High-Efficiency Screening of Non-Ferrous Metal Concentrates and ASR Materials SIK

Precise Particle Size Classification for Advanced Recycling Operations

In modern recycling facilities, efficient separation begins with accurate particle size classification. Regardless of whether the final objective is metal recovery, density separation, sensor sorting, or air classification, downstream equipment can only achieve maximum performance when the feed material is properly screened into defined size fractions.

The SIK Screening Machine from TST Overseas has been specifically developed for demanding recycling applications where high throughput, precise classification, and reliable operation are essential.

By separating mixed material streams into narrow particle size ranges, the SIK creates the ideal feed material for subsequent recovery processes while improving overall plant efficiency and product quality.

The Importance of Screening in Metal Recovery

Many recycling plants process complex material streams containing a mixture of metals, plastics, minerals, rubber, textiles, and other contaminants.

Typical feed materials include:

- Automotive Shredder Residue (ASR)
- Non-ferrous metal concentrates
- Zorba
- Electronic scrap
- Incinerator Bottom Ash (IBA)
- Mixed shredder materials
- Metal-rich recycling streams

Since separation efficiency is highly dependent on particle size, screening is often one of the most important processing steps within the entire recycling plant.

Proper classification reduces misplaced particles, improves downstream separation efficiency, and maximizes the recovery of valuable materials.

Operating Principle of the SIK Screening Machine

The SIK Screening Machine utilizes a robust rotating screening system to classify material according to particle size.

Material is evenly distributed across one or multiple screening decks.

Depending on the process requirements, the machine can be configured to generate multiple fractions simultaneously.

The modular screen design allows quick screen replacement and adaptation to changing material streams, while the integrated screen cleaning system ensures consistent screening performance even when processing difficult recycling materials.

Typical Particle Size Fractions

For non-ferrous metal recovery and ASR processing, materials are commonly classified into the following fractions:

Fraction	Typical Application
0 – 0.5 mm	Fine metal concentrates and heavy fines
0.5 – 1.5 mm	Fine non-ferrous recovery
1.5 – 3 mm	Density separation feed material
3 – 6 mm	Metal upgrading and concentrate cleaning
6 – 12 mm	Non-ferrous metal recovery
12 – 20 mm	Coarse concentrate processing

By producing narrow and consistent fractions, the SIK significantly improves the performance of downstream separation technologies.

Screening of Automotive Shredder Residue (ASR)

ASR processing requires multiple separation technologies working together to recover valuable materials from complex waste streams.

Accurate classification also allows individual fractions to be processed using the most suitable recovery technology.

Classification of Non-Ferrous Metal Concentrates

After eddy current separation, mixed non-ferrous concentrates frequently contain aluminium, copper, brass, stainless steel particles, plastics, rubber, and mineral contaminants.

To maximize recovery and product purity, these concentrates are commonly screened into narrow fractions before further upgrading.

The SIK provides highly accurate classification across a broad particle size range, allowing subsequent equipment such as density separators and sensor sorters to operate at maximum efficiency.

Benefits for Recycling Operators

The SIK Screening Machine offers numerous operational advantages:

- Precise particle size classification
- High screening efficiency
- Multiple fractions in a single machine
- Consistent feed preparation for downstream processes
- Reduced maintenance requirements
- Flexible screen configurations
- Robust design for abrasive recycling materials
- High throughput capacities
- Improved recovery rates and product quality

Typical Applications

The SIK Screening Machine is widely used in:

- Automotive Shredder Residue (ASR) recycling
- Non-ferrous metal recovery plants
- Zorba processing facilities
- Electronic scrap recycling
- Incinerator Bottom Ash treatment
- Metal concentrate upgrading
- Waste-to-energy recycling operations

Conclusion

Accurate screening remains one of the most important foundations of successful recycling operations. The SIK Screening Machine from TST Overseas provides efficient and reliable particle size classification for a wide variety of recycling applications.

By producing consistent and precisely defined fractions ranging from 0–0.5 mm up to 20 mm and beyond, the SIK enables downstream separation technologies to achieve higher recovery rates, improved product purity, and increased overall plant profitability.