

PRALL-TEC

More than just recycling



YOUR MATERIAL

OUR PTV

Shredding, Liberation, Cleaning, De-lamination, Balling

EXPERIENCE MEETS INNOVATION

The Company

PRALL-TEC



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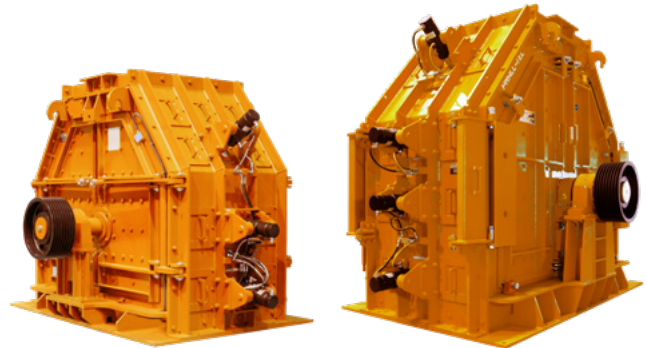
Prall-Tec is a German based family business specialized in the development, production, repair and modernization of crushing, shredding, recycling machinery, equipment and entire recycling plants. We offer our customers a wide range of machinery and equipment built with our 40 years of experience. Constant improvements and adaptations have been made to produce leading edge and best available technologies (BAT). Impact crushers, hammer mills, liberation and balling mills, shredders and complex recycling systems are all produced in-house. We cover the entire manufacturing process from design, engineering, production to global installation and commissioning of turnkey plants. Prall Tec develops tailor made solutions for each recycling and processing task. Key focus is on the processing of

metallurgical slags, IBA, ASR, WEEE (e-Scrap), automotive windscreens, photovoltaic (PV) panels, waste glass and other metal-containing products. We always aim to develop machines that are as simple, powerful, efficient and robust as possible. Processing high throughput with minimal OPEX (energy, wear and tear, maintenance) is our passion! Our machines crush metal containing conglomerates and compound material to liberate a maximum of metals and other valuable components. With the new horizontal liberation and balling mill PTV, PrallTec can now present a revolutionary way of processing large quantities of metal compounds and conglomerates while providing highest metal and material liberation ratios. Thus a maximal metal recovery yield can be achieved with the subsequent separation technologies.

THE REVERSIBLE PTV BALLING MILL

Our crushing, shredding, de-lamination and balling mill

The PTV functions as a universal crushing mill for liberation, cleaning, de-lamination, shaping, and balling a wide range of input material. The PTV liberates metals from the respective input compounds and hybrid material. Ferrous and non-ferrous metals containing material is therefore only impacted until the desired particle size, liberation, shaping and balling condition has been achieved. Composite and hybrid material such as plastics, adhesives and metals can be processed with the PTV and subsequently separated from each other using various separation technologies such as magnetic and eddy current separation, windsifting, densimetric and air separation tables, heavy media separation, water tables, etc.



| PTV 100/100 | WEIGHT | PRODUCT FEED SIZE | INLET OPENING | FINAL GRAIN NF/NFE | THROUGHPUT |
|------------------------|---------------|------------------------------|----------------------|-------------------------------|-------------------|
| | 11,5 t | up to 100 mm | 280 x 1000 mm | 0,3-35 mm | 5-10 t/h |
| PTV 140/100 | WEIGHT | PRODUCT FEED SIZE | INLET OPENING | FINAL GRAIN NF/NFE | THROUGHPUT |
| | 16,8 t | up to 100 mm | 280 x 1.000 mm | 0,3-35 mm | 8-14 t/h |

THE REVERSIBLE PTV 100/100 BALLING MILL

Specifications



| | | | |
|--------------------------|-------------------|--------------------|-----------------------|
| ➤ PTV 100/100 | MACHINE WIDTH | MACHINE HEIGHT | MACHINE LENGTH |
| | 2.300 mm | 2.110 mm | 3.000 mm |
| WEIGHT | PRODUCT FEED SIZE | INLET OPENING | FINAL GRAIN NF/NFE |
| 11,5 t | up to 100 mm | 280 x 1000 mm | 0,3-35 mm |
| THROUGHPUT | ROTOR WIDTH | ROTOR DIAMETER | DRIVING POWER |
| 5-10 t/h | 1.000 mm/40 inch | 1.000 mm / 40 inch | 110 - 250 kW |

THE PTV REVERSIBLE 140/100 BALLING MILL

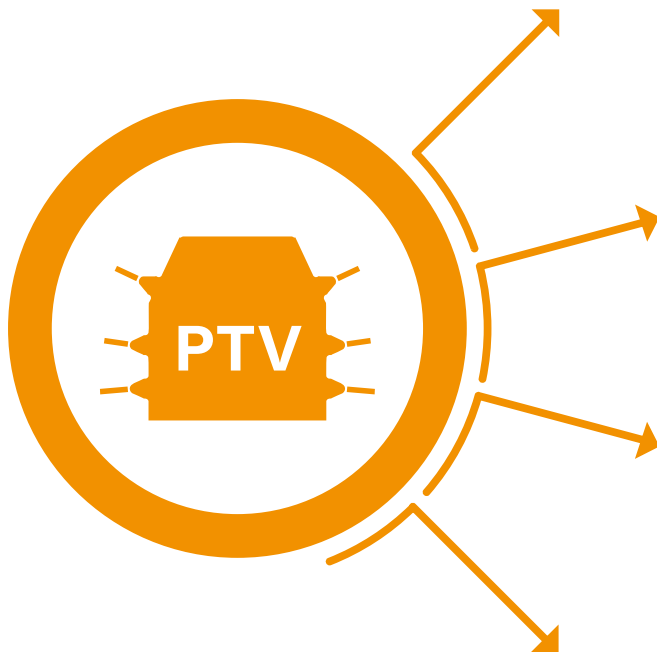
Specifications



| | | | |
|-----------------------------|--------------------------|-----------------------|-------------------------------|
| > PTV 140/100 | MACHINE WIDTH | MACHINE HEIGHT | MACHINE LENGTH |
| | 2.250 mm | 2.565 mm | 3.450 mm |
| WEIGHT | PRODUCT FEED SIZE | INLET OPENING | FINAL GRAIN NF/NFE |
| 15,8 t | up to 100 mm | 200 x 1010 mm | 0,3-35 mm |
| THROUGHPUT | ROTOR WIDTH | ROTOR DIAMETER | DRIVING POWER |
| 8-14 t/h | 1.000 mm / 40 inch | 1.400 mm / 55 inch | 160 - 315 kW |

THE PRALL-TEC BALLING AND SHREDDING TECHNOLOGY

Advantages of the PTV



**Feed size up to 100 mm
(organic also larger)**



**reversible rotor for maximum use
of hammers and all wear parts**



**High level of security, even with core
pieces, thanks to flexible hammers
and optional ballistic ejection**



**High output of up to
10 or 14 t/h**



**Using gravity as an advantage to
process material in one pass**



**Complete delamination and minimal heat de-
velopment despite the application of sufficient
friction and shaping effect**



**Easy maintenance and operation of the
machine as all components are freely
accessible via 4 large doors**



**Low operation costs (OPEX) through low energy
consumption (kW/t of input), high friction de-
velopment, low wear and tear (special material
composition), minimal maintenance.**

PROCESSING AND CONDITIONING OF ASR AND NON-FERROUS

The processing of ASR up to an organic feed size of 250 mm (10 inch)



ASR INPUT MATERIAL



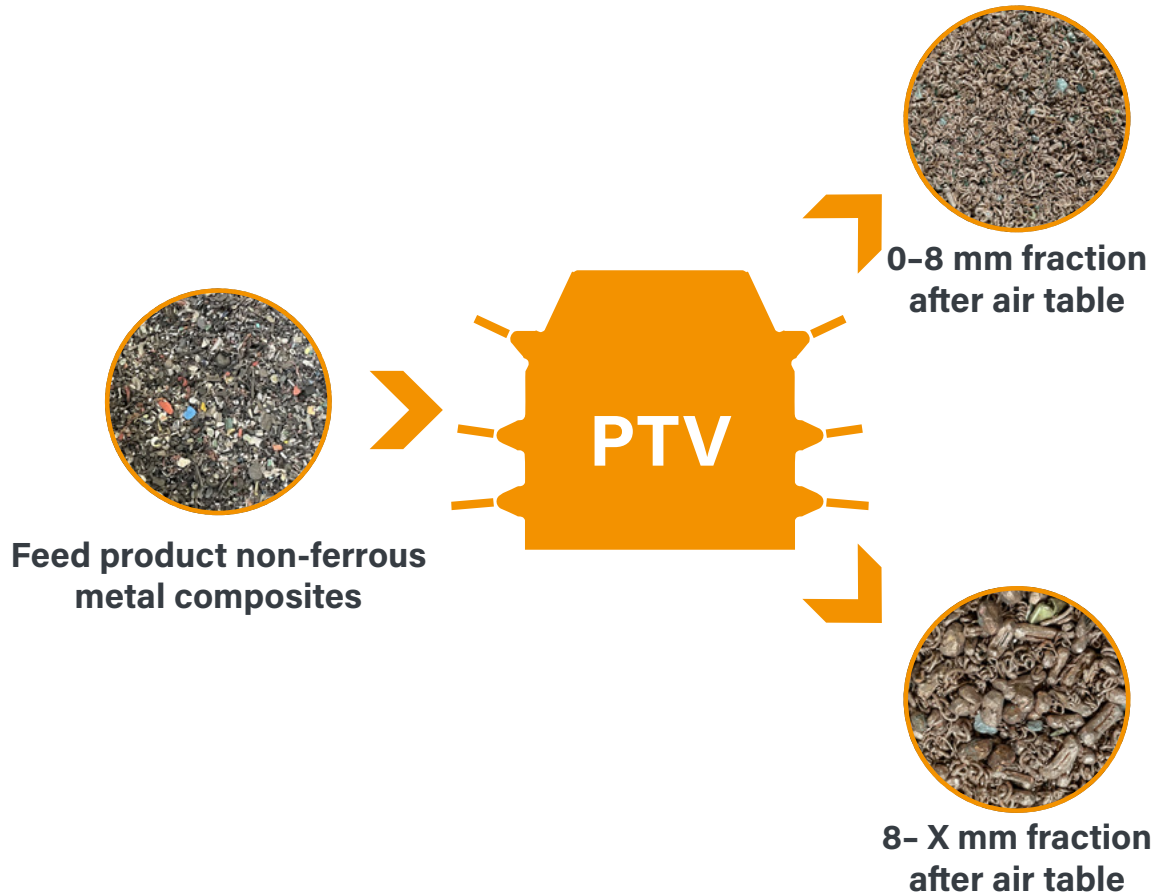
OUTPUT MATERIAL
AFTER PTV AND AIR TABLE

The PTV is particularly suitable for processing ASR. Depending on the desired quantities, the machine can extract the non-ferrous metals from the product directly in one step or in 2 steps (when feed size is over 100 mm) and

ball them up in the process. Light materials are sucked off directly on the machine and the remaining product is then separated into a heavy and light fraction. The individual metals can then be further separated from one another.

REFINING OF NON-FERROUS METALS

The perfect and versatile preparation of non-ferrous metals for subsequent further separation



The PTV can be used to process a wide variety of products and is particularly suitable for preparing the metals for subsequent further separation and processing. After the material has been shaped and balled by the PTV, the various products such as

heavy metals, aluminum and other valuable products can be separated from residues such as rubber and plastic. In this way, pure products can be recovered and returned to the material cycle.

ELECTRONIC SCRAP (E-SCRAP), ASR, IBA AND OTHER PRODUCTS

Recovery of a clean metal fraction from all kind of products



High value recyclable resources such as electronic waste (WEEE), automotive shredder residues (ASR) and electric cables are a significant source of secondary raw materials that can be returned to the circular economy. Our PTV

crushing mill enables the liberation and shaping of copper and other heavy metals from compounds, hybrid material, copper cables, plastic insulation for further separation and direct commercialization with a copper smelter.

RECYCLING APPLICATION TYRE WIRES

Highly efficient separation process with PTV Balling Mill



Tire wires after pre-shredder/granulator but with a large rubber content



Tire wires after PTV - Delamination of wire and rubber in one pass around 99%



Clean wires after sorting



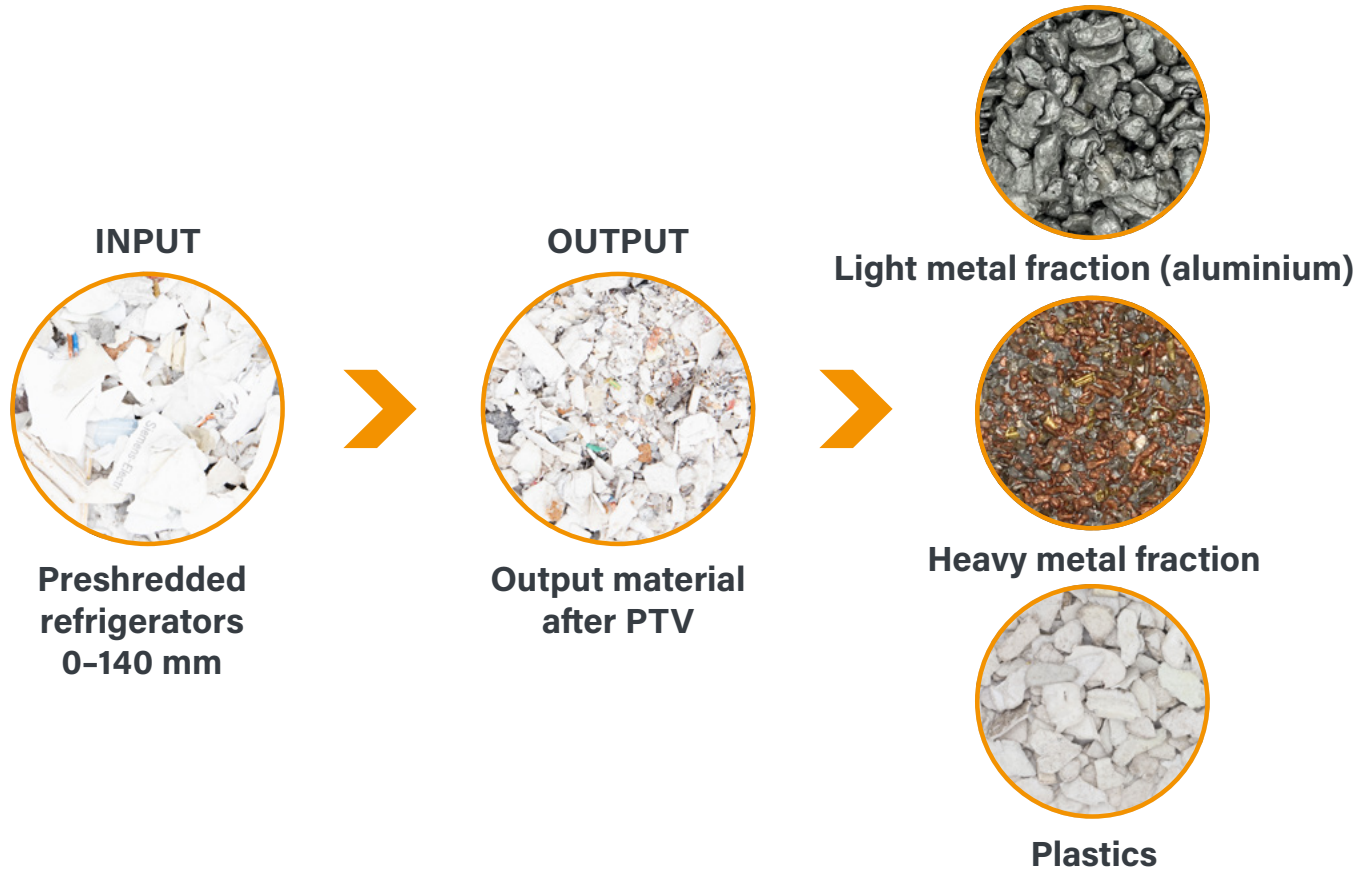
Clean rubber after sorting

Tires are a multi-component product containing natural and synthetic rubbers as well as high-quality steel wire. With our PTV balling mill, we have developed an environmentally friendly, highly efficient separation process for processing scrap tires. As a result, rubber adhesions can be almost

completely separated from the wires. The recycling of scrap tires is also highly profitable with our separation process and contributes to an environmentally friendly return of tire wire to the steel industry.

RECYCLING APPLICATION REFRIGERATORS

Recovery of metals and plastics

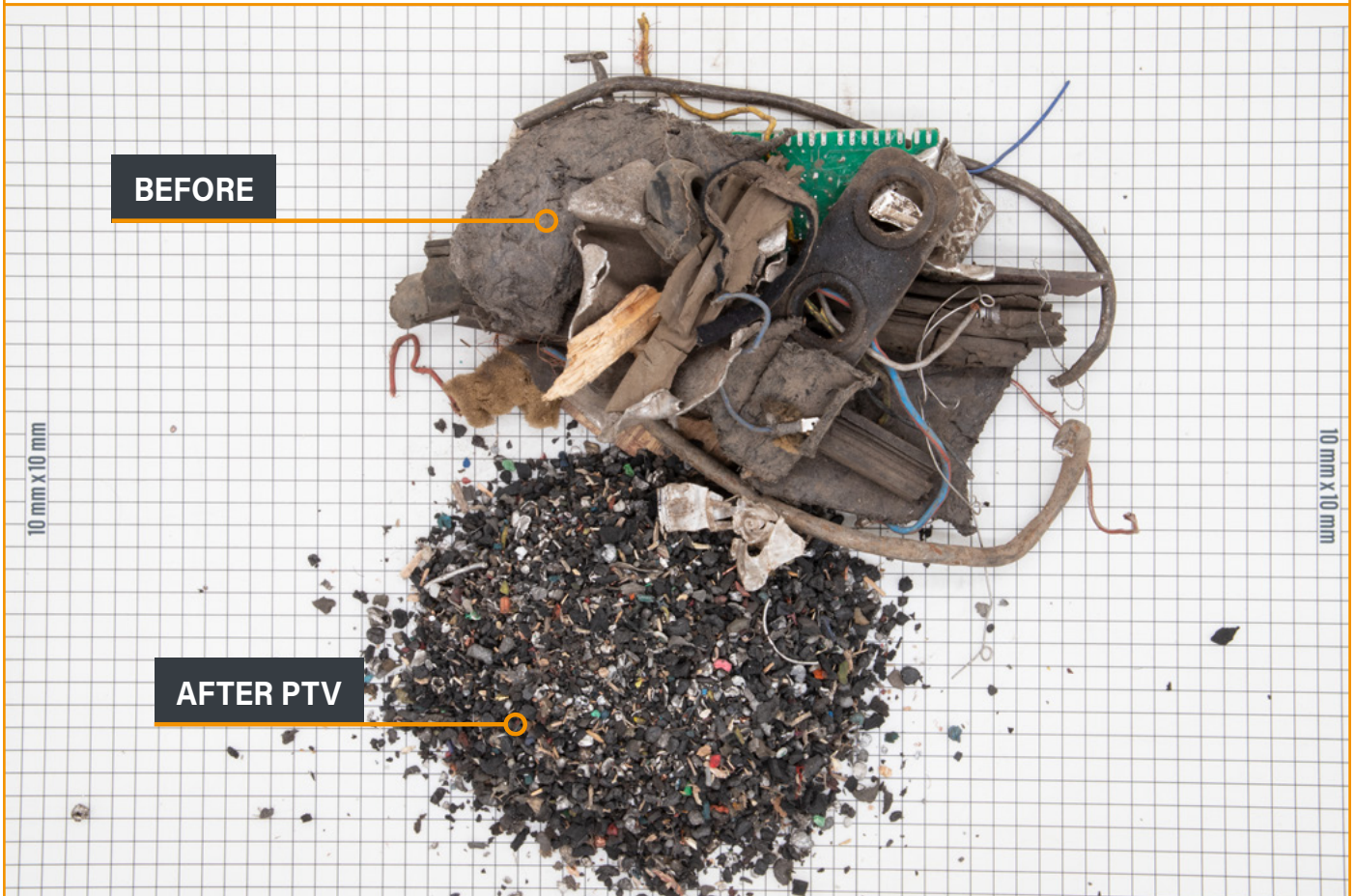


Refrigerators contain around 10% ferrous and non-ferrous metals and non-ferrous metals such as stainless steel, aluminum or copper. After preshredding the refrigerators and removing all liberated metals in a first step, the rest of the material is running through the PTV to separate the compound of materials and to ball shape the metals. Afterwards the

different metals and the plastics are screened into 2-4 different size fractions and further sorted and separated by densimetric tables or ZigZag wind sifters for example. The final products are a clean heavy metal fraction, a light metal fraction and a general light fraction such as plastics.

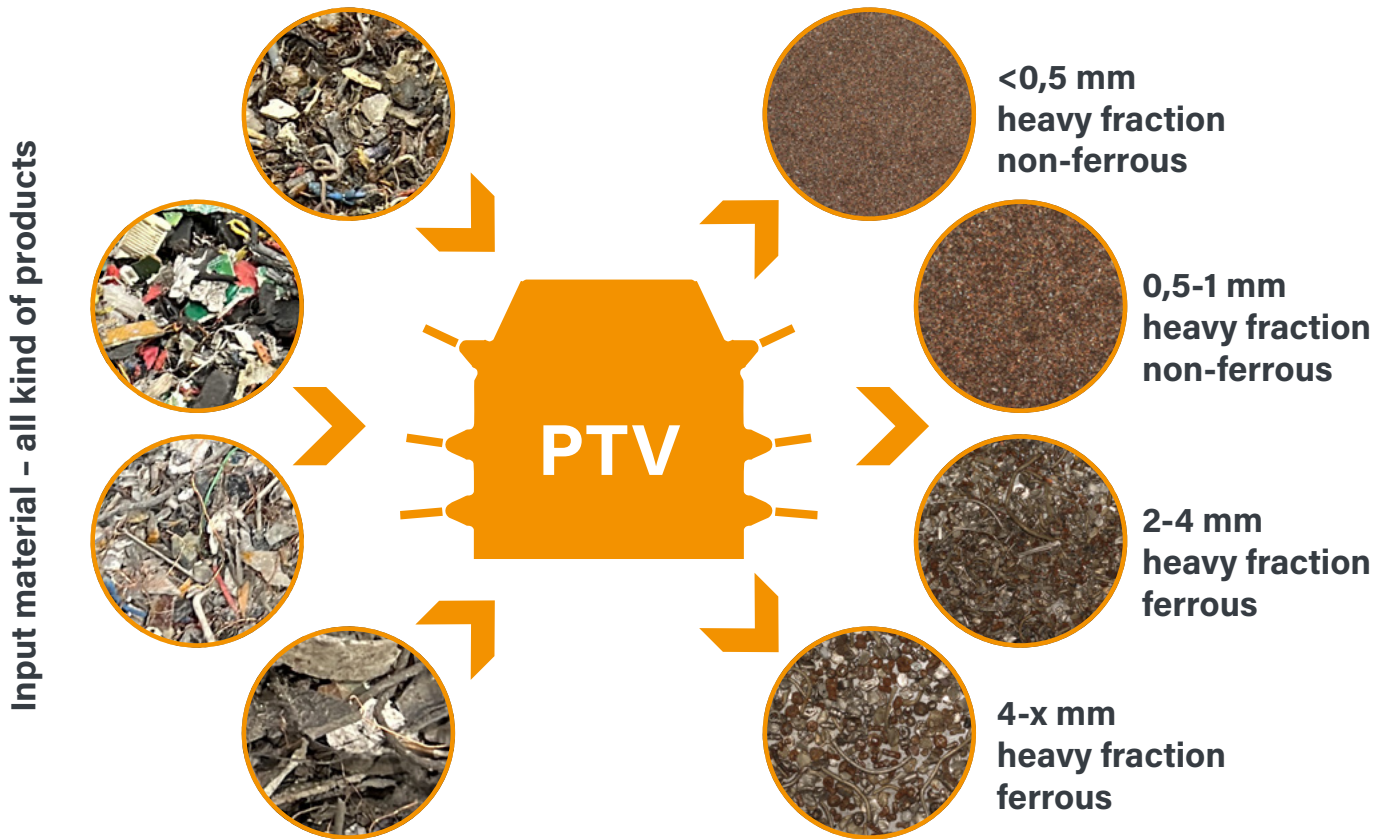
RECYCLING APPLICATION E-SCRAP (WEEE)

In just one pass to an end product without material loop



RECYCLING APPLICATION WEEE

Waste of Electrical and Electronic Equipment



Different products after PTV, screening and sorting of non-ferrous.

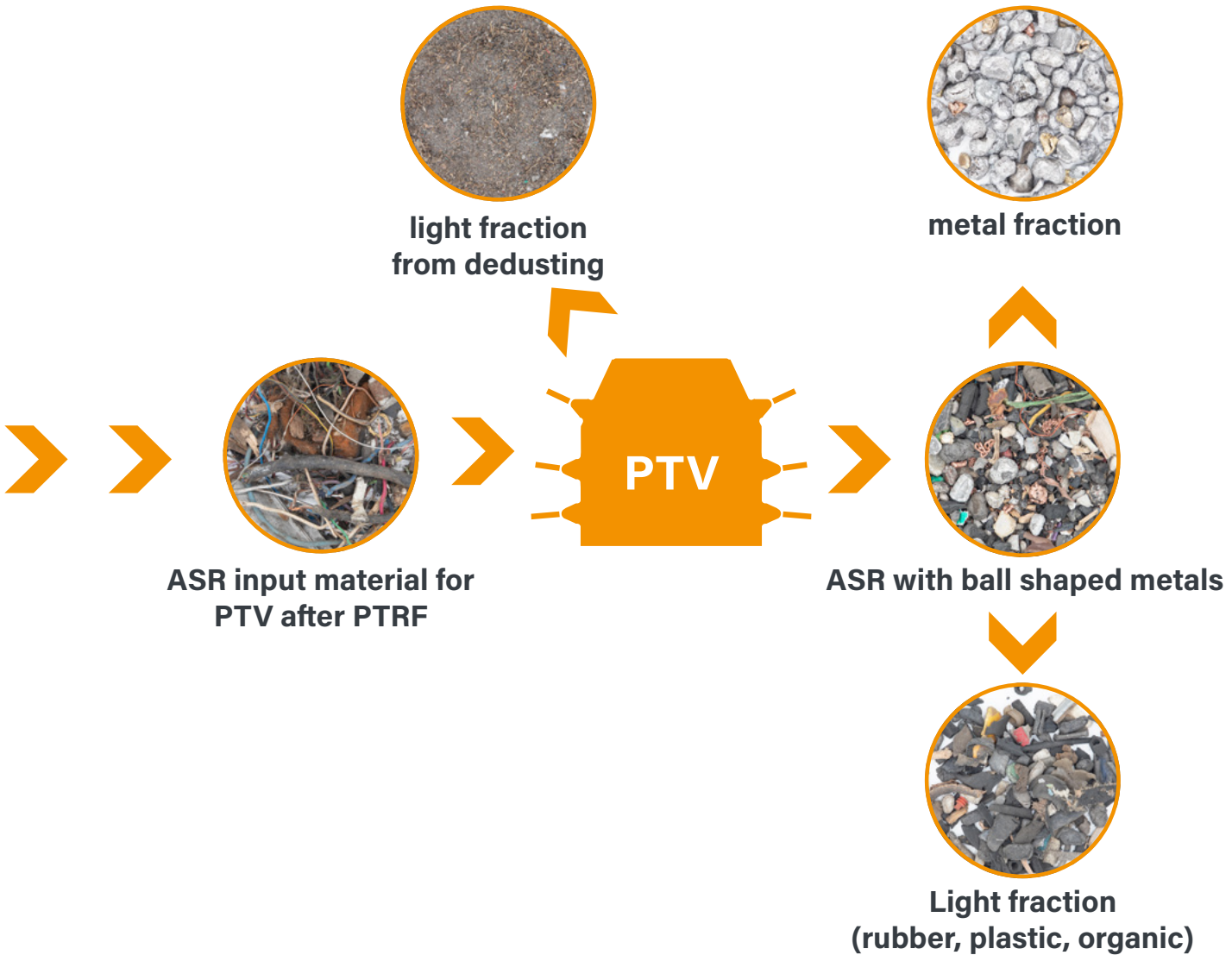
PTRF FINES CRUSHER + PTV BALLING MILL

The solution for large proportions of minerals in ASR



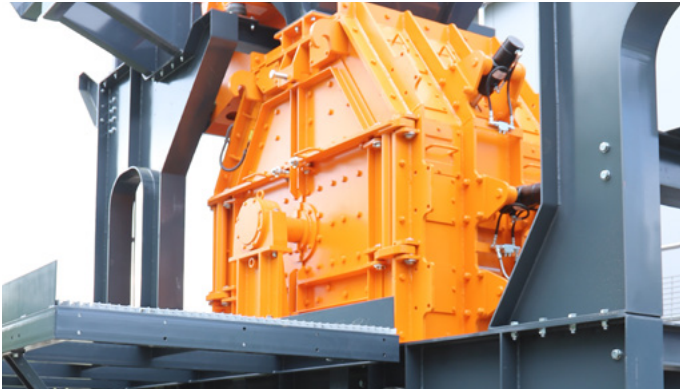
If you have a high proportion of minerals in the ASR, the pulverization of the minerals before further delamination/ balling is a great benefit in order to drastically reduce the operating costs of the entire processing (but especially the balling) and to efficiently increase throughput without running the minerals through the entire system.

For this purpose, the minerals (stones, concrete or glass) are crushed by the PTRF below 1.5mm (about 95-97%) in one pass and can then be separated by screening or windsifting. Metals, rubber, organics and other substances are not crushed by the PTRF and are then processed in the PTV to ball and shape the metals.



TEST YOUR PRODUCTS

We offer you individual tests with your products!



Do you want to get the most out of your metals? We would be happy to show you the machine with your material and check what metal content your products contain. The system includes a PTV 100/100 with a 200 kW electric drive to carry

out a real life test. In addition to the PTV, other machines can be used for testing to pulverize minerals, break up ashes or slag or various other applications.



**Representative PTV tests
for all materials**



**Further tests with other
separation systems are
possible**



**Tests on an industrial scale
in a real life scenario**



**detailed analysis and
reporting**

CIRCULAR ECONOMY AND RECYCLING FOR MORE SUSTAINABILITY

Recycling has always been a very big topic for us, today more than ever, but the sense of responsibility for raw materials is also growing all over the world. We are proud to be able to make a major contribution to the circular economy together with our customers.



CORPORATE SUSTAINABILITY

A Sustainably Operating Mechanical Engineering Company

PRALL-TEC



Frederik Teepe

CEO Prall-Tec GmbH



CO2 emissions, climate change, recycling and sustainable raw materials are more important today than ever before and so we at Prall-Tec try to make a contribution to a cleaner world and at the same time create a profitable business for our customers.



Sustainability is a central theme throughout the company, which is why we position ourselves as a sustainable mechanical engineering company. Our efficient recycling technology enables us to recover valuable raw materials, conserve CO2 emissions, climate change, recycling and sustainable raw materials are more important today than ever before

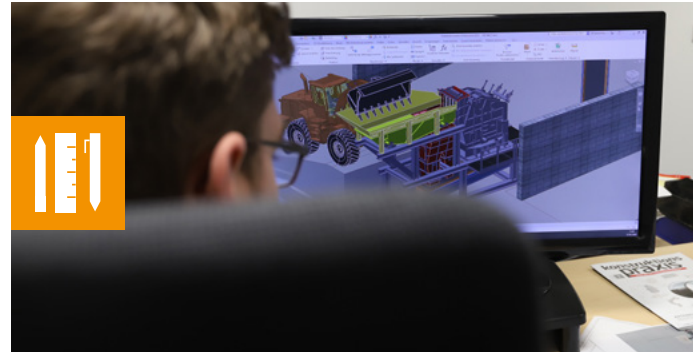
and so we at PrallTec try to make a contribution to a cleaner world and at the same time create a profitable business for our customers natural resources and significantly reduce greenhouse gas emissions. We thus make a major contribution to promoting the circular economy and ensuring the environmentally compatible management of waste.

SERVICES

Overview of the Various Services

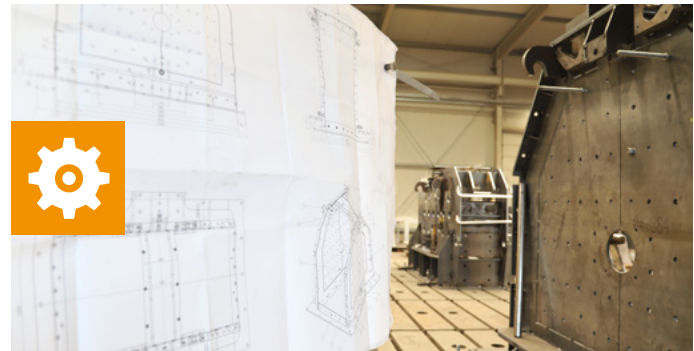
Construction and Development

From the rotor to the complete recycling plant, we design and develop all our machines and plants in house, prioritizing the wishes and ideas of our customers and incorporating them into the planning. This close cooperation has resulted in various machines for the preparation and processing of a wide range of materials.



Mechanical and plant engineering

Planning, design and construction from a single source. From material feed to screening, whether a production of 20 to 200 tons per hour, quarry, or recycling yard - we fulfill your wishes.



Assembly and service from the manufacturer

The most important thing for us is a well functioning and producing machine at all our customers. If there is sudden damage to your rotor or the plant, this repair has the highest priority for us. Spare parts are permanently in stock to ensure a high availability of your machines. A qualified assembly team takes care of the quick replacement or repair of the components on site.



GET MORE INFORMATION

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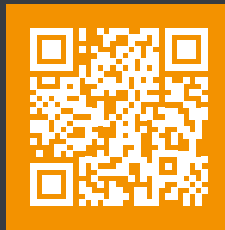
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THE COMMON GOAL OF DEVELOPING NEW SOLUTIONS WITH OUR CUSTOMERS AND PARTNERS, WHICH WILL SET NEW RECYCLING STANDARDS IN THE FUTURE.

““

**FURTHER
INFORMATIONS**



PRALL-TEC

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