Small Domestic Appliances and IT – Treatment concepts

WEEE KNOW HOW

www.URT-RECYCLING.com

cable recycling

battery recycling

toner recycling

hazardous waste disposal

harmful substances

DEFINITION IT

Under the heading „IT“, URT is summarizing all the components of WEEE collection group 3 coming from the electrical and electronic waste. In addition to information and telecommunications equipment such as telephones, cell phones, fax machines, printers, copiers and computers, all devices in the field of consumer electronics such as video recorders, CD / DVD players, game consoles and digital cameras are concerned, too. In practice, devices coming from this collection group are often treated on plants together with small domestic appliances. This can take place either in mixture or separately in batch mode. Depending on the design of the plant, for example, a differentiated treatment of the materials will be possible. Screen devices belonging to this collection group, as for example televisions or computer monitors require a separate treatment.

Small domestic appliances and IT significantly contribute to the total amount of electrical and electronic waste. While the increase of big domestic appliances, such as refrigerators, will be analogue to the development of the number of households, e.g. the equipment level of German households increased significantly in recent years regarding communication and entertainment electronics and very rapidly at mobile phones, but their low individual weight relativizes the total volume. This development is the fact why the replacement intervals of electrical appliances and their effective use are becoming shorter and shorter.

hazardous material

motors, transfomers

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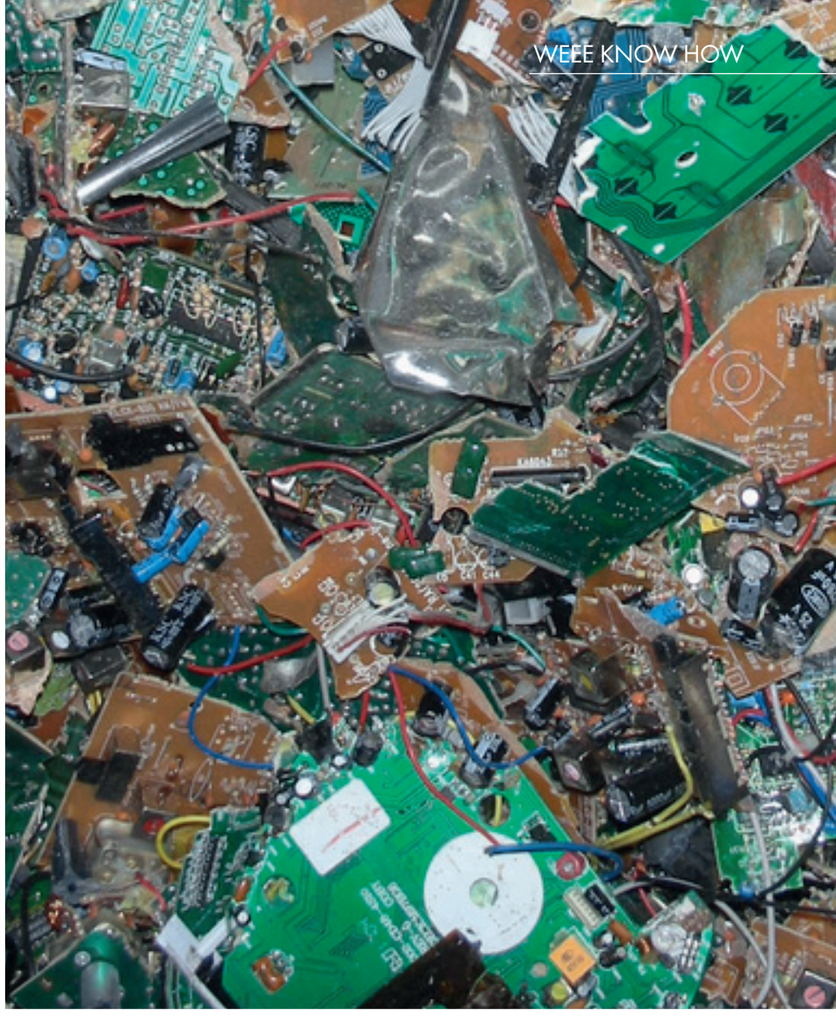

printed circuit boards

DEFINITION SMALL DOMESTIC APPLIANCES

Under the heading „small domestic appliances“, we summarize all the components of WEEE collection group 5 from the electrical and electronic waste. In addition to domestic appliances such as vacuum cleaners, coffee makers, toasters, irons or microwaves, also sports and leisure equipment, electric toys as well as electric and electronic (hand) tools are to be added. URT has specialized in the design and construction of complete, mechanical primary treatment plants for this collection group and offers individually tailored plant configurations with different sorting depth, which can also be linked modularly.

PRE-REMOVAL

In order to achieve best possible fraction results from the subsequent mechanical treatment and to meet country-specific existing statutory provisions, pre-removal of electrical and electronic appliances takes place before feeding into the mechanical treatment plant, designed by URT. In this case, for example, toner cartridges from printers and fax machines, hard disks and media from computers and devices for consumer electronics, glass parts and vacuum cleaner bags from domestic appliances as well as rechargeable batteries and batteries are hand-picked, external cables and plugs are removed. Furthermore, impurities contained in the material and visible massive interfering objects are sorted out.

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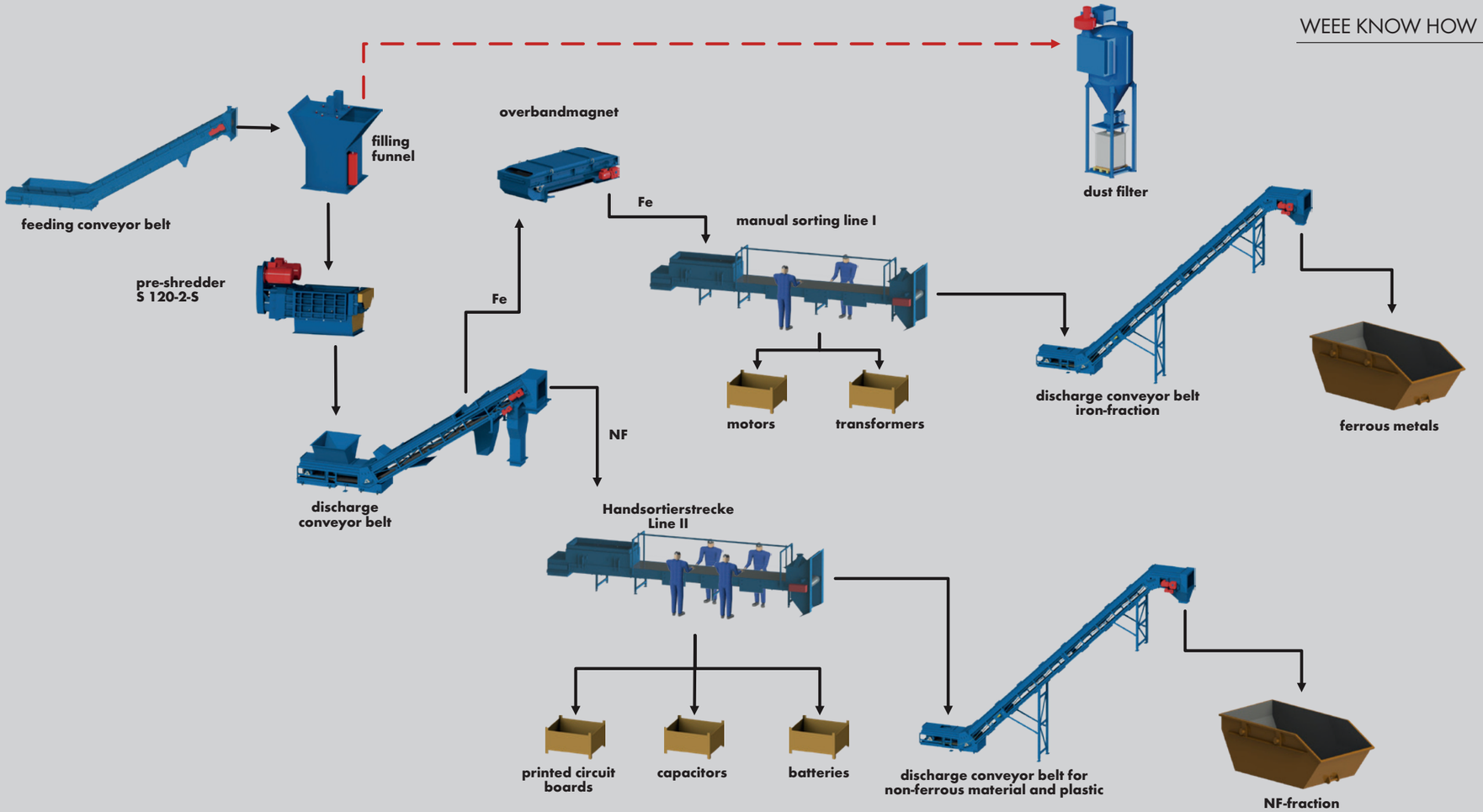

TREATMENT CONCEPT STEP I

After corresponding pre-removal, the input material is delivered to the mechanical URT treatment plant. This is usually done with bunker systems or by continuous feed, e.g. by a feeding conveyor belt. The heart of this step I system is a robust, twin-shaft rotary shear with special cutting device design. This shear has correspondingly large free spaces between the cutting tools, so that pretreated individual fractions can pass undestroyed through the cutting device. This is absolutely necessary at this point of process in order to remove subsequently parts and to meet also country-specific directives in force with regard to the removal of harmful substances. The shredding plant here is primarily used as a case opener and is mainly responsible for a good material separation of individual fractions in this first mechanical treatment step. Subsequently, the material flow is divided by a large overband magnet which is arranged above the discharge belt of the shredding plant. The ferrous fraction obtained in this way will be the first material fraction which can be sold directly. Only copper coils and transformers are taken from the Fe-sorting belt.

A much more intensive manual sorting takes place on the non-ferrous side. Depending on the design of further process, single fractions are here specifically sorted out as for example printed circuit boards. But also internal cables and harmful substances such as capacitors, batteries, rechargeable batteries and impurities, primarily wood, paper and foils can be removed. The fraction remaining at the end of this sorting line is rich of reusable material and suitable for further processing or marketing.

In order to meet even more requirements of different input materials, the overband magnet separator described above can optionally be designed as electromagnet as well. After switching off, the complete pre-shredded material stream is then passing the actual sorting line.

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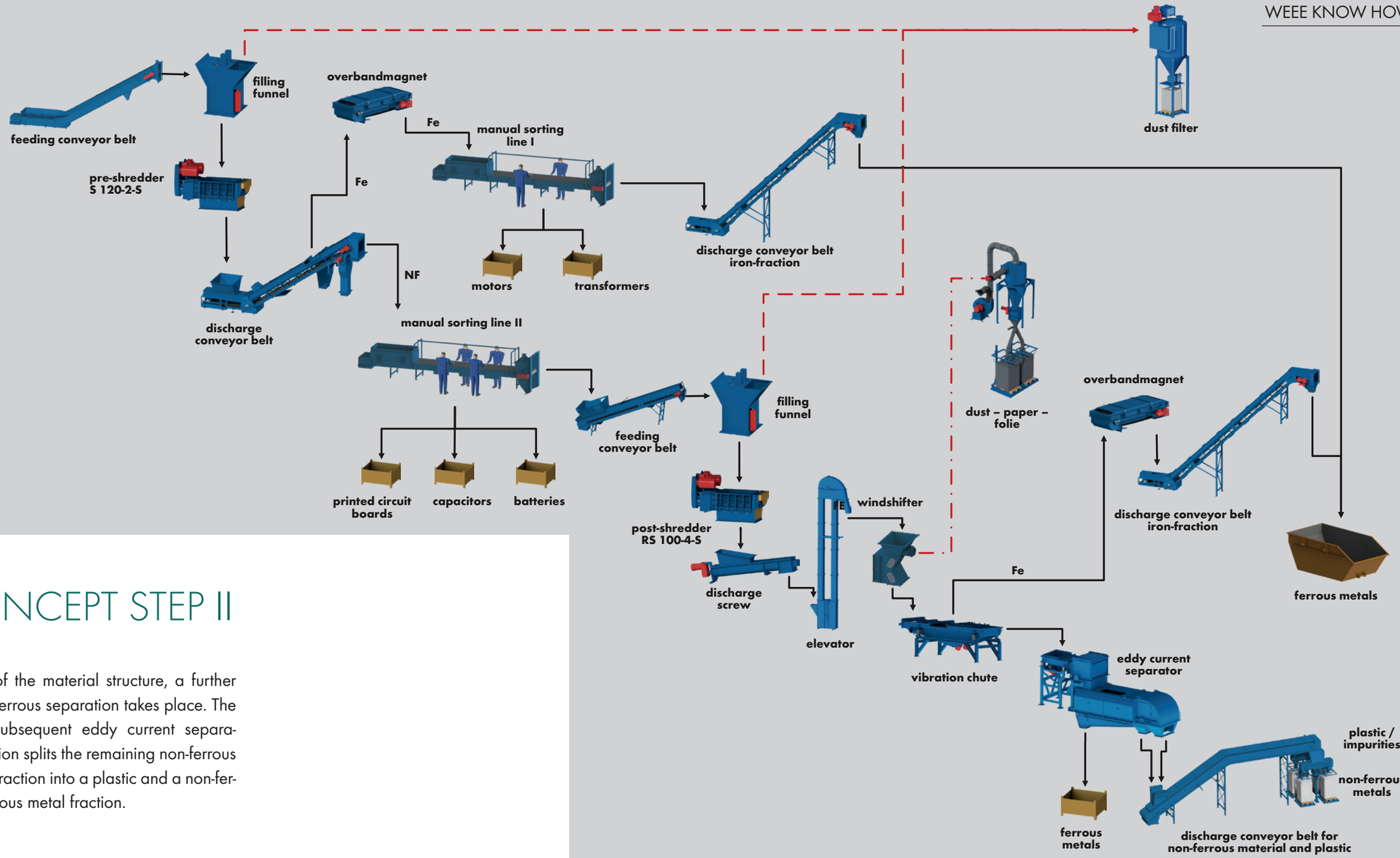
TREATMENT CONCEPT STEP II

After the input material was pre-treated in step I of the URT treatment plant, the remaining material stream passes a slow speed four shaft rotary shear, type UNTHA, with screen in step II for further treatment first. After shredding and the combined separation of the material structure, a further ferrous separation takes place. The subsequent eddy current separation splits the remaining non-ferrous fraction into a plastic and a non-ferrous metal fraction.



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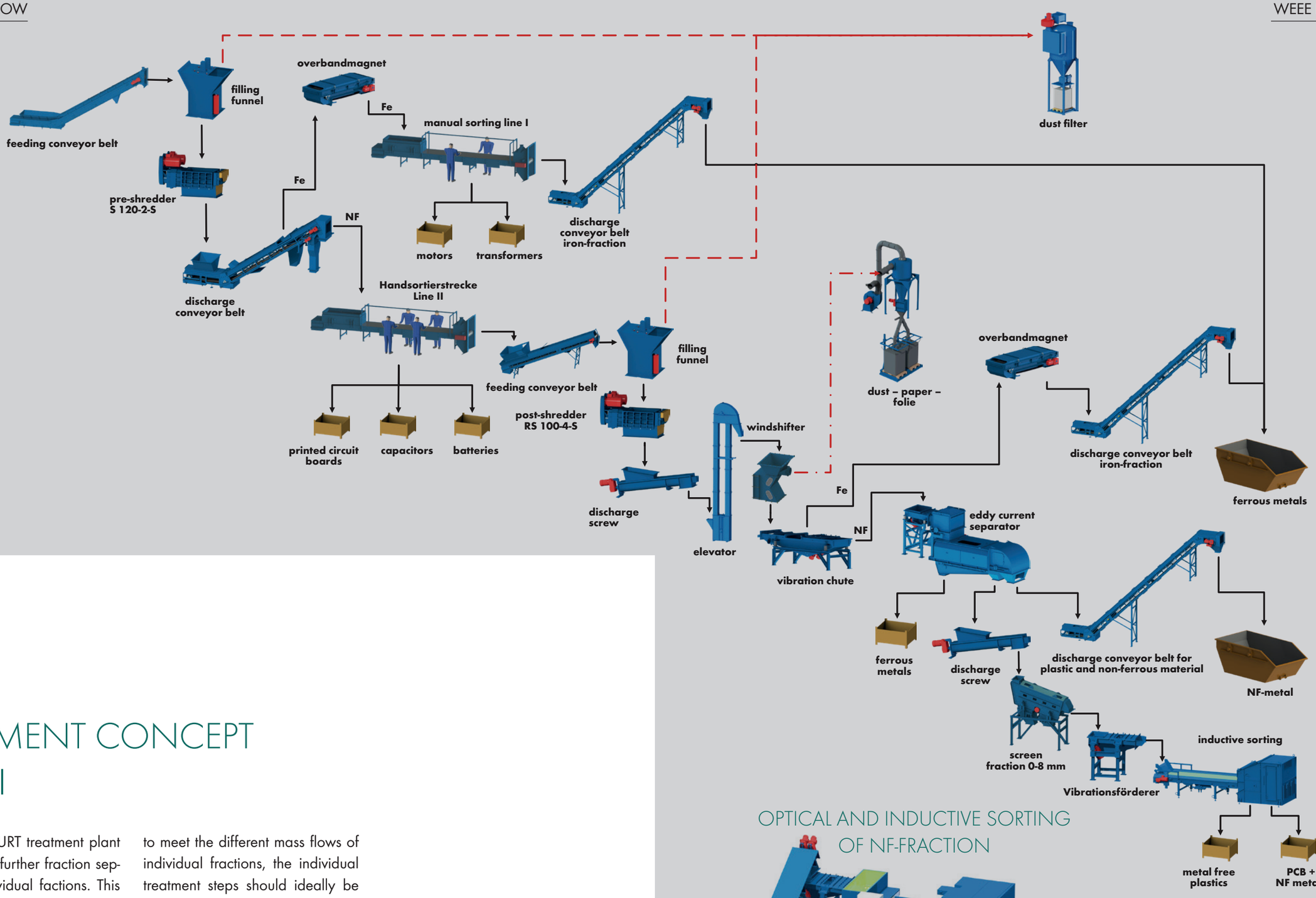
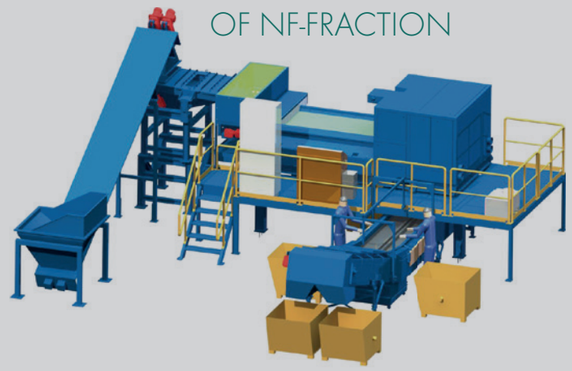
TREATMENT CONCEPT STEP III

Step III of the URT treatment plant is provided for further fraction separation of individual factions. This can be achieved for example by an additional shredding step. In addition a wind shifter unit, screening and inductive as well as optical sorting inductive methods are available. As a result, metal-free plastic fractions are generated. To ensure high flexibility in the system and to meet the different mass flows of individual fractions, the individual treatment steps should ideally be combined „offline".



OPTICAL AND INDUCTIVE SORTING OF NF-FRACTION



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