STEINERT
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Non-Ferrous Metal Separator NES

Eddy Current Separator

Shredder material • municipal waste • incinerator ash • Foundry sand • Glass • Electronic scrap • Wood chips • Batteries

The mechanical recovery of non-ferrous metals is the economic basis of all recycling – and the **STEINERT** Eddy Current Separator with Eccentric Pole System fulfills the associated requirements perfectly! High yield and long life are the qualities that make for assured, long-term operating result.

The non-ferrous metal separator can be used wherever non-ferrous metals have to be recovered or separated, e.g. where shredder material, municipal waste, incinerator ash, electronic scrap, wood chips, glass, batteries or foundry sand are processed.

Application

Shredder material:
Light and heavy shredder fractions contain substantial non-ferrous metals. Up to five percent non-ferrous metals are contained in the light fraction – valuable materials which, even today, often end up in the landfill. The heavy fraction is dry-processed to recover

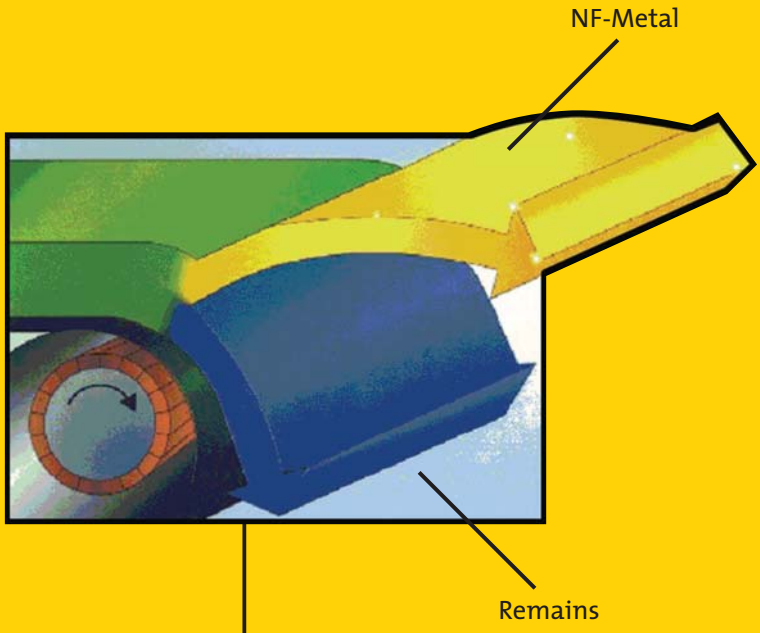
clean, salable non-ferrous metals after screening and magnetic separation. If a wet process like flotation sorting is used, the non-ferrous metal separator recovers a clean aluminium concentrate from theflotation product.

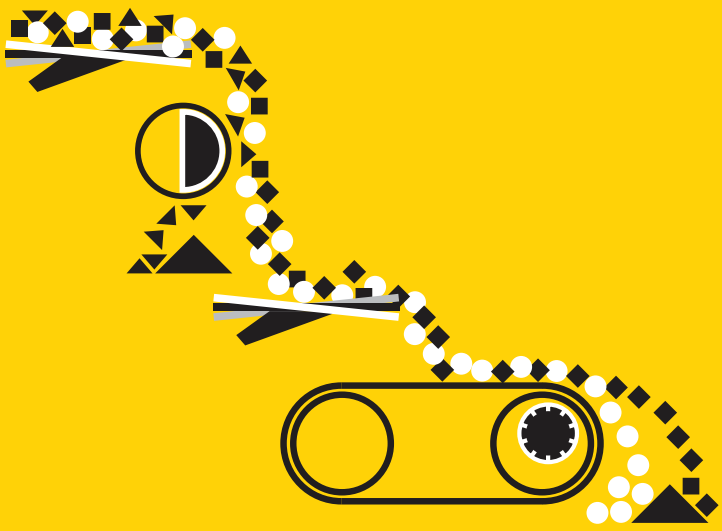
Refuse processing:
Non-ferrous metal separators are used to recover metal packaging from municipal waste. Other areas of application include compost, glass, and paper processing and the recycling of refuse incineration ash – for both the maximum recovery of valuable metals and for metal-free products.

Other potential applications:
Metal-free scrap wood is becoming more important as an alternative fuel and a raw material for the derived timber products industry. The **STEINERT** non-ferrous metal separator also demonstrates especially high capabilities in the processing of electronic scrap, cables, printed-circuit boards and foundry sands. Even finely divided non-ferrous metals with grain sizes down to 1 mm can be separated thanks to the eccentric system.

Principle

A non-ferrous metal separator basically consists of a short conveyor driven from the feed end. A rapidly rotating system of permanent magnets – the pole system – which generates high-frequency changing magnetic fields, is incorporated in the head drum. These fields create strong eddy currents in the non-ferrous metal parts, in which their own magnetic fields, opposing the external fields, now build up. The NF-metal parts jump out of the remaining material flow. **STEINERT**'s patented eccentric pole system guarantees the maximum efficiency in this process, delivering top-quality separation and long-term operation!





Technology

The **STEINERT** innovation: The patented, eccentric magnetic pole system! Thanks to the magnetic pole system mounted eccentrically in the head drum of the **STEINERT** non-ferrous separator, the effect of the changing magnetic fields is concentrated exactly on an area within which the material is most effectively subject to the forces. The pole system can be adjusted so that this position can be changed in order to have the maximum effect on the discharge parabola, and further amplify the effect of the forces. In the concentric pole systems offered by our competitors, the effect of the magnetic field is frequently felt too early, causing the non-ferrous metals to prematurely eject from the magnetic field, resulting in inadequate deflection and poor recovery. The eccentric pole system, in contrast, ensures that the magnetic field is maximumized only at the moment of separation, and that no magnetic field is generated at other positions on the belt drum. Residual ferrous metals cannot adhere to the head drum, which means that wear on the belt and the self cleaning drum shell are reduced to an absolute minimum – another important difference from the concentric system. **STEINERT** achieves its extraordinary separation results thanks to the use of neodymium-iron-boron magnets, a thin conveyor belt and an electrically non-conductive drum shell made from fibre-reinforced composite materials. Together, these features ensure maximum field strength and exact, efficient separation. The eccentric pole system is also protected by a sealed cover of stainless steel.

Design: Normally, the bulk density increases with decreasing particle sizes. This increases the importance of the mass throughput. For coarse and light materials, the working width is determined by the volume-related throughput. Deep, medium-frequency fields are required for these types of material. Fine grained material requires less extensive, but higher frequency fields. All these are available in **STEINERT**'s patented eccentric design.

Models

STEINERT offers by far the widest range of non-ferrous metal separators. This guarantees finding the most cost effective solution for every application! The wide range of models is based on three series of units with special magnetic pole systems and working widths ranging from 400 to 2000 mm (16“- 80“).

The Small **Series 36** is suitable for coarse, light material with grain sizes greater than 15 mm (5/8“) and low volume. The separation of beverage cans (UBC) is a typical application.

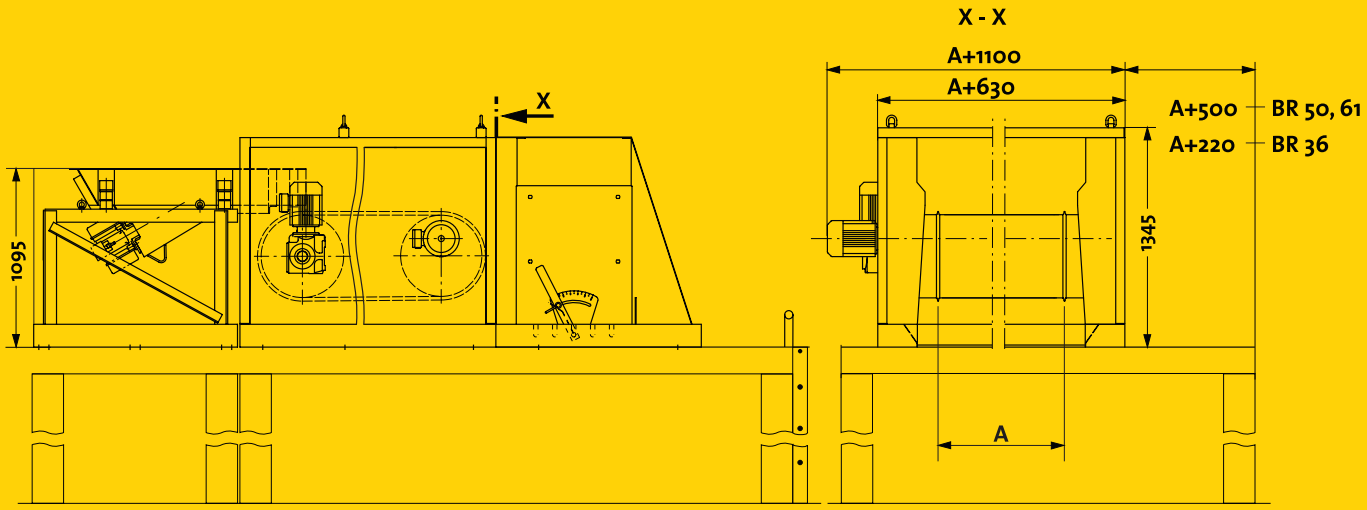
The Standard **Series 50** functions with medium grain sizes – larger than 5 mm – and with high throughputs.
The selectivity is also higher than that of the Small Series and additionally offers the plant operator security in case of variations in throughput and materials – smaller packaging and composite materials can be reliably recovered. The separation of shredder non-ferrous fraction is a typical application.

The **Series 61** is optimally used with particle sizes of 1 to 20 mm. It ensures the highest yields of metals, from fine materials usually considered inseparable. Typical applications include the fine fraction of shredder waste or old foundry sands from the aluminium industry.

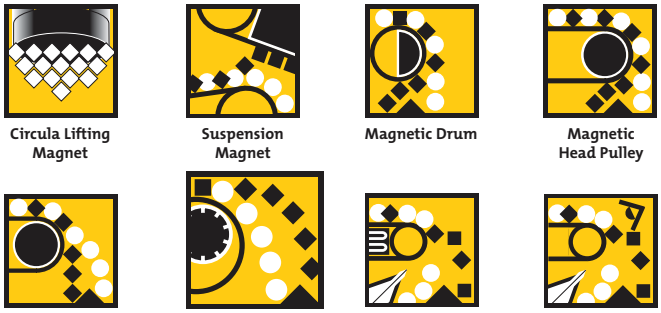
To ensure maximum cost-benefit ratio, **STEINERT** also offers special belts, discharge arrangements and controls specially designed for the respective applications. The optional rotary splitter, for example, improves the discharge of long, stringy materials. Available controls make it possible to link the unit to a central plant control or utilize the rotation of the rotor

to drive the belt in the event of a power cut. This is one way to avoid damage to the drum shell.

STEINERT engineers have developed tried and tested special solutions in intensive cooperation with customers. For example, the so-called pole fed system is used to separate non-ferrous heavy metals and aluminium by shape. This involves reversing the direction of rotation of the magnetic pole system. The separation immediately occurs after the vertex of the head drum. Compact, spherical parts caused to rotate by the magnetic pole system and roll in the opposite direction of the belt travel into the discharge beneath the pole drum. Flat or wire-shaped parts, in contrast, are discharged in the belt direction of travel.



Approx. dimensions in mm.



Typs A	Serie BR	Working width A
		mm/inch
NES...40	36	400/16
NES...50	50/61	500/20
NES...60	36	600/23
NES...75	50/61	750/30
NES...80	36	800/31
NES...100	36/50/61	1000/40
NES...125	36/50/61	1250/50
NES...150	36/50/61	1500/60
NES...200	50	2000/80

Our R&D department is glad to conduct tests of your material.

Steinert Elektromagnetbau GmbH

Widdersdorfer Str. 329-331
D-50933 Köln

Tel: +49 (0) 221 / 49 84 0
Fax: +49 (0) 221 / 49 84 102

E-mail: sales@steinert.de
www.steinert.de

STEINERT
www.steinert.de

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