SYSTEM SOLUTIONS
WASTE WOOD

NO MERCY IN THIS NECK OF THE WOODS.

YOU'RE GOING TO GET CUT INTO PIECES.

And that's not all. SAIB S.p.A. in Caorso near Milan, Italy, breathes new life into old wood with the production of high-quality chipboard for furniture. A Lindner Urraco 95 DK with an impressive throughput of 90 to 100 metric tons per hour pre-shreds the virgin or only slightly contaminated starting material ready for the next process. The brute shredder not only optimises the facility's capacity, it also makes production incredibly efficient. The company produces a whopping 2,000 m^3 of chipboard per day with Urraco's help.

'The Lindner Urraco 95 DK's performance and incredible throughput keep our facility very busy.'

Sergio Mulazzi
Technical Director

SAIB S.p.A.
Italy

TURN OLD INTO NEW.

THE RIGHT WAY TO RECOVER WASTE WOOD.

VIRGIN OR SLIGHTLY CONTAMINATED – GRADING WASTE WOOD

Recovering waste wood properly plays an important part in environmental protection. The degree of contamination of the material determines its further use. The grading structure may vary from country to country. In Germany, for example, there are four grades. Waste wood of grades A I and A II can be sent for recycling, e.g. in chipboard production. Grades A III and A IV are usually only suitable for incineration.

GRADING – AN OVERVIEW

A I	Virgin or only mechanically processed waste wood, minor contamination, e.g. solid wood panels, virgin wood on building sites, untreated solid wood furniture, etc.
A II	Glued, coated, painted, without organohalogen compounds or wood preservatives, e.g. pallets, clippings from composite wood, structural chipboard, etc.
A III	Treated, coated, with organohalogen compounds, without wood preservatives, e.g. bulky waste wood (mixed materials, coated furniture, etc.)
A IV	Treated, coated, with organohalogen compounds, without wood preservatives, e.g. bulky waste wood (mixed materials, coated furniture, etc.)

STRICT STANDARDS – SOLID BIOFUEL CLASSIFICATION

Selecting the shredding technology for subsequent incineration or recycling of waste wood always depends on the required end product. The more defined the final particle size, the easier it is to feed into subsequent processes. The ISO 17225-1 standard describes the different specifications in great detail in terms of the required particle sizes.

TYPICAL PARTICLE SIZES IN LINE WITH EN ISO 17225-1

Class	main fract. 60 %	max. coarse fract.	max. length
P16	< 16 mm	6% > 31.5 mm	45 mm
P45	< 45 mm	10% > 63 mm	350 mm
P63	< 63 mm	10% > 100 mm	350 mm
P100	< 100 mm	10% > 150 mm	350 mm
P200	< 200 mm	10% > 250 mm	400 mm

WASTE WOOD GRADES

A I – VIRGIN, ONLY MECHANICALLY PROCESSED

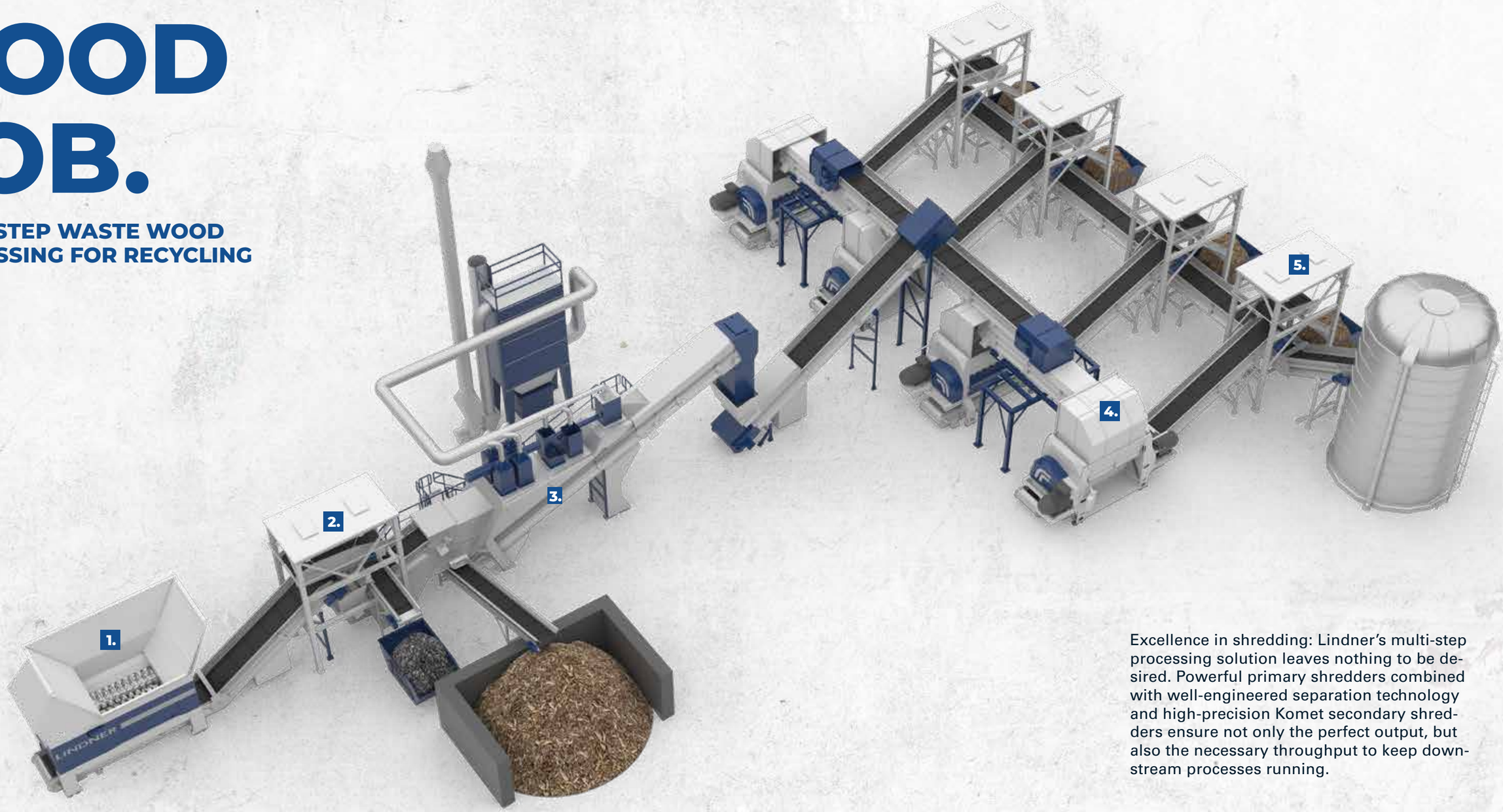
A II – TREATED, NO ORGANOHALOGEN COMPOUNDS

A III – TREATED, WITH ORGANOHALOGEN COMPOUNDS

A IV – TREATED, WITH WOOD PRESERVATIVES

GOOD JOB.

MULTI-STEP WASTE WOOD PROCESSING FOR RECYCLING



Excellence in shredding: Lindner's multi-step processing solution leaves nothing to be desired. Powerful primary shredders combined with well-engineered separation technology and high-precision Komet secondary shredders ensure not only the perfect output, but also the necessary throughput to keep downstream processes running.

1. PRIMARY SHREDDING

After the wood has been sorted in accordance with the waste wood grades, A1 and A2 waste wood is processed in the first shredder. This shredding system transforms pallets, chipboard, demolition and other partially bulky wooden parts into homogenous, well-broken-down material so that in a second step, nails and other metal parts can be extracted.

2. MAGNETIC SEPARATION

In the second step, a magnet fitted above the conveyor belt is used to safely extract ferromagnetic parts such as nails, scrap iron and other scrap metals, which can be sent directly for recycling.

3. HEAVY FRACTION SEPARATION

Heavy particles are often a sign of contamination or foreign objects in the input material and might negatively influence the quality of the end product. The material stream is therefore hit with an air current while it is in free fall. Light materials are transported by air to the conveyor belt, whereas heavy materials fall to the ground to be discharged.

4. SECONDARY SHREDDING

The pre-shredded waste wood that is free from foreign particles and metals then enters the second shredding stage. The final product should be homogenous and about 5–10 mm in size to ensure that the recycled material is of high quality throughout for the production of chipboard later on.

5. SECONDARY MAGNETIC SEPARATION

After secondary shredding, metal parts that could not be eliminated in step 2 are separated. This ensures a final product of the highest quality and purity and also that the valuable iron can be directly recycled.

BRUTALLY CON-VINCING.

URRACO 95 DK | ZETA STAR 95 F2

IT'S ALL ABOUT THE END PRODUCT – ENERGY FOR 25,000 HOUSEHOLDS

The Altenstadt power plant in Upper Bavaria, Germany, can support this claim: Lindner designed and supplied an on-site solution that combined a Urraco 95 shredder as the heart of the biomass facility with a special downstream star screen. The Altenstadt power plant went into operation in 1999 and today supplies more than 25,000 households with electricity. Since then, more than one billion kilowatt hours of electricity have been fed into the public grid. The CO_2 savings during this period – measured in terms of the electricity produced – amount to more than 620,000 metric tons.

'Supplying 25,000 households with power is a huge responsibility. Lindner's solution impresses us on a daily basis.'

Bernhard Schuster
CEO
Heizkraftwerk Altenstadt GmbH & Co. KG
Germany

ENERGISER.

WASTE WOOD PROCESSING FOR INCINERATION

Powerful performance: The perfect combo of a Lindner Urraco or Miura series twin-shaft shredder with a Lindner Zeta Star screen ensure that the heat will always be turned up in thermal power plants. Together, these two guarantee defined particle sizes at impressive throughput rates. The design is, of course, Lindner style: durable, robust and efficient.

1. SHREDDING

The waste wood is collected in large quantities at the recycling company's premises and mostly fed directly into the shredder with a wheel loader or a digger. The optional water sprinkling system on the shredder makes sure that there is none of the airborne dust usually found while processing wood. The aim here is to shred the material in just one step to an ideal pre-defined output size of 80–150 mm.

2. MAGNETIC SEPARATION

A permanent magnet fitted above the conveyor belt is used to safely extract ferromagnetic parts such as nails, scrap iron and other scrap metals, which can be sent directly for recycling.

3. SCREENING

After shredding, the final particles are further classified. A defined particle size, typically of < 80 mm, < 120 mm or according to that specified in EN ISO 17225-1, is required for incineration in combined heat and power plants.

4. RETURNING OVERSIZED PARTICLES

Thanks to an integrated system, the screened out oversized particles are conveniently returned to the shredder. This eliminates the need to handle the material a second time in a costly and time-consuming process using a wheel loader.

RADICALLY BRILLIANT.

URRACO | MIURA | KOMET | ZETA STAR

URRACO SERIES
PRIMARY SHREDDING

Flexible, powerful, economical. The Urraco series offers all the benefits of mobile shredding. This all-rounder even shreds difficult materials with its robust design and powerful engines of up to 770 hp and extreme torque. The machine is available in different chassis versions depending on the degree of mobility needed. You can also order the machine with an electric motor.

Urraco 75 D | 75 DK | 95 DK
Urraco 75 E | 95 E

MIURA SERIES
PRIMARY SHREDDING

Full output in variable conditions: the Miura twin-shaft shredder excels in flexibility and mobility. Our innovative FX-Unit (Fast Exchange) allows you to exchange the shafts in an instant – ideal for quickly adapting the shredder to different materials. The shredder comes with a 3-axle trailer, making it swift and easy to move between different sites.

Miura 1500

ZETA STAR SERIES
MOBILE SCREEN

The Lindner Zeta Star series two-fraction screens ensure defined particle sizes for incineration of waste wood. Different configurations of the screen deck allow you to adjust the output to the desired final particle size. The sturdy star screen is extremely reliable and efficient, providing a clean end product at maximum throughput.

Zeta Star 75 F2
Zeta Star 95 F2

KOMET SERIES
SECONDARY SHREDDING

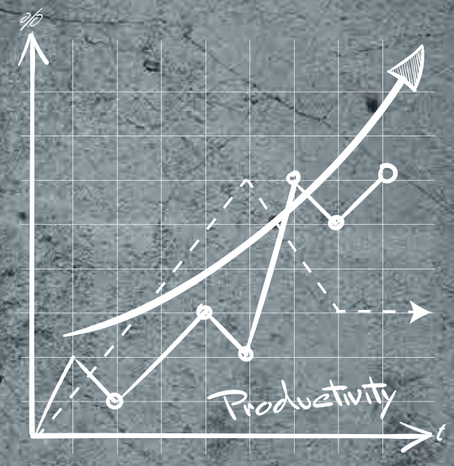
Since the material has already been cleaned, a high-speed shredding system is usually employed. The Lindner Komet sets new standards in this segment: its robust design, precise cutting tools and smart comfort functions ensure maximum throughput with highest availability – 24 hours, 7 days a week.

Komet 1800 | 2200 | 2800
Komet PK 1800 | 2200 | 2800
Komet HP 2200 | 2800

WE HAVE IT ALL WRAPPED UP.

MIS – FOR OPTIMISED PROCESSES

Control at your fingertips! The machine information system (MIS) presents all relevant production data from the system clearly, thereby giving you an overview of the daily process flow. Optimise the system's performance and increase productivity online – 24/7, worldwide.



WE GO THE EXTRA MILE.

Innovation as a principle. This basic principle has informed Lindner's actions ever since the company was founded in 1948. As a specialist in shredding technology, we produce ground-breaking solutions for waste processing at three modern production sites in Austria. You will love the results: state-of-the-art machines and system components – with ultimate output quality, productivity and efficiency. You want to plan and execute a large project? No problem. Because one thing is certain: with us, you are always that crucial step ahead.

YOU CAN COUNT ON US.

Heavy-duty machines, experienced and reliable first-class service worldwide. Whether you need quick assistance with your technical problems or professional maintenance: we will be there for you and do everything it takes to extend your system's life and operating time with our expertise in shredding technology and our high-quality, signature Lindner spare parts.

THE COMPLETE PACKAGE

- Commissioning and training by skilled, qualified staff
- Individual fine tuning of your machines on site
- Professional service hotline, quick technical support
- 100% Lindner, 100% original: quality spare parts that are readily available worldwide
- Tailor-made service and wearing parts packages
- Machine cleaning and tool reconditioning services
- Professional maintenance of electrical components by ABB-certified personnel

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