

# EQUIPMENT FOR RECYCLING

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more than  
**30**  
YEARS of the experience  
and  
the innovations





Scientific and manufacturing firm "Prodecologia" was founded in July 1993. During its existence the company has become a leader in the CIS and Eastern Europe countries in the design and manufacture of magnetic, electrostatic (corona and tribo), eddy current separators, metal detectors and magnetic mud clarifiers.

The products of the firm is delivered to 48 countries of the world, to the companies of 58 specialized branches and sub-sectors for the extraction of metals from electrical cable wastes, WEEE, PCB's; separation of mixtures of polymers; enrichment of ores and nonmetallic materials; separation of slags from metallurgical production, solid industrial and domestic wastes; prevention of metal contaminants entering foodstuffs in the process of their production; protection of technological equipment from breakdowns; enhancing porcelain whiteness; increasing the quality of tires, chipboard, cement, refractory materials, glass; technical water purification.

The accumulated experience combined with the focus on advanced world-leading technology engineering and manufacturing of magnets, company's being provided with modern equipment, the use of components from the best world producers - all this enables the production of reliable, high-quality, high-performance, efficient and energy-saving goods, distinguished by simplicity of design and exploitation.

Unique scientific developments of the company, high engineering and technological level, cooperation with research institutes give an opportunity to compete with world manufacturers of similar equipment.



Electrostatic separators type EBS production of SMF "Prodecologia" are certificated on the territory of European Union in accordance to Directives 2006/42/EC, 2004/95/EC, 2006/108/EC.

On state of 01.01.2023 the company received 108 patents for inventions and utility models in Ukraine, Russia, Belarus and Poland.

In 2007 a certificate of scientific discovery was received.

New direction of the company is the design, manufacture and supply of complex lines for recycling of polymers, electric cables, printed circuit boards, electronic equipment (WEEE), etc.



Latest developments - NIR separators for sorting multicomponent polymer mixtures and separators of light fraction SLF for removal of films and dedusting of bulk products by air flow.

Specialists of the company are ready to test samples of various products in the laboratory of our company in order to determine the possibility of efficient separation.

*more than*  
**30**  
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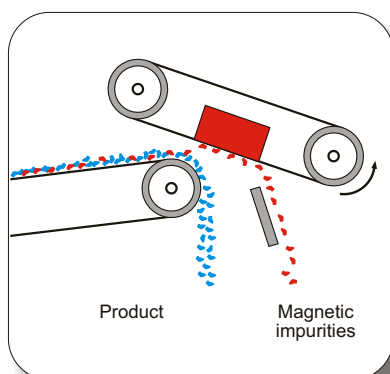
# Plate magnetic separator PN-A



## Intended use

Designed for automatic extraction of ferromagnetic impurities and iron-containing objects from various materials moved by a belt conveyor.

## Scheme of the separator



## Design features of the separator

- Mounted above the conveyor belt at a distance of 100-350 mm, depending on the height of the layer of material to be processed.
- Automatic cleaning of the separator from magnetic objects and impurities.
- Manufactured using both ferrite and high-energy neodymium magnets (Nd-Fe-B).
- Magnetic induction on the working surface of the separator from 150 mT.
- Does not require electricity to generate magnetic field.
- Stable magnetic properties and easy operation.
- Components of the world leading companies (Nord, SKF, FAG).



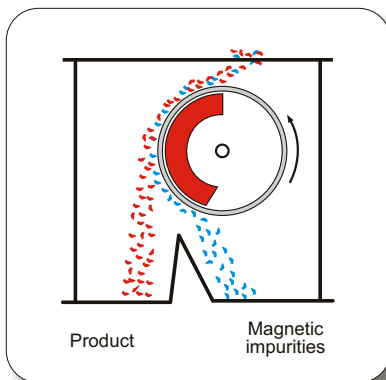
# Drum magnetic separator BS



## Intended use

Designed for cleaning various materials (products) from fine magnetic particles.

## Scheme of the separator



## Design features of the separator

- Available with drum diameters from 200 to 400 mm.
- Available with both ferrite and high-energy neodymium magnets (Nd-Fe-B).
- Magnetic induction on the working surface of the separator from 120 to 750 mT.
- Automatic cleaning of the separator from magnetic objects and impurities.
- Has an upper system for feeding the product through the input hopper or using a vibrating feeder.
- Components of the world leading companies (Nord, SKF, FAG).



# Electrostatic separators EBS (corona)

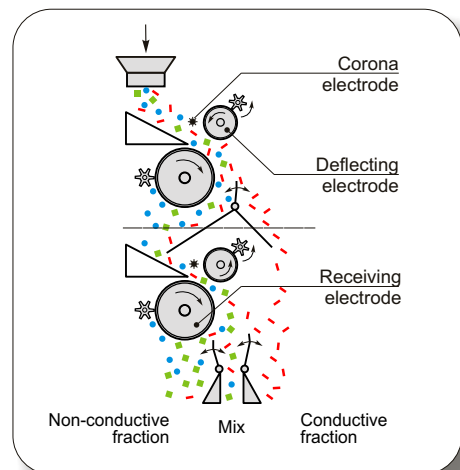


Scheme of the separator

## Intended use

Intended for dry high-efficiency separation of materials, that differ in electric properties:

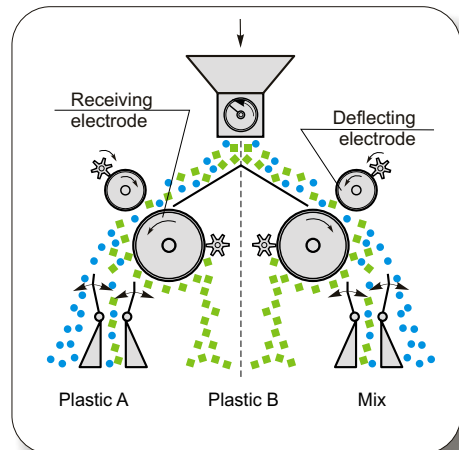
- mixtures of plastics and metals, including shredded cables, into metal (copper, aluminium) and non-conducting material (plastic);
- mixtures of different materials upon condition that one of the components has conducting characteristics (among them extraction of textile cord from rubber crumb in the processing of used tires);
- shredded WEEE (including PCB's) into metal (aluminium, copper, nickel, bronze, precious metals and other) and non-conducting material (plastic, textolite, fiber-glass plastic and other).



# Electrostatic separators EBS-T (triboelectric)



Scheme of the separator



## Intended use

Intended for dry separation of mixture of polymers\* by the electrical properties, in particular: PVC hard + non-conductive rubber + PVC soft + EPDM (ground window profile), PVC + PE (granulated cable insulation), PET + PVC (crushed PET bottles), PET + PE (food packaging, containers), ABS+PS (crushed WEEE), PP+PE (plastic bottles and caps) and other mixtures (PVC + glass, PS + PP, PS + PC, PS + SAN, ABS + SAN, ABS + PVC, PET + PP, PE + PS).



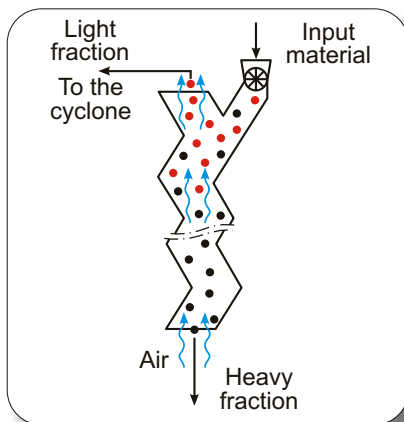
# Separator of light fraction SLF



## Intended use

It is intended for removal of films and dedusting of bulk products by air flow.

## Scheme of the separator



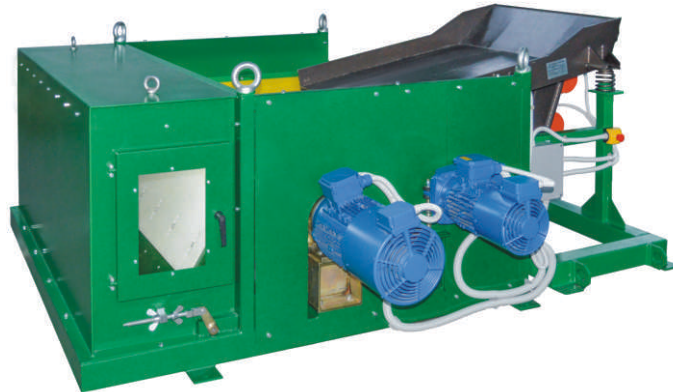
## Design features of the separator

- The size of the material to be separated is  $-50+0$  mm.
- Maximum air consumption - 1000-20000 m<sup>3</sup>/hour.
- Capacity for product with bulk mass:
  - up to 0.3 t/m<sup>3</sup> - 150-6000 kg/h;
  - up to 0.6 t/m<sup>3</sup> - 700-12000 kg/h;
- If needed, the separator can be equipped with additional options for automatic feeding of material for separation and unloading of separated materials into big-bags.





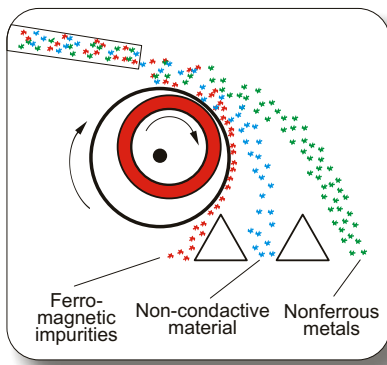
# Eddy current magnetic separator VS



## Intended use

Designed for extracting non-ferrous metals from non-electrically conductive material.

## Scheme of the separator



## Design features of the separator

- The fiberglass drum shell is protected from the ingress of metal impurities, cullet and other contaminants using a special conveyor belt with plug-together side corrugations.
- Adjustable speed of the conveyor, from 1 m/s to 2.5 m/s.
- Adjustable rotation speed of the magnetic drum, from 1000 rpm to 3000 rpm.
- The original magnetic system ensures efficient extraction of metals fraction of 3 mm or more.
- Components of the world leading companies (Nord, SKF).
- Capacity, per 1 m of working width, -0.9 – 21.5 t/h.



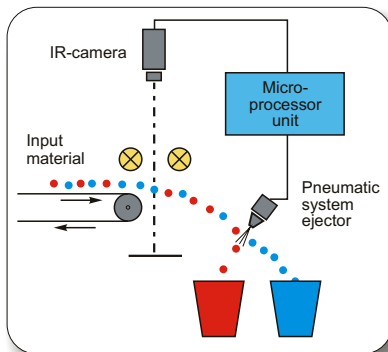
# NIR separator Sterkh-N



## Intended use

Designed for sorting multicomponent polymer mixtures by type of polymers using near-infrared radiation.

## Scheme of the separator

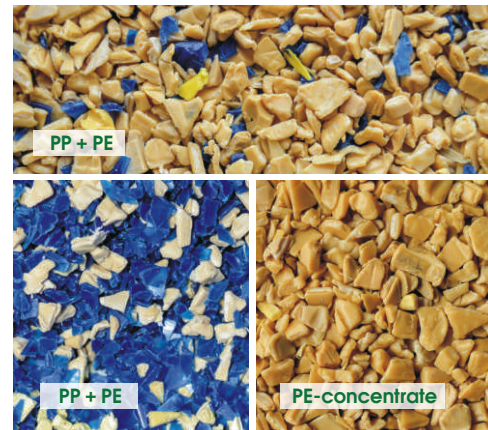
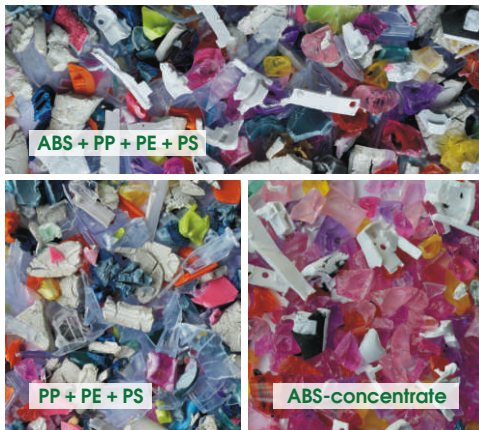


## Design features of the separator

- Width of working area - 300-1200 mm.
- Conveyor belt speed - 1-3 m/s.
- Fraction of material - 2-25 mm.
- Possibility of remote adjustment of the parameters of the separator via the internet.
- Capacity - from 0.2 t/h.
- If needed, the separator can be equipped with additional options for automatic feeding of material for separation and unloading of separated materials into big-bags.

A high-tech hyperspectral camera with the following characteristics is used in the separator:

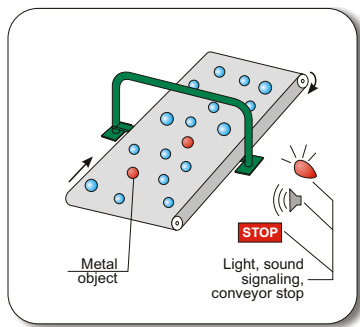
- spectral range: 900-1700 nm;
- spectral resolution: 8 nm;
- number of pixels: 640 pcs.;
- efficient pixel size: 18.7 μm;
- camera operating frequency: 670 Hz.



# Tunnel metal detector DMT2C



## Scheme of the metal detector



## Design features of the detector

- The detector consists of a metal sensor and electronic control unit.
- The design of the metal sensor is individually matched to the customer's production conditions.
- Resistant to interference arising from electric welding work near the metal detector.
- High sensitivity and automatic adjustment.
- They can work on conveyor belts, with joints connected using metal elements.
- The ability to record the history of the metal detector.
- Can be equipped with technological conveyors with automatic rejection (optional).

## Intended use

Designed to detect foreign metal inclusions (both ferrous and non-ferrous metals, manganese steel) in the streams of non-metallic products transported by belt conveyors in order to protect technological equipment from damage.

# Drag friction separator ST



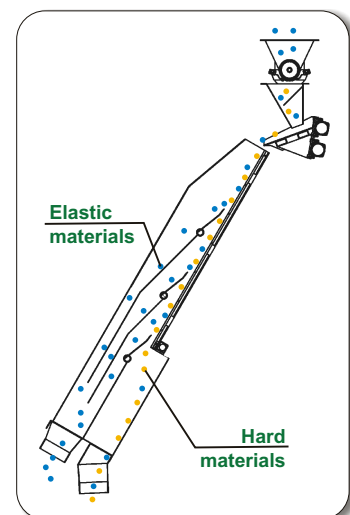
## Intended use

Drag friction separator ST is designed to remove elastic particles of rubber, silicone, polyurethane from mixtures of crushed plastics.

## Principle of operation

The input product moves along an inclined smooth working surface where elastic particles of the mixture (rubber, silicone, polyurethane), due to better contact with the surface and a higher coefficient of friction, bounce up and are caught by dividers and hard particles roll on down the surface.

## Scheme of the separator



## ADVANTAGES:

- quick return on investments;
- dry separation process;
- high efficiency of metal extraction and high purity of the resulting products;
- low labor intensity, ease of maintenance and operation;
- electrostatic separators of low energy consumption;
- permanent magnet separators do not require electricity to generate magnetic field;
- no harmful effect on the environment.

## WE OFFER:

- research of material separation processes;
- designing of lines;
- designing, manufacturing and supplying of equipment;
- installation supervision, commissioning;
- warranty and post-warranty service;
- training of personnel to work with equipment.

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