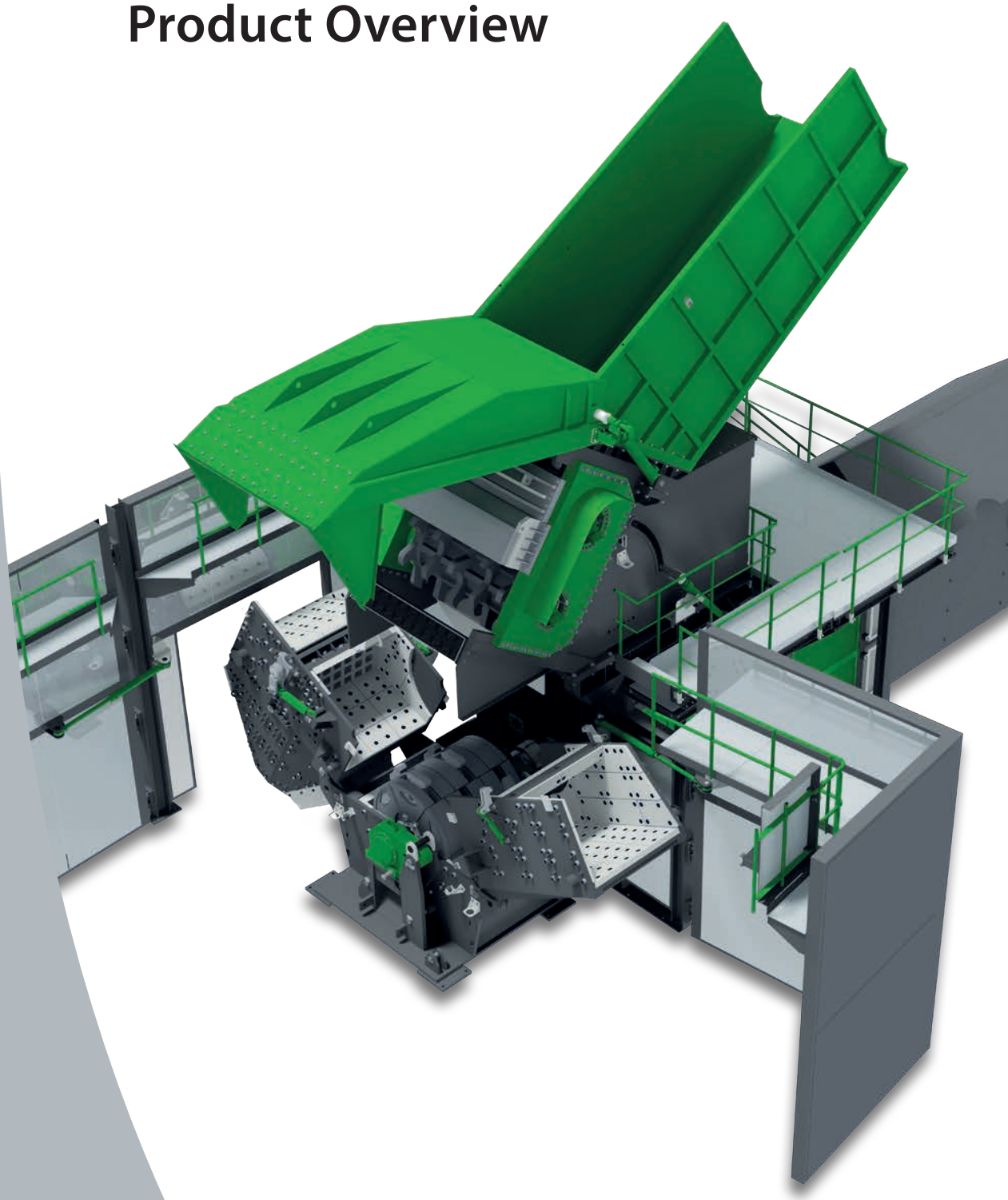
# Shredding & Ferrous Downstream

## Product Overview



DEDICATED TO PERFORMANCE

SICON®

# SICON – Exceptionally flexible!
## Extremely adaptable!
## 360°-view!

## **20 years** of high-quality plant engineering – Scrap and Metal Recycling **made by SICON**

With two decades of experience in plant design and with a continuously growing team SICON has realized a multitude of domestic and international projects. Among serviced customers are many small- and mid-sized scrap recyclers as well as multi-national steel plants and conglomerate recycling companies.

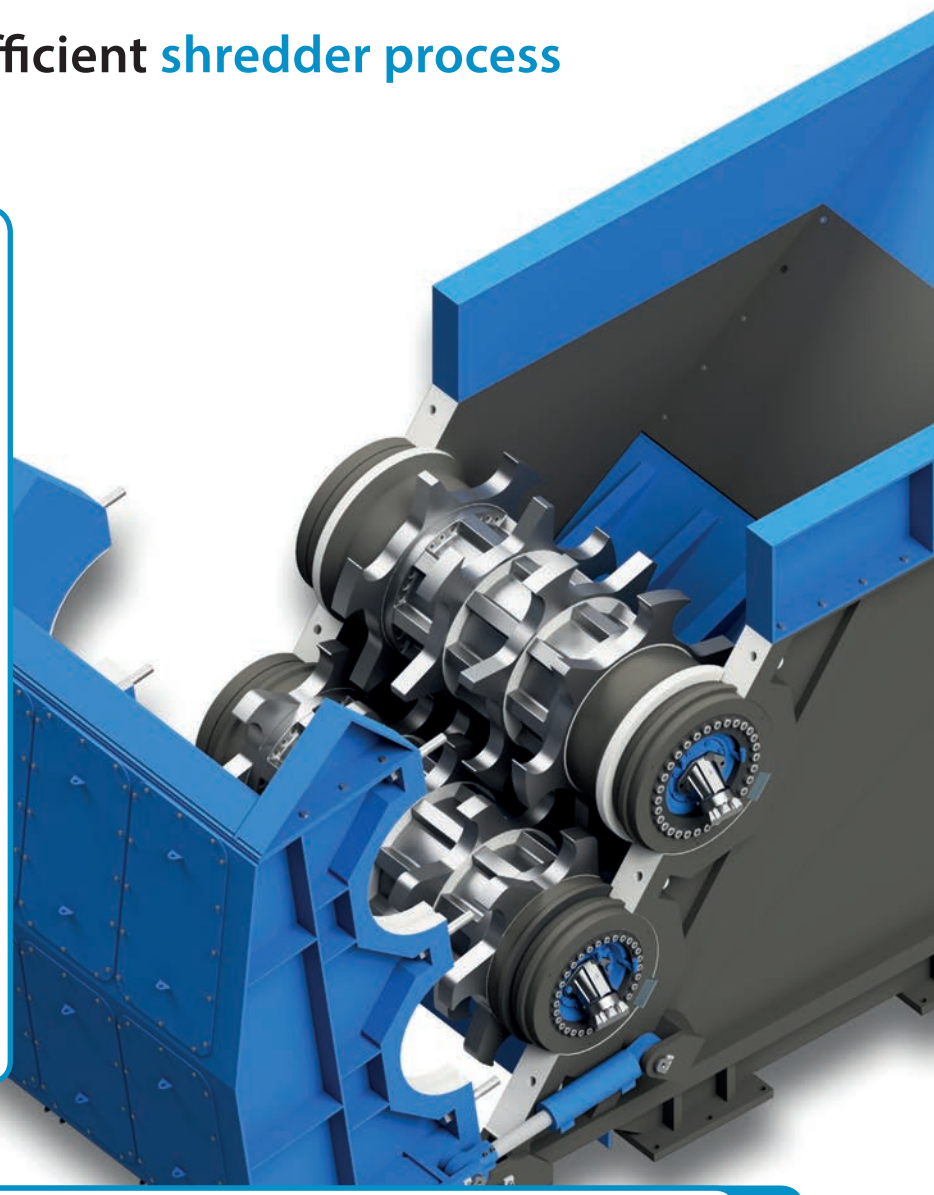
SICON offers the right machine and best-fit system for any requirement within the scrap and metal recycling business. Furthermore, SICON offers its customers to oversee each step of a project and acts as a complete solution provider for highly-customized projects and systems. Our expertise and product portfolio ranges from single machines up to complete project planning and realization of system upgrades.

All of our machines are field-tested in our Technical Research Center (TRC), where our equipment and processes are being developed and improved continuously.

# The basis for a more efficient shredder process

Processing shredder feedstock with the aid of EcoRip® always makes good sense both technically and economically. The SICON EcoRip® Pre-Shredder is characterized by a high output at defined particle sizes and is also especially easy to maintain. That makes the EcoRip® Series the benchmark in terms of technology and efficiency when it comes to processing shredder feedstock.

The EcoRip® is ideal for both pre-shredding mixed scrap with an optional integrated screening step as alternative to a guillotine shear, as well as for pre-shredding shredder input material prior to loading onto a shredder infeed conveyor. The SICON EcoRip® can also be flexibly used as an effective stand-alone solution or can be subsequently added to an existing system.



**EcoRip® as an upstream addition to any shredder line for pre-shredding**

BENEFITS

- Pre-shredding of bales, auto bodies, mixed scrap – is thus also possible in smaller shredders
- Separation of inert fines with the aid of integrated screens upstream of the main shredder
- Increase in performance of main shredder (by up to 30 %) with corresponding adaptation of the electronic control system of the main shredder
- Significant decrease in wear and tear of main shredder
- Prevention of explosions occurring in the main shredder, thus decrease in emissions
- The combination of EcoRip® and main shredder enables SICON's dry AirTuning® exhaust purification process
- Segmented rotor for simplified maintenance
- Power-controlled hydraulic pumps reduce the speed at high torque

Its key advantages include an improvement in the performance of the main shredder by up to 30 % with increased reliability (reduced wear and tear and decrease in emissions), as well as lower energy costs with improved quality of scrap (higher density). An ideal implementation calls for the control system of the main shredder to be adapted by an expert from SICON. The advantages of the SICON EcoRip® are reflected in a considerable improvement and operational efficiency of the whole shredder line. EcoRip® will make your shredder process considerably more competitive.

## Input Material

ELV

Engine Scrap

Logs

| Variation | EcoRip® 200 Neo | EcoRip® 250 Neo |
|---|---|---|
| Feeding width [inch/mm] | 80“ / 2,000 | 100“ / 2,500 |
| **Input power** | | |
| Top rotor (slow moving) [kW/HP] | 90 / 120 | 205 / 279 |
| Bottom rotor (fast moving) [kW/HP] | 250 / 335 | 710 / 965 |
| Flipper [kW/HP] | 22 / 30 | 37 / 50 |
| **Speed** | | |
| Top rotor (adjustable) [$min^{-1}$] | 3-6 | 3-6 |
| Bottom rotor (adjustable) [$min^{-1}$] | 14-20 | 14-22 |
| **Output [t/h]** | | |
| Mixed scrap, ELVs | approx. 70 | approx. 100 |
| Bale density <0.8 t/$m^3$ /50 lbs/$ft^3$ | approx. 40 | approx. 70 |
| Bale density <1.0 t/$m^3$ /62 lbs/$ft^3$ | approx. 30 | approx. 50-60 |

# Small and extremely flexible shredder for light mixed and E-Scrap

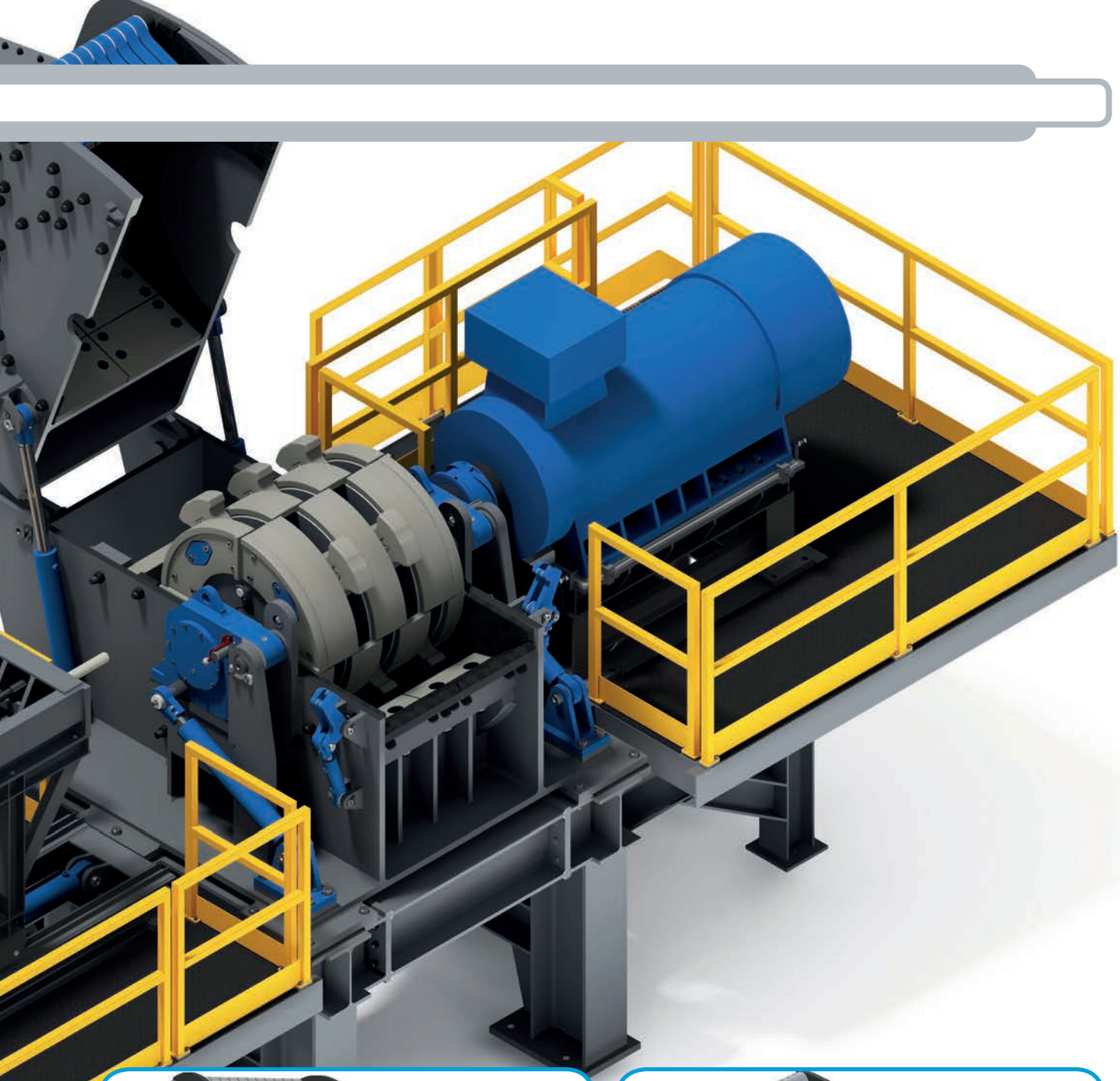
The EcoShred® Slimtec is the powerful shredder for getting started or smaller capacities.

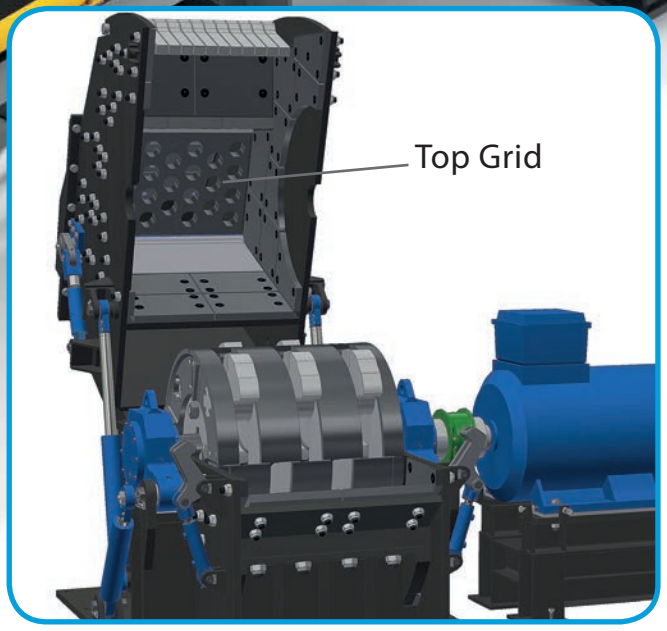
With the integrated pressing and feeding device even bulky scrap can be processed. In addition, the EcoShred® Slimtec has all the features of much larger machines, such as the segmented floor grate, the liftable rotor or the powerful drive with a safety clutch.

The EcoShred® Slimtec, complemented by the SICON Fe- and NF-Downstream, is a powerful plant for monthly production of 2,000 to 5,000 tonnes of shredded scrap.


## BENEFITS

- 500 / 800 HP drive (optional frequency controlled)
- Safety coupling for optimum drive protection
- Feeding through tilting device or infeed conveyor
- Capped disc rotor with 10 durable, casted and heat-treated hammers
- Shredder housing to be opened by hydraulic device
- Rotor to be tilted by hydraulic device, for easy maintenance
- Eject door for unshreddables
- Flexible cardan joint (optional)
- Heavy duty design (65 tons of weight)

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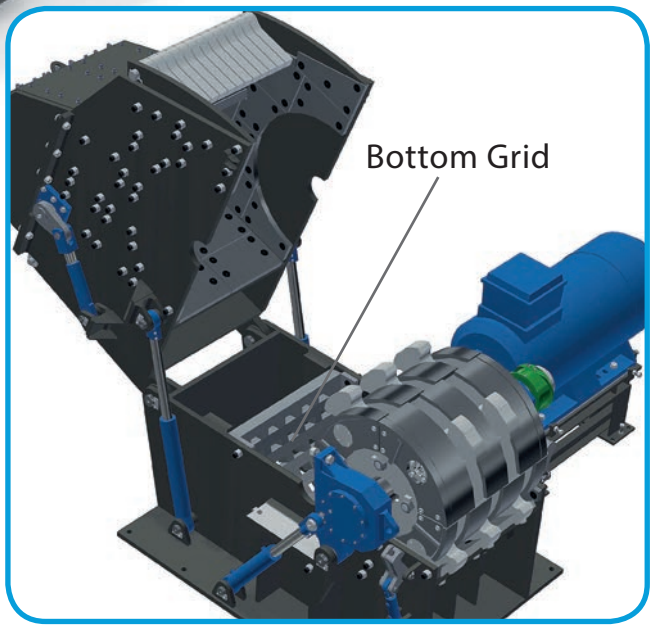
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# Shredding made simple!

For many years, large-capacity shredding installations were reserved primarily to a small group of financially larger scrap processors. The advantage of the EcoShred® Compact made shredder technology also available to small- and medium-sized scrap processors and automobile recyclers.

With the EcoShred® Compact, SICON relies on state-of-the-art shredder technology integrated in a modular and economically viable system. Both the technical characteristics and the low necessary infrastructure costs are both impressive.

The EcoShred® Compact is equipped with an integrated pre-shredder, which is implemented as a twin-shaft shredder system with flipper. The combination of pre-shredder and main shredder entails significant advantages.


German Excellence Award 2019

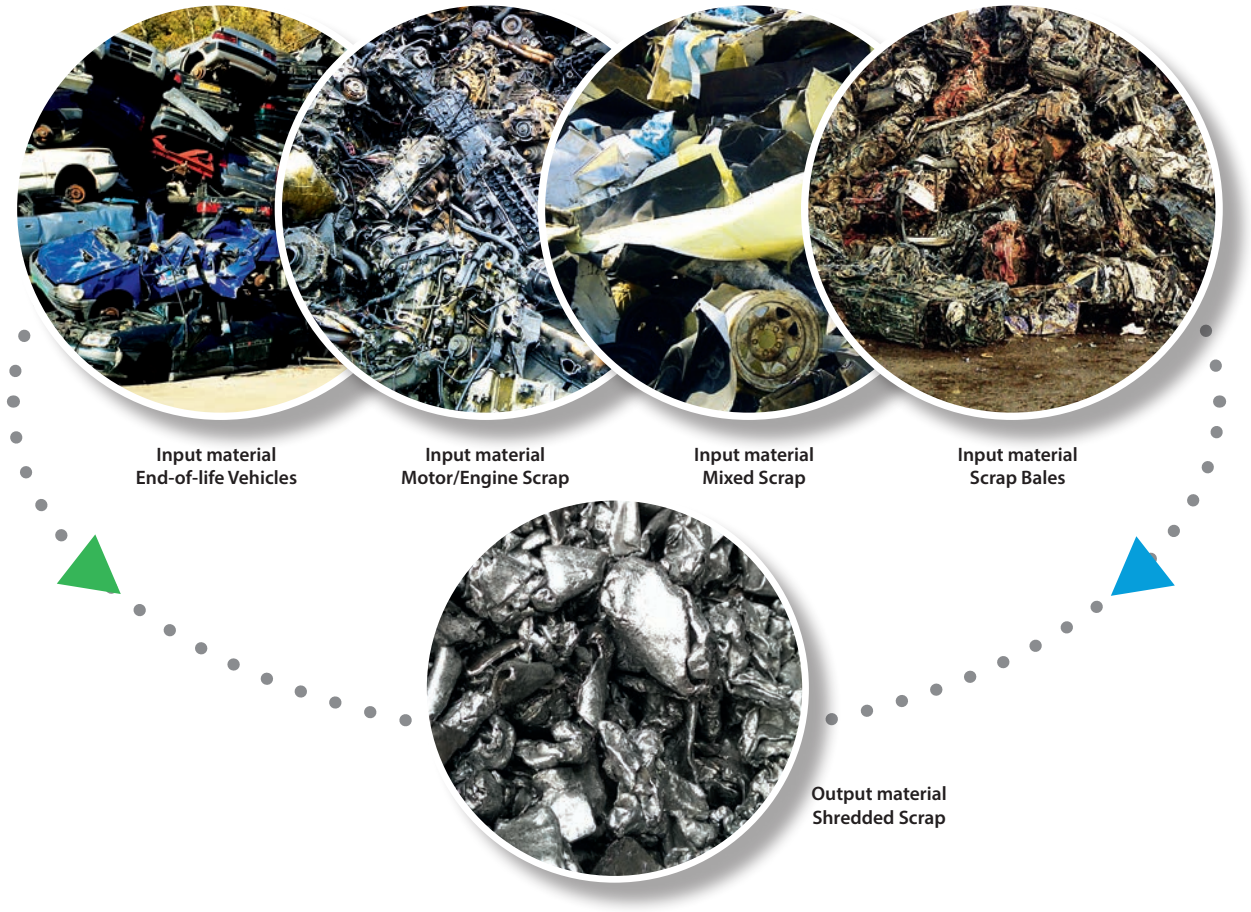
## BENEFITS

- Scrap is ripped by the pre-shredder and afterwards compacted directly by the main shredder to an optimum
- The risk of explosions is decreased significantly
- Unshreddables do not enter the shredder, which results in an improved operational reliability
- Prevention of any peak loads in the main shredder (uniform power consumption)
- Bales can even be processed with a driving power of just 1,000 kW / 1,350 HP

**See also the EcoShred® Compact Video on our homepage!**

## Especially versatile

The EcoShred® Compact process results in a high and consistent scrap density and thus a correspondingly good material preparation – with clear advantages for the recovery of non-ferrous metals. The EcoShred® Compact forms the basis for the efficient operation of a shredder system.




- Shredder with integrated EcoRip® pre-shredder in one system
- High scrap density and very good material preparation by means of full box shredding
- Prevention of explosions through material preparation upstream of main shredder
- Heavy components are already identified and separated in the pre-shredder – that protecting the rotor elements in the main shredder from any damage.
- Prevention of peak loads with an optimum energy management system
- Fully automated operation reduces personel costs
- Significantly higher output by means of an intelligent system combination as conventional shredder with the same driving power
- Easy and safe access for changing wear parts with maximum operator safety
- Significant decrease in investment with regard to power supply (low voltage 400 V / 460 V instead of high voltage 6/11 kV)
- Quick and easy installation as a result of reduced requirements on infrastructure (for instance, a simple foundation slab is sufficient and no separate operations building are required)

## Achieves maximum liberation in applications such as processing of Meatballs, Electric Motors and Coolant Scrap


**BENEFITS**

- Vertical shredder with throughputs of up to 10 mt/h
- Individually adaptable to customer needs including feeding, exhaust handling and downstream systems
- Complete preparation of metal composites (meatballs and electric motors)
- Complete recovery of properly separated copper and ferrous scrap
- Quick ROI due to low investment costs, obtainable high product quality and easy marketing of the products
- Sturdy welded construction - All inner parts of the machine that come into direct contact with scrap are equipped with wear-resistant liners.
- Simple to maintain wear parts are easy to access and exchange
- Generously dimensioned rotor bearings for long plant life

**See also the EcoShred® Vertec Video on our homepage!**

## Typical applications include

- Aluminium – Castings, profiles, UBC's etc.
- Steel scrap – Pre-shredded steel sheets, metal drums etc.
- Meatballs
- Electric motors
- Household appliances
- Generation of nuggets/ Coolant Scrap

## Standard Features

- Strong welded construction from heavy gauge, wear resistance steel plate
- Integral, annealed and CNC-drilled two-piece chamber for quick access and simplified maintenance
- Durable, wear resistant, replaceable breakers, milling rings and chamber liners
- Oversized, spherical rotor bearings with advanced seal protection – prevents bearing damage due to product migration
- Adjustable product size control
- Replaceable wear plates in the chamber
- Stand-Alone electrical control panel
- Tested, approved and certified to the applicable CE, UL, ULC safety standards
- Frequency controlled drive (optional)
- Adjustable gap between liners and hammers (optional)

The EcoShred® Vertec is used in many applications. For example for processing pre-shredded metal scrap from twin shaft shredding systems. These machines aggressively reduce the size and densify pre-shredded material whilst liberating the various different fractions and allowing for better downstream separation. For applications like processing of meatballs or electric motors the rotor is designed to achieve a maximum of liberation.

The breakers in the upper part of the chamber smash the material until it is small enough to enter the gap between the milling rings or hammers (depending on the application) and chamber liners. Three stages of liberation and compacting create a product which is both clean and of high bulk density suitable for further separation or recycling. By modifying of the rotor speed as well as the gap between the stator lines and hammers the machine can be precisely adjusted to the customer's needs.

# Input Material

Electric motors

Meatballs

Mixed Scrap

Metal sheets

NF (Copper, Alu)

NF (Copper, Alu)

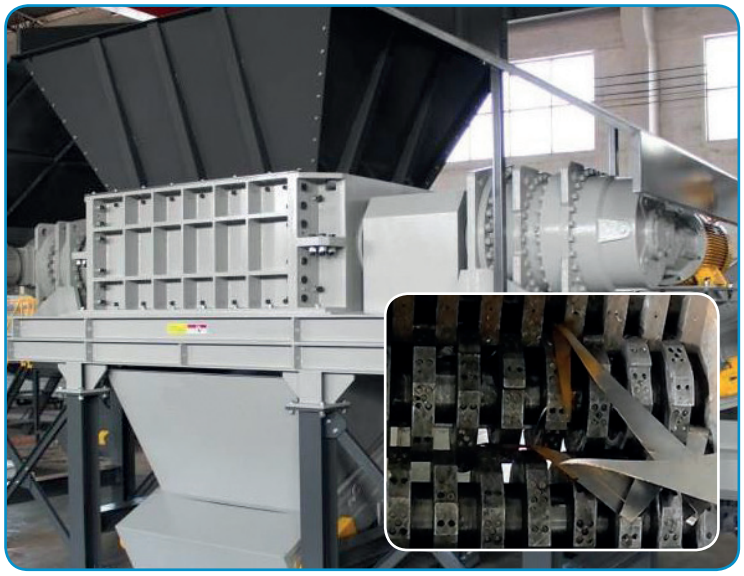
Shredded Scrap

Coolant Scrap

Fe

Fe

# Output Material



**Optional rotor shear for pre-processing**

**Exemplary rotor of the EcoShred® Vertec**

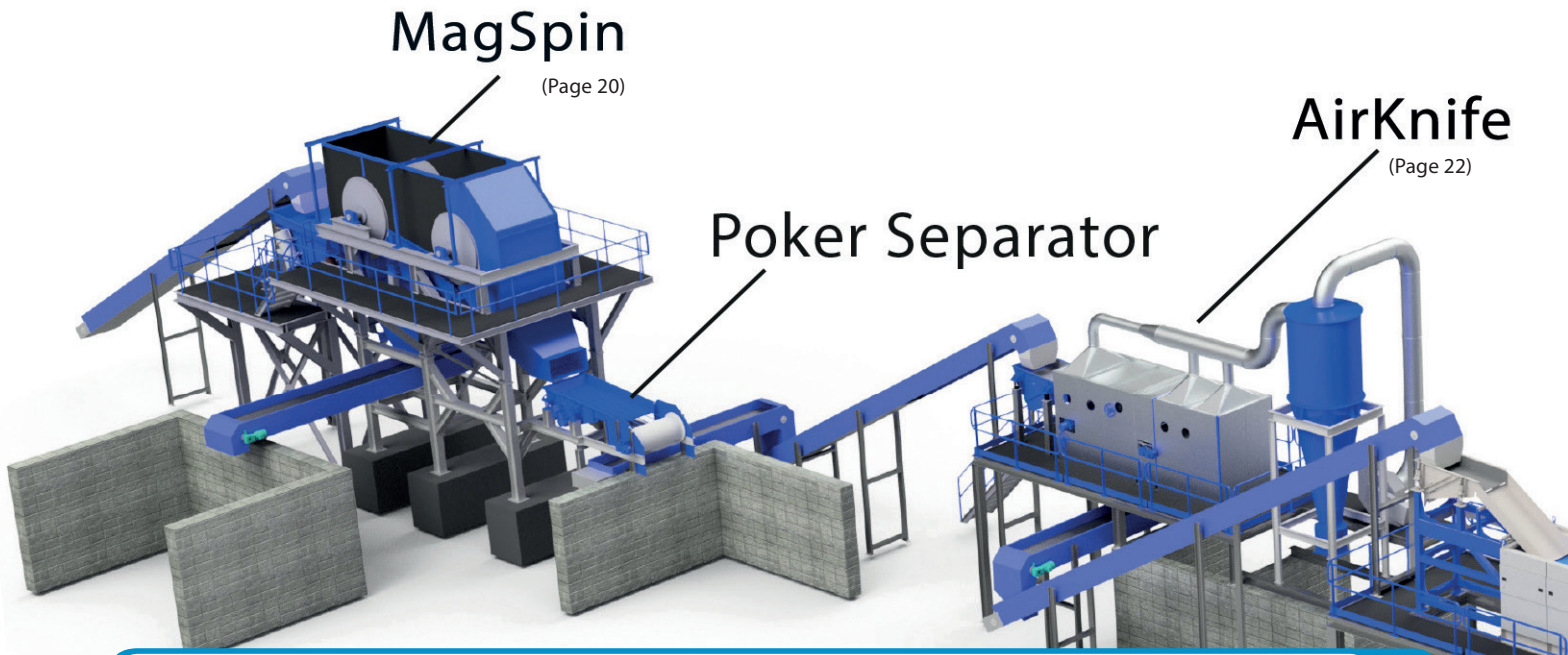
With the modular SICON solutions for metal processing, the EcoShred® Vertec is the ideal addition for the scrap processing sector. One example is the processing of electrical and electronic scrap: after gentle pre-crushing by the rotor shears and separation of contaminated components, further careful processing takes place in the EcoShred® Vertec for subsequent plastic and metal separation.

| Features | EcoShred® Vertec S | EcoShred® Vertec M | EcoShred® Vertec L | EcoShred® Vertec XL | EcoShred® Vertec XXL |
|---|---|---|---|---|---|
| Dimension (L/W/H) [mm/inch] | 3,300 × 3,800 × 5,000<br>130 × 150 × 197 | 3,300 × 3,800 × 5,000<br>130 × 150 × 197 | 5,300 × 4,650 × 6,450<br>209 × 183× 254 | 5,500 × 4,750 × 6,600<br>217 × 187 × 260 | 5,940 × 5,665 × 7,145<br>234 × 223 × 281 |
| Hopper opening (W/H) [mm/inch] | 1,280 × 1,200<br>50 × 47 | 1,280 × 1,200<br>50 × 47 | 1,520 × 1,600<br>60 × 63 | 1,600 × 1,600<br>63 × 63 | 1,800 × 1,600<br>71 × 63 |
| Input height [mm/inch] | 3,700 / 146 | 3,700 / 146 | 4,340 / 171 | 5,300 / 209 | 6,200 / 244 |
| Rotation speed [r/min] | 500 - 680 | 500 - 680 | 500 - 580 | 500 - 580 | 500 - 580 |
| Minimum clearance [mm/inch] | 30 / 1.2 | 30 / 1.2 | 30 / 1.2 | 30 / 1.2 | 30 / 1.2 |
| Number of upper liners | 12 | 12 | 12 | 12 | 12 |
| Number of lower liners | 12 | 12 | 12 | 12 | 12 |
| Number of breakers | 2 | 2 | 2 | 2 | 2 |
| Number of mill rings | 36 | 36 | 64 | 64 | 64 |
| Chamber inner diameter [mm/inch] | 1,140 / 45 | 1,140 / 45 | 1,560 / 60 | 1,680 / 66 | 2,100 / 83 |
| Chamber operation height [mm/inch] | 1,680 / 66 | 1,680 / 66 | 1,785 / 70 | 1,890 / 75 | 1,950 / 77 |
| Drive power [kW/HP] | 110 / 150 | 160 / 220 | 264 / 360 | 500 / 680 * | 710 / 965 |
| Weight [kg/lbs] | Approx. 14,500<br>Approx. 32,000 | Approx. 15,000<br>Approx. 33,000 | Approx. 30,000<br>Approx. 66,000 | Approx. 45,000<br>Approx. 99,000 | Approx. 65,000<br>Approx. 140,000 |
| Throughput meatballs [mt/h] | Approx. 2 | Approx. 3-4 | Approx. 6 | Approx. 8 | Approx. 9 -10 |

*** The EcoShred® Vertec XL is also available with 440 kW (600 HP).**

# The solution for better quality of Shredded Scrap

Every steelmaker and shredder operator is interested in generating a low-copper shredded scrap on a reliable quality basis at no additional costs. With ScrapTuning® SICON has developed a system that meets this requirement. The innovative combination of an ideal separation of long elements, an optimized air sifting and meatball separation leads to a cleaner shredded scrap. SICON AirKnife® separation system reliably separates debris and exposed copper strands/cables. Copper-rich fractions are separated from low-copper shredded scrap with the aid of a ballistic meatball separator. Therefore, only 25 % of the otherwise usual quantity of material are supplied to a manual sorting process. The optional integration of a SICON XT-Sorter completely eliminates the need for manual sorting.




**BENEFITS**

- Reduction of personnel costs for handpicking by up to 75 %
- Reduction of the residual copper content in shredder scrap by up to 50 %
- Increase of the non-ferrous metal recovery rate
- Modular design for stepwise optimization of existing plants
- Ready for integration of advanced automated sorting technologies
- Throughput 20 - 300 mt/h

SICON ScrapTuning® can be integrated in existing systems. An offline installation is also possible and is very interesting for steel mills when it comes to improving the quality of shredded scrap. The SICON team provides individual advice and adapts the system to the specific local conditions and customer demands.
SICON considers both disadvantages unacceptable in times of intense competition and cost pressure. SICON offers shredder operators an efficient alternative in every aspect: the permanent magnet SICON MagSpin. The permanent magnets for the Ferrous Downstream are available in widths of up to 2,600 mm (110") and a diameter of up to 1,600 mm (71"), suitable for every shredder size.

SICON ScrapTuning® not only has a positive effect on the quality of the shredded scrap, but increases at the same time the recovery of non-ferrous metals. The fact that significantly less copper is lost in the shredded scrap means that there are more non-ferrous metals available for the non-ferrous downstream. The additional amount of non-ferrous metals recovered pays for the ScrapTuning® process within a short period of time, in many cases within just a few months. Contact our specialists to obtain further information. They would be happy to prepare a business case for you!
The separated copper meatballs can be prepared using the SICON Meatball Process (EcoShred® Vertec) and separated into clean NF- and ferrous metals.

# The solution for the removal of dirt and Non-Ferrous Metals from HMS - Ready for feeding into the EAF

- Significant reduction of slag (5-8 %)
- Increase of the liquid yield to 92-95 %
- Reduction of consumables
- Reduction of power consumption
- Reduction of emissions
- Recovery fraction from screened fines ready for feeding into the EAF
- SICON MagSpin - Permanent magnet with spinning effect
- 3D-screening - 3D heavy duty screen elements
- Fully Automated System - Permanent Mass Balances, Smart Alarm System

BENEFITS

**See also the HMS Cleaning Video on our homepage!**


## The brandnew solution:

# HMS Cleaning Mobile

**No building permit required!**

**Saves a lot of time and money!**

Improving the quality of steel scrap is for SICON the driving force behind the Heavy Metal Scrap (HMS) preparation process. HMS is cleaned intensively and NF metals that are still present are separated. The result is a scrap quality with a considerably higher Fe content and reduced NF content (specifically copper and aluminum).

A highly efficient and reliable scrap screening process with an integrated metal recovery step that was specifically developed for this application enables a significant improvement in quality, while delivering additional scope of metal recovery at the same time. The innovative combination of efficient screening and magnetic separation produces optimum results. SICON adapts the HMS Cleaning to specific customer requirements. Throughput rates of up to 300 tph are achievable.

| Features | HMS Cleaning Mobile | HMS Cleaning Basic | HMS Cleaning Advanced |
|---|---|---|---|
| Throughput | 30 - 80 tph | 70 - 150 tph | 70 - 300 tph |
| Installation | Semi-mobile | Stationary | Stationary |
| Separation feeding zone | ✓ | - | ✓ |
| Acceleration of the scrap | ✓ | - | ✓ |
| 3D-screening | ✓ | - | ✓ |
| Magnetic separation | ✓ | ✓ | ✓ |
| Optional with dust suppression | ✓ | ✓ | ✓ |
| Discharge of residues with panfeeder | ✓ | ✓ | ✓ |
| Separation of fines residues | ✓ | - | ✓ |
| Remote control by cameras | ✓ | ✓ | ✓ |
| Prozess data collection | ✓ | ✓ | ✓ |
| Solutions for NF metal recovery | ✓ | ✓ | ✓ |

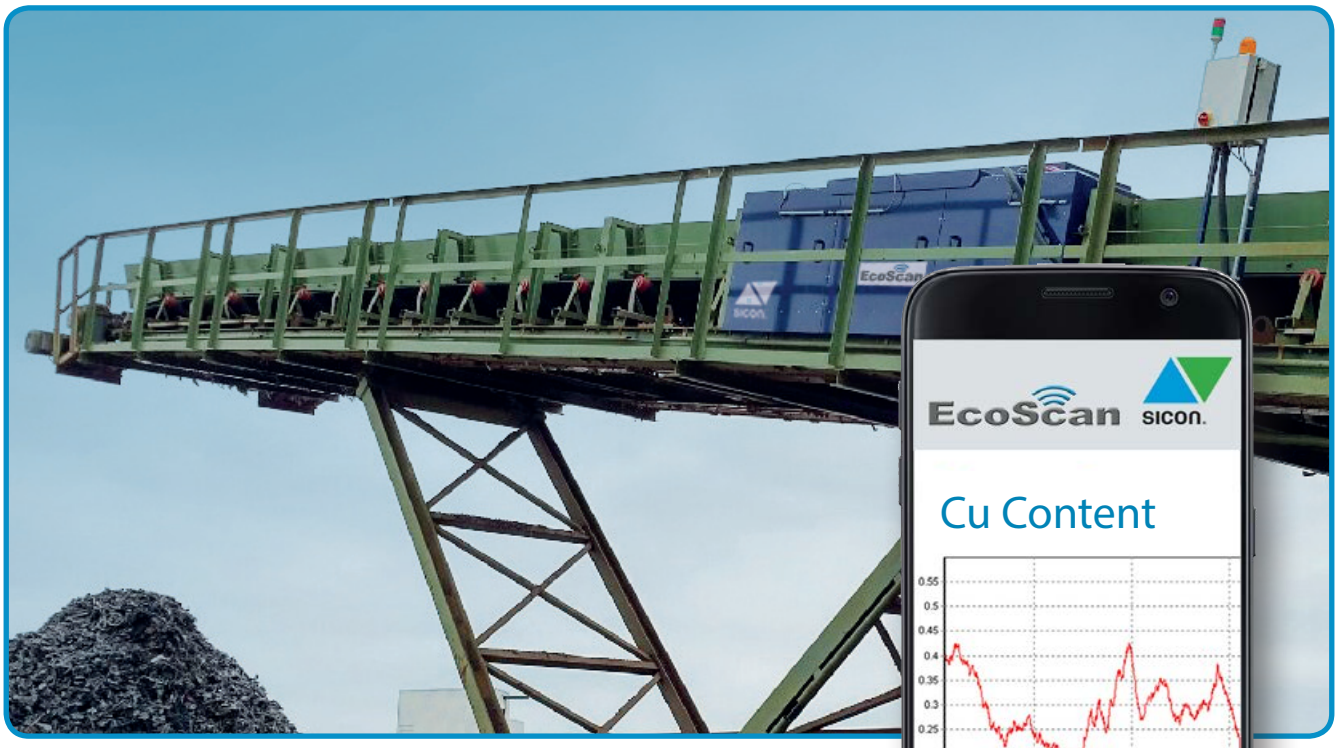
# Online Analysis for Shredded Scrap and Non-Ferrous Metal Mixtures


**The EcoScan® Online is the first compact and economical Online Analyzer, which enables a constant analysis of the scrap quality.**

**Awarded with the German Excellence Prize 2020!**

## BENEFITS

- Permanent monitoring of the copper content in shredded scrap (also in other mixtures)
- Control of the bulk density (optional)
- Individual integration into existing systems
- Smart alarm system
- Detailed reporting system
- Optional certificate system
- Data utilization for improved plant automation
- Online control of non-ferrous scrap and rejection of inferior qualities before melting
- Many other possible applications (e.g. turnings)




**With the „EcoScan Mobile App“ the operator is always informed about any aspect of the analyzer:**

- Remote data access available
- Smart Alarm System for unusual or critical quality deviations
- Integration into an overall data control system
- Benchmark system for comparison of different locations available

## Exemplary daily report - Shredded Scrap

| | Tonnage | Fe | Cu | Mn | Mo | Ti | Zn |
|---|---|---|---|---|---|---|---|
| | t/h | % | % | % | % | % | % |
| Zeit | Wert | Value | Value | Value | Value | Value | Value |
| 8:00 | 72,20 | 97,144 | 0,406 | 0,301 | 0,004 | 0,004 | 0,045 |
| 9:00 | 79,41 | 97,113 | 0,432 | 0,292 | 0,004 | 0,004 | 0,053 |
| 10:00 | 62,45 | 97,060 | 0,499 | 0,295 | 0,004 | 0,004 | 0,049 |
| 11:00 | 71,71 | 97,062 | 0,478 | 0,300 | 0,004 | 0,004 | 0,052 |
| 12:00 | 77,17 | 97,128 | 0,424 | 0,298 | 0,005 | 0,004 | 0,052 |
| 13:00 | 66,56 | 97,099 | 0,462 | 0,293 | 0,005 | 0,004 | 0,050 |
| 14:00 | 62,34 | 97,115 | 0,457 | 0,294 | 0,005 | 0,004 | 0,052 |
| 15:00 | 57,89 | 97,065 | 0,482 | 0,300 | 0,004 | 0,004 | 0,050 |
| 16:00 | 65,78 | 97,067 | 0,494 | 0,304 | 0,005 | 0,004 | 0,044 |
| 17:00 | 41,94 | 97,050 | 0,487 | 0,311 | 0,006 | 0,005 | 0,045 |
| **SUM** | **666,00** | | | | | | |
| **AVG** | | **97,10** | **0,46** | **0,30** | **0,01** | **0,01** | **0,05** |

# Best performing Permanent Magnet Drum

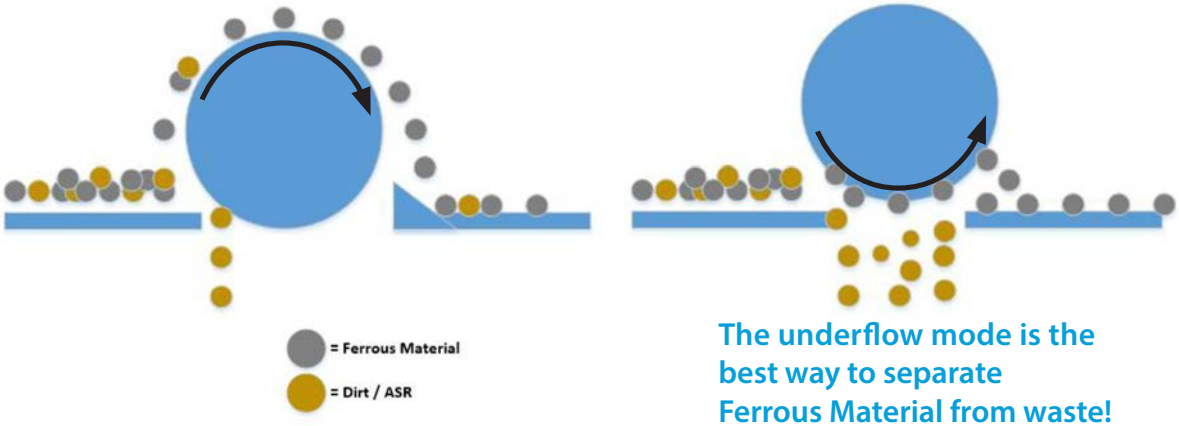

### More profit!

- Higher ferrous recovery (less lost nuggets!)
- Higher non-ferrous recovery
- More transfer of wire to the ASR
- Less handpicking effort

## BENEFITS

- Alternating polarity causes ferrous material to flip around and achieve better cleaning results
- Steady and constant magnetic force across entire working width
- Side panels used as guide plates improve control over material flow
- Individually replaceable, bolted wear plates
- Separation in underflow operation mode
- Highest production quality of built in parts and machinery to ensure long lifetime and highest reliability
- No heating up of the magnet, always the same performance, no loss of nuggets during the day (electro magnets often lose nuggets, due performance decrease)

## Overflow versus Underflow mode




**The underflow mode is the best way to separate Ferrous Material from waste!**

The preferred equipment for ferrous separation by shredder operators has conventionally been the electro magnet, generally operating in an overflow mode. Today, both practices are considered to be outdated with increasing problems of copper impurities within the shredded scrap. SICON has addressed the arising issue of gradual increase of copper in shredded scrap early on; identifying the design flow in magnet drums as the underlying cause for the problem. We have adapted our equipment to perform the task more efficiently. Our efforts led to the development of the MagSpin as the best solution to tackle the task of improving quality of shredded scrap.
MagSpin is part of SICON's unique ScrapTuning® Ferrous Downstream which reduces the OPEX of any other Downstream significantly.

| Option | |
|---|---|
| **Working width** | 55" – 110" (1,400 - 2,800 mm) Custom sizes available upon request. |
| **Diameter** | 40" – 71" (1,020 - 1,800 mm) Custom sizes available upon request. |

| Feature | Advantage | Benefit |
|---|---|---|
| Alternating polarity of poles | Flipping effect on the shred | Cleaner shred |
| Consistent magnetic force across entire magnet surface | Full use of magnet on the complete width | Cleaner shred across the entire width of magnet<br>Consistently higher throughput |
| Replaceable, bolted wear shells | Easily replaceable | Lower maintenance costs / lower downtime |

### Other features

- Easy maintenance, much lower OPEX than with electromagnets
- Multiple poles made of barium ferrite permanent magnets create an evenly distributed magnetic field
- Wear shells constructed of non magnetic, wear resistant, hard manganese steel
- Driven by geared motor
- Robustly built to demanding standards for a long lifespan

# Better quality and less refining risks

## Benefits that pay off!

**For the Fe-Downstream**

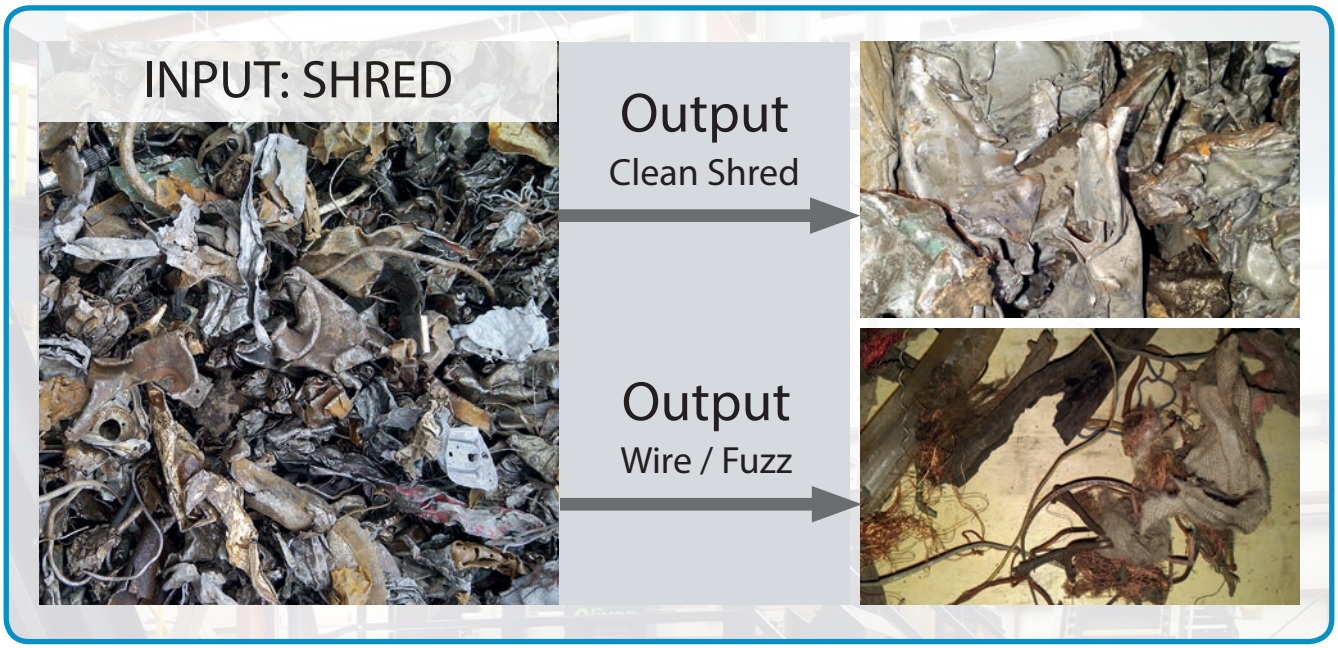
- Cables are separated before manual sorting and no longer get lost in shredded scrap
- Drastically reduced operating costs compared to conventional air classifiers

**For Zurik and Cable Processing**

- No more heavy parts in the shredders
- Increased operational safety in the lashing or cable preparation

BENEFITS

- AirKnife as air sorter with optional closed loop air system
- Multiple adjustment possibilities (feeding speed, air volume, belt inclination etc.)
- Low energy consumption
- Compact design, easy access to all parts
- Easy integration for plant upgrades




The AirKnife Classifier is designed to separate stainless steel and other heavy metals in Zurik-Refinery plants to protect any upstream size reduction. The precise adjustment possibilities ensure a safe operation. Wire and fuzz from shred can also be separated. The AirKnife Classifier is a perfect alternative to any Z-Box, easier to operate at lower cost.

**The SICON team also takes care of individual integration into existing plants.**

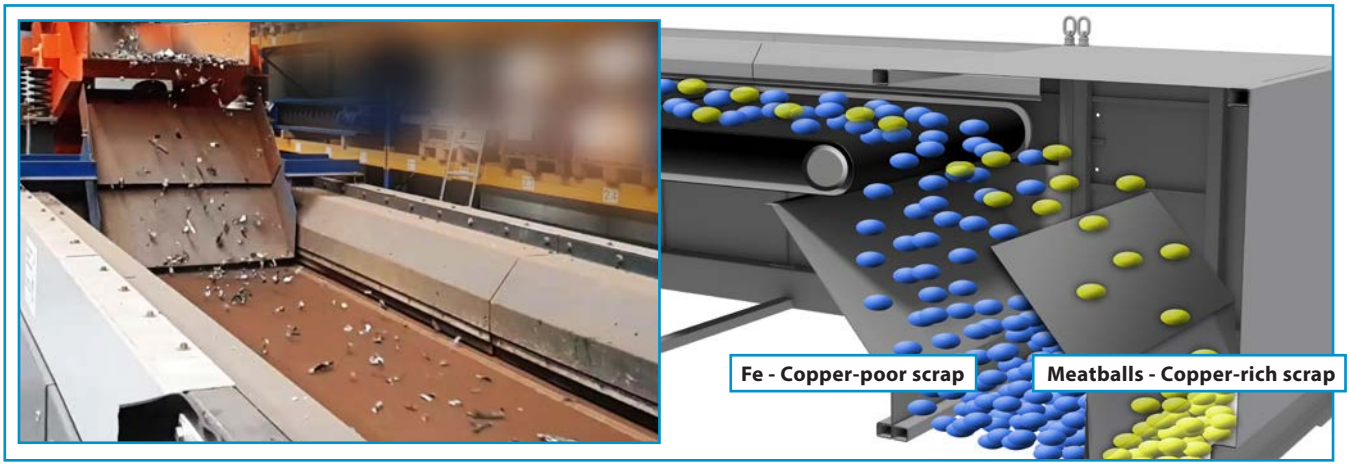
**Working Widths:** **40“ - 100“ / 1,000 - 2,500 mm**

# Low-Copper Shredded Scrap – reliable and cost efficient

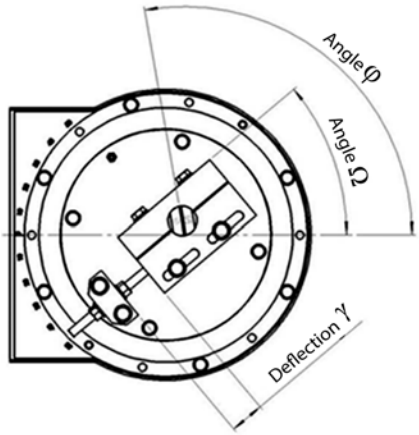

**The PrimeScrap**
**generates clean scrap with**
**less than 0,2% copper!**

## BENEFITS

- Reduction of handpicking cost up to 75 %
- Only 25 % of the material stream remains for handpicking or automated sorting
- Highest steel mill requirements are met
- Shortest amortization periods due to additional non-ferrous profits and reduced labour cost




SICON's PrimeScrap is used for efficient cleaning of shredded scrap to have meatballs, non-ferrous materials or non-metal materials removed from the main material stream.
Material is introduced on a vibrating pan feeder and is transported via chute to the conveying belt of the Prime-Scrap where it is accelerated to 20 ft/s (6 m/sec). The material is passed on to the head drum which is equipped with a magnet system where it is being ejected. Nearly all non-magnetic objects are removed from the material main stream and are delivered to a separate chute.




With our new setting parameters, the PrimeScrap can be perfectly customized for our customers to achieve the best results!

In addition to the settings shown in the illustration, the splitter, the field strength of the magnet and the belt speed can be adjusted - this makes the PrimeScrap suitable for many materials!

| PrimeScrap | 250x1000 | 250x2000 |
|---|---|---|
| Working Width | 1.000 mm / 40“ | 2.000 mm / 80“ |
| Throughput* | max. 75 t/h | max. 225 t/h |
| Dimensions | 9,35 x 2 x 3,4 m / 390“ x 80 x 130“ | 9,35 x 3 x 3,4 m / 390“ x 120 x 130“ |
| Belt speed | 3-6 m/s / 120-240 inch/s | |
| Belt drive | 2,2 kW / 3 HP | |
| Channel drive | 2 x 0,747 kW / 2 x 2,7 x 0,9 HP | |
| **Sizes up to 2.500 mm in 500 mm steps are available on request.** | | |

* Depending on material composition and bulk density

***»SICON has proven to be a reliable partner for our company. The cooperation goes far beyond the supply of excellent machine technology. SICON is always there to help us with advice and support.«***

**Fred Runde, President of CCR**

The customer is operating a 2500 HP shredder 80 X 104 with a production rate (ferrous output) of 60-70 tph. The first non-ferrous downstream was installed in 2008. In 2017 a fire destroyed the eddy currents and the customer was looking for new machines with a better recovery. The decision for the SICON EddyPro was mainly based on performance and expected machine quality.

Two EddyPro Separators INPXS (High Intensity Version) and INPX were bought to replace the burned machines. The INPXS is used for the material up to 1" with one splitter and separates Zorba. The INPX separates material from 1" up to 4" and is equipped with 2 splitters to produce a clean aluminum "long throw" fraction over the second splitter, and a normal zorba product from the first split.

The installation of the eddy current INPXS for the material under 1" had a very positive effect: The copper content in the Zorba was significantly higher than with the previous eddy current and exceeded 15%. That initiated Mr. Runde to install an optical sorter from SICON (Varisort Compact) to separate red from grey metals as well. Since optical sorters have a detection limitation, it became necessary to install an additional Variomat screening machine to remove Zorba under 1/5" (5 mm) from the under 1" zorba to make the optical sorter working more efficient. Due to very skilled staff, all installations were made by personnel of CCR. SICON-technicians supported CCR during start-up.

Typical for family owned scrap processors is the gradually plant expansion. Each step is based on gathered experiences and has to exactly meet the company's needs to give the maximum benefit. The strength of SICON is to listen to the customer´s needs and to offer different features to customize a machine to those specific needs.

In another step of expansion CCR installed in spring 2019 another Trisomat ST1250x5400 FD screening machine to separate Ultra Fines from the ASR. The FinesTuning® 1000 is a compact designed system with magnet drum for ferrous material and a neodymium magnet drum for the light magnetic dirt prior to the eddy current separator. This eddy current separator separates Zorba up to 1" (25mm) after the magnetic dirt has been removed.

In a customer tailored Zurik processing line supplied by SICON, CCR is operating different machines like:

- **EcoShred® Imtec** (Balling Mill for outstanding separation results)
- **EcoShred®** 1SS K1500 (Single-Shaft Shredder)
- **EcoShred®** 2SS X1300 (Twin-Shaft Shredder)
- **WetFloat®** (Density based metal separation)
- **AirFloat** (Sorter for dry separation)
- **AirKnife** (Air Sorting for cleaning of Shred and Zurik)
- **AirSort®** (Highly accurate Z-box air classifier)

Stainless steel separators together with sorters are the essential parts in the Zurik refining line to ensure that CCR delivers the highest quality to its customers. High performance, low operating costs and very high reliability are required by CCR and supplied by the SICON equipment.

On this subject Fred Runde says: ***"That's been my experience with SICON equipment: with good housekeeping practices done each shift, they have been trouble free. When we need support, SICON is always there for us. SICON adapts equipment and solutions to our specific needs. We have installed several sensor sorters from SICON America in recent years. The VariSort sensor sorters have proven that they deliver perfect results at very low operating costs. We are absolutely satisfied with the machines and CCR regards Heiner Guschall, President of SICON, as a very trustworthy and knowledgeable partner."***


**CCR is a company which is not buying equipment based on a special brand name. Machines and solutions need to fit the specific company requirements. Performance, reliability and low OPEX are the reasons for CCR-Owner Fred Runde and its Plant Manager Justin Keehner to buy a machine.**

# Service Value

Scheduled maintenance & service ensure that all equipment stays in excellent condition and prevents from unscheduled downtime. SICON offers customized maintenance & service solutions, including consultation, trouble-shooting, rotor repairs & rebuilds as well as service jobs with spare parts delivery and emergency support.

With twenty years of experience, SICON offers operators a complete one hand service solution to ensure processing operations without any surprises!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