rpm: | 1. gear: 18 (max) 2. gear: 28 (max) 1. gear: 23 (max) 2. gear: 34 (max) 1. gear: 29 (max) 2. gear: 44 (max) max 32 max 32 max 41 |
| Drum length (mm): | 2820 |
| Drum diameter (mm): | 610 |

### Loading heights

| Loading heights (mm): | Hook: 2588 Trailer: 2997 Track: 2898 |
| Discharge heights (mm, 10°-35°): | Hook: 1520 - 3842 Trailer: 1929 - 4250 Track: 1830 - 4151 |

### Dimensions transport position/working position (Conveyor belt 35°)

| L x W x H Hook (mm): | 7290 x 2450 x 2766 / 12292 x 3290 x 3778 |
| L x W x H Trailer (mm): | 9065 x 2450 x 3367 / 13497 x 3290 x 4187 |
| L x W x H Track (mm): | 6940 x 2854 x 3268 / 11372 x 3290 x 4088 |

### Weight (dependent on equipment)

| Hook (t): | ~ 21.7 ~ 22.0 ~ 22.4 ~ 21.0 ~ 21.3 ~ 21.7 |
| Trailer (t): | ~ 24.0 ~ 24.3 ~ 24.7 ~ 23.3 ~ 23.5 ~ 23.9 |
| Track (t): | ~ 25.1 ~ 25.4 ~ 25.8 ~ 24.4 ~ 24.6 ~ 25.0 |

### Throughput (dependent on material)

| Throughput performance (t/h): | up to 55 up to 80 up to 120 up to 45 up to 60 up to 100 |

### Options

Engines emission level Tier 3a and 4f/EU stage III and IV, drum armored, hook-shaped teeth, planing teeth, bio cutting unit, screen baskets 80/100/125/150/180/250/300, radio remote control, central lubrication, transferring magnet with swinging arm, magnetic pulley etc.
Universal shredder for green waste and wood

**Hook**

- 3290 mm
- 12292 mm (35°)
- 13177 mm (10°)
- 2560 mm
- 3178 mm
- 342 mm (35°)
- 229 mm (10°)

**Trailer**

- 3290 mm
- 13497 mm (35°)
- 14279 mm (10°)
- 2997 mm
- 4187 mm
- 420 mm (35°)
- 360 mm (10°)

**Track**

- 3290 mm
- 11372 mm (35°)
- 12194 mm (10°)
- 2908 mm
- 4038 mm
- 455 mm (35°)
- 390 mm (10°)
## TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Engine</th>
<th>4200 direct</th>
<th>5200 direct</th>
<th>6200 direct</th>
<th>3400</th>
<th>5000</th>
<th>6000</th>
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<tbody>
<tr>
<td>Power mechanical (kW):</td>
<td>1 x 160</td>
<td>1 x 200</td>
<td>1 x 280</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Power hydraulic (kW):</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 x 160</td>
<td>1 x 200</td>
<td>1 x 280</td>
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</table>

### Shredding unit

<table>
<thead>
<tr>
<th>Drum drive</th>
<th>Drum rpm</th>
<th>Drum length (mm):</th>
<th>Drum diameter (mm):</th>
</tr>
</thead>
<tbody>
<tr>
<td>mechanical</td>
<td>1. gear: 18 (max) 2. gear: 28 (max)</td>
<td>2820</td>
<td>610</td>
</tr>
<tr>
<td>hydraulic</td>
<td>1. gear: 23 (max) 2. gear: 34 (max)</td>
<td>max 32</td>
<td>max 32</td>
</tr>
<tr>
<td></td>
<td>1. gear: 29 (max) 2. gear: 44 (max)</td>
<td>max 40</td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions L x W x H (mm) (shredding unit incl. hopper)

- **Crambo direct**: 8041 x 2949 x 2921
- **Combined unit**: 8041 x 2949 x 3191
- **Separated unit**: 5772 x 2949 x 3191

### Weight (dependent on equipment)

- **Weight (t)**: ~ 18.2 ~ 18.2 ~ 18.2 ~ 16.0 ~ 16.8 ~ 17.1

### Throughput (dependent on material)

- **Throughput performance (t/h)**: up to 55 up to 80 up to 120 up to 45 up to 60 up to 100

### Options

- Drum armored, hook-shaped teeth, planing teeth, bio cutting unit, screen baskets 80/100/125/150/180/250/300, soft-start, electrical control system internal/external, control panel internal/external, variants for hopper, outfeed conveyor, discharge conveyor, radio remote control, central lubrication etc.
Crambo direct (Combined unit)

8041 mm

2949 mm

Crambo hydraulic (Combined unit)

8041 mm

2949 mm

Crambo hydraulic (Separated unit)

2410 mm

5772 mm

2949 mm
TECHNOLOGY FOR A BETTER ENVIRONMENT