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RECYCLING  
FEATURE**

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Global News & Information on the Quarrying,  
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September/October 2020 | Issue 64

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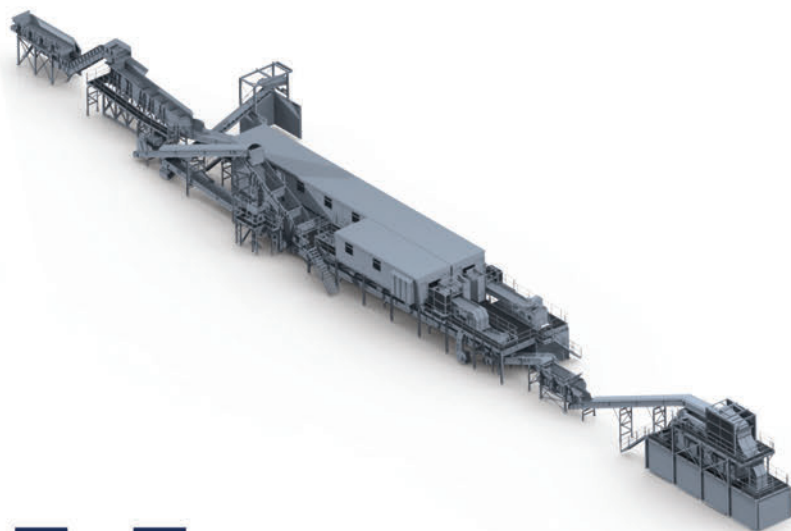




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# Blue help Customers Increase Tonnage and Decrease Operating Costs, with State-Of-The-Art Recycling Plants



**Since 1948, Patersons Skip Hire and Recycling have been providing their customers with a quality skip hire service. They have since gone on to expand their range of services to include the supply of recycled aggregates, demolition waste disposal and waste tipping facilities.**

With Patersons' continued growth, the amount of waste that was arriving on site in Dundee was constantly increasing. The system they were previously using to process this waste was becoming inefficient and they were being overtaken by the tonnage they were running through their plant.

Patersons Skip Hire approached Blue Scotland about the possibility of installing a new state-of-the-art, Multi-Million-pound plant to replace their outdated process. BlueMAC were brought in by Blue Scotland to design the plant, which would be processing construction and skip waste.

James Hurst, BlueMAC Technical Sales Manager, explains the process from start to finish. "The plant features a GK Grizzly finger screen at the infeed point, we split the material at 180mm to create two material streams. The oversize enters the pick station which is kept inline to eliminate potential bridging sites with long pieces. The plasterboard, cardboard, wood, plastic, and waste are removed, and the residual material gets treated with a BlueMAC overband magnet and Air Knife, creating a clean aggregate product. >







The undersize (sub 180mm) is conveyed to a Spaleck combi screen, this was the first screen installed in Scotland to include the innovative smartSUSPENSION system; the screen rests on air bags rather than steel springs which means that the system is highly robust, cost-effective and very reliable, even in the harshest of working conditions. It shows no fatigue or settling behaviour as known from the screw pressure springs or rubber buffers used in past systems.

The Screen creates 3 fraction sizes in one pass, the fines are removed from the bottom flip flow section at sub 10mm, these are treated by an inline magnet to remove the ferrous material. The top deck has 75mm 3D screen plates, this material enters a picking station which uses the same bays as the oversize material to remove wood, plastic and waste with the residual getting treated by an overband magnet and air knife to create a clean aggregate.

The 10 -75mm fraction is treated autonomously via the Bluemac Mids Clean-up system. This incorporates non-ferrous removal using a custom Eddy Current, ferrous removal via an inline magnet and finally lights and heavy's separation using the Westeria Airstar windsifter. With the acceleration belt on the Airstar offering speeds of up to 3m/s, it guarantees the highest throughput with the optimal separation result. "

The output of this new plant is now at 50tph, a great improvement on their previous system which was turning out around 20tph. The output materials include, 20% wood, 29% hardcore, 28% 10mm-50mm fines, 5% ferrous metal, 2% non-ferrous metal, 4% rigid plastic, 2% cardboard and 10% residual waste.

One of the key benefits of Patersons' newly installed plant is the costs they will save on fines, by having a lower LOI (Loss on Ignition) value. This new plant allows them to classify their materials more accurately to quality for lower levels of landfill tax. The new system includes increased automation, meaning they can process more tonnage with fewer manual pickers, which will be a massive cost saving in the long run.

Managing Director of Patersons, Kerr Paterson, offers his thoughts on the new plant: "I am delighted with what Blue Scotland and BlueMAC have produced. BlueMAC have designed a truly remarkable construction/skip waste recycling plant, bringing together components from some of the best brands in the world. I visited a few other manufacturers to view their latest projects, but as soon as Blue presented their idea to me, I was sold on it. On top of this plant, we have bought and run several machines from Blue in the past and their level of back up and support is non comparable. The local service provided by Blue Machinery Scotland and the expertise in the design process from BlueMAC was winning combination for us."







Blue Machinery Scotland Sales Manager, Alistair Rees, adds his thoughts on the deal with Patersons, "I am delighted that



Kerr Paterson decided to award Blue Scotland and BlueMAC the contract to design and install this impressive plant. Although it is a significant capital outlay, there is a big return on investment to be had. The money that they will save on manual pickers will help to decrease their operating costs, along with the reduction of material that will be going out as commercial waste. I would like to thank 'Kerr' and Patersons Skip Hire for their continued business, and I hope this great working relationship will go from strength to strength."



If you would like to find out more on Blue's capabilities on the design and install of state-of-the-art recycling plants like this one, give us a call on 0345 217 8755 or email us on [sales@bluegroup.co.uk](mailto:sales@bluegroup.co.uk).



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# Welcome to issue 64

**Welcome to issue 64 - our recycling special edition has now landed and features some great content from an array of leading European Manufacturers.**

We live in interesting times, but we have landed another great issue and it is great to see all these OEMs marketing their latest projects and equipment portfolios in this issue.

Looking toward the future our next edition in November features all the latest news in the Asphalt and Concrete Sectors, so if you are a company with relevant products and services then this will be for you.

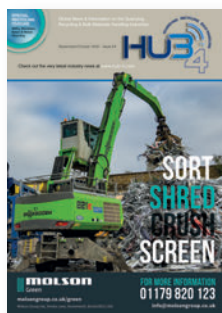
I should also mention that with 2021 fast approaching our new media file is now available – please contact me for a full features list.

Any great stories please send to me at john@hub-4.com

See you soon...

**John Edwards**

Editor



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# Southwark Metals invest in

**Southwark Metals started in 1980 in the London Borough of Southwark. As a highly reputable family run company, they offer a wide range of services from scrap metal to office clearances. It's an intense operation that requires skill and experience with the company boasting a time served, fully trained experienced team to do clearance work and dismantling.**

Recently in March the company moved from a site in Ruby Triangle in South Bermondsey, to Trundleys Road in Deptford, London.

Although the company were not required to close in lockdown it was seen as a prime opportunity to move to the new premises while they set up the new operation.

Today the company turn over in excess of 35,000 tons/annum, with scrap metal coming in from all over the South East which is dealt with by a fleet of Sennebogen machines who handle and sort the daily throughput of metals.

## **Reliable Material Handlers:**

Scrap metal processing is highly dependent on material handling machines and previously the company had a variety of different manufacturers machines at the old site.

At the new Deptford site, the company employ an 821E and an 818E Sennebogen Material Handler and have recently invested in a Sennebogen 355E Hi-Rise Handler, all of which have been supplied by Molson Green.

Based in Bristol, Molson Green are the Recycling Industry Machinery Experts and are part of the Molson Group who are the UK's largest independent new and used equipment dealer.

Operating from 13 locations strategically positioned throughout the UK, a team of over 70 fully trained service engineers and millions of pounds worth of parts ensure that businesses are kept running.





# more Sennebogen technology

Nicola Pratt – Company Secretary, took up the story, “It is essential that we have reliable machines, but even more importantly is the level of service support that comes with it. In that respect Molson Green have surpassed our expectations and we can operate with a level of confidence that we previously did not have at the old site with other manufacturers machines.

## The 355E Sennebogen Hi-Rise Handler:

The latest acquisition to the fleet, a 355E came about after a highly successful on-site demonstration where the machine surpassed all their expectations in performance.

“It was a machine that our team fell in love with, and it was an easy decision to invest in more Sennebogen product. We are often told what a machine can do, but usually in reality most machines fall short of that, but in the case of Sennebogen that isn’t the case at all, as all our Sennebogen machines

perform as they should and the 355E was no exception, said Nicola.”

Although described as a telehandler the 355E is much more of a hybrid (a high-rise handler); which utilises Sennebogen crane technology in the boom structure and design, thus providing improved strength and durability. Built with the operator in mind the 355E provides total comfort and control through ergonomics in every detail.

As a true power house with reliable sophisticated technology it has an enviable performance with a 5.5t capacity and an 8.5m max lift. Running on semi-solid tyres and incorporating a 3m<sup>3</sup> bucket with hydraulic clamp, a high-rise cab (function on foot buttons) – improves optimal visibility, is safer and increases efficiency when loading – as you can see more.

Performance is further enhanced by Z-linkage on the bucket end of the boom which assists the machines weight to push the bucket through material.

Nicola, added, “our team love the 355E quite simply does what it says on the tin!

“Since moving to the new site we are busier than ever, which is very welcome news considering what the country is going through.

“Forty years on and our ethos stands firm, maintaining great relationships with the industry, our clients, our staff, and our suppliers.

It is all credit to our Sennebogen machines and Molson Green who have supported us throughout this transitional period!”





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# Siebtechnik Tema Ltd add the first Mobile Liwell Screen to their product portfolio

**Siebtechnik Tema B.V. and TRS B.V. have brought to market their first Mobile Liwell screen as a joint venture. In the UK Siebtechnik Tema Ltd will offer this machine as part of an extensive product portfolio.**

There are two variants featuring either a single deck (STR 1550-I) Liwell Flip Flow Screen or a double deck (STR-1550-II). On the face of it this may not seem that different to other units currently available in the marketplace, however, the forced motion of the Liwell Screen provides the user with unprecedented levels of performance hitherto unavailable in this sector.



The Liwell's patented action develops over 50g of acceleration under all feed conditions and is unaffected by deck loading, unlike floating secondary chassis types.

The collaboration with TRS was a meeting of like-minded companies looking for that performance edge, which really comes into its own on very difficult screening applications such as IBA processing. The Liwell screen at the heart of the STR1550-I/II is renowned for its abilities to screen down to 1mm with ease and possibly even smaller if the conditions allow to maximise metals recovery.

TRS B.V. is based in Akersloot in the Netherlands and specialise in Turn-Key Recycling Projects with IBA processing and metals recovery a speciality. With over 15 years' experience in the recycling sector, offering complete solutions for waste stream processing, they have amassed a wealth of knowledge second to none.

It's hoped this joint venture will provide the necessary platform to launch this product, the Liwell is the preferred flip flow screen for IBA (Schlacke) across Europe and we hope this will also prove the case for the UK sector also.

## Brief Spec

### Type STR1550-I Typical Process Rate for IBA

Material	: IBA
Size Range	: 0-60mm
PSD	: 0-8mm
	: 8-60mm
Feed Rate	: 80tph*
Cut Point	: 8mm
Drive	: Hydraulic Motor
Screen Inclination	: 15-25°

\* The throughput or screen capacity is determined from a number of factors which require verification by Siebtechnik Tema, the above example is a guide only.



## Technical Specification

Screen Size and Type	: Liwell LF1.5-5.04/16ED
Overall Dimensions	: 19m x 3m x 3.1m (LxWxH)
	Transport Mode
Total Weight	: 37 tonnes
Drive System	: Hydraulic Motors
Hopper Size	: 8m <sup>3</sup>
Input Belt	: 11.5m long, 1.2m wide
Fines Conveyor	: 8m long, 1.4m wide
Oversize Conveyor	: 7.3m long, 0.8m wide
Engine Bay	: Contains the hydraulic oil tank, diesel engine, muffler and hydraulic pumps. There is motor protection and an electrical fault report system for Engine Temperature, Cooling etc.
Hydraulic Tank Capacity	: 490 litres
Engine	: Caterpillar Stage 5 Diesel
Exhaust	: DPF/SCR with Ad-Blue
Fuel	: Diesel
Capacity	: 5.13ltre
Power (ISO 14396)	: circa 105kw at 2,310rpm
Torque (Max)	: circa 700Nm
Fuel Tank	: 260ltr
	(Integrated into the Chassis)

With full support from Caterpillar Global service and aftermarket support, customers can be assured of product support they need.



## 20 years of industry experience now in a double pack.

Neutron Equipment Ltd have joined forces with the Power of Hammel to supply the world's leading shredder technology. The partnership started with a successful demonstration tour of the VB950 DK RED GIANT, with which we visited various customers from the wood, waste, and metal industry on-site in Great Britain.

Neutron Equipment Ltd. is committed to providing its customers with first-class sales and service support around the clock and nationwide, thus guaranteeing your customers on-time processing and production.

Neutron's future plans include expanding our product offering to provide a more diverse range of products and expanding our area of responsibility.

We are looking forward to a good cooperation.

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*Customer review:- J Mould (Reading) Ltd being one of the first to purchase a Peterson Pacific 2710D Horizontal Grinder in November 2019, seen the potential in the power and flexibility that the 2710D would allow them to have a one machine, one pass system they had been looking for. The potential to increase production tenfold and the final product is to exact specification and J Mould (Reading) Ltd now supply many WCC Biomass outlets in the UK. Less running costs, less wear and more production make it a 'no contest for the competition.' Stop Whining, Start Grinding as we say at J Mould! Brian McCrory.*



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Neutron Equipment are extremely proud to represent Peterson's Product range throughout the UK, Ireland and Sweden. The robust Peterson build quality, Technical and spares support, coupled with Neutron's competitive pricing and in house service teams have proven the Peterson 1710D, 2710D and 5710D models of Horizontal Grinder popular. If you would like to discuss further do not hesitate to contact us:

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## Metal recycling firm receives Lloyd's quality accreditation

**Derbyshire-based metal and waste recycling specialist, Ward, has achieved approval of the ISO 9001:2015 quality standard from Lloyd's Register (LR) for its deep-sea dock at Immingham.**

The dedicated Associated British Ports (ABP) site in North Lincolnshire was opened in 2018 for collecting, processing and recycling ferrous and non-ferrous metals for export. The move expanded Ward's capability for processing over 500,000 tonnes of metal annually and this month it received official accreditation from prestigious auditors, Lloyd's Register, for its Quality Management Systems.

Ashley Oates, Head of Sustainability at Ward, said: "We used the period of disruption during lockdown to be able to really focus on achieving this accreditation. We took the opportunity to scale back other projects and spent the time going through the rigorous audit process required to meet the Lloyd's Register quality standards. We managed to complete both the Stage 1 and Stage 2 audits in record time."

The scope of the approval is applicable to the provision of waste and scrap metal collection services, the processing and recycling of such materials and the supply/disposal of the products produced.

Ashley added: "It is a prestigious quality standard and we are proud of the team for working so hard to deliver the requirements in the relatively short time Immingham has been operational. This gives us a real competitive advantage in the metal export market."



Lloyd's Register assessors and trainers are sector specific experts who fully understand the business and sectors that Ward operates in. Its quality management solutions are deployed to improve both the effectiveness and efficiency of an organisation. As an approved client, Ward is now among a limited number of businesses that can use a Lloyd's Register approval mark to demonstrate its achievement to clients, prospective clients and key stakeholders.

The quality approval comes as the multi-award winning, independent fourth generation family business completed a significant investment at its Ilkeston site with the installation of a Metso pre-shredder and has started to be able to offer its full range of metal recycling and waste management services, rather than only key essential and clinical waste services, as lockdown measures begin to ease.

For more information on Ward's metal recycling and waste management capabilities visit [www.ward.com](http://www.ward.com)

## The Sheehan Group produce record volume of recycled sand made from recycled aggregate

The Sheehan Group have produced 333,000 tonnes of recycled sand – the same volume of sand used to build the world's tallest building the Burj-Khalifa in Dubai.

The recycling and sustainable construction company produce recycled sand by repurposing leftover soil and aggregate from demolition and construction sites - saving it from landfill. Construction waste is recycled at the Sheehan Group's CDE Global Advanced Recycling Plant producing high quality sand, concrete blocks, recycled aggregate, and other construction materials.

Contractors are embracing the high-grade recycled sand, which has a lower carbon footprint and protects a scarce natural resource. Since the Sheehan Group installed the CDE Global Advanced Recycling Plant at its Oxfordshire base in 2012 it has diverted 825,000 tonnes of soil from landfill and created low carbon concrete blocks, recycled aggregate, recycled sand and ready-mixed concrete.

Tara Sheehan, Finance Director at the Sheehan Group said: "It largely goes unreported that sand is on the endangered natural resource list. Globally around 13 billion tonnes of sand are mined for construction and the impact on the environment is vast and unsustainable.

"Natural resources will not be able to cope with on-going demand, but there are alternative solutions that are sustainable. Our Circular Driven Economy approach to recycling C&D waste not only reduces the amount of waste going to landfill, it also creates high quality recycled products that can be used in local projects.



"In eight years, we have produced 333,000 tonnes of recycled sand, which competes with mined products on the market. We are finding more contractors are requesting recycled sand to use in construction projects and by doing so are helping make a positive difference to the climate emergency. It is a real progress for the CDE movement."

The Sheehan Group produces high-grade construction quality coarse sand and fine sand which is available to contractors in bulk. Last year it significantly invested in upgrading its CDE Global wet processing plant to produce higher quality recycled sand. It was one of the first companies in the UK to introduce the technology which is used for density separation to the existing system.



# The first battery-powered rehandling excavator from Atlas

**The first battery-powered material handler from Atlas has been delivered to new owners based in Hamburg, Germany. The innovative battery-powered rehandling excavator offers 140 kW / 190 PS of power from the four battery modules and has a recharging time of just one hour but even more impressive, the machine allows you to save up to 16 ton of CO2 over the course of one year!**

With innovation at the very heart of Atlas machinery, the launch of the brand new battery powered handler is an exciting time for the manufacturer. The Atlas 200 MH accu features an operating weight of 21 ton and a battery drive capacity of 140 kW / 190 PW. The machine is equipped with a demolition grab, has a max reach of 10m and the cab can be extended to the drivers eye level up to 5.2 metres.

## Four battery modules replace the conventional diesel engine

The machine is powered by 4 battery modules that weigh a total of just 900 kg. These modules replace the usual and heavier diesel engine. The built-in battery modules are responsible for driving the hydraulic system and moving the machine itself, eliminating any diesel emissions. In practice the machine is designed to be as productive as any diesel powered machine, with a work time of 3-4 hours and an approximate re-charge time of just 1 hour. The operator will be able to re-charge the machine over their lunch break and pick up where they left off for the second half of their day.

## A genuine milestone in technological development

The Municipal Sanitation Department of the City of Hamburg are the proud new owners of the first battery powered Atlas material handler and are expecting to place an order for a second battery electric machine by the end of the year. "This



The handover of the first battery-powered material handling excavator, the Atlas 200 MH accu, to Stadtreinigung Hamburg (SRH) (the Municipal Sanitation Department of the City of Hamburg). Brahim Sitou, (CEO of the Atlas Group), Prof. Dr. Rüdiger Siechau (General Manager of SRH), Michael Pollmann (State Secretary in the Ministry of Environment, Climate, Energy and Agricultural Economy and Chairman of the Board of the Municipal Sanitation Department of the City of Hamburg), Holger Lange (General Manager of SRH), Reinhard von der Wehl (General Manager of von der Wehl Group).

is a genuine milestone in the history of Atlas. Our intensive development work has brought about real progress and is an immense step forward in product development", says CEO of Atlas GmbH, Brahim Stitou.

At first glance, you wouldn't know the Atlas 200 MH has undergone such a transformation as the four battery modules are installed where you would normally find the diesel engine. The main difference you definitely will notice is the hugely reduced noise emissions from the machine, the electric 200 MH accu is much quieter in both idle and working modes compared to it's diesel powered sibling and where we save on noise, we also save in emissions, "the machine is not only quieter, but also emission-free. It saves more than 16 ton of CO2 annually", explains Professor Dr. Reudiger Siechau, Managing Director of the Municipal Sanitation Department of the City of Hamburg.

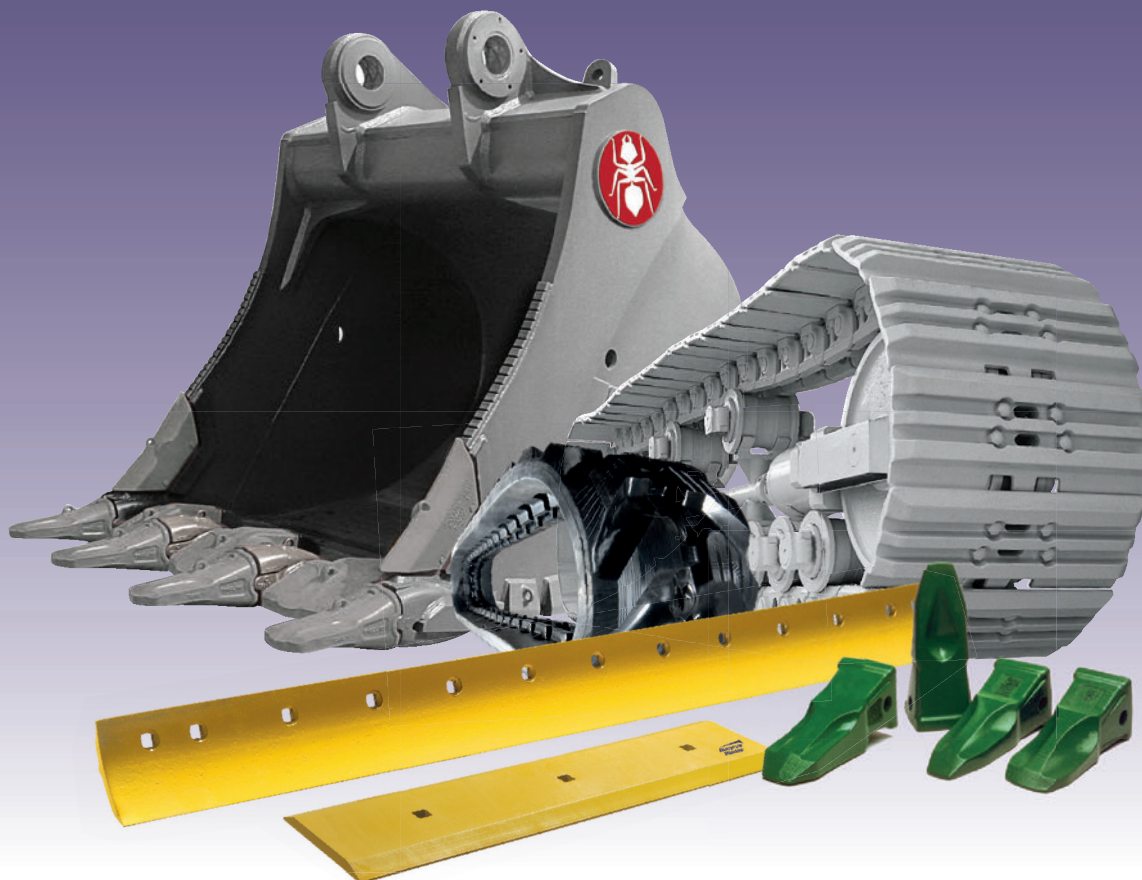
In the spirit of environmental friendliness, sustainability and progressiveness, Atlas will continue to work with customers to find machine solutions that suit their requirements.

Supplying the entire range of Atlas material handlers to the whole of the UK, TDL Equipment are on hand to discuss your next machine. Call the team today on 08444 99 44 99.



The Atlas 200 MH accu is used for waste compaction at the Municipal Sanitation Department of the City of Hamburg.





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# Reaching new heights with Edge Innovate's new Mobile Telescopic Conveyor

**A global leader in the design and distribution of a range of equipment used in the quarrying, port handling and recycling industries, EDGE Innovate has revealed their latest product offering from its ever-popular material handling product range.**

The new EDGE MTS140 is a 42.2m (140') long, portable telescopic radial stockpile conveyor that offers customers a cost-effective bulk material handling solution. The MTS140 significantly reduces operational costs by reducing the doubling handling of material and enables operators to create large "in-spec" stockpiles of product by eliminating the compaction, degradation, segregation and contamination of material.

Boasting an array of design features, the MTS-Series spans a massive 140ft (42m) and encompasses two conveyors, an automated stockpiling control system, variable discharge height and the option of direct electric or diesel genset power sources. The MTS140 utilises an easy to use HMI control panel for the selection of multiple stockpile programs and gives operators full control when creating precise stockpiles, for the loading of material to carrying vessels, barges or ships. The EDGE MTS140 telescopic stockpiler allows operators to create stockpiles of up to 14.3 (47'1) high at a rate of up to 1000TPH dependent upon feed material.

Additional options available include a track mounted bogie which gives the MTS140 greater application flexibility and is perfect for those operators who wish to frequently reposition their unit.



Darragh Cullen, EDGE Innovate managing director said "The EDGE brand has become synonymous with the manufacturing of reliable and cost-effective portable bulk material handling solutions. The new EDGE MTS140 telescopic conveyor has benefitted from EDGE Innovate's 30 years' experience in the material handling industry and will complement our growing range of port handling equipment which now includes mobile feeders, truck unloaders, track conveyors and wheel mounted radial conveyors".

Designed to easily fit into four containers for global export, the MTS140 can be reassembled quickly, with minimal civils required. As with all EDGE products, the MTS140 is fully built in Ireland where it undergoes rigorous testing and a detailed pre-despatch inspection before it is shipped to its destination. Our site engineers will be on hand during installation to ensure a fast and efficient reassembly and to provide operational training to onsite staff.

Conveyors offer the most cost-effective manner of transferring or stockpiling material on the market. Used within the port handling and quarry industry, mobile conveyors offer operators an efficient, reliable and versatile solution with the same piece of equipment having the ability to be utilised for the loading, unloading of ships, stockpiling of material and material reclaim. Whether it is; sand and gravel pit operators, aggregate producers, inland or port terminals; the EDGE MTS-Series is the perfect mobile stockpiling solution for operators seeking a high capacity bulk material transfer solution.





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#SHREDDINGEVOLUTION



# Increase in demand for cleaner waste products

**There is little doubt that the waste industry is experiencing an increase in demand for more purity in recovered waste products according to Con Gallagher, Head of Global Sales at Kiverco Limited. "Projects we have on the table in 2020 clearly show that companies are looking for better segregation and want to 'future-proof' their processing capabilities to give them a much cleaner product for recycling/use."**

There are a number of factors driving this demand. Businesses buying recovered waste products are insisting on cleaner supply, mainly driven by tighter regulations on quality. Waste to Energy plants are also demanding cleaner RDF/SRF fuel from waste companies to reduce harmful emissions. Finally, a 'greener, more sustainable' future is gathering momentum globally with people insisting that we need to live within our natural resource limits to protect the earth and reduce the harmful impact from mineral exploration.

"More and more we are discussing the 'cleaner products' requirement with potential customers around the globe. Comingled waste needs better segregation and to do so requires more technologically advanced systems which is something we have been offering here at Kiverco for many years. We have the knowledge and ability to design a process that will provide up to 97% waste recovery and separate each waste type effectively with little to no contamination. This is what our customers want and they are prepared to invest in the right kit to do so."

Kiverco was established in 1993 in Co Tyrone, Northern Ireland by Aidan and Anne McKiver with a desire and focus on providing top end solutions for the waste industry. Their business has grown to become one of the leading providers of waste recycling plants in the world with a reputation for quality, robustness and system performance. They have built a team of people around them that care passionately about 'designing it right, building it right and doing the right thing' for the customer.

Kiverco manufactures most if not all of the waste solution in N Ireland but also integrates world class technology from companies like Metso, Lindner, Rentec, Untha, Haas, Steinert, Tomra, Walair and BRT Hartner. Each system is unique and is designed from scratch based on an in-depth analysis and consultation with each customer. The resulting system performs to match the customer expectations with minimal downtime due to the quality of the build and components used.

Kiverco waste recycling plants can be found working in a broad spectrum of applications including Construction & Demolition (C&D) waste, Commercial & Industrial (C&I) waste, Dry Mixed Recyclable (DMR) waste, Municipal Solid Waste (MSW), RDF/SRF Waste to Energy (WTE), plastic waste, metals waste, compost and Incinerator Bottom Ash (IBA).

Kiverco recycling solutions are utilised across the world in Europe, North America, the Middle East and Australasia with more than 300 installations in the UK alone.







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## Two SSSC Magnetic Separators Ordered

**A UK metal recycling company has ordered two (2) SSSC Magnetic Separators to recover fragmented stainless steel. The order followed initial tests undertaken on site with a Rare Earth Drum Magnet during the Covid-19 lockdown. Once the restrictions had eased, the client travelled down to Redditch for more detailed test work on the SSSC Magnetic Separator in Bunting's Recycling Test Facility. The tests successfully demonstrated the separation and recovery of fragmented stainless steel from different size fractions.**

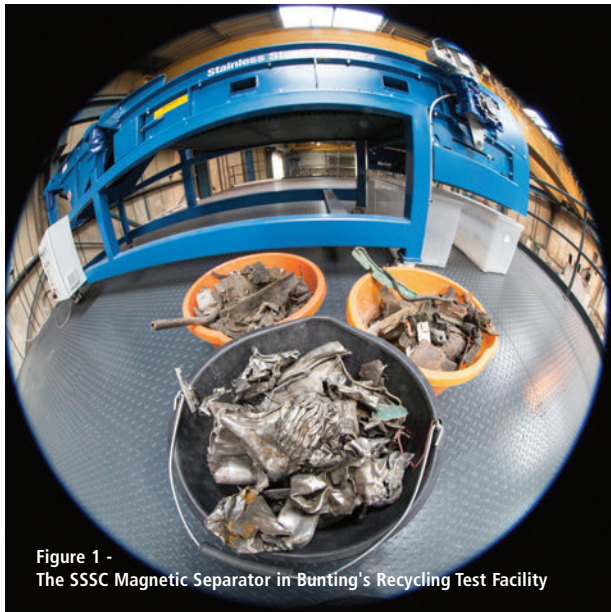


Figure 1 - The SSSC Magnetic Separator in Bunting's Recycling Test Facility

Bunting is one of the world's leading designers and manufacturers of magnetic separators for the recycling and waste industries. The Bunting European manufacturing facilities are in Redditch, just outside Birmingham, and Berkhamsted, both in the United Kingdom.

Following the positive test results, Bunting agreed to loan a 900mm wide SSSC Magnetic Separator for more tests onsite. During a further extensive period of testing, the metal recycling company determined the optimum performance and separation criteria including the ideal particle size range and matching capacity per metre width.

Subsequently, the UK-based metal recycling company has ordered two (2) SSSC Magnetic Separators with feed widths of 900mm and 1800mm. Both units are supplied with vibratory feeders, which control and regulate the flow of material. The 900mm wide unit is for processing the -50mm fraction, whilst the unit with the 1800mm feed width is for the larger sized fraction of +50mm to 200mm.

### **The SSSC (Stainless Steel Separation Conveyor)**

The Stainless-Steel Magnetic Separator is unique. Bunting engineers designed a patented Neodymium Rare Earth magnetic roll that produces an ultra-strong magnetic force to attract even the weakest magnetic materials. The strength of the magnetic field is far greater than standard magnetic separators, extending the separation capabilities from just removing ferrous and strongly magnetic materials to materials that have a very low magnetic susceptibility.

The SSSC Magnetic Separator is a dual-pulley conveyor with a high-strength patented magnetic head roll. Material is fed onto the conveyor and transferred into the strong magnetic field. Weakly magnetic metals, such as fragmented stainless

steel, are attracted and separated from unaffected non-magnetic materials.

### **Enhancing Metal Recovery**

The addition of the SSSC Magnetic Separators to the existing secondary metal process further expands the company's ability to maximise recovery and reduce waste.

"From the start, we worked very closely with the client," explained Tom Higginbottom, Bunting's External Sales Engineer for the North of the UK. "We know the strength of our SSSC magnetic rotor and the potential metal recovery. However, the metal recycling company knew their material and selected the best mix of frag, with the optimum particle size, for processing on the SSSC. By working together, we identified the metal separation capabilities and this resulted in the order of two units."



Figure 2 - An installed SSSC Magnetic Separator



The onsite tests on the 900mm wide SSSC resulted in the purchase of the production-size test unit. Manufacturing of the second 1800mm wide SSSC Magnetic Separator is presently taking place at Bunting's Redditch plant.

The SSSC Magnetic Separator is part of Bunting's wide range of ferrous and non-ferrous metal separation systems. The SSSC is commonly installed as part of a three-stage metal separation system:

- Stage One: The removal of strongly magnetic metals typically with an Overband Magnet and Drum Magnet;
- Stage Two: The recovery of non-ferrous metal using an Eddy Current Separator;
- Stage Three: Fragmented stainless steel recovery;

Additional information on the SSSC Magnetic Separator for stainless steel separation or other metal separators (including Eddy Current Separators, Overband Magnets and other magnetic separators), is available on the Bunting website.

[www.mastermagnets.com](http://www.mastermagnets.com)



# The increasing need for new and modernised MRF's



**Increasing numbers of ageing MRFs are being updated to meet today's more challenging requirements, and new MRFs are being designed and built differently to those of the past. Ruben Maistry, UK Sales Manager for STADLER, explains why and how.**

As the recycling industry adapts to shifting market demands and tougher legislation, materials recovery facilities are having to change. This essential modernisation process necessitates more than incremental improvements in technologies. Every fundamental step in an MRF's operations – sorting, processing, storage, and shipment – has to be thoroughly assessed to ensure the facility's optimum performance, not only now but also in the future. And because waste streams differ in composition and volume from one place to another, MRFs must be tailored to the waste-management needs of their own particular location and clients.



A brief look at recycling trends helps explain the evolving emphasis of work conducted at MRFs. The relative values of recycled commodities are changing, contamination levels of kerbside-collected materials are increasing, and the composition of single-stream recyclable materials is altering. Municipal solid waste (MSW) is a good example. As consumers move from print- to digital news media, the once-huge proportion of newspaper in the overall material stream is declining. As more shopping is done online, the proportion

of cardboard in the overall material stream is increasing. And as manufacturers reduce the weight of plastic containers and aluminium cans, MRFs have to sort and process greater numbers of these items to produce a bale of marketable material.



On top of this, the once-easy 'solution' of making waste someone else's problem by shipping it to foreign shores is disappearing. The short-notice introduction in 2018 of China's National Sword regulations had repercussions for waste-exporters globally, and now other countries are also expected to tighten their waste-import restrictions.

Solving this complex matrix of challenges is the specialisation of STADLER UK, a subsidiary of STADLER Anlagenbau GmbH in Germany. STADLER has sometimes been inaccurately thought of as a consultant but is in fact much more. In addition to designing, manufacturing, and assembling automated sorting systems and machinery for the recycling industry, STADLER also designs, builds, and upgrades world-class MRFs. To date, the company has built or optimised 85 MRFs, most in Europe and six in the UK.

One of these modernisation projects, completed in the UK last year, provides an insight into STADLER's approach. This multi-million-pound project replaced an existing facility. The objectives were to increase capacity and improve output quality... To achieve these goals STADLER implemented a phased plan typical of its approach with other projects.

At the start of a project, STADLER looks at the MRF's infeed composition, desired output, and existing processes. Examining process-flows identifies bottlenecks and how to eliminate them. Phase 1 also examines mass balances and







machinery choices. The machines installed by STADLER at this plant included one PPK and two STT2000-8 ballistic separators, two trommel screens, 12 NIR (near-infrared) optical sorters, nine material bunkers, three magnets, two eddy current separators, six sorting conveyors, and two balers, as well as dust-extraction and HVAC.

In Phase 2, STADLER's in-house project management team is forwarded a Project Handover which contains detailed information relating to the contract and customer requirements. With this information, the in-house designers create a detailed 3D design of the plant. Because this design shows the complete steel supporting structures and walkways, the client is given a complete overview of the plant and STADLER can conduct an Access, Lifting and Maintenance review (ALM) along with the client. The ALM looks at accessing, lifting and maintaining key components such as drive motors. Carrying out the ALM during the design phase eliminates the need to modify steel work once the installation has been completed. Once the layout has been approved by the client, drawings are submitted for the start of manufacture and supplier equipment is ordered. Electrical information is passed on to STADLER's in-house electrical team, where electrical panels are manufactured, and operating programmes written.

The third phase is installation, typically involving a combination of machinery from STADLER and other manufacturers, which STADLER project-manages on-site. All installation activities are carried out by STADLER employees holding all necessary health and safety and training qualifications.

Phase 4 is 'cold' commissioning of the plant without material. During this phase, the STADLER commissioning team is introduced to the project and carries out various activities such as testing the different modes of operation, pre-setting frequency invertors, making final adjustments on supplier equipment, and training staff members. 'Hot' commissioning is performed shortly afterwards with an agreed volume of input material. During this process STADLER assesses the areas that are critical for material flow, checking if transition points need to be optimised and if all machinery is operating according to specifications. Once these criteria are met, STADLER then runs the plant with the contracted throughput as stipulated by the client.

Finally, Phase 5 is Performance Testing and Take Over. An independent contractor is appointed to verify the performance of the plant and to ensure that all contractual requirements are met. STADLER personnel are still on-site during this phase, to assist the client with day-to-day operations and clarify any queries the independent

contractor may have regarding material analysis. Following the performance testing, the results are summarised and presented to the client in a final Take Over Report. Upon confirmation of this report, an Acceptance Certificate is signed by STADLER and the client.

Throughout these phases, all design, manufacturing, installation, commissioning and performance testing utilises STADLER personnel with the exception of the independent contractor. Keeping all activities in-house streamlines efficiency by ensuring less interface management.

As a result of this replacement, the new facility now has the capacity to sort 17 tonnes per hour of mixed recyclable material, producing fractions of news and pams, mixed paper, cardboard, HDPE, PET, mixed plastics, film, non-ferrous and ferrous materials, and scrap metals. One key strategy, removing cardboard from the process as soon as possible (with a STADLER PPK unit located after the first pre-sort cabin) has significantly benefited the rest of the line. Capacity has been raised from 65,000 to 75,000 tonnes per year.

The improvements achieved by this modernisation project and many others like it, and the growing number of new turn-key MRFs built by STADLER, are essential steps in the journey towards creating a circular economy. And at the same time as benefiting the environment, they are enhancing each plant's commercial competitiveness.





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## Eggersmann Anlagenbau implements recycling plant in Dubai for commercial waste from the world's largest offshore industrial park

**Waste is a global problem that is growing every day, and with it landfill sites that produce CO<sub>2</sub> and methane. It is a disaster for the environment and climate change. In Dubai, however, they are getting to grips with this problem and Eggersmann Anlagenbau was commissioned with the engineering planning and construction of a recycling plant for industrial, commercial and household waste. The opening ceremony of the Farz plant took place on 3 February, 2020 in the presence of the Minister for Climate Change and Environment of the United Arab Emirates, Dr. Thani bin Ahmed Al Zeyoudi.**



View of the Dubai recycling plant shortly before the opening ceremony.

The original contract for future cooperation between the clients Ramky Enviro Engineers Middle East and Eggersmann Anlagenbau was signed in December 2017. In addition to engineering design and planning, the scope of the order also included the procurement, manufacture and delivery of the entire plant technology and components as well as assembly and commissioning. The official acceptance and handover took place to the agreed schedule in December 2019. The plant is operated by Farz, a joint venture between Ramky and Imdaad.

The waste recycling plant in Dubai was designed for a throughput of around 700 tonnes of commercial waste and 500 tonnes of household waste per day. The day to day industrial and commercial waste from the world's largest offshore industrial park, Jafza Jebel Ali Free Zone, is processed here in three stages. In addition, the majority of the waste from the WORLD EXPO, which will take place in Dubai from October 2021, is to be treated in the recycling plant.

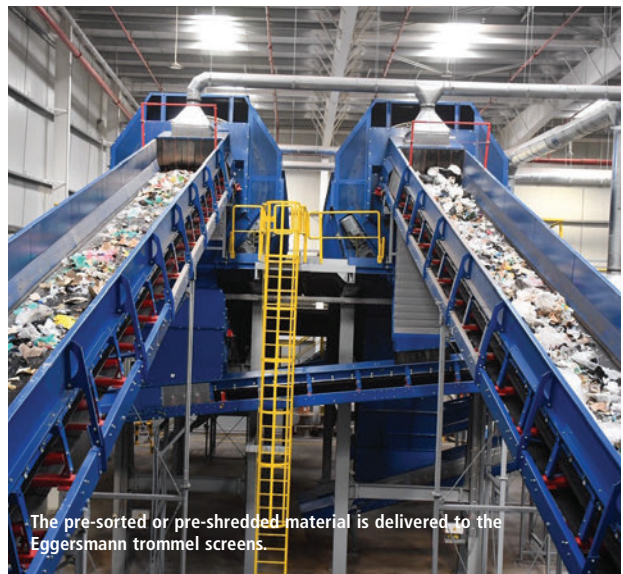
In the material receiving area of the 2-line plant, the material composition is assessed to determine whether the material must be pre-sorted as a first step or whether it can be forwarded directly for processing in the plant. With commercial waste, pre-shredding is imperative due to the large number of bulky solids. Two Eggersmann TEUTON shredders are in use around the clock and process a total of around 1,200 t per day before passing on the material to the trommel screens that are also supplied by Eggersmann. The screening operation is followed by separation of ferrous and non-ferrous fractions as well as the sorting of plastics, cardboard and paper with NIR devices. Eggersmann ballistic separators then split the plastic fractions into flat and three-dimensional parts. Other infrared devices sort the three dimensional plastics into PET and HDPE.



Two Eggersmann stationary TEUTON shredders are in use around the clock and process a total of around 1,200 tonnes of waste per day.

The recycled fractions of PET, HDPE, paper, cardboard, ferrous and non-ferrous are then pressed into bales and returned to the material cycle. The residue fine waste fractions are pressed into containers for subsequent disposal to landfill. The remaining high calorific value fraction is supplied to cement works for use as an alternative fuel (RDF).

With the new recycling plant, Farz is setting a vital example in respect of climate protection. The waste process, allows valuable recycling fractions of about 25 - 30% to be recovered, which correspondingly relieves the current landfill. The emissions of CO<sub>2</sub> and CH<sub>4</sub> also lowered considerably. At the same time, RDF is obtained, thus reducing the use of fossil fuels in the cement plants.



The pre-sorted or pre-shredded material is delivered to the Eggersmann trommel screens.

"The implementation of this system is particularly important to us. As part of the material receiving area and recycling plant hall, a control room with 5m high glass panoramic viewing panes and a visitor room have been created, in order to receive, train and make visitor groups aware of the issue of recycling.

In order to allow for future options, there is an area for expansion on the plant site for a second plant of the same size," commented Ramky Group Managing Director, M. Goutham Reddy.



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# Cheshire Materials Recycling Facility... Legato blocks

**Elite were approached by Wigan and North Wales based civil engineering company DXI. They had been tasked with the job of refurbishing a Materials Recycling Facility in Ellesmere Port, Cheshire.**



During the project both Elite and DXI worked closely together to provide a solution that not only met, but exceeded the specified design requirements of the client, whilst also adhering to all defined Construction Design and Management regulations.



The issues faced were that existing holding bay walls had become damaged and were no longer stable. These needed to be removed and replaced with a suitable alternative. As this was an active MRF the work had to be carried out efficiently and with the minimum of disruption.

In order to accommodate the MRF's operational hours DXI worked at weekends and overnight to remove the existing damaged holding bay walls. For speed, the walls were removed intact and disposed of off-site.

After consultation with Elite Precast Concrete it was decided that replacing the existing holding bay walls 'like for like' was not the best solution.

Instead, Elite proposed the use of their concrete interlocking block system, specifically their Legato Interlocking Concrete blocks.

This system, along with the inclusion of steel spill plates, not only provided a cost effective alternative but was quick to install.

As it is a modular system it also gave a lot of flexibility regarding the sizing and positioning of the bay. Looking to the future bay maintenance and repair will also prove simpler as blocks can easily be removed and replaced.



For more information or technical advice, contact 01952 588885.

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# More Sennebogen handling power for Excel Waste

**Based in Rainham, Essex, Excel Waste is a fully licenced and registered skip-hire and waste management company.**



**Originally based in Romford the company moved to the current site in 2013 where they operate a busy, 6 days-a-week operation, employing on average 30 staff working within a tight footprint.**

With a huge reputation within the industry the company ethos is based on efficiency, flexibility and professionalism, processing waste materials with a 97% diversion rate from landfill.

With an on-site MRF and associated equipment handling a constant stream of incoming mixed waste Excel process approximately 70,000t/annum and reliable handling machines are essential to handle and sort the incoming waste.

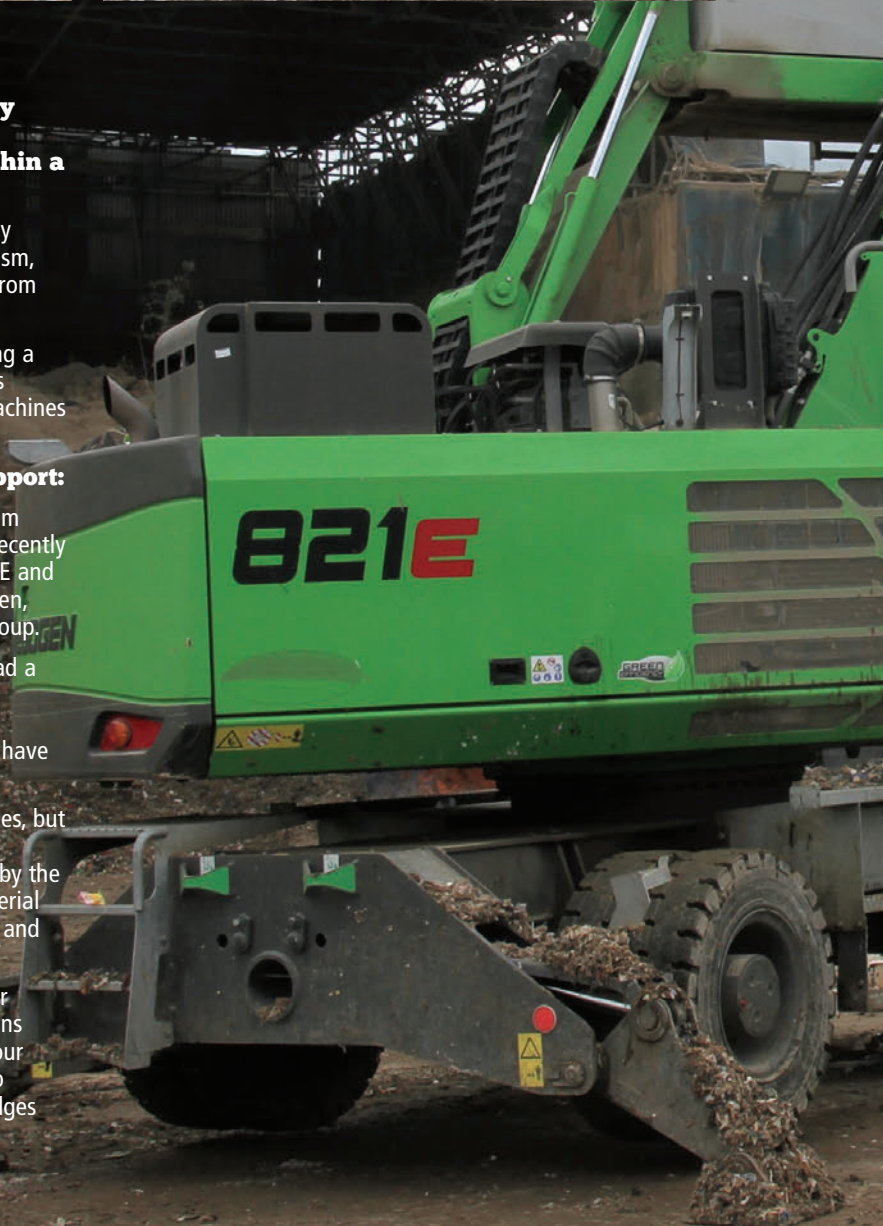
## **An investment, backed by solid service support:**

Having purchased a Hyundai 960HD Loading Shovel from Molson Green some 18 months ago the company has recently invested in two Sennebogen Material Handlers – a 818E and a 821E which again have been supplied by Molson Green, who are based in Bristol and are part of the Molson Group.

Nathan Godden – MD, takes up the story, “We have had a great experience with Molson since we purchased the Hyundai shovel and it made sense to further invest in Sennebogen machines and the service support that we have had from Molson.

“In the past we have used other manufacturers machines, but they do not match Sennebogen, so for us it was a solid investment particularly when the machines are backed by the top-class service from Molson Green! Sennebogen Material Handlers have an industry reputation of being a robust and reliable world-class machine, so it made perfect sense.”

Nathan continued, “As we are moving next year to a far bigger yard both the Sennebogen machines specifications were future proofed so they would also be perfect for our move next year. The new operation will also allow us to increase our processing capabilities with two weighbridges and be a 24/7 operation.”







## **Sennebogen 818E & 821E Material Handlers:**

Both machines have been designed and manufactured as purpose-built material handlers – not modified excavators. Machines that offer green efficiency, performance at the highest level, coupled with operating comfort, and providing maximum safety with easy maintenance and service.

The 818E has an operating weight of 21.8t (821E – 25.1t) and a 9-metre reach with 10-metres reach available on XL. (821E – 11 metres reach to the dipper pin)

Both the 818E and the 821E feature a E270 MAXCAB with sliding door, increased visibility, side and rear camera monitor, cluster display and joystick steering which with no steering wheel, gives an uninterrupted view.

The 818E comes in two configurations - K9 stick (scrap) and K9 ULM (waste) and the 821E - K11 stick (scrap) and K11 ULM (waste) configurations

Both machines are powered by a Cummins 130hp engine which is fully accessible in the side panel allowing easy and safe daily checks at ground level.

Offering full green efficiency, the 818E and 821E have an ERG system which improves fuel efficiency and reduces pollutants by up to 50%.

Nathan, concludes, "we are very happy with the sound relationship we have with Molson Green; it gives us great confidence for the future."



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## Have you seen a recent growth in waste operations across your site?



**With the nation's waste industry working harder than ever following an increase in the amount of waste produced during these challenging times, there is concern that we may start to see standards unintentionally slip and complacency creep in - so how can you do your bit to maximise a safer way of working?**

We have seen a large increase of training requests coming in for forklift training with waste-specific attachments such as rotating forks, fork rotators and bale clamps and fortunately for our customers, our training experts are on hand to provide guidance on course lengths, support in identifying the training requirements and in some instances even advise on the types of attachments and their category.

Support and advice has always been a key part of the service to our customers and helping ensure you get the right training on your site is our priority. Below are key areas that we believe must be considered to help keep sites safe for all.

### **Has the type of waste you receive on your site changed and are the attachments on your machines fit for purpose?**

Are there any non-banded products on your site now? Are you needing to manoeuvre materials you may not have had to before? Products such as tyres may present a number of issues due to their awkward shape and size – they have the potential to shift during transportation if they are not secured evenly. Ensure operators understand the importance of clear vision and drive at a sensible speed to avoid any unwanted tipping or flipping from an unusual load. Remember that non-banded and un-palletised loads must not be stacked too high as their uneven weight distribution could also cause them to become unbalanced and tip.

Are you needing to move more waste than usual? Do you know the weight of your load? If you are manoeuvring waste such as heavy bins, it is crucial to always check the weight of the load to prevent to load from falling from the truck or causing the vehicle to tip. This also includes assessing your materials for any defects that may cause the attachment to not fully and securely be able to grab the load.

Have the ground conditions been assessed? We understand that at many waste sites it may be impossible to remove all waste from the floor, but you must ensure you have a clear route of guidance before you start your travel. Checks for spillages, these could be harmful chemicals or substances. Ensure all understand how to deal with spillages onsite. Wheels should be checked pre and post use to ensure no materials have become wrapped around them and make sure attachments are clear from debris.

### **Are you aware of the impact of using in-correct attachments?**

Changing an attachment will alter the characteristic of the machine and the lifting capabilities of the forklift. The most common attachments utilised in the waste industry on a forklift truck include bale clamps, fork rotators and rotating forks; this allows for one piece of machinery to carry out numerous tasks for an efficient and cost-effective solution. Always make sure attachments are fit for purpose, for example – if you are moving baled waste – a clamp will securely lock the waste whereas the waste may slip between rotating forks, cause debris to fall in transit and potentially damage the equipment or causing an injury.



It is important to include any attachments you may use in your SSoW so you can monitor or refer back to the safe operating procedures.

We receive a number of calls from business looking to establish a better method of training on attachments and what is clear is that the changing of attachments is often seen by the operator as time consuming function and therefore done complacently. Changing the attachment may add time onto a daily task and increased workloads may make this challenging but if due care is not taken when completing this task, ultimately accidents will happen.

### **Do you assess your surroundings?**

Ensure that there is a clear, segregated route between the forklift trucks and other plant machinery or pedestrians particularly if your site is carrying out more tasks than usual.

Forklifts may come into contact with pedestrians on site so operators should always be mindful of their view when driving the truck and any pedestrians that may walk into the blind spot. Where pedestrians must enter the area of operation it is vital is that those who do not operate equipment understand their responsibilities to ensure that they are seen – a good, proven practice is to implement a simple communication method and acknowledgment of visibility between equipment operators and pedestrians.

We continue to provide a dedicated service to all and importantly, if you have any questions about training, standards and compliance associated to the use of equipment, our team of specialists are happy to help provide the information that you need. We are happy to answer any questions you have, and if we don't know the answers, we will find someone who does.

Call us today on 01246 386900



## New Doosan Excavators at EIS Waste Services

**EIS Waste Services Ltd, based in Aberdeen in Scotland, has purchased two new Doosan DX180LC-5 18 tonne crawler excavators from Balgownie, the local Authorised Doosan dealer, with headquarters in Inverurie in Aberdeenshire.**

**With roots dating back over 45 years ago, EIS Waste Services is an independent waste management provider specialising in bespoke waste collection, recycling and disposal services. Working on behalf of a wide range of public and private sector clients in the industrial, commercial, construction and domestic sectors in the city of Aberdeen and across the county of Aberdeenshire, EIS Waste Services has grown steadily over the last three decades and now handles in excess of 100,000 tonnes of waste materials every year.**



The new DX180LC-5 excavators are the first Doosan machines purchased by EIS Waste Services and are part of the continuing investment being made to further increase capacity at the company's Gallowhill Waste Recycling Facility. This includes a new £1 million processing plant, one of three now installed at the Gallowhill site.



Already Aberdeen's largest purpose built Waste Transfer and Recycling facility, there are plans to

further expand operations at Gallowhill. The increased capacity allows EIS Waste Services to divert even more waste from landfill, providing clients with more environmentally friendly and sustainable disposal and recycling solutions. With a fleet of over 35 collection vehicles, a container fleet in excess of 4500 units and 105 full-time employees EIS Waste Services has grown to become Aberdeen's largest Dry Waste collection and recycling provider, successfully managing in excess of 1500 planned waste and recycling collections per day in the busiest periods.

Supplying waste to the operations at the Gallowhill site, EIS Waste Services runs a fuel-efficient, state-of-the-art fleet of specialist vehicles featuring the latest GPS satellite tracking and communications technology, providing complete operational control and real-time job status. As part of the company's Zero Waste to Landfill package, monthly environmental reports demonstrate performance with statistical data derived on accurate weights using the latest dynamic on-board truck-weighing technology.

### Continuous Picking and Loading Operations

The new Doosan DX180LC-5 excavators have been equipped by Balgownie with raised cabs, hydraulic grabs and several other features to meet the specifications required by EIS

Waste Services. The raised cabs, rear/side cameras and side mirrors on the excavators provide excellent visibility for the operators to sort and pick through the many piles of waste arriving at the site, removing large items made of wood, metal, plastic and other materials, before feeding the remaining waste into the processing plants at the Gallowhill facility.

Neil Sharp, Managing Director at EIS Waste Services, said: "The new DX180LC-5 excavators meet our requirements in terms of the size of machine we prefer, providing the nimbleness and quick hydraulics we need, to move quickly in and around waste piles, initially sorting and picking out materials that cannot be loaded into the processing plants.

"Our excavators need to be very dependable as they work continuously 11 hours per day, clocking up to 3500 hours a year, so the 5-year/10,000 hour warranty that Balgownie has provided with the machines is a key element for us, showing real confidence in the performance and durability of the Doosan machines."

### Optimal Fuel Efficiency

The DX180LC-5 is driven by the Perkins 1204F diesel engine providing 97.9 kW of power at 2000 rpm. Like all Doosan crawler excavators, the DX180LC-5 has innovative and exclusive features that lead to huge reductions in fuel consumption amounting to an average of 10% compared to the previous generation machines.

Among these features is the 'Trip Meter Setting' screen which allows operators to check fuel consumption daily (or over a desired period) directly from the control panel; the Auto Shut-Off provides an automatic shut down for the engine after a pre-set time when the machine has been idling for a specified period (3 to 60 minutes configurable by the operator); and to save even more fuel, there is a special Doosan-developed system, SPC (Smart Power Control), to optimise the balance between the pumps' output and the diesel engine.

### Doosan Dealer for the North of Scotland

Balgownie is responsible for sales and servicing of the Doosan range of construction equipment from the 1 tonne DX10z mini-excavator to the DA45-7 articulated dump truck and everything in between. As an Authorised Doosan Dealer, Balgownie covers the area from the Scottish Highlands and Islands down to as far south as Fife.

Customers like EIS Waste Services benefit from a superb on-site service network, covering everything from emergency repairs to routine maintenance. Balgownie's factory-trained engineers have many years of hands-on experience of repairs and servicing of plant and machinery.







As well as covering existing contracts, Balgownie provides flexible service agreements, depending on the requirements of the customer. The company offers service and warranty work on all existing Doosan machines in its area, backed by a full selection of genuine accessories and parts. Balgownie also holds a stock of new and used Doosan branded machines, to respond quickly to customers' needs.

For more on Doosan construction equipment, please visit the website: [www.eu.doosanequipment.com](http://www.eu.doosanequipment.com)





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# Co-mingled MRFs - Challenging times but is there a new lease of life coming?

**The recycling industry is facing tough challenges. Keeping up with higher quality specifications for outputs, low commodity prices and increased contamination, especially during these COVID times, are putting the squeeze on profit margins. The net result is that operating a co-mingled Materials Recycling Facility (MRF) is hard work at the moment.**

From Turmec's perspective, the co-mingled MRF (also known as single stream MRFs) designed 10 or more years ago is moving through the end stages of its product lifecycle and is now moving from maturity to saturation where achieving profit becomes challenging, costs become counter optimal and competition for material (both infeed and outputs) is high.

The natural move is to increase the size and throughput of MRFs and increase the use of technology. This may involve upgrading existing co-mingled MRFs to install additional process lines to increase capacity, or, the installation of additional NIR technology to improve quality, to reduce labour costs or to replace equipment reaching the end of its useful life or no longer performing optimally in the current environment.



But this can be especially challenging for smaller MRFs which maybe space constrained, and the cost benefit analysis may not be so compelling.

Collection strategy also plays a part. We know the choice of collection system is complicated and there is no 'one size fits all' solution but these factors, plus the quest to increase the range of product outputs and to improve output material quality, are pushing collection authorities steadily towards kerbside sorting and two-stream co-mingled collections. In a two-stream system the fibre is collected in one box and containers including glass, in another. This move by collection authorities can be seen as good news for co-mingled MRFs.

The kerbside collection element of a two-stream comingled collection system can improve quality, acting as a pre-sort where elements of contamination such as textiles, toys, wood etc are not collected, resulting in cleaner target materials placed in the back of collection vehicles.

How does the typical co-mingled MRF turn this into an opportunity?

Normally, a co-mingled MRF will consist of sizing equipment such as trommels, OCC and ONP screens to separate fibre from containers for onward treatment by other equipment such as NIRs.



One of the big challenges for MRFs handling single stream material is the size distribution of the different material: for instance, there are large and small pieces of fibre and large and small containers, resulting in cross contamination of target materials in addition to the normal non-target contamination received. By removing the cross contamination and some of the non-target contamination, the separation and clean-up of target material will be easier.

Working closely with our clients, our solution to reconfigure co-mingled MRFs is to create two distinct infeed points for each material stream to create a fibre sorting line and a container line. Each line is focused on improving the quality of materials using the correct amount of technology.

At Turmec, we love building new plants but recognise that the investment into new large scale greenfield MRFs is increasingly hard to justify commercially. By adapting and upgrading existing facilities we can extend the lifecycle of co-mingled MRFs and help them remain competitive and profitable in the face of changing market conditions.



## Plant Constructor increases the level of Automation and Overall Efficiency of Sorting Facilities

**With its Automated Bunker Management SUTCO® is sustainably developing the recycling process chain...**

**With its new automated bunker management for waste sorting facilities, Sutco RecyclingTechnik GmbH is taking a further innovative step towards reducing the burden on sorting and processing plant operators.**

In a research and design project supported by the Federal Ministry for Economic Affairs and Energy, the plant construction firm laid the foundations and gathered the training data for conversion to fully automatic bunker management operation in a sorting facility for packaging waste.

These are plants in which the materials supplied (packaging waste of all kinds) such as the plastics PP, PET, HDPE, LDPE alongside paper, Tetra and aluminium, need to be cleanly separated from each other and collected in bunkers at the end of the sorting process. The goal of the project was to increase the overall efficiency of the sorting process up to its final stage, compression of the secondary raw materials produced from the waste into bales.

A sorting plant for packaging has on average over 10 to 20 bunkers for storing the sorted materials. The bunkers fill up at varying rates, depending on the material. For example, sheeting has low density, meaning that the corresponding bunker may have to be emptied up to five times an hour, while the aluminium bunker may only need emptying once a day. Previously, once a bunker was full, the press operator would have to withdraw the contents manually and transfer it via a conveyor belt to the press. In the research project, Sutco developed automated bunker management, determining the perfect time to empty the bunker using fill level measurements. The system only empties the individual bunkers when they contain a volume suitable for one, two or three bales.

During manual operation, the press operator cannot keep an overview at all times of the filling speeds of all the bunkers, empty them at exactly the right moment and also consider the activity status of the corresponding bale press in each case. Not until the introduction of the specially designed software by Sutco, using a mathematical model to process recorded data and measurements by the millisecond, could this complex process be optimised.

One advantage of Sutco bunker management for new plants is the much lower space requirements for the bunkers. The standard buffer reserve capacity of up to 60% of bunker volume is no longer required (e.g. for aluminium).

In existing plants, automatic operation helps to avoid malfunctions in the sorting process, streamline processes before the press through optimal bunker use and automatically guarantee the desired bale quality (shape and density). Further advantages of the production of uniform, equally sized bales include greater efficiency in transport and bale storage, as well as in wire usage.





## Material-dependent self-adjusting programs

The greatest challenge is the flexible design of material-dependent self-adjusting programs. For each material, an automatic comparison of the bale length and bunker fill level is constantly carried out. In this way, Sutco bunker management not only ensures the guaranteed production of desired bale qualities, but also independently optimises its own processes, constantly increasing its precision.

## Bunker prioritisation

To take account of the different fill speeds of bunkers, Sutco developed a prioritisation model in which the processing status of the press is coupled to the fill level of the bunker in question. The program takes account of the different fill levels of the bunkers and, where these are the same, gives priority to the bunker that will fill quickest.

Bunker management can be added to Sutco sorting and processing plants and in existing Sutco RecyclingTechnik facilities. The exclusive system, as a special feature for sorting plants, is optimally adjusted for use with the horizontal balers provided by our sister company unoTech GmbH. The system ensures efficient overall operation by reducing the downtime of bale presses without negatively affecting or reducing the throughput of upstream processes, including where energy use is concerned. By combining it with the UWUK bale recording system by unoTech GmbH, which weighs and labels the bales, plant operators can access all the further logistical advantages resulting from it.

If you are interested in receiving further information, call us or send an E-Mail.  
+49 2202 200501 and/or [info@sutco.de](mailto:info@sutco.de)

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## Turmec's compact Eddy Current takes movable processing to a new level

Turmec's state of the art Mobile Eddy Current Separator is just 3m wide and 3m high, yet it can process 300m<sup>3</sup> per hour of material.

Developed with Turmec's long-standing partner IFE, the design is focused on providing operators with an unmatched combination of flexibility and robust performance from a mobile plant, with the option of jacking legs to give an extra 2m stockpiling height, and still, maintain the machine's compact footprint.

Designed to bolt onto the back of mobile shredders for the wood industry, or for post-processing, the plant separates ferrous and non-ferrous materials.

The mobile package comprises a vibrating feeder with unbalanced motor drive, magnetic rotor, and conveyors for collection of ferrous and non-ferrous materials, with another for discharging residual waste.

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## Use of stainless-steel elevator bolts for magnet belts in concrete recycling



### Challenge:

Application: To supply non-magnetic elevator bolts for magnet conveyors that were removing metal and ferrous tramp materials from crushed recycled concrete.

The customer, Allstate Conveyors manufacture large "Mag Belts" for a number of magnetic separator OEM's in Australia. They were initially utilizing conventional conveyor belting, that was either spliced endless, or joined with belt fasteners, complete with an overlay of 12mm thick 40 durometer soft abrasion resistant rubber.

This is then bolted onto stainless steel pressed wear plates in the centre of the belt (see images). The plates needed to be bolted with non-magnetic fasteners. The recess in the plates protect the heads of the bolts from being worn or broken off during operation.

### Solution:

The 4B solution that was offered was to utilize 304 grade stainless steel fanged bolts, which have a significantly reduced magnetic resistance.

This in turn almost completely eliminated the issues caused by standard mild steel bolts of being drawn to the fixed magnets. Which would cause

excessive wear and reduce effective service life considerably.

### Results:

The higher-grade bolts have provided a performance benefits, that has significantly exceeded previous components service life.

This has in turn also provided operators with costs benefits not only on their equipment but their operational availability.



## Eriez Europe, drumming up profit for the scrap industry

The scrap metal industry has long been a key sub-sector of the UK economy, further emphasised after such a tumultuous year for heavy industries. Eriez Magnetics Europe recognises the environmental and commercial importance of the metals recycling industry and provides custom

solutions to achieve optimum separation of valuable ferrous and non-ferrous metals, whether scrap processors are looking to achieve maximum grade or maximum recovery.

In March 2020, the European Recycling Industries' Confederation urged the EU and member states to acknowledge the 'essential role of the waste management and recycling industry'. This appeal served to remind governments of the financial, environmental and social impact that would follow if the recycling and scrap industry were brought to a halt as part of the fallout from COVID-19.

For scrap processors who handle high volumes and cumbersome material daily, it is vital that the appropriate equipment is selected for arduous applications. The Eriez Scrap Drum is hardwearing and adapted for such testing conditions due to its manganese shell, which can take the impact of potentially damaging product. Additionally, each process line must also consider its aims, for example a recent customer required the highest possible purity of steel (Fe), so Eriez selected a bottom fed configuration drum. The grade of the steel recovered was then able to command the best price and produced choice material for reprocessing.

The value of secondary raw materials (SRM) that are produced during the scrap metal recycling process cannot be underestimated, commodities to both processors and downstream industries. All eco- and profit-conscious scrap plants will incorporate both magnetic and non-ferrous separators, for high levels of separation of all metals. The Eriez Eddy Current Separator (ECS) significantly increases the collection of non-ferrous metals like aluminium and copper and the Eriez Magnetic Drum extracts iron and steel, working in unison to create an optimum scrap process line.

To find a suitable scrap solution, customers can send Eriez Europe samples for testing to determine what grade or recovery could be achieved by Eriez equipment, or alternatively organise an experienced engineer site visit to discuss optimising current processes. Call +44 (0)29 2086 8501 or email [info-europe@eriez.com](mailto:info-europe@eriez.com) for more information.



## Active prevention of fires caused by damaged batteries during alternative fuel production thanks to Lindner's Fire Prevention System (FPS)

**DI (FH) Thomas Huber & DI Stefan Scheiflinger-Ehrenwerth, MSc.**

Lindner-Recyclingtech GmbH, Product Management, Spittal an der Drau, Austria

**Ing. Andreas Säumel**

Mayer Recycling GmbH, Executive Management, St. Michael, Austria

**SUMMARY: One of the most pressing recent issues in the mechanical processing and conversion of waste into solid recovered fuels (SRF) is the high fire risk. This is largely due to a constantly increasing number of lithium batteries in the general waste collection. If damaged, a chemical reaction is often initiated, which leads to incredibly high temperatures. This may cause severe damage to facilities and plants and, in the worst case, start a major fire. To minimise such fire hazards, Lindner's FPS (Fire Prevention System) detects overheated particles in the material stream, cools them to a safe temperature and makes sure that objects that cannot be cooled can be safely removed by hand.**

Whether smartphones, cars or toothbrushes – in today's digitalised, mobile society it's hard to imagine life without batteries. Billions of them are used for countless applications. According to the Austrian Chamber of Commerce's information website 'lithium-info.at' (Austrian Chamber of Commerce, 2019), about 4,700 metric tons of rechargeable batteries are sold annually in the Alpine Republic, 40% of which are lithium batteries. Only about 45% of all batteries are disposed of correctly and, according to the University of Leoben, an estimated 1.4 million of them end up in the general waste collection every year (VOEB, 2019). The University also estimates that this figure will double in the medium term to 2.8 million (VOEB, 2019). Consequently, the risk of fire increases exponentially during mechanical processing, when converting waste into alternative fuels. Due to the technology used, lithium batteries, along with other highly flammable materials such as tar-soaked textile waste, have therefore become one of the most common hazards for serious fires.

### Problems caused by mechanical battery damage

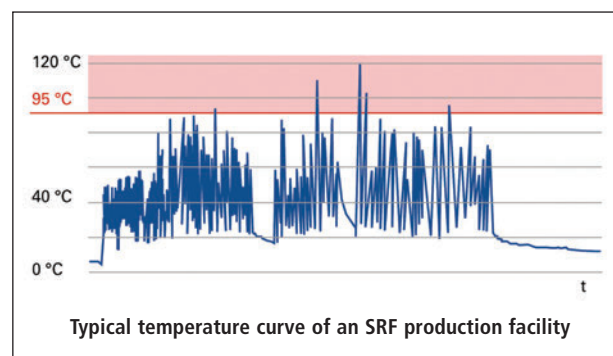
Just like any other energy storage cell, lithium-ion batteries (LIBs) consist of an anode and a cathode, separated by a Li-ion permeable membrane and a non-conductive electrolyte. Energy is released when the ions flow between the two electrodes or is stored in the anode when over-voltage is applied. Compared to other technologies, lithium-ion batteries have one of the highest energy densities thanks to the very high working voltage that can be generated between the anode and cathode. Ultimately, this is the problem when the battery is mechanically damaged and short circuits. If mechanical processing bends or severs the cell this could destroy the separator, producing a short circuit. This causes the voltage between the poles to drop to zero, releasing the stored energy as heat at different points. Even with apparently run-down, used batteries, the remaining energy is so high that temperatures of over 600 °C may occur.

Under certain circumstances this leads to an unstoppable chain reaction: the thermal runaway. The temperature spikes cause neighbouring cells in the battery to overheat and within milliseconds, to release their stored energy. This results in a fire or explosion that is almost impossible to extinguish. In this context it's particularly problematic that the thermal runaway is delayed and cannot take place immediately after the mechanical damage. In SRF production this means a higher risk of fire throughout processing. The worst-case scenario is for the damaged battery to end up in the fuel storage bunker, where it could cause a devastating fire. Even if the battery burns by itself and doesn't cause an explosion, the resulting temperatures are an enormous problem due to the fuel's ignition point of 319 – 460 °C (Lorber, 2010).



Batteries damaged during mechanical processing, when converting waste into SRF, pose an enormous fire hazard

### Lindner's Fire Prevention System (FPS) actively prevents fires







The continuous, process-related monitoring of surface temperature at several relevant points has proven to be highly successful in combatting potential fire hazards and actively improving safety in facilities that produce solid recovered fuels (SRF). Lindner's Fire Prevention System (FPS) therefore sports optical sensors that constantly monitor the temperature on the conveyor belts and trigger a water sprinkling system to cool overheated particles in the material stream automatically. Thanks to the very early detection of these particles, most hazards are identified at the start of a thermal reaction keeping the required amount of water low.

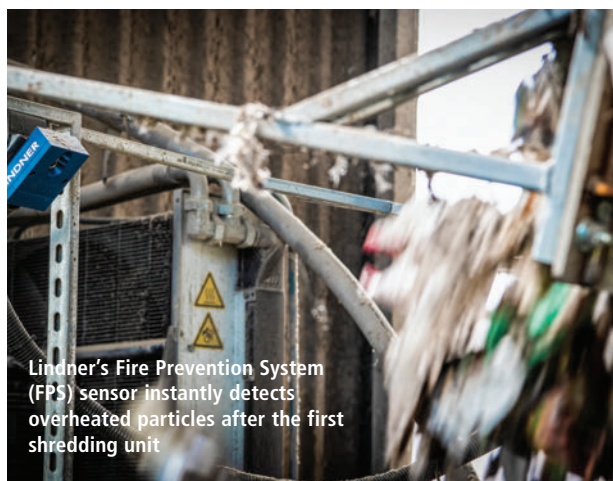
Furthermore each unit has its own control sensor detecting objects that cannot be cooled, such as lithium-ion batteries where the thermal runaway has already been initiated. This triggers an alarm, stopping the conveyor belt under an active cooling nozzle so the hazard can be manually removed. Depending on the application the threshold value can be chosen freely. To counteract even a delayed reaction of the energy cells, it's possible to install as many sensor pairs as needed depending on the size of the facility.

Lindner's FPS is designed as a space-saving plug&go solution to facilitate the integration of the system in existing facilities. Its heated box version also makes it perfect for cold environments.

## Best Practice Example - Mayer Recycling GmbH

One of the first companies to try out this innovative solution was Mayer Recycling GmbH in Upper Styria, Austria. The data collected since mid-2019 clearly demonstrates the benefits of this sophisticated technology. Figure 2 shows the temperature on the conveyor belt during typical SRF production. On average, over 350 overheated particles in the material stream are detected per month. Of these, approximately 10% were still too hot for further processing, triggered the alarm and were manually removed. Of the removed materials, around 70% were batteries that were already undergoing a chemical reaction. The remaining system triggers were coolable materials such as metal particles that got too hot after shredding.

To summarise, the data collected clearly shows that Lindner's FPS substantially reduces the fire risk in SRF production facilities.



## Literature Review

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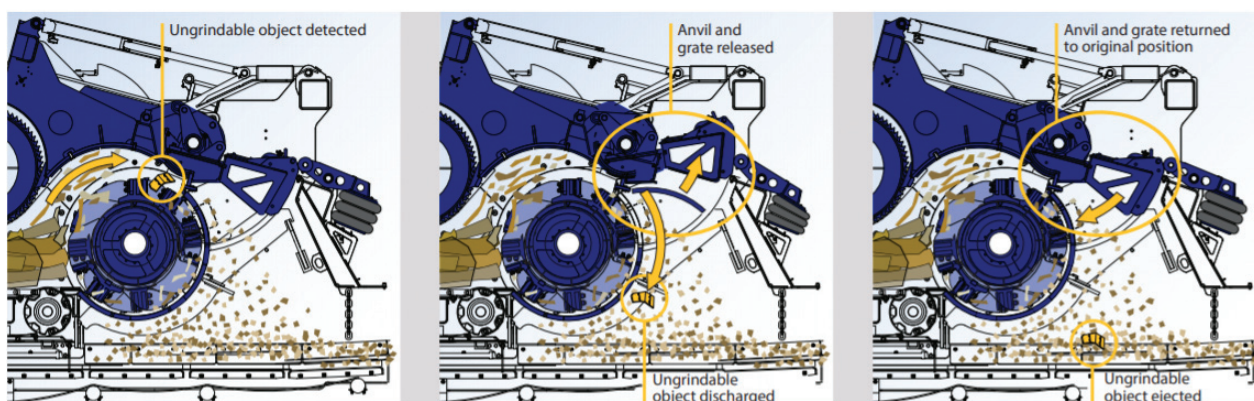
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High Volume wood waste recyclers know that when it comes to creating the highest volume products at the lowest cost per tonne, Peterson Horizontal Grinders offer better fracturing, more accurate product sizing, more throughput, and greater economy in fuel and wear parts than any Horizontal Grinder

on the market. This along with the Patented Impact Release System (IRS) that lets un-grindable objects be ejected through the anvil and top grate. This results in more uptime and less costly damage from heavy contamination in the feed material.



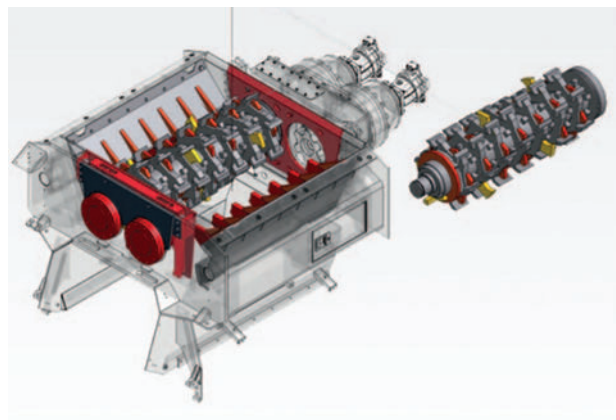




**The renown Hammel Recyclingtechnik GmbH is returning to the UK & Ireland with Neutron Equipment Ltd taking up the dealership. Already known for their strength, power & productivity the machines speak for themselves. Neutron have already carried out an extremely successful demonstration tour with the VB950DK (Red Giant) showing that the Hammel VB950DK is still the strongest most economical machine on the market.**

Our demonstration customers tried to overload the machine, but even with a shovel and a grab the VB950DK kept up.

This demonstration will soon be followed up by a customer visit to the Hammel Factory and then a UK Demonstration Tour with the new VB750DK (FL6) Extra Power; a smaller machine which still has the strength of the Red Giant, but more of a more compact machine.



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# Robust and Versatile Shredding with Terex Ecotec's new TSS 390 Single Shaft Shredder

**Leading environmental equipment specialist, Terex Ecotec, has expanded its shredding range with the introduction of the TSS 390, a robust and versatile single shaft, slow speed shredder. Powered by a fuel efficient 493HP Scania DC13 engine, it is designed for maximum output and minimum down time. Ideal for volume reduction, the TSS 390 can handle the toughest of materials, is simple to operate and offers excellent all-round serviceability.**

Tony Devlin, Business Line Director for Terex Ecotec said, "We are committed to delivering innovative, high quality products and the addition of the TSS 390 will further enhance an already significant range of shredding products. The TSS 390 has been rigorously tested and proven in a diverse range of applications and will open up new opportunities in the market. It will be manufactured in our new state-of-the-art manufacturing facility in Derry, Northern Ireland which will support the ongoing growth and development of Terex Ecotec's ever expanding product portfolio."

The TSS 390's 3m long shredding shaft was expertly designed in-house and is made from heavy-duty steel with easily replaceable, bolt-on shredding teeth. Being hydrostatically driven, it offers the benefit of full speed, full torque reverse and provides protection against contaminants. This combined with customisable shredding programs enable the operator to configure the machine to their specific requirements and offers improved shaft cleaning in difficult applications, reducing wrappage and optimising throughput.

Shredding takes place against a hydraulically adjustable counter comb which allows the operator to easily tailor the

product size to suit their needs. This comb can be operated in either a fixed position, where product size is critical or in release mode when the comb can open rapidly to allow large contaminants to pass without the need to stop shredding.

Designed to provide operators with unrivalled levels of service access the shredding chamber has hydraulically operated doors on both sides allowing chamber maintenance to be carried out with ease. The TSS 390 offers quick set-up and will be ready to shred in a matter of minutes. All conveyors are modular in design allowing each one to be removed independently reducing maintenance downtime. A separate transfer conveyor with a high specification belt ensures material is effectively removed from below the shredding chamber. Both the transfer and product conveyors benefit from a speed monitoring which adds additional protection against blockages.

The optional over-band magnet provides magnetic separation and is both height and angle adjustable via a remote control. The magnet can be configured to discharge from either side of the machine and lifts up and away from the product conveyor when not in use. The chamber camera and monitor screen are an optional extra, however it enables the operator to see exactly what is happening inside the chamber and helps refine the shredding programs to provide maximum throughput in even the most difficult applications.

Available in both tracked and wheeled variants the TSS 390 will come fitted as standard with the industry leading T-Link telematics solution. T-Link has been designed to improve productivity, efficiency and profitability for customers.

To learn more about the new TSS 390 and to locate your nearest dealer visit [www.terex.com/ecotec](http://www.terex.com/ecotec)





# Green Waste Success with the Upgraded HAAS TYRON

**The German designed and manufactured HAAS TYRON has long been considered the most versatile and reliable waste shredder on the market. Following the success of the 1st generation machine, the engineering department at HAAS has given the TYRON an upgrade.**

The TYRON boasts impressive performance across a range of input materials, including green waste. There are many success stories where the TYRON has increased the processing capabilities of our customers, whilst reducing their running costs and downtime.

The HAAS TYRON is a powerful, twin-shaft, slow-speed shredder renowned in the waste and material processing industries for its low running costs and ease of maintenance. It offers a range of tooling configurations, shredding programs, and options to customise the machine to specific materials and operational requirements.

The twin shafts are independently driven, which greatly decreases the occurrence of material wrapping around the shafts and enables the shafts to self-clean. This unique HAAS twin shaft system reduces wear and downtime in comparison to pre-shredders with synchronised shafts.

The Tyron comes with three default shredding programs tailored to wood, organic waste, and general waste. There is a fourth bespoke program that can be tailored to suit an operator's specific material.

The HAAS TYRON comes in three sizes: 1500, 2000 and 2500 with the number denoting the length of the shredding shafts (1500 = 1.5m shafts). The power and throughput capabilities increase as the size of machine increases. You can expect to see throughputs of up to 35tph with the 1500, 60tph with the 2000 and 85tph with the 2500 when working on a typical organic waste material.

Angus Council was one of the first customers to operate a new generation TYRON 2000XL as a dedicated green waste shredder. Angus Council process 30,000 tonnes of green waste each year at their green waste recycling facility in Forfar.

Over 50% of their green waste intake is from kerbside collections, meaning most of the waste being processed is grass cuttings, which can be difficult to shred once it begins to decompose. They are also faced with root balls, which are notoriously difficult to shred. Therefore, Angus Council stipulated that the new shredder must have twin shredding shafts, to combat these challenging materials.

One of Angus Council's main objectives was to reduce the amount of time spent clearing blockages, which was an issue with their previous synchronised shaft shredder. The TYRON benefits from two independently driven shafts, which have an integrated cycle and prevents blockages.







The recently upgraded TYRON also sees the introduction of foldable side panels, which allows for direct ground access to the shredding chamber. Side access mitigates the risk of someone having to enter the shredding chamber for maintenance and hard facing. HAAS have also improved access to the hydraulic and engine compartment of the machine, making it easier and safer to conduct maintenance and servicing.

Aiden Devlin is the Site Green Waste Controller at Angus Council's Forfar green waste recycling facility. Aiden explained that the new HAAS TYRON 2000XL 2.0 was performing excellently:

"Comparing tonnage throughput with our previous shredder, the HAAS is shredding almost three times the amount of green waste in the same time frame, whilst producing a product of equal size and quality".

When asked about his favourite feature, he explained it was, "the option to change each shaft's speed and direction independently from one another, dependent on the material you are processing". The various settings mean the shredder is

working at its optimum. With one touch of a button, the shredder configuration can be changed to cater to the variety of green waste forms seen by the Council.

Following the success of the new machine, Angus Council hired their HAAS TYRON to a neighbouring council to process their own green waste. This work was previously carried out by an external third party who used a high-speed shredder.

The neighbouring council were so impressed with the performance of the HAAS TYRON that an agreement has been made to hire the machine from Angus Council, every 4-6 weeks, to process their own waste. This arrangement was made possible by the higher throughput of the TYRON seen at Angus Council, allowing the machine to be available for the neighbouring council. This saves the council money and increases their operational efficiencies.

Biowise is another customer who have one of the new generation TYRONs shredding their green waste. After winning additional green waste processing contracts, Biowise needed to increase their shredding throughputs as they now process around 75,000 tonnes of green waste at their Crewe site each year.

We spoke with Bob Wilkes, Operational and Development Director at Biowise to discuss their new shredder. When asked why the TYRON was selected over other options, he said: "Reliability and throughput tonnages were two key factors for us. The anti-blocking feature and dealer support also convinced us to go with the HAAS".

With the introduction of the new generation TYRON 2000 into their facility, they have seen throughputs averaging at 60tph, a 20-30% increase compared to their previous shredder.

We asked Bob how the TYRON had improved their operation. "We have been very impressed with the TYRON. We have seen improved throughput of material via the Reception Hall. A better shred of larger items of feedstock, which allows for better composting. As well as a better split of the more valuable compost fraction at the end of the process, as a result of a more consistent shred."



As with all HAAS machinery, the TYRON comes equipped with a telematics system. This system is an online platform where users can see various data sets from the machinery in real time, allowing for remote diagnostics, as well as monitoring efficiencies and performance.

CRJ Services Ltd is the sole distributor of HAAS machinery within the UK and Ireland, offering both the hire and sale of the HAAS TYRON shredder, backed up by our market leading service support and spare parts offering.





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## Fully integrated baler leads to faster loading times at the port for Re-Gen Waste

**A fully integrated baling solution has helped Newry-based Re-Gen Waste reduce their ship loading times by up to 5 hours. The twin ram automatic baler, supplied by CK International, produces larger and more consistent SRF (Solid Recovered Fuel) bales. This results in much faster loading times due to fewer bales stacked in the containers.**

The new baler is installed at Re-Gen's new 300,000 tonnes per year facility which boasts state-of-the-art optical sorting, ballistic separators and a range of eddy currents and steel magnets.

### Faster Loading at the Port

It was important that the new machine could produce consistent bale lengths (within 100mm) to allow the material handlers to lift 2 or 4 bales at a time. Bales with identical lengths are easily stacked, so loading in the ship's hull is faster. CK International developed a bite-sized calculator, programmed into the CKTR121 baler, to ensure the correct amount of material was loaded into the bale chamber. This would guarantee the consistent bale size.

### Customised to Suit

CK International worked closely with the engineering team at Re-Gen Waste to understand their specific requirements within the new MRF. This resulted in several modifications to the baler. CK International were able to guarantee 20T/hr throughput of material through the baler and they even upgraded their current 120T model to a 160T compaction force to guarantee the bale density that Re-Gen required. As SRF material is light and flocculent, the baler was designed with pre-press compaction to ensure as much material, as possible, could be baled. Each bale must weigh 1.2 tonnes.







Not only does the baler fully integrate into the MRF plant, it also integrates with the Crosswrap system. Bales from the twin ram baler to the wrapper are transferred via a moving bale table. It now all fits well and operates efficiently in a confined space.

### Circulation of Clean Air

Installation of the air cooler outside the building has resulted in clean air pumping through the baler. As SRF waste can cause a lot of dust, combined with a duty cycle of up to 20hrs per day, this method greatly reduces the risk of overheating. It ensures that fresh air, rather than dusty air, goes through the cooler. CK International also created a special air conditioning container for the baler control panel to ensure no contamination.

### Remote Management

A key feature of the fully-automatic baler is an integrated data management system. Re-Gen's team are able to remotely monitor the bale production, consistency and are aware of any real-time problems during production. This feature is vitally important when running such a large facility.

To learn more about the automatic balers from CK International, visit [www.ckinternational.co.uk](http://www.ckinternational.co.uk) or call +44 (0) 28 8775 3966



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So, the new KONTI J is much bigger, stronger, and heavier than previously but yet it also incorporates a host of clever new technical advancements and features. As such, the KONTI J is truly the baler where tradition meets technology.

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# Unlocking the value of 'hidden' metals

By Gary Moore, metal recycling specialist, UNTHA UK

**The world of metal recycling is never straightforward, with sometimes the slightest market variable causing significant volatility in global trade. But throw COVID-19 into the mix, and like many industries, scrap became an even more complex place to be.**

When lockdown was first announced, certain countries, such as Italy, brought everything to a halt. Others saw reduced capacity, with only 40% of larger yards remaining operational in France, for example, and smaller to medium sized sites closing their doors. Merchants were restricted by curfew hours in places like Saudi Arabia, while in the UK and USA, the industry was granted critical status, meaning yards could stay open.

It was perhaps unsurprising to see such geographical variances, which added to the difficulties surrounding the movement of materials in the earlier weeks.

There have certainly been periods of slower trade, but there have also been

rallying cries for scrap businesses to get the credit they deserve for being the lifeblood of the resource sector.

Our own – albeit anecdotal – conversations with industry have revealed a number of large MRFs and metal recycling specialists pressing ahead with innovation when it comes to the handling of scrap. Because still, too much metallurgical content remains hidden or locked within redundant products, which continues to limit the amount of material salvaged for smelting. And some niche operators are determined to address this. They're looking to the future.



IT equipment



Shredded mixed alloys





When it comes to composite materials within small and large domestic appliances for example – as well as many other types of WEEE/e-scrap too – the environmental and commercial advantages of liberating valuable metals, is fairly widely acknowledged.

## Effective material liberation strategies

That's not to say the process is straightforward or that recycling rates are always maximised. Many operators rely only on traditional, cumbersome shear equipment to cut metals down, because the perceived high-wear nature of metal shredding is deemed too cost prohibitive.

However, dependence on this basic shear methodology means alternative sorting, grading, separation and size-reduction processes are overlooked, and metal recyclate quality typically remains low as a result.

Machinery such as high-speed hammer mills – which work by smashing material into smaller pieces with repeated impact blows – typically create vast amounts of dust. This dust is useless, costly, and it poses a fire and operator wellbeing risk. This process also struggles to achieve the particle refinement required for downstream separation technologies to effectively do their job.

Mindful of the limited revenue potential associated with these approaches, recyclers elsewhere are investing in more

sophisticated processing lines complete with shredder, overband magnet to extract ferrous metals, eddy current separator (ECS) to separate out any non-ferrous metals, and optical sorter to clean anything the ECS hasn't already refined. The greater the level of quality metals recovered, the higher the revenue potential. The recovery of high-worth Platinum Group Metals (PGMs) and Rare Earth Metals (REMs) could make for a particularly profitable operation.

## 'Undiscovered' metal recycling opportunities

Some operators are already familiar with such 'best practice' metal recycling methodology, and are consequently exploring the market to see 'what's next?' They're right to search for further opportunities, because they do exist in the form of 'wastes' that are notoriously tricky to handle. But with engineering advancements and clever process design, heightened recovery rates are certainly achievable.

Millions of bulky end-of-life mattresses are disposed of per year, in the UK alone, for example – with many of them being dumped illegally. But it is possible to size reduce 200 of these per hour with slow-speed, high torque and economical machinery, so that clean flock can be used for alternative fuels and the metal extracted for smelting. This is an important waste stream to get to grips with, considering the ambitious landfill diversion targets for mattresses.

But this is not the only tricky application where metal recycling potential remains untapped. The global waste industry is sitting up and paying more attention to tyre processing, for instance, given growing demand for Tyre Derived Fuel (TDF). However, a valuable by-product of a savvy tyre handling line, is metals, which would otherwise remain trapped in these bulky, toxic products. That's not all – one of our waste wood shredding clients is generating more than £3000 of revenue per week from the sale of clean metals extracted directly off the magnet belt.

The difference with these latter described applications, is that they are renowned for being difficult and, as such, have long been avoided. But so many people are focusing on processing the 'good' – or easy – material. Only by developing ways to treat dirtier or more complex materials will we be able to establish truly closed loop models that turn more 'waste' products into reusable resources.



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# Shorts Agricultural Services make a 'Quality' purchase of a Rubble Master HS3500M Screener from Red Knight 6 Ltd

**Bracknell based Shorts Agricultural Services, part of the Shorts Group, have recently completed the purchase of a new Rubble Master HS3500M tracked scalping screener from Rubble Master reseller Red Knight 6 Ltd (RK6).**

The independent family run business that also offers plant hire, waste management and demolition services, completed the purchase after a trial period, and the new HS3500M joins the fleet of screeners, crushers and shredders run by the company.

"It's important for us as a business to focus on purchasing quality, robust and very capable machines, no matter what the application. As a group we are very familiar with the expertise of the Rubble Master team, we currently run an RM 70GO! crusher and when we heard RK6 had taken on the screening line in addition to the crushers we were keen to see what they could do," said Matthew Campling, Commercial Director, Shorts Agricultural.

"Rubble Master have brought all of their expertise and knowledge from their crushing machines to the screening range, a demonstration of the machine told us that. The HS3500M is at another level from other screeners we've seen recently, easy to use and manoeuvre, capable of handling bulky materials and limiting our need to directly handle materials," said Matthew.

The HS3500M is part of the scalping screen range from Rubble Master, capable of processing heavy rock as well as bulky construction or demolition material. The HS3500M has several screen decks available, meaning it's a machine that is capable of providing the user with a higher return on their investment.

"We enjoy a great relationship with the whole team at Shorts Group because they trust the partners we work with as being best in class. The feedback on the HS3500M was exactly what we hoped for, based on the excellence Rubble Master bring to the sector. It's the right machine for them and will provide a strong ROI for the agricultural business," said Paul Donnelly, Director at RK6.

## HS3500M By Numbers

Screenbox	2743 x 1220mm
Feed hopper volume	5m <sup>3</sup>
Oversize discharge belt width	1050mm
Oversize discharge belt height	3430mm
Midsized and fines discharge belt width	650mm
Midsized and fines discharge belt height	3145mm
Weight	16000 kgs





# No trouble at mill

***A Liebherr wheeled loader is the critical link at the back end of a timber processing operation feeding the hungry biomass market ....***



**As the UK's reliance on fossil fuels dwindles, wind, solar and nuclear power generation have stepped into the breach. More recently those alternatives have been joined by biomass, the use of organic material to generate energy. Much of the UK-sourced**

**product destined for the smaller power generators is in the form of sawmill residues.**

A&J Scott is one of the UK's largest sawmillers and needs more than 1,000 tonnes of raw material a day to enter its mill at Alnwick in Northumberland. The company supplies sawn softwood timber for a variety of uses, mainly outdoor and garden products, fencing, landscaping, DIY and pallets and packaging. It is also one of the country's leading hardwood merchants, providing logs of all species and qualities.

The latest addition to the materials handling fleet at the Wooperton Sawmill is a new Liebherr L 556 XPower wheeled loader brought in to deal with the increasing amounts of sawmill residue leaving the plant each day. Scott has a long relationship with Liebherr equipment, including pick and carry machines for the incoming side of the business, and its latest acquisition replaces a five-year-old L 550 loader that had given excellent service.



The procurement process involved a number of leading suppliers and while a few showed interest, Scott's Procurement Manager Adana Black believes others were less enthusiastic in competing for a single machine transaction. "We are always looking for the best over-all deal for the company and wanted to try as many manufacturers as we possibly could," said Adana. "Some manufacturers didn't even respond to our request for demonstration machines. We think this was because they were very swift in placing people on furlough as it was at the start of the Covid-19 lockdown period."

Liebherr, however, responded swiftly to deliver an L 556 XPower complete with toe tip bucket which proved to be the perfect specification for AJ Scott.

Unlike the pick and carry machines that handle the large volumes of round timber entering the production line each day, the job of the L 556 XPower is to deal with the residue coming off the multiple lines and manufacturing stations around the mill. Site Manager Robert 'Fritz' Frater has the task of ensuring things go to plan. "We have up to 25 bulkers per day leaving the site with a variety of residue. We need the Liebherr to be able to load the trucks quickly and safely and also to move material from various parts of the mill back to the central loading area as and when required.

"Reliability is key to the operation running successfully. We need to ensure timber goes in at one end, but just as importantly, we need the residues moving quickly so that they don't block up the plant."



The 20-tonne loader is fitted with Liebherr's industrial arm package which, at 2.9m long, allows for a 3.9m load-over height. The industrial linkage is said to give far greater control and performance over a parallel arm or Z-Bar linkage in this type of application. The machine is also equipped with Scott's Viby high-tip bucket that was used on their outgoing machine. With a capacity of 7m<sup>3</sup>, that attachment is well within the capabilities of the newcomer and is joined to the loader via a Liebherr industrial quick coupler.

"We don't use the loader for anything other than handling residue at the moment," Fritz explained. "This may change in the future as the mill is constantly expanding and increasing its capacity. We like to think we have the loader somewhat future-proofed with this set-up."

***'Some manufacturers didn't even respond to our request for demonstration machines'***



The step up to a larger machine has impressed regular operator Chris Scott. "I've been driving for 25 years and the new Liebherr is an excellent machine. It is so comfortable and well laid out, it is a pleasure to operate. The site can be quite congested and tight at some points but the view from the cab, even with the large bucket in front, is excellent."

Carrying around four tonnes at a time, depending on the moisture content, the Viby bucket is much valued and, as it is no longer manufactured, was retained for the incoming machine.

When it comes to loading bark and sawdust into a number of vehicles around the plant Chris's experience is evident, negotiating the machine into the bays to quickly load 27 tonnes of material on to a waiting truck. It takes just six or seven passes to fill a bulker to capacity and Chris will repeat the procedure up to 25 times a day.

Whilst fuel efficiency ranks below reliability on Scott's list of plant requirements, the L 556 XPower has been impressively frugal during its bedding-in period on site and that's attributed to the steady operating style of experienced driver Chris and the XPower transmission. "It's a very smooth machine to operate," said Chris. "The way it just wants to push into a pile of material with no wheelspin is excellent. We do a lot of shuttle runs from various parts of the plant with material and the way the loader handles the load and carry work is exceptionally good."



The arrival of the L 556 XPower has contributed to the fast and efficient removal of residue from the plant, accompanied by an increase in performance compared to the older machine. And although there is no increase in bucket size, Chris and Fritz are very happy with the early performance and productivity of their new loader.



## Spec Check:

Power is from a Liebherr 6-cylinder diesel delivering 228 hp and meeting Stage IV emissions regulations through an updated SCR system. Access to the engine compartment is simple thanks to an electrically operated engine canopy that opens fully to provide safe access around the whole engine bay.

Working in a dusty environment causes issues for the air management system on any machine and Liebherr's solution is to position the radiators in front of the engine and high up behind the cab. This reduces build-up of dust particles that cannot only affect the machine's performance but, in extreme circumstances, can result in fires. If that unlikely scenario were to develop, it would be dealt with by the Fireward suppression system incorporated into the machine.



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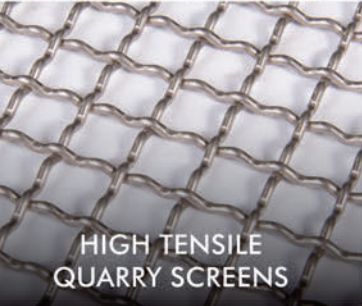
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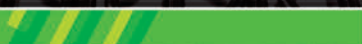
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# Technology and practice key to optimising concrete with recycled materials

**Strength and quality are attributes measurable on a scale. High quality and low, strong and weak. So too are the quality and structural integrity of recycled sand and aggregates, writes Eunan Kelly, Head of Reco at CDE, the company's construction, demolition and excavation (CD&E) waste recycling focused sector.**

When supported with the appropriate processing practices and technology, sand and stone resources recovered from CD&E activities are suitable for high-value construction and infrastructure projects.

UK Statistics on Waste, published by the Department for Environment, Food & Rural Affairs, estimates the UK generated 221 million tonnes of total waste in 2016, with CD&E activities accounting for over three fifths (62%) of that total.

The industry is the single largest contributor to waste generation in the UK by some margin, accounting for more than five times that of household waste which is 12% of total waste generated. These waste resources can be recovered to a high specification and returned to the construction sector to further the UK's circular economy.

In the materials processing industry, we're having to speak out in defence of recycled sand and aggregates and lobby for attitudinal change to encourage greater acceptance and adoption of recycled materials.

We're often told it's not possible to produce structurally sound concrete from recycled sand and aggregates or it's unfeasible to replicate the water-to-cement ratio with recycled products to produce a durable concrete. Some people have even suggested that concrete produced from recycled aggregates has more embodied carbon than concrete produced from natural materials. These are arguments our industry is faced with regularly, and misconceptions that we at CDE move to challenge. >







Stockpiled material



Stockpiled material



Raw material



Material falling from conveyor

Today, research is on-going to identify alternatives to sand and aggregates in concrete production. Some of the research centres around the use of woods, shredded up vehicle components and other unnatural concrete constituents. Such research seemingly disregards our largest waste stream, CD&E, and fails to recognise the fact that much of the material in this stream originates from the natural constituents of concrete and therefore lending itself perfectly to producing concrete.

Though a huge social issue, the volume of plastic waste does not represent anywhere near the same as that of CD&E waste. Unlike plastic waste, a product that has been heavily processed for its original use, sand and stone recovered from CD&E waste shares the same or similar geological make-up to that of virgin materials.

## The Logical Answer

To combat depleting natural sand and aggregate resources we should better utilise the abundant incoming CD&E waste stream.

In its appraisal, concrete produced from recycled sand and aggregates is unfairly pitted against higher-strength concrete produced using virgin aggregate, such as granite or basalt, and natural sand. It is fair to say that not all granite or sandstone deposits display the same strength characteristics and therefore selective end-use logic is applied.

The same is true for sand and aggregates recovered from CD&E waste. Given the variability of rock geologies and other man-made aggregates, such as brick and bound concrete, we must also apply the same end-use logic.

This should not, however, undermine the potential of concrete produced from recycled materials. It is a case of identifying the strength of concrete that can be produced from recycled sand and aggregates and then pinpointing suitable applications for the product. It should also be pointed out that current wet processing technologies deployed by CDE around the world can produce washed sand and aggregates that when used in the production of similar strength concrete are comparable in cement consumption.

Low strength granite or gritstone would not be used to construct a multi-storey building, but we can identify suitable concrete strength applications for their use. Similarly, with CD&E material, we may never use it to construct that same multi-storey building, but there are still many applications for which it is suitable. For example, Thompson Recycling, based in Scotland, produces a wide range of products for the construction sector using C&D waste. With the support of CDE technology the company is able to replicate the grading of local virgin sand deposits to provide the local construction market with a viable and creditable alternative to natural resources. Such is the quality of the recycled sand and aggregates it extracts from C&D waste, its 100% recycled sand is BSI-approved for structural concrete.

Current concrete strength specifications allow for recycled aggregates to be used in the appropriate proportions to produce the required strength. It's probably fair to say that the majority of concrete produced is C40 or below. Approximately 75% of all concrete used globally is non-structural which





begs the question, why are we using structural grade aggregates to produce non-structural concrete? Surely we would use the appropriate material provided it gives us the appropriate outcome. In so many cases globally CDE customers are producing competitive concrete for these non-structural – but still high value – construction projects, with some applications successfully achieving beyond C45.

Determining whether a recycled concrete product is fit for purpose or not is dependent on how it is processed and its intended use.

Indeed, the Sheehan Group, one of the UK's leading regional construction groups, has diverted over 750,000 tonnes of inert waste from landfill over the past seven years. It creates 20,000 building blocks a day from 100% recycled aggregates which follows a CE-certified process. Improved and advanced technology now sees the cement consumption reduced by 10% and Sheehan Group is still achieving the same high-quality specification and end product.

The group's success shows that with the appropriate practices and the backing of the latest wet processing technology, high quality in-spec sand and aggregate products can be extracted from CD&E waste and returned to support new construction and infrastructure both consistently and competitively.

It is important to acknowledge, however, that poor processing practices impact uptake and acceptance in the usability of recycled materials. This is due to antiquated or less efficient technologies that fail to effectively remove contaminants, such as wood and plastic, from feedstock. The presence of these contaminants impacts upon the strength and structure of concrete.

## Meeting growing demand

Soaring urbanisation presents a global challenge to meet the demands of the construction industry, and recycled materials are an effective solution when supported with the most appropriate technologies and practices.

It was anticipated that by 2050, over two-thirds of the world's population (68%) would be living in urban settings, according to data from the United Nations, rising from around 55% of the population today. Combined with projections population growth, trends in urbanisation could add up to 2.5 billion to urban settings over the next 30 years. It remains to be seen how the pandemic will impact population growth, but it will undoubtedly weigh on future planning considerations for construction and infrastructure as a means to mitigate against the threat of disruption caused by future pandemics.

Economies have been hit hard by the crisis and as history has shown governments tend to respond by investing in infrastructure to kickstart the economy or in construction to reshore manufacturing facilities, which we're already seeing UK and USA. This is where CDE technology will add value by maximising the quality, quantity and value of waste resources.

Currently an estimated 40-50 billion metric tonnes of primary aggregates – crushed rock, sand and gravel – is extracted every year, and GAIN, the Global Aggregates Information Network, in its global outlook to 2030, estimates aggregates production will rise to 60 billion tonnes per year over the next decade to support growth in urban populations.

CDE customer Velde Pukk AS plays a significant role in meeting the material demands in Stavanger, Norway, in the face of a construction boom. Utilising high-quality recycled aggregates and its on-site concrete batching plant, Velde Pukk AS supplies the construction industry with a CE-certified concrete from 100% recycled sand and aggregates. Likewise, AF Gruppen, also based in Norway, produces high-quality washed sands and aggregates which have also Norwegian standard certification.

## Certified

It would be wrong to assume recycled sand and aggregates are only selected as alternatives to finite virgin materials in low strength and low value applications. Our process improves the quality of recycled sand and aggregates by removing foreign contaminants and classifying the output, resulting in higher-spec recycled products that can be used to produce concrete products.

Like so many of CDE's pioneering customers leading the charge for a circular economy, and who have demonstrated the potential in CD&E waste by achieving certification for their recycled products, we need to recognise the strength and integrity of using recycled materials.

The recycling sector will continue to grow and it will gradually become more competitive. CDE is working with its customers to stay ahead of that curve and to adopt efficient and sustainable technologies that are future-ready. Those customers who have integrated wet processing technology into their plant are reaping the commercial advantages of superior end products and are facilitating sustainable construction by recovering high quality recycled materials.

For more information about CDE wet processing solutions, visit [CDEGlobal.com](http://CDEGlobal.com)





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## Canning supply, install and commission 300tph sand and aggregate plant with four field conveyors, a stockpile conveyor and remote mobile track mounted hopper feeder

**Canning Conveyor recently completed a project for full design, supply, installation & commissioning which included four 750mm conveyors, a 74m stockpiling conveyor and a remote mobile track mounted hopper feeder, all now fully operational at a UK Quarry.**



Four standard Canning type field conveyors all with 750mm belts, 150m, 250m, 1100m and 320m long included jib heads, loop take-up, grading sections and heavy-duty tail end loading sections which incorporated impact idlers under the feed areas. Intermediate bays incorporated the Canning Polymer Suspended Idler Sets which have steel safety handles and polymer return rollers. Emergency stop pull wires were fitted centrally down each conveyor with Cannoflex Conveyor Belts EP500/3 which were all site vulcanised onto the conveyors following installation.

The 1100mm long field conveyor included a 90kw double drum drive as standard. A single roll belt weigher was fitted on the 320m long conveyor.



The field conveyors fed onto a 750mm x 74m long surge stockpile conveyor, incorporating a 43m long lattice frame section with walkway access both sides which was inclined 15 degrees to give a 20m high stockpile.

A primary polycarbonate self-adjusting belt scraper and secondary tungsten tipped belt scraper and curved corrugated plastisol coated

steel belt covers with hinged inspection hatches were also included.

Canning designed a 15-tonne capacity mobile track mounted hopper feeder, to feed the material from remote dig locations onto the field conveyors. This unit included a hydraulically driven belt feeder and track with a fixed displacement hydraulic motor with motion control and brake release valves driven by an on-board 90HP diesel engine drive.

A track group with 300mm triple bartrack shoes, lower rollers, front idler groups, sprockets and anti-track jump record and tensioner device were included within the specification. The 750mm belt feeder included 127mm diameter supported troughing idler sets, rubber covered impact type under loading area.

The equipment has been successfully commissioned and is fully operational with the client expressing their pleasure with the overall performance of the conveyors which are now handling the designed 300tph to full satisfaction. The client also gave feedback on the performance of the belt scrapers keeping the belts clean with a difficult material type.





## Improving jaw crusher safety WEG products used to create innovative jaw crusher unblock system

**According to the Health and Safety Executive's guidance for the safe operation and use of mobile jaw crushers, equipment operators may be subject to multiple risks including exposure to dust, noise, whole body vibration and being struck by objects ejected from the crusher. Here's how, WEG's premier distributor Technidrive, developed an energy efficient automatic jaw crusher unblock system using entirely WEG products.**

Commonly used in the quarrying, mining, recycling of demolition waste and chemical industries, jaw crushers are a reasonably difficult application for systems integrators, due to the large inertia of the fly wheel, cyclic loading and differences in materials that customers feed them with.

This didn't prove to be a problem for Technidrive, who were initially approached by a customer looking to implement a new motor in their jaw crusher machine. With over 20 years' experience in industrial drives, Technidrive used its expertise to meet the demands of the project and exceed the initial requirements. Using a combination of quality WEG products, Technidrive was not only able to improve the efficiency and reliability of the motor, but the efficiency and safety of the entire jaw crusher system. WEG was asked to supply the motor, control and alternator for the project due to the quality, versatility and energy efficiency of its product line and its technical expertise.

Crushing is an important process in turning rock into a useable product. Rock enters the jaw crusher from the top of the machine and gets compressed between two surfaces — the fixed and moveable jaw. The rock will continue to be crushed until it is small enough to fall through the opening. Ensuring that the size of raw material is appropriately matched to the jaw opening, can alleviate blockage incidents. This can be achieved by removing oversize product prior to processing and careful control of the crusher feeder, however blockages do still occur. To unblock a crusher a plant must be shut down and the system must first be isolated, but despite these precautions a crusher can still be a serious risk to personnel, due to the amount of kinetic energy that is released during unblocking.

Technidrive wanted to develop a system that was highly energy efficient and crucially, eliminated operators from the dangerous job of manually removing blocked material from jaw crusher machines.

Technidrive commenced this project by carrying out power torque and speed calculations to decide upon a suitable selection of WEG electric motor and gear units. The electric motor was selected based on the power and speed and further mechanical calculations were carried out to ensure the motor shaft could cater for the high radial loads the application can impose. The WEG W22 motor was eventually selected for its superior cast iron frame, inverter rated windings and insulated non drive end flange.

The next vital part of the system is the control of the motor, which can incorporate a soft start or variable speed drive (VSD) to control the motor starting speed or torque, for example. The VSD model selected was a CFW11 WEG inverter with built in soft programmable logic control (PLC) functions. There were several advantages to this selection, including the standard DC bus chokes to reduce harmonics. The inverter was selected with an output sinusoidal filter to create a nice sine



wave, reduce output current and importantly reduce electrical noise.

Electrical disturbances however aren't the only consideration, crusher blockages can be a real problem for operators, resulting in periods of prolonged downtime. One of the main advantages of this project was the level of control that was achieved through an innovative piece of software, which Technidrive developed.

On a normal start from empty, the VSD ramps the crusher up on a slow ramp time, restricting the absorbed current due to the high inertia of the application. This not only keeps the power supply requirements low, for a more efficient system, but also reduces the stress on the mechanical system. Over time this can lead to significant maintenance cost savings and extend the life of the machine. It's estimated that a 10°C reduction in operating temperature typically doubles the motor's lifetime.

The innovative software allowed for a special start up function when starting the jaw crusher from full. In the event that the crusher is stopped full, the VSD is able to be remotely activated in an unblock mode, with a very fast ramp time in forward or reverse depending on the position of the crusher. It will continue to automatically control the direction, current,

ramp times, DC bus voltage, torque, position, and speed until the product in the chamber has been cleared and the crusher has run empty for a set period of time. This innovative system removes the dangerous and laborious job operators have had to do for years, by manually unblocking jaw crushers using rock breakers or winches to remove product.





Another very important part of the system was the alternator, which is vital to achieving an efficient and reliable system. According to the International Energy Agency (IEA), 16 per cent of motor failures are due to external conditions, such as contamination, so ensuring application suitability was essential. The alternator selected was from the WEG G-line range with some special features such as a dust filtering system, to allow it to operate in a dusty quarry atmosphere, without the risk of foreign particles entering the system. The alternator also included a digital input AVR to allow remote voltage adjustment, standard I-PMG auxiliary winding system feature to allow a dynamic response to load change and short envelope compared to traditional external PMG alternators.

"The complete drive system was expertly selected to work in harmony to address many issues manufacturers in the industry come across," explained David Strain, technical director at Technidrive. "The added unblocking feature transforms the starting of the application, an often energy intensive process and provides a unique benefit for system safety. With the

system supplied, we are able to provide a three-year warranty for the motor and inverter and ensure the three main parts to the drive system all work together for optimum performance and reliability. Since our first jaw crusher project, we have had much interest from other businesses in the quarrying industry. We treat each project on an individual basis, to offer bespoke turnkey systems."

"WEG offers specialist products that are developed specifically for the rock crushing industry," explained Russell Maccabe UK Sales Manager at WEG. "It's vital that manufacturers and suppliers both have extensive product, application and systems integration knowledge and that's why this project with Technidrive proved to be so successful."

If you're looking to increase the efficiency of your processes, contact WEG for quality components, expert product knowledge and application expertise: [info-uk@weg.net](mailto:info-uk@weg.net).

For further information about Technidrive's range of products and services visit [www.technidrive.co.uk](http://www.technidrive.co.uk)



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## Automated Monitoring and Reporting System for Conveyor Belt Cleaners

**In a move to continue its leadership in the development and implementation of advanced technologies for conveyors and other bulk material handling applications, Martin Engineering has announced a belt cleaner position indicator that monitors the blade, tracking and reporting remaining service life. The intuitive Martin N2® Position Indicator (PI) monitors primary belt cleaner blades, notifying Martin service technicians and plant operations personnel when re-tensioning or replacement is required and/or when abnormal conditions occur. The PI can be part of a new installation or directly retrofitted to existing mainframes that use the company's replacement blades. Managers and service technicians can quickly access info on any networked cleaner via cell phone.**

With approximately 1000 operating systems currently in service and installations continuing daily, the technology has been embraced by bulk material handlers in a wide range of industries and applications. Designed in-house by the engineering team at Martin's Center for Innovation (CFI), the N2 Position Indicator is produced solely in company-owned facilities to ensure the highest standards for quality control. In fact, the firm also engineered and built the proprietary equipment used to manufacture the new devices.



The N2 PI notifies service personnel when a cleaner requires re-tensioning or replacement.

Martin offers the equipment, monitoring service and batteries free of charge to qualifying customers. The company will also support the PI components and provide customer alerts without cost as needed, with mainframes and tensioners replaced free for users of Martin belt cleaner blades.

"There are no annual maintenance fees, and no add-on charges for cell phone access," confirmed Martin Engineering Global Marketing Director Brad Pronschinske. "Most customers using our cleaner blades can take advantage of this technology."

Position indicators can be mounted anywhere from 3-800 meters (10-2,625 feet) from the cellular gateway, and the robust, sealed construction means it is virtually immune from damage. Up to 50 units can be monitored by a single gateway connecting to the Internet, usually located at the highest point in the plant, where the cell signal is strongest. The system does not require a cellular line for each PI, instead communicating via radio frequency from each sensor to the gateway.

Operating independently of any plant communications infrastructure, the small physical size and low power requirements deliver a projected battery life of two years. The self-contained model was developed by Martin in order to minimize the dependency on in-plant resources. Only the gateway requires a constant 110V power point.

The device eliminates the need for manual inspections by giving technicians precise information, delivering critical real-time intelligence and reducing exposure to moving conveyors, improving both efficiency and safety. Maintenance planning is simplified by having detailed information available on demand, allowing service personnel to deliver and install replacement wear parts during scheduled outages.

The result is an improved return on belt cleaner investments. Replacement parts can be scheduled for just-in-time delivery, and installation can occur during planned downtime instead of emergency stoppages. "By monitoring the rotation of the belt cleaner mainframe, the N2 Position Indicator helps managers plan tensioner adjustments and blade replacements during scheduled outages," Pronschinske added.

Employees and service technicians can quickly access info on any networked cleaner via cell phone.

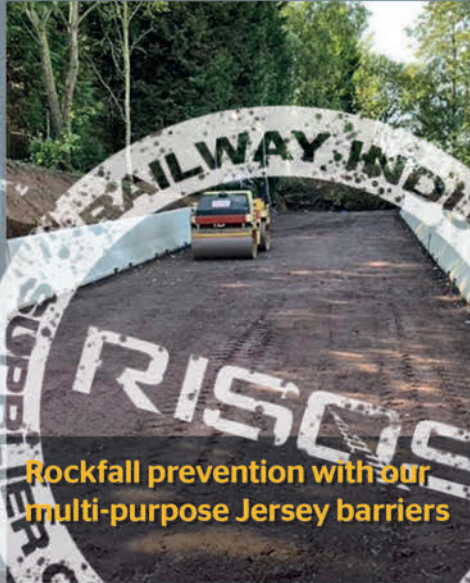




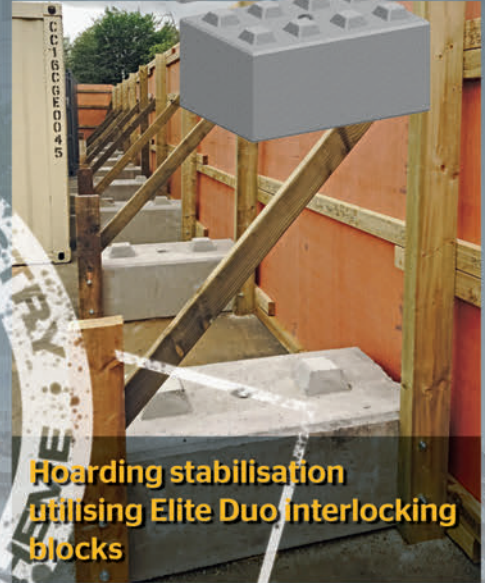
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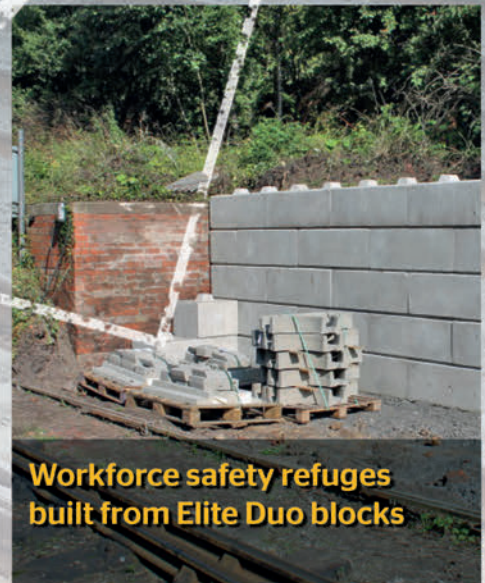
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Onsite installation of the Samson Material Feeder

# Comprehensive protection of the environment with Samson® Material Feeders from AUMUND: emissions-free conveying of alternative fuels in power plants in Asia

**Japan/Thailand: To reduce climate-damaging CO<sub>2</sub> pollution by fossil fuels, energy intensive industries such as power plants are starting to use more and more alternative fuels. AUMUND offers conveying solutions for handling and conveying alternative fuels all over the world. AUMUND Asia in Hong Kong is supplying specially designed Samson® Material Feeders to customers in Thailand and Japan. The machines are equipped with filters and enclosures so that the intake and onward feeding of fuels can be carried out cleanly.**

Thailand: One of AUMUND's biggest Thai customers operates a plant in Saraburi, just north of Bangkok, where industrial and household waste is pre-treated and made into highly calorific alternative fuel. This lightweight material is tipped by

trucks directly onto two Samson® Material Feeders type 800, with a capacity of 80 tph each, to be conveyed onward to the thermal process. The Samson® Material Feeders guarantee not only efficiency but also a clean intake of the waste discharged by the trucks. This method avoids the trucks having to drive to the plant, reducing exhaust emissions.

Japan: An AUMUND customer in Japan has also decided to purchase two Samson® Material Feeders type 800. These each have a capacity of up to 70 tph and will operate in a new biomass power plant in a port, where they will receive wood pellets and palm nut shells from front end loaders. The dust which would otherwise have been released into the environment by unloading and transporting the biomass from the storage hall to the boiler will be avoided, thanks to the filter and enclosure on the Samson® Material Feeder.



# CASE releases SiteWatch Telematics Platform with new design, new dashboard, and simple navigation

**CASE Construction Equipment launches the next generation of its SiteWatch telematics platform with an all-new dashboard, more intuitive navigation and new overview sections that spotlight critical information without requiring the user to search extensively for the data.**

CASE SiteWatch is an option available to order from the factory for all CASE equipment. For the aftermarket SiteWatch is available as retrofit with a subscription plan of 1 to 5 years.

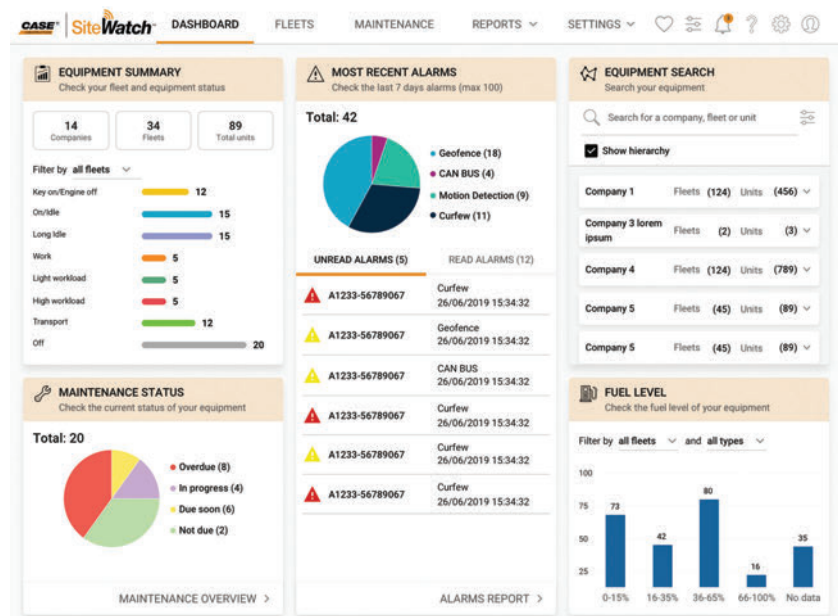
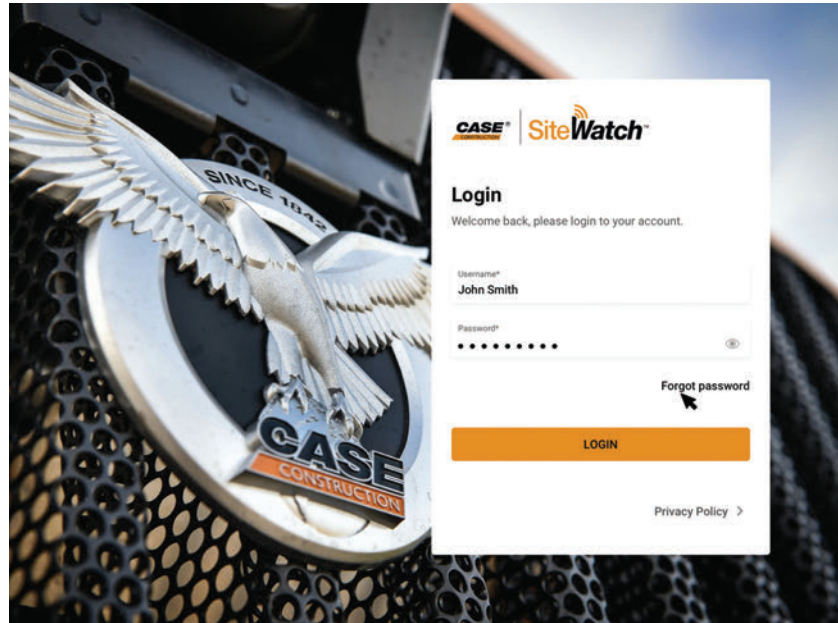
SiteWatch complies with the Association of Equipment Management Professionals (AEMP) 2.0 telematics standard, ensuring that the solution is compatible with mixed fleets.

"The new CASE SiteWatch telematics platform presents users with a high level of critical data on a very clear and intuitive dashboard, whether you're at your desk or on your tablet in the field," says Marnix Korpershoek, Construction Equipment Digital Precision Solutions and Telematics Sales & Support Manager Europe, CNH Industrial.

The new dashboard features an easy-to-read horizontal menu at the top of the screen above five widgets that focus on core operating information such as an equipment summary, equipment search, fuel level reports and alarm status. An easy dropdown menu makes main reports and fleet and maintenance overviews just a click away. Alerts for geofence, curfew and fault codes are also immediately visible in the dashboard.

SiteWatch telematics help fleets of all sizes work more efficiently in many ways, including:

- Simplified fleet management: Always know where each machine is, what its working status is and if maintenance or service is required.
- Understanding equipment utilization: Knowing when and how equipment is being used can improve profitability/total cost of ownership for the equipment you already own, and help you make smarter equipment buying/renting decisions.
- Analysing workload and productivity: Telematics give fleet managers and business owners excellent perspective into how equipment is operating, and whether they are getting the most out of their equipment and crew on each project.
- Real-time alerts/alarms: Time for an oil change? Engine temps running outside of the preferred operating range? Fleet managers and business owners receive alerts in real time to make them aware of machine conditions that require attention.



- Partner with dealer on preventive maintenance: You can grant your local CASE dealer access to your telematics data to more proactively partner with you on preventive and planned maintenance.
- Equipment security: Telematics helps locate stolen equipment — which, if recovered and returned by the authorities, is much less expensive than the resulting downtime and replacement costs.

These are just a few ways that the new SiteWatch telematics platform from CASE helps improve your equipment operations.

Contact your local CASE dealer for more details or visit [CaseCE.com/emea/en-eu/solutions/SiteWatch/SiteWatch](http://CaseCE.com/emea/en-eu/solutions/SiteWatch/SiteWatch) for more information.



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# Collins Earthworks takes delivery of UK's first EC950F

**Derbyshire-based Collins Earthworks has taken delivery from SMT GB of the UK's first Volvo EC950F - the largest excavator currently offered in the Volvo Construction Equipment range.**

In mass excavation trim, this heavyweight muck-shifter tips the scales at an impressive 104 tonnes. It has already gone to work at the Mercia Park project by J11 of the M42 in Leicestershire, along with a fleet of nine 60-tonne capacity A60H articulated dump trucks.



This 238-acre development site comprises one million cubes of cut and fill, with a 300,000 tonne top-soil strip in a project scheduled to last 27 weeks.

"The EC950F has been on our radar for some time," explains Collins Earthworks Contracts Manager Wayne Naylor. "We've enjoyed great productivity with our fleet of EC750's on previous projects, but the EC950 has now raised our performance another notch – or maybe two."

In productivity terms, the introduction of the EC950F, alongside three EC750's and two EC700's, at Mercia Park has already enabled the Collins Earthworks team to hit a weekly target of 100,000 cubes of material moved by week two of the project.

Even more impressive is the ability to do this with just 16 ADT's – one third fewer trucks than previously used during the East Midlands Gateway (EMG) project. The Mercia Park project is using nine A60H's, four A40s and three A30's.

"This means fewer operators, fewer pieces of equipment and more material moved," adds Wayne. "The efficiency gain is impressive, and we're now looking to bring the earthmoving project to a close in fewer than 27 weeks. It's unlikely this will be our last EC950."

Wayne goes on to explain that such a boost in productivity at this latest Collins Earthworks job is all about better matching of larger equipment. "The EC950F's 6.75 cubic metre bucket lets us fill an A60H in just four passes," explains Wayne. "When we were loading A60H's at EMG with an EC750, it took five to six passes to move the same amount of material. And the EC950's four passes are taking place in 45-50 seconds, generating consistent payloads of 60-62 tonnes."

For the statistically minded, the EC950F packs a 612hp punch from its EU Stage V-complaint Volvo D16 engine, which powers three hydraulic pumps. The EC950's main hydraulic control valve is 50% bigger than that used on the 75-tonne EC750.





For Collins' muck-shifting requirements, the EC950F is equipped with a 7.25m boom with boom float, and a 2.95m ME arm. The mass-excavation configuration also means a bigger bucket cylinder to generate more breakout – typically 43 tonnes-force of bucket tearout. The 6.75 cubic metre bucket gets floating pins that are sealed for life, while an auto-lube system takes care of the machine's main points.

Keeping the front-end of the EC950 in balance is a 14.5 tonne, hydraulically removable counterweight. This simplifies machine movements too, as Collins Earthworks has built a cradle for one of its low-loader trailers, allowing the excavator to reverse up to the truck, and lower the weight directly into its transport cradle.

The machine's undercarriage is adjustable too, from a 3.55m working width to a 2.79m transport width. These features will reduce a lot of the associated set-up cost when the EC950F is moved from site-to-site.

Decked out with Collins' distinctive blue sign-writing, plus blue cab roof and bucket pin caps, the EC950F also features a striking new design of high-vis blue and white decal across the rear of its counterweight.

Additional specification of the flagship machine includes a heated and cooled air-suspension seat, and Volvo's Smart View camera system, providing a 360-degree view around the machine. Both are elements that EC950F's Operator Mark Oakley appreciates.

"Having spent thousands of hours on an EC750, I can't believe the speed and power of the EC950F," says Mark Oakley. "The 750 was a good muck-shifter, but this is on another level."



"I didn't expect such a big, heavy machine to feel this agile and this nimble," adds Mark. "The overall machine balance is impressive, and it is so stable that I believe it could comfortably handle a bigger bucket on this material."



SMT GB markets Volvo Construction Equipment products, together with K-Tec articulated hauler scraper boxes, in Great Britain. There are eight strategically placed Customer Support Centres, a dedicated National Used Equipment Centre and a network of utility equipment dealers, to ensure high quality customer support is maintained throughout the country.





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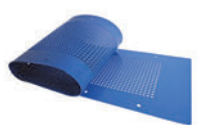


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