



THE RESOURCE
SEARCH ENGINE

Si Zn Al Mg Cu

SORTING SCRAP ALUMINIUM

Solutions for producing premium qualities

PRODUCE CLEAN ALUMINIUM DOWN TO A grain size of 5 mm

Aluminium can be 100% recycled. Using secondary aluminium, also known as green aluminium, cuts energy use in production by up to 90% compared with virgin material.

If recovered aluminium (recycled aluminium) is being used to produce new products, aluminium manufacturers need their secondary raw materials to display consistently high levels of purity. This challenge can be met using a sorting system designed for many materials.

The STEINERT XSS® T EVO 5.0 sorting machine can be used to separate free heavy metals, aluminium compounds, free magnesium and wrought and cast aluminium parts. As a special benefit, we are offering customers who buy the STEINERT XSS® T EVO 5.0 a 4-year warranty on the X-ray components, ensuring them a safe investment and low operating costs.

// Typical sorting materials in a “scrap aluminium” application:

- + Profiles and plates
- + Non-ferrous metals from incineration bottom ash (down to 5 mm)
- + End-of-life vehicle (ELV) fractions (Zorba/non-ferrous metal concentrate) from shredder plants
- + Products from dense media separator systems
- + Pre-concentrated drink cans and containers
- + New production waste and rejected material

// Alongside core X-ray technology components, we also supply the sorting machines needed for the upstream recovery processes:

- + STEINERT EddyC® non-ferrous metal separator
- + Magnets for separating ferrous parts

Separation of heavy and light metals in the incineration bottom ash

WORLDWIDE, THE X-RAY SORTER FOR HIGH THROUGHPUTS AND PRODUCT PURITY

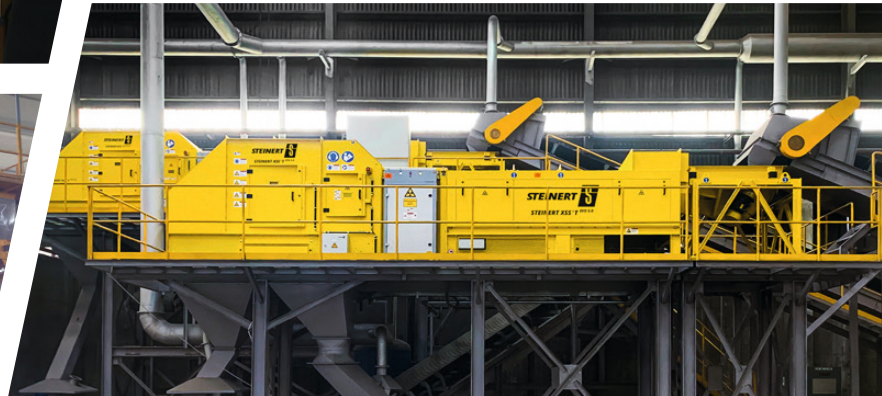
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X-ray transmission detects magnesium and ensures a pure aluminium product



Recovery of non-ferrous metals followed by aluminium purification



X-ray sorting system separates aluminium shredder sorting material

THE HEART OF THE SORTING PLANT:

STEINERT XSS® T EVO 5.0 X-ray sorting system

+ X-GEN FOR OPERATIONAL RELIABILITY

Durable X-ray source (tubes) and XRT X-ray sensors with 4-year warranty*

+ HR VALVE PITCH – VALVE BAR FOR PRECISE SORTING

Optional: high-resolution valve distance of 6.25 mm for fine material



**Up to 5,000 h/y of operation, requirement of qualified services must be undertaken in accordance with the STEINERT service advise.*



+ **AUTO X CLEAN FOR RELIABLE DETECTION**

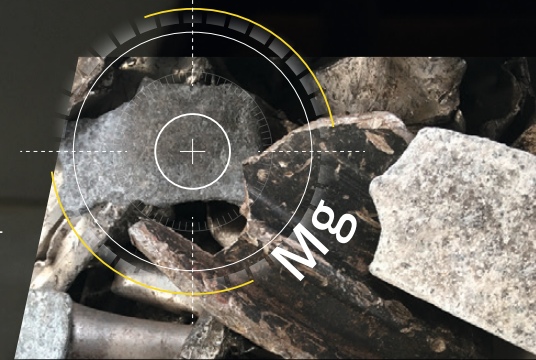
Automatic cleaning of the X-ray scan area

+ **AXM FOR SORTING QUALITY**

Automatic X-ray monitoring and calibration of the X-ray sensors for consistently high detection and sorting quality

+ **MDE FOR EVEN MORE DISTINGUISHING CHARACTERISTICS**

Advanced control and software for multi-layer data evaluation – allows special sorting tasks, such as magnesium detection and high-resolution object recognition and classification



The STEINERT XSS® T EVO 5.0 technology is available in the STEINERT KSS | XT CLI combination sensor sorting system – for special sorting tasks and advanced object recognition!

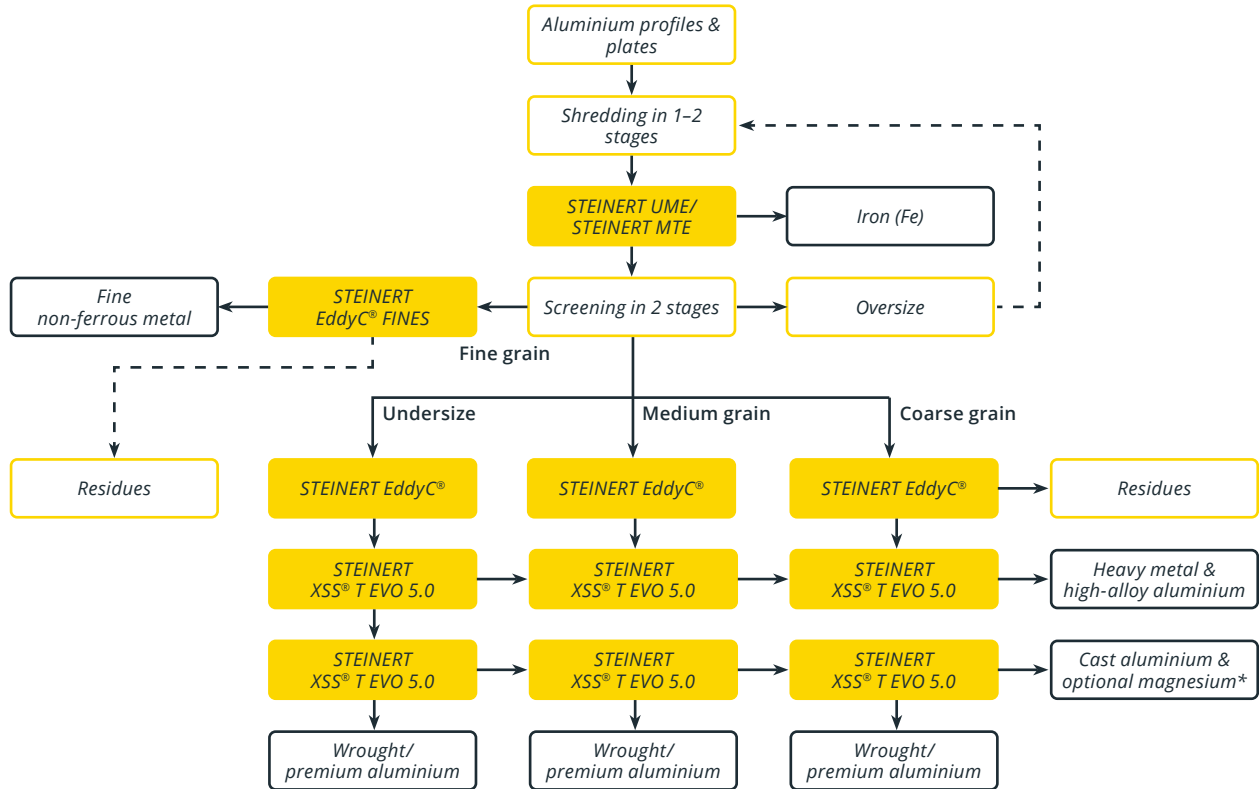
SORTING SYSTEM FOR ALUMINIUM SHREDDERS AND SECONDARY SMELTERS

Simplified flow chart of a large facility which produces ready-to-smelt products online, with two separation stages with STEINERT XSS® T EVO 5.0 on three lines



RECOVERING ALUMINIUM & SEPARATING OUT IMPURITIES

CLEANING ALUMINIUM



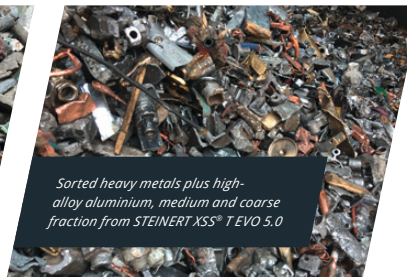
*Significant reduction in free magnesium using STEINERT XSS® T EVO 5.0. Free magnesium content can be concentrated separately in the wrought or cast products.

ALUMINIUM SORTING FROM END-OF-LIFE VEHICLE (SHREDDER MATERIAL) AND MIXED SCRAP ALUMINIUM

Basic concept involving 2-stage separation using STEINERT XSS® T EVO 5.0 for aluminium and as an option with X-ray fluorescence (XRF) for separating heavy metals in typical grain sizes of 10–120 mm



*Input product is medium-grain
ELV Zorba from STEINERT EddyC®*



*Sorted heavy metals plus high-
alloy aluminium, medium and coarse
fraction from STEINERT XSS® T EVO 5.0*

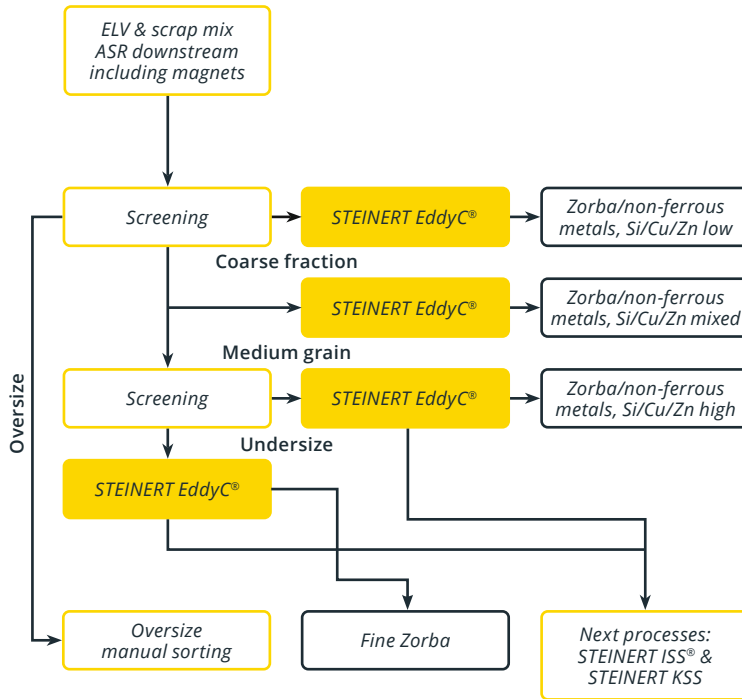


*Undersize cast aluminium
from STEINERT XSS® T EVO 5.0*

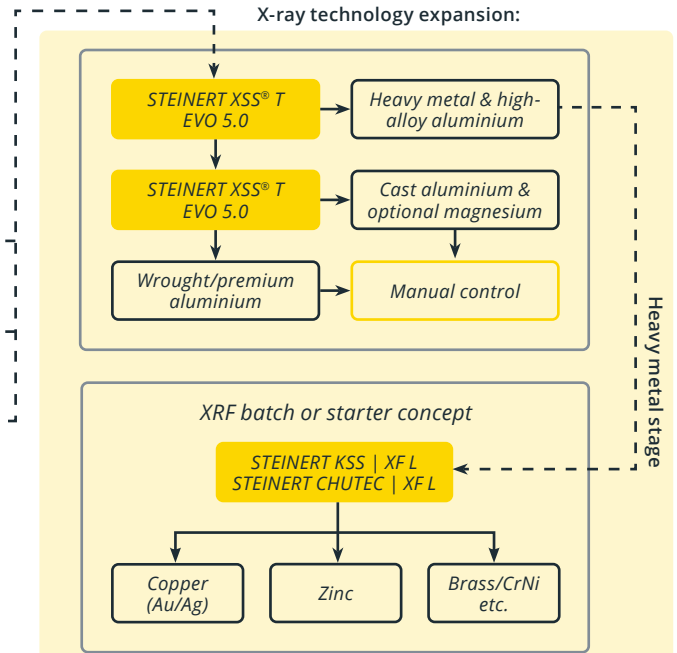


*Coarse fraction clean wrought aluminium
from STEINERT XSS® T EVO 5.0*

**RECOVERING ALUMINIUM AND NON-FERROUS METAL &
SEPARATING OUT IMPURITIES AND OTHER METALS**



**CLEANING ALUMINIUM AND
SORTING HEAVY METALS**



XRF batch or starter concept Special case of X-ray fluorescence (XRF): Use of STEINERT KSS | XF L or STEINERT CHUTEK | XF L for smaller plants and material volumes to sort aluminium and heavy metals in several stages using 1–2 machines. Of course, XRF technology displays its greatest efficiency when sorting heavy metals.

ALUMINIUM FROM INCINERATION BOTTOM ASH: ZORBA AND NON-FERROUS SEPARATION

Basic concept involving 2-stage separation using STEINERT XSS® T EVO 5.0 for aluminium and as an option with X-ray fluorescence (XRF) for separating heavy metals in typical grain sizes of 5–80 mm



Input product is Zorba incineration bottom ash raw material from STEINERT EddyC®



Mixed heavy metals from STEINERT XSS® T EVO 5.0



Undersize clean aluminium (alloyed) from STEINERT XSS® T EVO 5.0



Clean, medium grain wrought aluminium from STEINERT XSS® T EVO 5.0

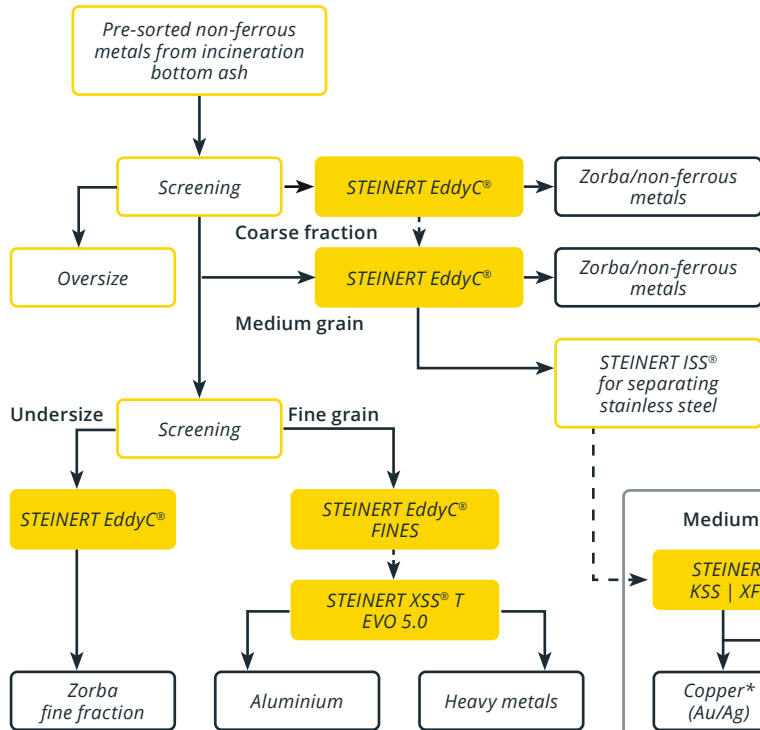


Undersize copper from STEINERT CHUTE C | XFL

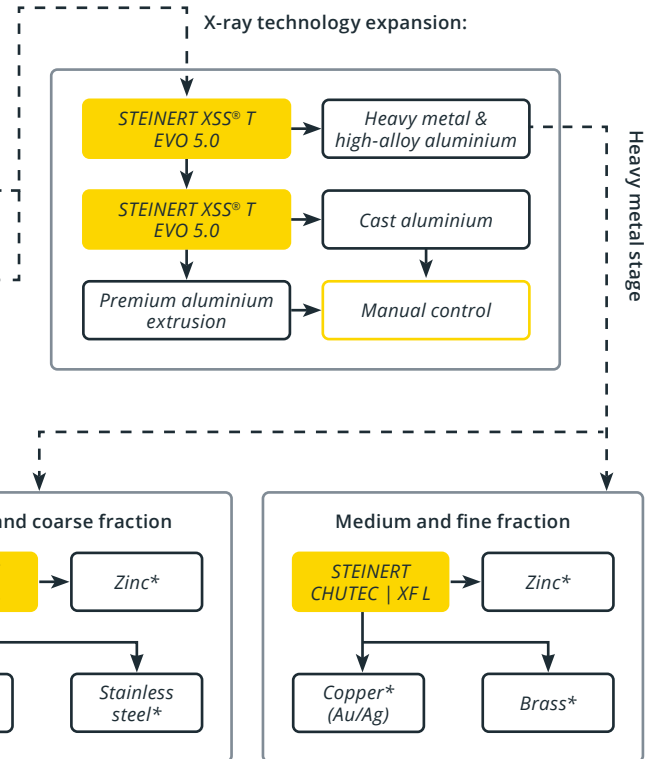


Medium grain brass from STEINERT XSS | XFL

**RECOVERING ALUMINIUM AND NON-FERROUS METAL &
SEPARATING OUT IMPURITIES AND OTHER METALS**



**CLEANING ALUMINIUM AND
SORTING HEAVY METALS**



*The target fractions and products depend on the customer's trading aims. The exact grain sizes on the sorting machines are variable.

A NEW BENCHMARK FOR SORTING ALUMINIUM ALLOYS

The new STEINERT PLASMAX | LIBS



The new STEINERT PLASMAX | LIBS enables recycling companies to take aluminium recycling to the next level and to specifically produce high-grade alloy classes ready for the furnace.



Three products in one sorting run, to simultaneously produce several target qualities, such as 5xxx and 6xxx.



With a capacity of 3-6 t/h, the STEINERT PLASMAX | LIBS enables one of the most efficient solutions for aluminium alloy sorting.



Numerous innovations, for example the novel multi-spot analysis for ideal material detection, are part of the STEINERT PLASMAX | LIBS.

STEINERT PLASMAX | LIBS: HIGH-PURITY SEPARATION OF ALUMINIUM ALLOYS IN LARGE VOLUMES.

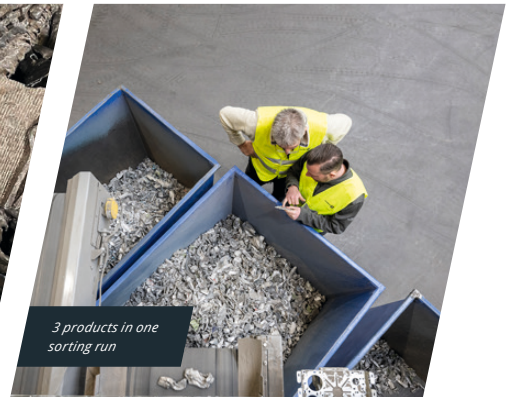
*Simplified flowsheet of alloy separation in large volumes with 3 products in one sorting run
with the new STEINERT PLASMAX | LIBS.*



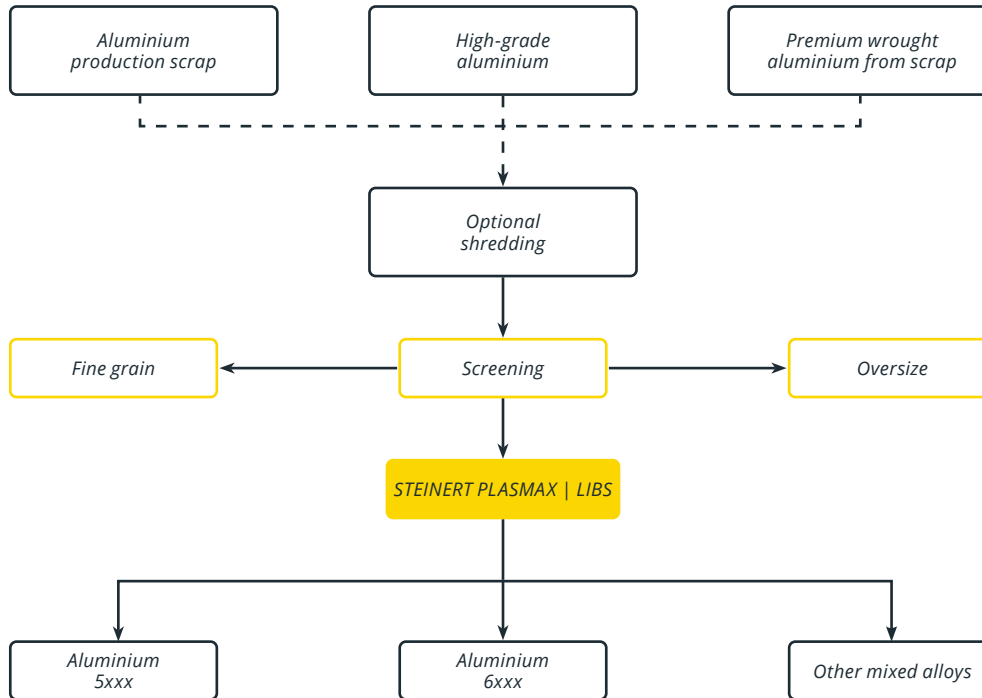
*Clean 5xxx Aluminium sorted
from post production scrap*



*Clean 6xxx aluminium sorted
from Taint/Tabor*



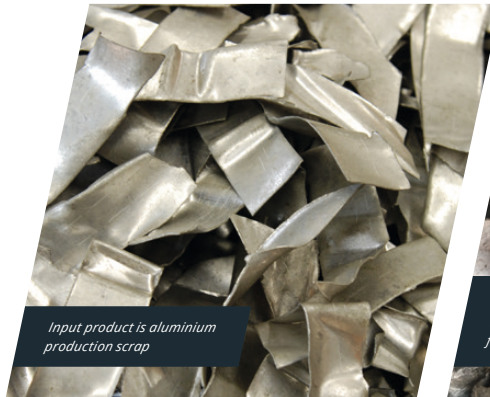
*3 products in one
sorting run*



The sorted products quoted are examples only and can be adapted to quality objectives.

STEINERT LSS | LIBS: ALUMINIUM PRODUCTION SCRAP & PRE-TREATED HIGH-QUALITY FRACTIONS

*Simplified flow chart of sorting of aluminium alloys using the STEINERT LSS | LIBS line sorting system.
Sample products with up to 6 discharges in one step operation*



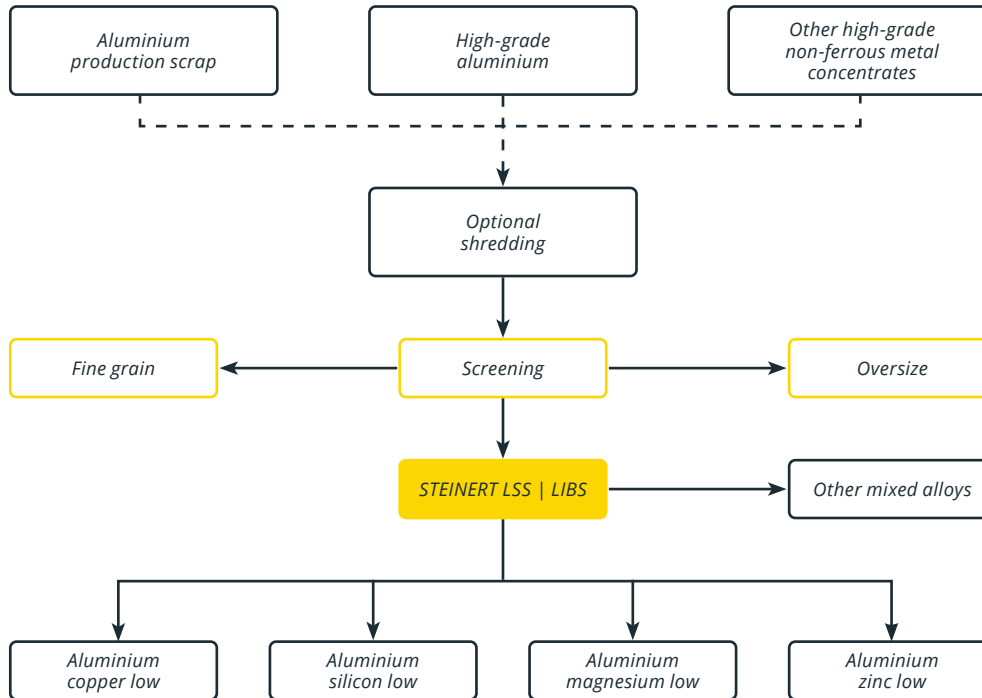
*Input product is aluminium
production scrap*



*Scrap aluminium presorted by
STEINERT.XSS® T EVO 5.0 – input
for STEINERT LSS | LIBS*



*Scrap aluminium, low in silicon and
copper, from STEINERT LSS | LIBS*



The sorted products quoted are examples only and can be adapted to quality objectives.

OUR MOST IMPORTANT PRODUCTS

taking you to 99.9% pure aluminium

Primary stages for separating iron:



STEINERT MTE/MTP

Magnetic drums are usually used in the line to separate free iron and ferrous compounds before the next sorting stages. Magnetic components of various grain size ranges are thereby specifically separated and can be fed back into the process if necessary.



STEINERT UME

Self-cleaning overhead suspension magnets reliably remove coarse iron, thereby producing clean iron scrap. The overhead suspension magnet is arranged above a feeding conveyor belt and extracts the ferromagnetic materials from the supply flow against the force of gravity.

Recovery of non-ferrous metals:



STEINERT EddyC®

The eddy current separator can be used wherever non-ferrous metals can be recovered or separated. Using eddy current technology, it produces marketable non-ferrous metal mixes containing aluminium, copper, zinc or brass.



STEINERT EddyC® FINES

The STEINERT EddyC® FINES was developed especially for separating particularly fine non-ferrous metals. Using eddy current technology, it produces marketable non-ferrous metal mixes containing aluminium, copper, zinc or brass.

OUR MOST IMPORTANT PRODUCTS

taking you to 99.9% pure aluminium

Cleaning into pure-grade aluminium:



STEINERT XSS® T EVO 5.0

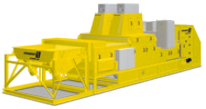
The new STEINERT XSS® T EVO 5.0 is used for density-based sorting – for example, to separate aluminium from heavy metals.



STEINERT KSS | XT CLI

An extension to the STEINERT XSS® T EVO 5.0 with a laser for 3D detection, one colour and one induction sensor. This system optimises sorting results for a wider range of applications. Since it's equipped with several sensors, this is a STEINERT KSS.

Separation of aluminium and heavy metals (for small material volumes):



STEINERT KSS | XFL

This multi-sensor sorting system with X-ray fluorescence technology (XRF) can also be used to clean aluminium. It is intended primarily for smaller projects and material volumes; especially in cases where aluminium, and in particular the heavy metals, are to be separated by material type with just 1–2 machines (in several stages).



STEINERT CHUTEC | XFL

The sorting machine with a chute and X-ray fluorescence technology (XRF) is particularly well suited to sorting fine heavy metals.

Separation of aluminium alloys:



STEINERT PLASMAX | LIBS

Packed with numerous innovations, the STEINERT PLASMAX | LIBS is the solution for high-purity separation of aluminium alloys in large volumes. With purities of over 95% the new LIBS system achieves qualities with which the sorting material can be fed directly back into the production process.



STEINERT LSS | LIBS

The LIBS (Laser-Induced Breakdown Spectroscopy) technology allows precise determination and quantification of the alloy elements, making it possible to distinguish between a large number of different alloy types. With wrought alloys, for example, it can distinguish between classes such as 5xxx and 6xxx and sort up to 7 products in one sorting run.



TEST BEFORE YOU BUY:

Test your sorting material in the Test and Development Centre

Benefit from skilled engineers and a combination of cutting-edge magnets, non-ferrous metal separators and sensor sorting systems in a recycling experience space.

Realistic testing can be undertaken in the Test and Development Centre at an industrial scale to reproduce the demands, feasibility and ROI of the planned investment and create investment security on the basis of data and facts.

- + Check the feasibility, planning and layout of the system
- + Carry out sorting trials
- + Verify sorting performance in terms of quality, yield and throughput

Our application specialists from the test centre and our sales team will help you solve your sorting tasks. If desired, we can directly demonstrate the potential for recovering material with STEINERT sorting technology using your own test material.

Want to try out the STEINERT test centre for yourself? Simply get in touch with your personal STEINERT contact.



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STEINERT 
MAGNETIC + SENSOR SORTING SOLUTIONS